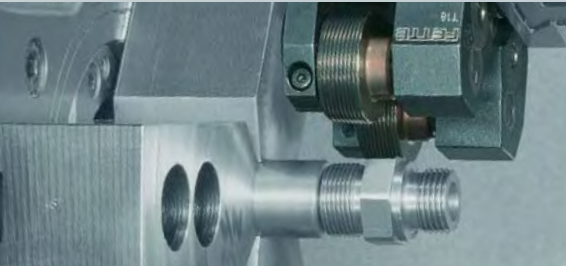


# FETTE

## Rollsysteme Rolling Systems



Leitz Metalworking Technology Group  
**BELIN • BILZ • BOEHLERIT •**  
**FETTE • KIENINGER • ONSRUD**



# Fette-Rollsysteme – schnell, sicher, wirtschaftlich

## Fette Rolling Systems – fast, reliable, economical

### Das größte Programm, die größte technische Perfektion

Die Fette-Rollsysteme stehen anwendungstechnisch in vorderster Linie und haben sich zigtausendfach in aller Welt bewährt.

Kein anderer Hersteller bietet Ihnen ein derart umfangreiches Programm: Kaum ein Arbeitsfall, bei dem wir Ihnen nicht helfen können.

Seit 1952 hat Fette den technologischen Fortschritt immer weiter forciert und seine Spitzenposition stetig ausgebaut. Unsere Programmbreite, Produktqualität und Serviceleistung haben uns zur „Nr. 1“ auf diesem Gebiet gemacht.

Wir bieten Ihnen nicht nur das größte Rollprogramm auf dem Markt, sondern stehen Ihnen mit unserer ganzen fachlichen Kompetenz zur Verfügung. Denn jeder Einsatzfall hat seine eigenen Bedingungen und wird von unseren Fachberatern individuell betreut. Wenn es in Ihrer Fertigung zum Beispiel um exotische Werkstoffe geht, wenn besondere Profillformen verlangt werden, oder die Form der Rollen speziell auf das Fließverhalten des Werkstoffes abgestimmt werden muss – immer bietet Fette Ihnen eine sichere und wirtschaftliche Lösung.

### Zertifiziertes Qualitätssicherungssystem

Fette betreibt ein wirkungsvolles Qualitätssicherungssystem, das die Anforderungen der DIN ISO 9001 bzw. EN 29001 erfüllt. Im Frühjahr 1993 erhielt Fette dafür das TÜV-Cert-Zertifikat. Der damit erreichte umfassende hohe Qualitätsstandard kommt für unsere Kunden auf ganzer Linie vorteilhaft zum Tragen.

### Theorie und Praxis des Gewinderollens

In unserem Technologiezentrum für Werkzeuge in Schwarzenbek demonstrieren wir Ihnen die aktuelle Rolltechnik auf einer modernen CNC-Drehmaschine. Außerdem bieten wir Seminare für die Vermittlung der theoretischen und praktischen Kenntnisse über die spanlose Fertigung von Außengewinden und -profilen.

### Beratung

Bei allen fachlichen oder organisatorischen Fragen wenden Sie sich bitte an unsere Fachberater bzw. an die für Sie zuständige Verkaufsabteilung oder unsere Vertretung in Ihrer Nähe. Wir beraten Sie gern und freuen uns auf Ihren Anruf!

Service-Hotline +49(0)4151-12931

### Schnell-Lieferservice für Gewinderollen

Beachten Sie bitte das Bestellformular für Gewinderollen auf Seite 461. Wir helfen Ihnen, Ihre Bestellung einfach und ohne Missverständnisse zu übermitteln. Bitte einfach kopieren, ausfüllen und per Fax oder Brief absenden!

### Rollkopfverleih

- Sie wollen kleine Losgrößen kostengünstig, superschnell in hervorragender Qualität fertigen ...
- Sie wollen „es“ einfach mal probieren ...
- Sie wollen sich ganz einfach nicht festlegen ...
- Sie wollen Ihr Budget nicht angreifen ...

Wir leihen Ihnen den Rollkopf!

Fragen Sie nach unserem Programm!

Rufen Sie die LMT Deutschland GmbH an Tel. +49(0)7364-9579-0

### Rollkopf Leasing

- Sie wollen keine Zinsen zahlen ...
- Sie wollen finanziell flexibel bleiben ...
- Sie wollen Ihr Budget nicht aufbrauchen ...
- Sie wollen schnell abschreiben ...

Wir verleasen Ihnen Ihren Rollkopf!

Fragen Sie nach unseren Konditionen!

Rufen Sie die LMT Deutschland GmbH an Tel. +49(0)7364-9579-0

### A broad program with technical perfection

Fette is the leader in Thread Rolling technology, a fact proved thousands of times world wide. No other manufacturer offers such a broad range; we can recommend the best system for your rolling application.

Since 1952, Fette has always forced technological progress, continually striving to strengthen its position as the leader.

Our program range, product quality, experience and service have helped us become “No. 1” in this field.

We not only offer the broadest rolling programme available, but back this up with professional expertise based on our vast experience. Because all applications vary in some manner, each is carefully studied by our engineering staff. In cases of exotic materials, special profiles, or the need for special leads to enhance material flow Fette always offers the best and the most economical solution to problems faced by customers.

### Certified Quality Assurance System

The Fette Quality Assurance System fulfils the demand laid down in the standard DIN ISO 9001, equivalent to EN 29001. In 1993, Fette was honored with the TÜV-Certificate. As a result, our customers get the benefits of the highest standard of quality maintained throughout the line.

### Theory and Practice of Thread Rolling

In our Technology Center in Schwarzenbek, Germany, we can demonstrate the very latest rolling advances with modern CNC-Lathes. We can also offer seminars to explain the latest technologies in theory and practice about the non-cutting, cold forming of external threads, and forms.

### Assistance

On all questions, please contact our product specialist, your commercial contact or our local agent. We would be glad to assist you, just call! Service-Hotline +49(0)4151-12931

Contact our specialist in your neighbourhood.

### Delivery Service for Thread Rolls

Please note the order form shown on page 461. It helps you to supply correct data in a simple manner, without any misunderstandings. You only need to copy it, fill it out and send it out via fax or mail.

Guarantee and service only when using original Fette spare parts.

### Rolling head hire

- You want to make small batches economically, very quickly, but with outstanding quality...
- You just want to try it out...
- You simply don't want to be tied down...
- You want to stick to your budget...

We will hire out the rolling head!

Ask about our range.

Call LMT Deutschland GmbH Fon +49(0)7364-9579-0.

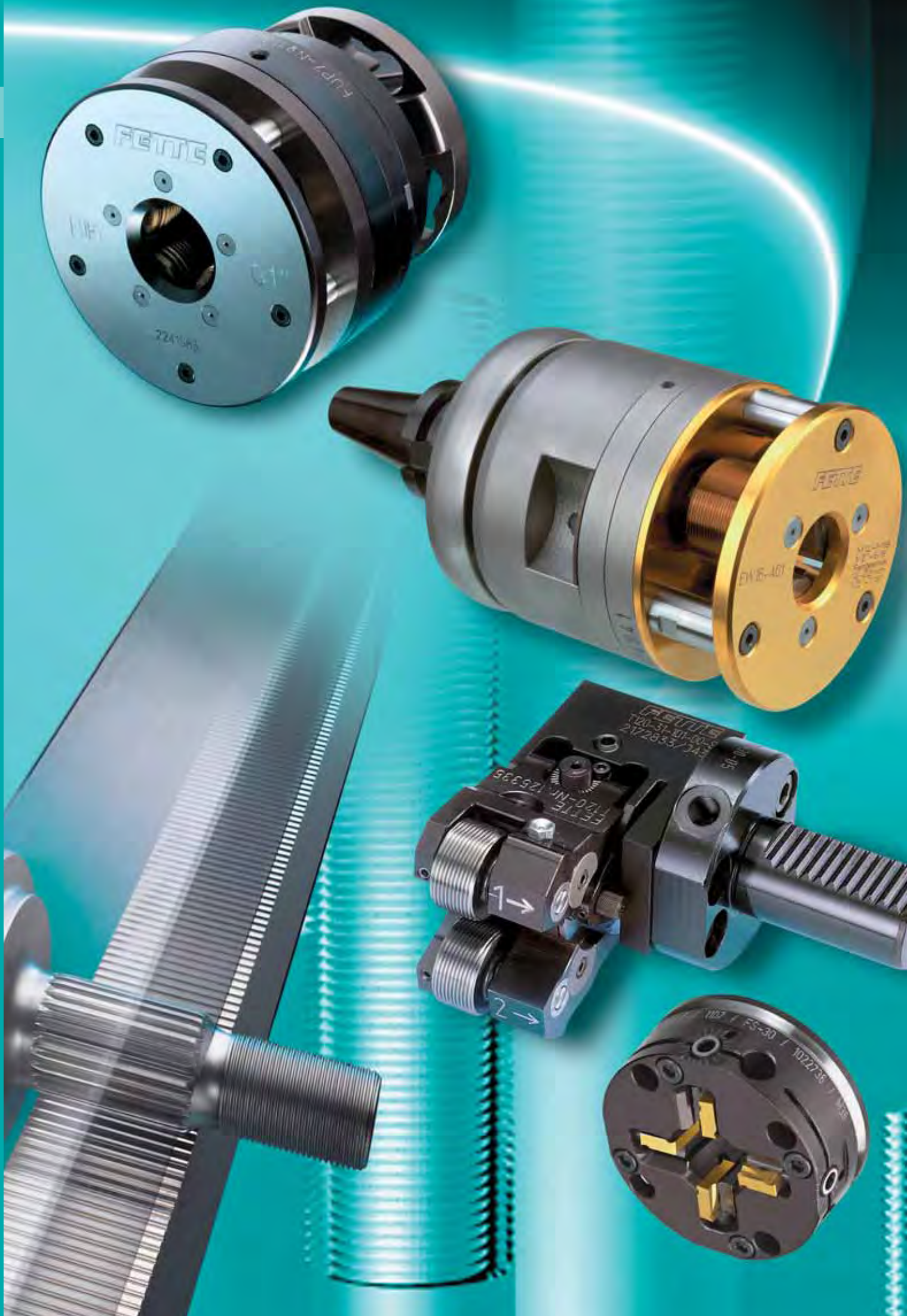
### Rolling head leasing

- You don't want to pay interest charges...
- You want to stay financially flexible...
- You don't want to use up your budget...
- You want fast amortization...

We will lease you the rolling head!

Ask about our conditions!

Call LMT Deutschland GmbH Fon +49(0)7364-9579-0.



|                                      |   |     |
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# Vorteile und Anwendungsmöglichkeiten Advantages and Applications

## Nutzen Sie die Vorteile der spanlosen Gewindefertigung:

- hohe Wirtschaftlichkeit
  - kurze Bearbeitungs- und Taktzeiten
  - extrem lange Standzeiten
  - gesteigerte Gewindefestigkeit
  - hohe Oberflächengüte
  - große Genauigkeit
  - intensive Maschinennutzung
- ... und als weiteren besonderen Vorteil: **kein Späneanfall**

## Universelle Anwendungsmöglichkeiten

Fette bietet eine Vielfalt von Rollen- und Rollkopfausführungen, z. B. für:

- alle gebräuchlichen Gewindearten
- Gewinde-Ø 1,4 bis 230 mm
- viele Sonder- und Spezialprofile
- Glätten, Bördeln, Kumpeln, Prägen
- nahezu alle Werkstücke
- fast alle Werkstoffe

Fette-Gewinde-Rollköpfe können auf nahezu allen Bearbeitungsmaschinen in den verschiedensten Positionen eingesetzt werden. Je nach Bauart sind sie auf Längsschlitten, Querschlitten, Revolvern, Spindelkopf von Drehmaschinen, Bearbeitungszentren und Rollmaschinen montierbar. Auch auf CNC-Maschinen bietet der Einsatz von Fette-Rollköpfen entscheidende Vorteile: Durch die Einsparung teurer Maschinenzeit wird das Gewinde sekundenschnell in einem einzigen Durchgang fertiggestellt, während das CNC-gesteuerte Schneiden bzw. Strehlen dagegen meist mehrere Durchgänge erfordert.

## Take advantage of cold forming threading:

- very economical
  - short production times
  - extremely long tool life
  - increased thread strength
  - high surface finishing
  - consistent repeatable accuracy
  - improved machine utilization
- ... and an additional advantage: **no chips are produced**

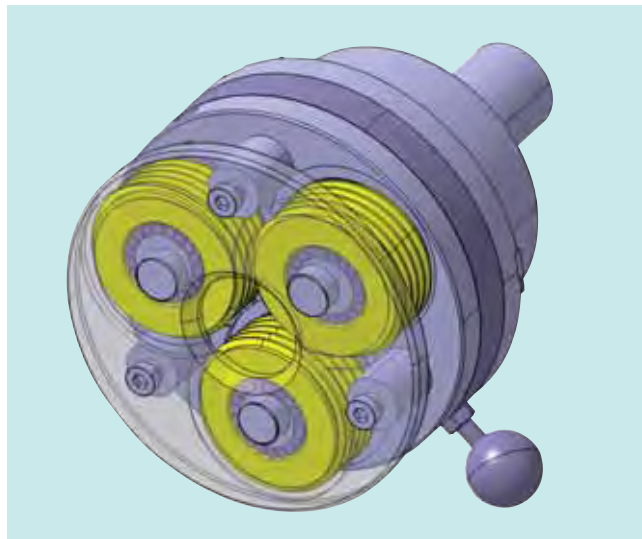
## Unlimited potential applications

Fette offers a magnitude of Roll and Rolling Head designs to be used for:

- all customary thread forms
- thread diameters from 0.055" to 9.055"
- many non-standard and special profiles
- burnishing, flaring, swaging, embossing
- almost any component part
- almost any material
- practically all machine tools including CNC

Fette Thread Rolling Systems can be used on almost any type of machine tool including basic engine lathes, pillar drills, single, multiple spindle bar and chucking machines, rotary transfer machines, NC and CNC Lathes, machining centers, drill presses, special purpose machines, and moving head stock lathes.

Fette offers particular advantages on NC and CNC equipment. Thread Rolling eliminates the costly multiple passes required in single point threading. Producing the thread in only one pass can reduce threading time by as much as 90 %.



*Revolver einer CNC-Drehmaschine, komplett bestückt mit allen Fette-Rollkopftypen (Demonstration)*

*Turret of a CNC-Lathe, shown with all Fette Rolling Head Types mounted (Demonstration)*

# Gewinderollen Thread Rolling

Fette-Gewinde-Rollköpfe erzeugen Außengewinde aller Art und andere Formgebungen mit hoher Genauigkeit spanlos durch Kaltverformung in Sekundenschnelle.

Anzuwenden auf allen Drehmaschinen und Drehautomaten und für alle Außengewinde von 1,4 mm bis 230 mm Ø.

**In aller Welt wird das wirtschaftliche Verfahren täglich millionenfach genutzt.**

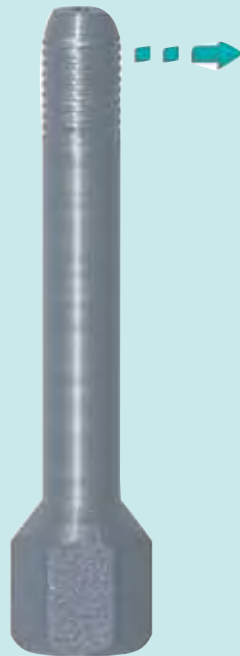
Fette Thread Rolling Systems produce external threads of all types and other profiles with first class precision, by cold forming in a matter of seconds.

Suitable for use on a wide variety of machine tools, for all external threads from Ø 0.55" up to Ø 9.055".

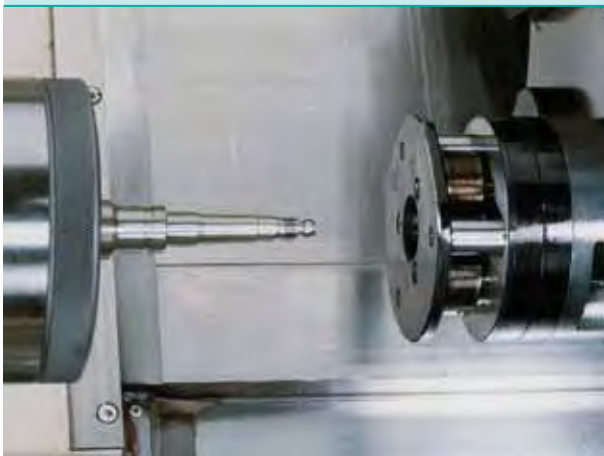
**This efficient production method is used a million times a day throughout the world.**

z. B. Gewinde M 20 x 2,5 Gewindelänge 100 mm  
I. E. 3/4 x 10 UNC Thread length 3.937"

**vorher**  
before



**nach 1,97 Sekunden**  
after 1.97 seconds



**Kein Schneiden**

**No Cutting**

**Kein Fräsen**

**No Milling**

**Keine Späne**

**No Chips**

**Genauer**

**More accurate**

**Leichter**

**Easier**

**Schneller**

**Faster**

# Gewindeformen

## Forming taps

### Wie beim Rollen:

#### Passgenaue Gewinde und deutlich bessere Oberflächen

Mit den Gewindeformern werden Innengewinde durch Kaltumformung spanlos hergestellt. Dieses Herstellungsverfahren ähnelt dem Rollen von Außengewinden. Etwa 60 % der heute in der Industrie verwendeten Werkstoffe lassen sich gut verformen.

- Hohe Festigkeit des Gewindes infolge des verdichteten Materialgefüges.
- Deutlich bessere Oberfläche des geformten Gewindes, geringere Rauigkeit der Gewindeflanken
- Sehr passgenaue Gewinde (auch ohne Zwangsführung)
- Keine Ausschussgewinde bei korrekter Einhaltung des Vorbohrdurchmessers
- Kein axiales „Verlaufen“ des Gewindeformers
- Größere Standwege, dadurch größere Werkzeugwechselintervalle
- Größtmögliche Stabilität
- Besonders erfolgreich im Einsatz bei Sacklöchern durch eigene Zwangsschmierung
- Einsatz auf einfachen Maschinen möglich
- Keine Späne – kein Spanstau
- Höhere Umfangsgeschwindigkeit als bei Gewindeschneiden

### Similar to thread rolling:

#### Accurately dimensioned threads and significantly improved surfaces even on internal threads

Thread formers fabricate internal threads through cold forming, without chips. This method of manufacture is similar to the rolling of external threads. About 60 % of the materials used in industry nowadays can effectively be formed in this way.

- High thread strength as a consequence of the compressed microstructure
- Significantly improved surface to the formed thread, reduced roughness of the thread flanks
- Extremely close-fitting threads (even without positive restraint)
- No scrap threads when the diameter of the preliminary drilling is correctly observed
- No lack of “axial true” in the forming tap
- Longer tool life, leading to larger intervals between tool changes
- Maximum possible stability
- Particularly successful when used for pocket holes through its own forced lubrication
- May also be used on simple machines
- No chips – no chip clogging
- Higher circumferential speed than with thread cutting



HPF-Gewindeformer mit auswechselbarer TiCN Plus beschichteter Vollhartmetall-Frontplatte. Die Kombination aus Stahlschaft und Hartmetall-Formteil ermöglicht extrem hohe Schnittgeschwindigkeiten und erweitert das Anwendungsspektrum für das Gewindeformen. Die exakte Einhaltung des empfohlenen Vorbohrdurchmessers ist beim Gewindeformen sehr viel wichtiger als beim Gewindeschneiden und trägt entscheidend zur Qualität und Ausformung des Gewindes und zur Lebensdauer des Gewindeformers bei. Deshalb wurden für alle Fette Gewindeformer die optimalen Vorbohrdurchmesser für die gängigen Gewindegrößen ermittelt und ein speziell für das Vorbohren ausgelegter VHM-Bohrer HPF-Drill entwickelt.

HPF thread former with exchangeable, TiCN Plus-coated solid carbide top. The combination of the steel shaft and the carbide forming piece permits extremely high cutting speeds, and widens the range of applications for thread forming. Correctly observing the recommended diameter of the preliminary drilled hole is much more important when threads are formed than it is when they are cut, and contributes significantly to the quality and shape of the thread as well as to the service life of the thread former. For this reason, the optimum diameter of the preliminary drilled hole has been determined for the common thread sizes for all Fette thread formers, and a special, solid carbide HPF drill has been developed, designed particularly for these preliminary holes.



# Walzstangen Rolling Racks

## Die Kaltumformung

- Mehr Werkstofffestigkeit
- Mehr Oberflächenqualität
- Mehr Genauigkeit für das Profil
- Mehr Produktivität

Durch Kaltumformung gefertigte Werkstückprofile zeichnen sich durch hohe Genauigkeit und verbessertes Verschleißverhalten aus. Denn eine Verzahnungs- oder Gewindeflanke, die ohne Zerstörung des Faserverlaufs kalt verfestigt wurde, lässt eine höhere Belastung zu als ein geschnittenes Profil. Als führender Hersteller von hochwertigen Werkzeugen für die Kaltumformung verfügt Fette auch über das spezielle Know how in Sachen Fertigung von Walzstangen. Ein technologisch ausgereiftes, auf vielseitige Anwendungsmöglichkeiten ausgerichtete Sortiment steht zur Verfügung.

## Die Funktionsweise

Zwei, sich gegenläufig synchron bewegende Walzstangen aus verschleißfestem Kaltarbeitsstahl treffen auf das eingespannte Werkstück und versetzen es in Drehung. Die Profilformung erfolgt über die gesamte Walzstangenlänge und der einzelnen Zonen wie Anlauf, Kalibrierung und Dekompression. Die Profillänge entspricht der maximalen Walzstangenbreite.

## Nutzen Sie unser Know how zu Ihrem Vorteil!

- Minimale Taktzeiten
- Maximale Werkzeug-Standzeiten
- Steigerung der Festigkeit
- Hohe Oberflächengüte
- Bündiges Walzen bis an die Schulter
- Gleichzeitiges Formen mehrerer Profile in einem Arbeitsgang
- Sonderprofile
- Fette Nachschleif-Service!

## The cold forming

- More material firmness
- More surface quality
- More accuracy for the profile
- More productivity

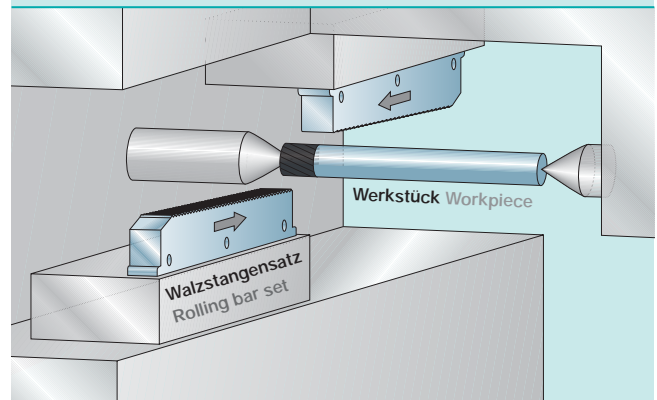
By cold forming manufactured workpiece profiles are characterised by high accuracy, reliability and durability. Because of the rolling process, the formed threads and flanks allow an increased load to be applied in use. Fette is a well known market leader within the cold forming industrial sector. Fette also has the specialized know how in the production of rolling racks.

## The function mode

The two component parts of rack rolls move in synchronicity with each other to roll and rotate the product which forms the workpiece. The profile is generated and completed when the rack has passed over the workpiece over its total length. The profile width is equal to the rack width.

## Use our know how for your advantage!

- Minimum cycle times
- Maximum durability
- Increased toughness
- High surface quality
- Concise rolling to the shoulder
- Simultaneous forming of several profiles in a single processing step
- Special profiles
- Fette regrinding service!



## Anwendungsbeispiele

Spanlose Profilformung von

- Gewinden
- Ölnuten
- Ringnuten & Rändelungen
- Steckverzahnungen
- Schrägverzahnungen
- weitere Profile

auf zylindrischen Werkstücken.

**Fette Walzstangen sind in Längen von 300 bis 1800 mm und in unterschiedlichen Breiten verfügbar.**

## Sample applications

Non-cutting profile figuration of

- Threads
- Oil grooves
- Anular grooves & knurling
- Splines
- Helical gears
- further, similar profiles

on cylindrical workpieces.

**Fette rolling bars are available in lengths from 300 to 1800 mm and in different widths.**

# Genauigkeits-Schälköpfe Precision peeling heads

## Perfektion vor dem Rollen

Ein Hochleistungswerkzeug mit Wendeschneidplatten für die wirtschaftliche Durchmesser-Reduzierung von Rundmaterial und Profilmaterial Ø 2–50 mm, einerlei ob gewalzt, gezogen, geschmiedet oder gedreht. Fette-Genauigkeits-Schälköpfe erreichen kurze Fertigungszeiten durch hohe Schnittgeschwindigkeiten und große Vorschübe. Dabei werden enge Fertigungstoleranzen und gute Oberflächen erzielt. Äußerst wirtschaftlicher, problemloser Einsatz durch einfache Bedienung, lange Standzeit und geringen Wartungsaufwand.

Ein spezielles Anwendungsgebiet ist das Schälen des Ausgangsdurchmessers für die spanlose Gewindeherstellung mit Fette-Gewinderollköpfen. Darüber hinaus können an Wellenenden beliebige zylindrische Zapfen bis zu einer Schällänge von ca. 6 x Schäldurchmesser wirtschaftlich erzeugt werden, wobei sich die Schälköpfe sowohl feststehend als auch umlaufend einsetzen lassen. Die kleine und kompakte Bauweise erlaubt die Verwendung auf Spitzen- und Revolverdrehmaschinen, Drehautomaten, Bohr- und Vorschubeinheiten sowie auf Rollmaschinen.

Zum Schälprogramm gehören außerdem die Fette-Anfaser mit Wendeplatten zum stirnseitigen Anfaseren oder Entgraten von geschälten oder gedrehten Zapfen, Wellen, Stäben, o. ä. Sowohl kombiniert mit Schälkopf als auch separat einsetzbar.

## Perfection before rolling

A high-performance tool with indexable inserts for economically reducing the diameters of round and profiled material with diameters of 0.079" to 1.965", regardless of whether rolled, drawn, forged or turned. Fette precision peeling heads achieve short of fabrication times through high cutting speeds and fast feed rates. Close manufacturing tolerances and good quality surfaces are achieved at the same time. Extremely economical, easy application through simple operation, long tool life and low servicing requirements.

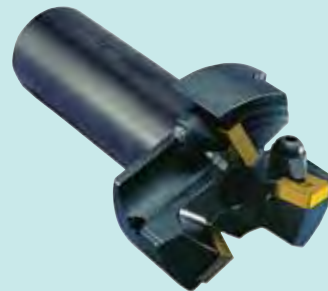
One particular field of application is the peeling of external diameters in preparation for chipless thread manufacture using Fette thread rolling heads. Additionally, any desired cylindrical tenon can be economically created at the shaft ends at a peeling length of up to approx. 6 x the peeling diameter. The peeling head can be used here either stationary or rotating. The small, compact construction permits use on center and turret lathes, automatic lathes, drill and feed units as well as on rolling machines.

The range of peeling tools also includes the Fette chamfering tool with indexable inserts for end chamfering or deburring peeled or turned tenons, shafts, bars and the like. Can be used in combination with the peeling head, or separately.

**Fette-Genauigkeits-Schälköpfe**  
FS-00 bis FS 90 (Mehrbereich)  
Fette precision peeling heads  
FS-00 to FS 90 (multiple range)



**Fette-Anfaser**  
Fette Chamfering Head



**Fette-Anfassschaft mit Anfaser (eingebaut) und Schälkopf auch mit Flansch**  
Fette chamfering shaft with chamfering tool (integrated) and peeling head also with flange



### 1. Wozu diese Druckschrift?

In aller Welt arbeiten täglich Tausende von Betriebsleitern, Konstrukteuren, Meistern und Anwendern mit Fette-Gewinde-Rollköpfen und bedienen sich ihrer Vorteile. Sie sind mit ihnen vertraut. In dieser Druckschrift sind alle Fette-Rollsysteme mit allen Rollkopftypen, Arbeitsbereichen, Bemaßungen, Ersatzteilen, Gewinderollen, Rollbeispielen und vielen technischen Details umfassend dargestellt. Für den Praktiker und auch für „den alten Hasen“ ist die Broschüre somit eine wertvolle Hilfe.

Im Internet finden Sie weitere technische Tabellen.

Scheuen Sie sich bei Fragen zu Ihrem speziellen Bearbeitungsfall aber bitte nicht, unseren Informations- und Beratungsdienst jederzeit (Service-Hotline: +49-41 51-12 391) und wirklich unverbindlich in Anspruch zu nehmen.

Es stehen Ihnen im In- und Ausland dafür zur Verfügung:

- die Vertreter und Werkläger unseres Hauses
- unsere Außendienst-Ingenieure
- Kundendienstabteilung und Testlabor
- die Ingenieure und Techniker des Stammwerkes in Schwarzenbek.

Wir geben werktäglich Hunderte von Auskünften, Tips und Anregungen – aus der Praxis für die Praxis!

Für Techniker, die noch keine praktischen Erfahrungen mit dem Einsatz von Rollköpfen haben, sowie vor allem auch für die in der Ausbildung Stehenden sollen folgende prinzipiellen Hinweise nützlich sein.

### 2. Was bedeutet spanlose Kaltmassivumformung?

Der Werkstoff des Werkstückes wird durch Druck über die Elastizitätsgrenze hinaus beansprucht und dadurch plastisch, d. h. bleibend umgeformt. Dabei werden bei einer Profilierung die Werkstoff-Fasern nicht – wie bei spanender Herstellung – zerschnitten, sondern nur verlagert. Untenstehende Schliffbilder von spanlos geformten, d. h. gerollten Gewinden machen dies deutlich (Abb. 1, 2, 3).

### 1. What is the Purpose of this Brochure?

All over the world, thousands of plant managers, designers, supervisors mechanics, and operators are working with Fette-made thread rolling heads and tangential side rolling attachments and are making good use of their advantages. All have become familiar with these tools. This publication describes and illustrates very comprehensively all Fette thread rolling systems, all available types of rolling heads and attachments, work ranges that can be covered, dimensions, replacement parts and thread rolls. It gives practical rolling examples, many technical details and a lot of helpful information for the user. The user should not hesitate to get in touch with Fette's information and consulting service, whenever any problem arises with the use and application of the machine and its tools. In the Internet, you find assitional technical tables.

Our services will be rendered to all customers (Service-Hotline: +49-41 51-12 391 english talking).

Domestically and abroad, the following services are available:

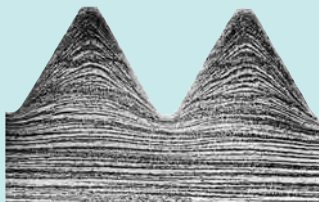
- Local representation and domestic inventory
- Trained application engineers
- Customer service department and test laboratory
- Design and application engineers from Schwarzenbek/Hamburg main plant.

Every workday, we communicate advice and information to hundreds of customers – Fette experience passed on to practical users. Technicians who have no practical experience as yet with the application of thread rolling heads, and also those who are still being trained to use them, will appreciate the following typical instructions.

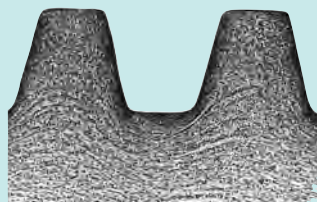
### 2. What does chipless cold-forming really mean?

In this process, the component material is stressed beyond its yield point, being deformed plastically, and, thus permanently. In the profiling process, the grain structure of the material is, unlike cutting, displaced, not removed. This process can be readily seen on the micrographs to the right, illustrating threads formed and rolled. (Fig. 1, 2 & 3)

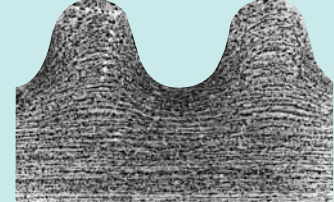
**1**  
Schliffbild eines Spitzgewindes  
Micrograph of a V-type thread



**2**  
Schliffbild eines Trapezgewindes  
Micrograph of an Acme/Trapezoidal thread



**3**  
Schliffbild eines Rundgewindes  
Micrograph of a knuckle thread



3. Welche wirtschaftlichen Vorteile bietet das Rollverfahren?

- extrem kurze Fertigungszeit
- hohe Standzeit der Werkzeuge
- Maschinennutzung
- einfache Bedienung

Die Rollgeschwindigkeiten von 20–90 m/min liegen ungleich höher als die Schnittgeschwindigkeiten beim Gewindeschneiden, z. B. mit Gewindestrehlerköpfen von kaum mehr als 10 m/min. Bei integrierten Arbeitsgängen wird die reine Gewinderollzeit somit niemals taktzeitbestimmend.

Siehe praktische Beispiele auf der Seite 19.

Noch ein Beispiel: Gewindeherstellung an einem Achsschenkel aus Stahlguss, Gewinde 5/8" UNF, 19 mm Gewindelänge. Die Hauptzeit betrug beim Gewindeschneiden per Strehler, **4,8 Sekunden**, dagegen beim Gewinderollen mit einem Axial-Gewinde-Rollkopf **0,8 Sekunden**, mit einem Radial-Gewinde-Rollkopf **0,2 Sekunden**. Siehe Abb. 4. Die hohe Standzeit der Gewinderollen führt bei dem Gewinde-Rollverfahren zu niedrigen Werkzeugkosten. Hier einige typische Beispiele.

Die relativ klein dimensionierten Fette-Gewinde-Rollköpfe sind selbst kompakte funktionelle Einheiten, zu deren Einsatz in vielen Fällen nur noch eine Drehbewegung gehört. Hierfür genügen dann einfache Drehmaschinen, die meist zur Verfügung stehen. Andererseits sind diese Rollköpfe ebenso mit auf Revolverdrehmaschinen, Mehrspindlern, Automaten, CNC-Drehmaschinen aufzunehmen, womit an einem Werkstück die Gewindeherstellung taktzeitneutral und auch sonst völlig unproblematisch wird. Der Ausgangs-Ø zum Gewinderollen liegt nicht beim Gewindeaußen-Ø wie beim Schneiden, sondern beim Flanken-Ø. Bei vielen Werkstücken bedeutet dies eine erhebliche Werkstoffeinsparung, wenn man sogleich auf Flanken-Ø gezogenes Material verwenden kann. Da keine Zerspanung stattfindet, fallen auch keine lästigen Späne an.

3. What Economic Advantages does the Rolling Process offer?

- extremely short machining time
- long service life of tools
- full utilisation of the machine
- simple operation

Rolling speeds, ranging from 20–90 m/min. (60–270 SFM) are considerably higher than the cutting speeds used in thread cutting operations. When cutting with thread chasing heads speeds rarely exceed 10 m/min. (30 SFM). Thus when using thread rolling processes the net thread rolling time will never be the deciding factor in the work cycle.

Please refer also to the practical examples on page 19.

To give another example: – Threading a 5/8" UNF, 0.748" long on a cast steel journal. The time to thread cut was **4.8 secs** per piece. However, when rolling was performed only **0.8 secs** were required with an axial-type rolling head and **0.2 secs** with a radial-type (see Fig. 4). For any thread rolling process performed with Fette thread attachments the long tool life of the thread rolls gives very low tool costs. (See examples below).

The well designed Fette thread rolling heads are compact units needing a rotary motion in order to function properly. To meet that requirement simple turning lathes will suffice. But these rolling heads can also be used on turret lathes, automatic lathes and CNC lathes, giving thread production without problems on any workpiece, able to be accommodated in the machine, in a short part of the total cycle time.

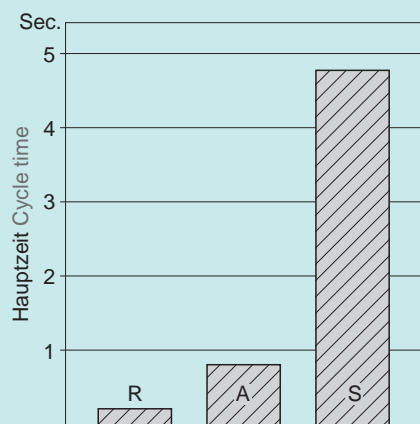
The thread rolling starting diameter is not as in thread cutting, identical with the outside (major) diameter of the thread, but is the pitch diameter of the thread. With many workpieces this means a considerable saving on material, especially if the material has been drawn to the pitch thread diameter when it can be used immediately. No cutting process takes place and no bothersome chips are produced with the thread rolling operation.

| Gewinde<br>Thread | Gewindelänge<br>Thread Length | Werkstoff<br>Material | Rollverfahren<br>Type of Process | Standzeit eines Rollensatzes (Beispiel)<br>Tool life of one set of rolls (sample) |
|-------------------|-------------------------------|-----------------------|----------------------------------|---|
| M 5 x 0,8         | 15 mm   0.591"                | 9S20K/AISI 1117       | axial                            | 120.000 Werkstücke workpieces   |
| Tr. 30 x 6        | 600 mm   23.622"              | ST 50 KG/AISI 1020    | axial                            | 35.000 Werkstücke workpieces  |
| M 16 x 1,5        | 22 mm   0.866"                | SAE 5140/AISI 5140    | axial                            | 30.000 Werkstücke workpieces  |
| M 20 x 1,5        | 16 mm   0.630"                | 9SMn 28/AISI 1213     | radial                           | 250.000 Werkstücke workpieces   |

4

Hauptzeit der Herstellung eines Gewindes  
UNF 5/8" mit 19 mm Länge an einem Achsschenkel  
Cycle time for production of a 5/8" UNF  
0.748" long on forged axle stub

- S = Gewindestrehler (schneiden)  
Thread chaser (cutting)
- A = Axial-Gewinde-Rollkopf (rollen)  
Axial-type rolling head (rolling)
- R = Radial-Gewinde-Rollkopf (rollen)  
Radial-type rolling head (rolling)



**4. Welche technischen Vorteile bietet das Rollverfahren?**

- hohe Profilgenauigkeit
- höhere Festigkeit des Gewindes
- presspolierte Gewindeflanken
- höhere Verschleißfestigkeit

Die höhere Zug- und Biegegewichsefestigkeit gerollter Gewinde ist im unzerstörten Faserverlauf begründet. Die Schlibfbilder (Seite 9, Abb. 1, 2, 3) zeigen deutlich, wie die Werkstoffasern dem Gewindeprofil folgen.

Die presspolierten Gewindeoberflächen mit einer Rauhtiefe unter 5 µm verbessern die Korrosionsbeständigkeit und bedingen eine geringere Reibung im Gewinde. Die kalt verfestigte Flanke erlaubt eine erhöhte Flächenpressung. Im Gewindegrund entsteht durch die Druckverformung ein Druckeigenspannungssystem, das ebenfalls zur Wechselfestigkeit beiträgt.

Im Vergleich zum geschnittenen Gewinde ergibt sich beim gerollten Gewinde eine Tragkraftehöhung von 6–12 % (Abb. 5, 6, 7).

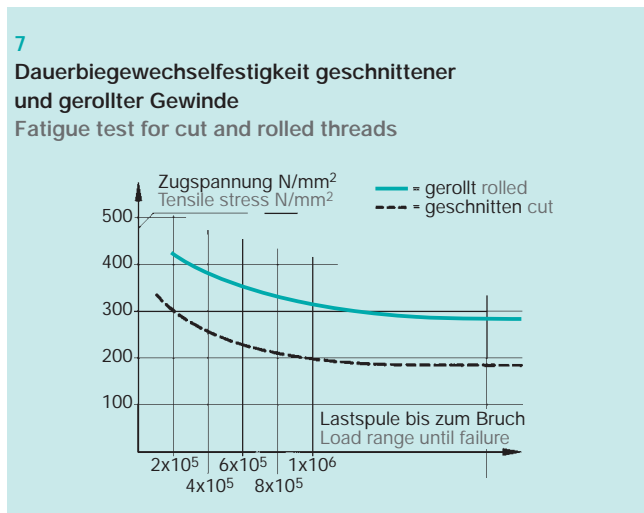
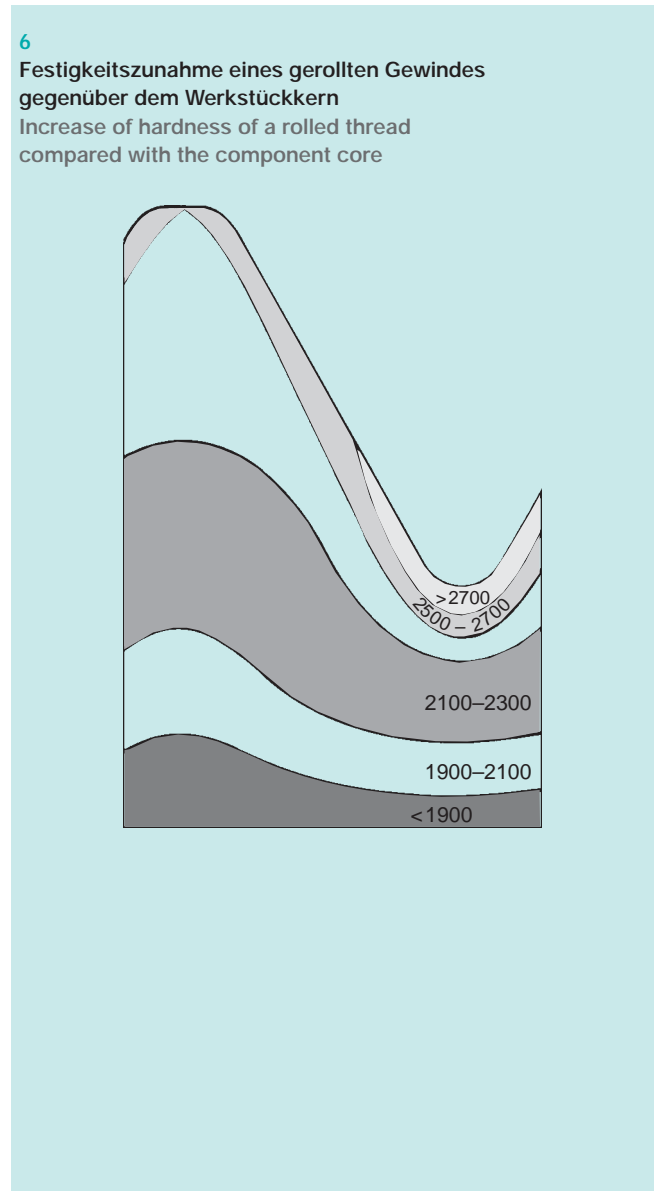
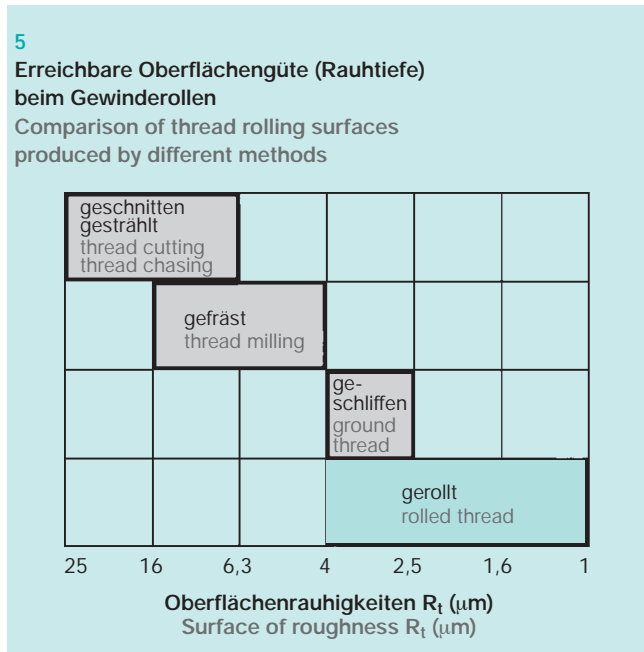
**4. What technical advantages are offered by the Rolling Process?**

- A high degree of profile accuracy
- A stronger thread
- Burnished thread flanks
- Improved wear resistance

The inherent tensile and fatigue strength under reversed bending stresses are basic to the uninterrupted structure. Micrographs (Page 9, Fig. 1, 2, and 3) show distinctly how the material grain follows the thread profile.

The burnished thread surface with a roughness level of below 5 µm improves resistance to corrosion and reduces abrasion within the thread. The work hardened flank provides increased surface tensile, yield, and shear strength. Due to pressure deformation, a residual compressive stress system builds up at the thread root, which counteracts tensile loading.

When compared to a cut thread, the load capacity of the rolled thread is increased by 6–12 %. Please refer also to Fig. 5, 6, and 7.



**5. Welche Fette-Rollsysteme stehen zur Auswahl?**

Fette deckt mit seinen vielseitigen Gewinde-Rollköpfen alle in der Praxis vorkommenden Bedarfsfälle ab und bietet dafür das Axial-, Radial- und das Tangential-Rollverfahren.

**Axialgewinderollen**

Der Axial-Gewinde-Rollkopf besitzt 2–3, in Sonderfällen bis zu 6 Gewinderollen. Diese weisen steigungsfreie Profirlinge auf. Sie sind um ihre horizontale Achse geschwenkt, so dass sich das Werkstück bzw. der Rollkopf bei einer vollständigen Umdrehung um die Gewindesteigung axial verschiebt (Abb. 8.a). Da die Rollen axial auf dem Werkstück „wandern“, lassen sich beliebig lange Gewinde herstellen. Zu den weiteren Vorteilen des Axialrollens gehört, dass das Werkstück stillstehen kann, während der Rollkopf umläuft. Ebenso kann der Rollkopf stillstehen, während das Werkstück die Drehbewegung ausführt. Der Rollkopf ist universell montierbar am Längsschlitten, Revolver, Spindelkopf bzw. Reitstock von einfachen und automatischen Drehmaschinen.

**Radialgewinderollen**

Beim Radialgewinderollen muss man zunächst zwei Ausführungen unterscheiden: Typ EW. Der Typ E erzeugt das Gewinde, indem er axial auf das Werkstück fährt, wie es bereits vom Axialrollen her bekannt ist – jedoch hier vorschubunabhängig (Abb. 8.c). In beiden Fällen wird das Gewinde innerhalb einer einzigen Rollenumdrehung erzeugt.

Das Profil der Gewinderollen entspricht dem herzustellenden Werkstückprofil. Die Gewinderollen fahren über das Werkstück, werden durch einen vorhandenen Auslösemechanismus in Kontakt mit diesem gebracht und dringen radial in das Werkstück ein. Die maximale Gewindelänge ist durch die Rollenbreite begrenzt. Vorteilhaft wirkt sich besonders die extrem kurze Bearbeitungszeit eines Gewindes aus. Außerdem ist das Herstellen von Gewinden mit extrem kurzem Gewindeauslauf möglich.

Die Montagemöglichkeiten für den Typ E entsprechen denen des Axialgewinderollkopfes.

Der Typ EW funktioniert wie Typ E, verfügt jedoch über eine automatische Auslösung des Rollvorganges durch das Berühren des Werkstückes eines Auslösemechanismus.

**Tangentialgewinderollen**

Der Tangential-Gewinderollkopf besitzt 2 Gewinderollen, die seitlich gegen das Werkstück gefahren werden und während der fortschreitenden Vorschubbewegung vorwiegend in zum Werkstück tangentialer Richtung das Gewinde formen (Abb. 8.d). Der Umformvorgang ist im wesentlichen beendet, wenn die Achsen von Werkstück und Rolle senkrecht übereinander stehen. Das ist in der Regel nach 10–35 Eingriffsumdrehungen (Werkstückumdrehungen) der Fall. Beim Tangentialrollen entfällt der Auslösemechanismus. Tangentialrollköpfe lassen sich am Querschlitten oder auf dem Revolver einfacher und automatischer Drehmaschinen aufnehmen. Auch auf Mehrspindlern.

**5. Which Fette thread rolling heads are available?**

With its versatile thread rolling head program, offering axial, radial and tangential-type thread rolling processes, Fette can satisfy almost any thread rolling requirement.

**Axial type thread rolling**

Axial-type thread rolling heads usually contain two or three, but in special cases up to six thread rolls. They consist of annular grooves ground on the periphery of the rolls.

The rolls revolve around their horizontal axis feeding the component axially one pitch per rotation into the head (see Fig. 8.a).

As the rolls are moving axially along the component any required length of thread can be manufactured.

An additional significant advantage is, that the component can stand still, while the rolling head is moving around.

As well as the rolling head can stand still, while the component is turning.

The rolling head can be mounted universally on the longitudinal carriage, the turret, the spindle or tailstock of standard and automatic lathes.

**Radial type thread rolling**

In radial-type thread rolling one must differentiate between two versions.

Type E generates the thread being positioned by traversing axially over the component, (see Fig. 8c). The thread is produced in one single revolution of the rolls. The thread rolls are put in contact and radially penetrate into the component. The maximum thread length is restricted by the width of the roll.

The extremely short machining time for the thread is a great advantage. Production of threads having an extremely short thread run-out is also feasible. Mounting possibilities for the (E-type) rolling head are similar to that of the axial-type thread rolling head.

Type EW functions like type E, but it features automatic initiation of the rolling process started by contact of the workpiece with a trigger mechanism.

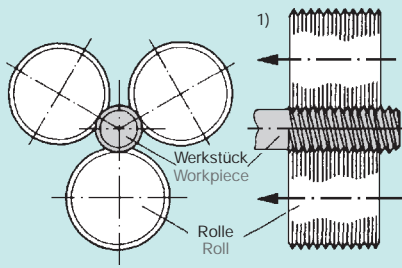
**Tangential-type side rolling**

The tangential-type side-rolling attachment is equipped with two opposed thread rolls, which are traversed towards the component at 90° to its axis. During the progressive feed, it forms the thread mainly in a tangential direction (Fig. 8d).

The forming process is completed, in general, when the center line of the roll meets the center line of the component. This situation is usually reached after 15 to 30 contact revolutions of the component. Tangential and radial-type rolling, such as Type-C, offer similar advantages. There is no release mechanism in the tangential side rolling process. Tangential-type rolling heads can be conveniently mounted on the cross-slide of screw machines and automatic lathes and CNC lathes.

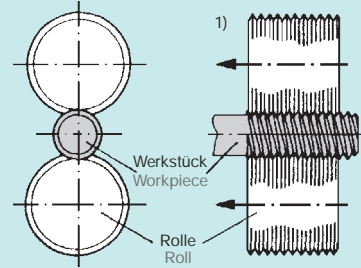
8a

**Axial-Rollköpfe Typen F, FU, F-RN, K, FF**  
Axial Thread Rolling Head Type F, FU, F-RN, K



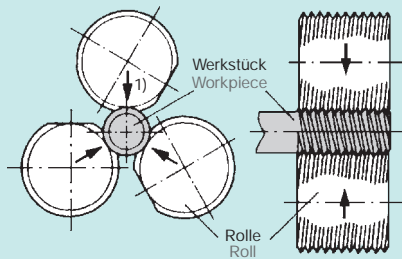
8b

**Axial-Rollköpfe Typ AC**  
Axial Thread Rolling Head Type AC



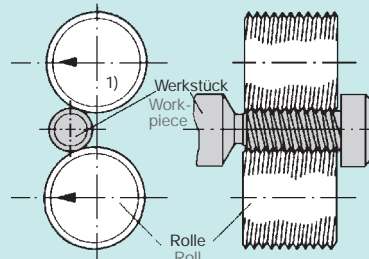
8c

**Radial-Rollköpfe Typ E**  
Radial Thread Rolling Head Type E



8d

**Tangential-Rollköpfe Typ T**  
Tangential Side Rolling Attachment Type T



1) Die Pfeile geben die Umformrichtung an.  
1) Arrow shows forming direction

**6. Welche Gewinde bzw. welche Profile können gerollt werden?**

Rollbar sind fast alle genormten Gewinde wie zylindrische und kegelige Spitzgewinde, Trapezgewinde, Rundgewinde, Halbbrundgewinde, zylindrische Holzgewinde, bedingt auch Sägewinde. Der Flankenwinkel sollte nicht unter ca. 20° liegen. Im Rahmen ähnlicher Voraussetzungen lassen sich natürlich auch alle entsprechenden Sondergewinde rollen. Die Gewinde-Außen-Ø können zwischen 1,4 mm und ca. 230 mm liegen.

**7. Wo lassen sich Fette-Gewinde-Rollköpfe noch einsetzen?**

Ausgehend von der Überlegung, dass achsparallele Nutungen auch als Gewinde mit unendlich großem Steigungswinkel anzusehen sind, wird man verstehen, dass somit ohne weiteres ebenso gut Rändelungen, Kerbverzahnungen und dergleichen rollbar sind, ob achsparallele oder rechts- oder linksgängige Rändelungen oder Kordelungen. Rollbar sind auch Profile ohne Steigung, z. B. Ringnuten für Schlauchnippel.

Mit Glattwalzrollen können Oberflächen an Rundkörpern geglättet oder mit entsprechend profilierten Rollen auch Rohr-Enden verjüngt, abgesetzt oder gekümpelt werden. Außerdem können auf Rundkörpern auch Beschriftungen, Symbole oder Firmenzeichen in jeglicher Art erzeugt werden.

**8. Welche Werkstoffe können gerollt werden?**

Da das Material durch Druck plastisch verformt wird, sollte der Werkstoff eine Mindestdehnung von etwa 5 % aufweisen und eine Zugfestigkeit von 1700 N/mm<sup>2</sup> nicht überschreiten. Geeignet zum Rollen sind also Baustähle, Einsatzstähle, rostfreie Stähle, Vergütungsstähle bis etwa 1600 N/mm<sup>2</sup>, weiterhin Weichmessing, Kupfer, Leichtmetalle. Nicht geeignet sind spröde Werkstoffe mit geringer Dehnung wie Gusseisen, harte Messinglegierungen, gehärtete Werkstoffe. Die Beschaffenheit des Werkstückmaterials hat natürlich einen gewissen Einfluss auf die Lebensdauer der Gewinderollen.

**9. Werden weitere Anforderungen an das Werkstück gestellt?**

Das Gewinde-Rollverfahren ist im Hinblick auf die Werkstückausführung praktisch fast unbegrenzt anwendbar. Das Werkstück muss sich natürlich fest spannen und lagemäßig positionieren und der Rollkopf an die Bearbeitungsstelle heranführen lassen. In vielen Fällen hat man die Wahl, die Drehbewegung entweder in den Kopf oder in das Werkstück zu legen. Auch **hinter einem Bund** kann die Bearbeitung erfolgen, z. B. bei Automatenteilen, die von Stange bearbeitet und erst nach der Gewindeherstellung abgestochen werden. Bei Einsatz des Rollkopfes auf einer Fette-Rollmaschine mit Durchlaufeinrichtung kann Stangenmaterial sogar **mit endlosem Gewinde** gerollt werden. Auch das Gewinderollen an **Hohlkörpern**, z. B. bei Rohren, ist in vielen Fällen möglich. Bei dünnwandigem Rohrkörper wird die Innenwandung durch einen eingeführten Dorn abgestützt. Die Restwandstärke zwischen Gewindekern-Ø und Rohr-Innen-Ø sollte allerdings nicht unter 0,5 mm + halbe Gewindetiefe liegen.

**6. What Types of Threads can be rolled?**

Almost all the normal types of threads can be rolled. Such as parallel and tapered "V" threads, knuckle and half knuckle threads, parallel type wood screw threads and in certain circumstances buttress threads. Flank angle should not be less than 10°. Within this range of conditions any special shaped thread can be rolled. Diameters may be rolled between 0.055" and approx. 9.055".

**7. Where else can Fette Thread Rolling Heads and Attachments be used?**

Assuming that axially parallel grooves are regarded as being threads with infinitely large helix angles, one can understand that knurls, serrations, and similar configurations are rollable. Regardless of whether they are axially parallel, right or left handed helical knurls, or diamond knurls. Annular grooves without any lead – such as for hose connections and couplings – can also be rolled.

Surfaces of cylindrical components can be burnished with burnishing rolls, and pipe ends can be reduced, beveled or swaged with profiled rolls.

Cylindrical components can also be marked with any type of inscription, symbols and company marks.

**8. What Types of Material can be rolled?**

As the material will be plastically deformed by pressure, it should have a minimum elongation of 5 % and a tensile strength of 1700 N/mm<sup>2</sup>/246.000 PSI should not be exceeded.

Structural steels, case hardening steels, stainless steels and heat treatable steels within these limits are suitable for rolling, as are soft brass, copper and aluminium.

Not suitable would be materials that have less than 5 % elongation like cast iron, hard brass alloys and other hardened materials. The consistency of the respective component material will have a certain influence upon the tool life of the rolls. You will find more information in the Technical Manual Catalogue.

**9. What other Properties are expected from the component?**

As far as the configuration of the component is concerned, the thread rolling process can be employed virtually without restriction. Provided, of course, the component can be clamped and positioned properly, and the rolling head can be brought into the correct machining position. In many cases one will have an option to either have the rotary motion performed by the head or by the component. Threads can also be rolled on automatic screw machines, for example on bars, working behind a shoulder, prior to cut off the component. When using a rolling head on a Fette rolling machine which is equipped with a feed-through attachment, bar material can be rolled with an unlimited length. The rolling of threads on tubular parts, such as pipe, is feasible in many cases. When rolling thin-walled pipe, these can be supported by an arbor. The remaining wall-thickness left between thread root diameter and inner pipe diameter, should not be less than 0.020" + one half the depth of thread however.



**10. Auf welchen Maschinen arbeiten Rollköpfe?**

Da für den Rollvorgang lediglich Voraussetzung ist, dass sich Werkstück und Rollkopf gegeneinander drehen, können Rollköpfe auf allen Drehmaschinen eingesetzt werden, auf einfachen Drehmaschinen bis hin zur Bohrmaschine, auf automatischen Drehmaschinen bis hin zu CNC-Drehautomaten. Gewisse Erfordernisse wie Maschinenleistung, Drehmoment, Drehzahl hängen von der Bearbeitungsaufgabe und der gewählten Rollkopfausführung ab. Hierzu finden Sie Näheres auf den Seiten 20 und 21 sowie bei den Erläuterungen zu den einzelnen Rollsystemen.

**11. Ist das Rollverfahren auch auf CNC-Maschinen von Nutzen?**

Auch auf CNC-Maschinen arbeiten die Fette-Gewinde-Rollköpfe mit bewährter Effizienz und Wirtschaftlichkeit. Alle klassischen Vorteile des Fette-Rollverfahrens sind ohne Einschränkung nutzbar. Der Fette-Rollkopf spart teure CNC-Maschinenzeit ein, da das Gewinde sekundenschnell in einem einzigen Arbeitsgang fertiggestellt wird, während das CNC-gesteuerte Schneiden bzw. Strehlen eines Gewindes dagegen mehrere Durchgänge erfordert. Die extrem hohe Standzeit der Gewinderollen kommt besonders den Forderungen nach geringstmöglichem Personalaufwand zur Überwachung und Bedienung der Maschine entgegen. Die beim Rollvorgang auftretende Kaltverfestigung gegenüber geschnittenen Gewinden wird schon häufig genutzt, um Werkstücke kleiner zu dimensionieren und damit leichter zu machen. Das Gewinderollen wird dann zwingend vorgeschrieben. Diese Werkstücke können durch Einsatz eines Fette-Rollkopfes direkt auf der CNC-Maschine fertiggestellt werden. Ein Umspannen und getrenntes Aufnehmen auf eine separate Maschine zum Gewinderollen ist dadurch nicht nötig. Alle Fette-Gewinde-Rollköpfe können mit Aufnahmeschäften nach DIN-Normen (z. B. DIN 69880) oder mit anderen Sonderschäften geliefert werden. Einzelheiten zum CNC-Einsatz, wie Vorschubsteuerung, Schließeinrichtungen, Voreinstellung usw., sind den entsprechenden Abschnitten zu entnehmen.

**12. Welcher Kraftbedarf ist für das Rollen erforderlich?**

Im Allgemeinen ist der erforderliche Kraftbedarf beim Gewinderollen geringer als die vorhandene Antriebsleistung einer modernen Werkzeugmaschine. Je nach Rollverfahren ist jedoch bei speziellen Fällen die Abschätzung der benötigten Kräfte erforderlich. Beim **Axial-Verfahren** wird das Gewinde axial fortschreitend erzeugt. Deshalb ist die Gewindelänge bei diesem Verfahren praktisch ohne Einfluss auf die benötigte Antriebsleistung. Beim Rollen von Gewinden mit Steigungen über 2 mm bzw. 12 Gang/Zoll und bei Trapez- und Acme-Profilen ist die Antriebsleistung zu überprüfen. Beim **Radial-Verfahren** wird das Gewinde in seiner gesamten Länge gleichzeitig mit nur einer Gewinderollenumdrehung erzeugt. Dazu wird kurzzeitig ein hohes Drehmoment benötigt. Bei diesem Verfahren ist das Errechnen des Drehmoments und der Antriebsleistung immer zu empfehlen. Es muss auch die Einspannung des Werkstückes dem Drehmoment angepasst sein.

**10. On which Machines can Rolling Heads be used?**

As far as the rolling operation is concerned, the only requirement is that either the component or the rolling head or both are rotating towards one another. Rolling heads can be used on any type of lathe, drilling machines, and automated lathes including CNC automatic lathes. Certain requirements, such as machine power, torque, and speed depend on the type of rolling to be done and the selected rolling head design. Please refer to pages 20 and 21 to the explanatory notes for the individual rolling systems.

**11. What advantage do thread rolling heads offer on CNC machine tools?**

Fette thread rolling heads are also working on NC and CNC machine tools with efficiency and economy. All known classical advantages of the Fette thread rolling system can be used without any restrictions. Fette thread rolling heads help to reduce expensive CNC machining time, as the threads are produced in seconds and in only one pass, whereas the CNC thread cutting requires numerous cycles. The extremely high lifetime of thread rolls compared to a single point tool meets today's requirements for lowest personal efforts in setting up and operating the CNC machine. The advantage of a chipless cold formed thread compared to a cut thread with a single point tool is very often used to produce a smaller component or to reduce work piece weight. In this case, thread rolling is a necessity. Such components can be completely machined with the use of Fette thread rolling heads on CNC equipment. A second clamping or the rolling of the component on a separate thread rolling machine is therefore not necessary. Fette thread rolling heads can be equipped with shanks (DIN 69880 draft) with shanks similar to VDI or as per customer requirements. Further details of the use on CNC machines such as proper feed rates, closing of heads or presetting of heads can be seen in the corresponding paragraphs in the Axial part.

**12. What Power Requirements are necessary for rolling?**

In general, the power requirements for thread rolling are less than the capacity for modern machine tools. In special cases, the rolling procedure requires an estimate of necessary power. With the **Axial-method**, threads are progressively formed along the axis of the workpiece. In this way the thread length is formed practically without influence of the necessary drive power. With rolls for threads coarser than 20 TPI or 2 mm/0.079" and for trapezoidal and Acme profiles, the formula should be used. The **Radial-method** forms a complete thread in a single revolution of the rolls. This also produces a moment of high torque requirements on the machine, so it is recommended that the torque and drive power be calculated. It is also very important that the component to be rolled is securely clamped. With the **Tangential-method**, a thread is formed within 15–30 revo-

Beim **Tangential-Verfahren** wird das Gewinde in seiner gesamten Länge mit mehreren Umdrehungen erzeugt. Deshalb ist die Antriebsleistung an der Spindel meistens nicht das entscheidende Kriterium. Die Kraft zum Einrollen des Profils muss vom Seitenschlitten (bzw. Revolverschlitten) aufgebracht werden. Bei kurven-gesteuerten Drehautomaten ist das meistens kein Problem. Bei hydraulisch oder elektrisch angetriebenem Schlitten ist es nötig, die Tangentialkraft zu errechnen und eine ausreichende Schlittenkraft zu gewährleisten.

Die Berechnungsformeln für den Kraftbedarf bei den drei Rollverfahren finden Sie auf Seite 450.

lutions of the rolls. In this case, the drive power of the spindle is not usually a critical factor. The power to roll the profile comes from the drive of the cross slide (or turret). With cam-controlled automatic lathes, this is usually no problem. With hydraulic or electrically driven cross-slides it is necessary that the tangential force be calculated so that a sufficient cross-slide force can be provided.

The formulas for calculating necessary power for the three types of rolling methods can be found in the Technical Manual Catalogue on pages 450.

### 9

#### Eine kleine Auswahl rollbarer Profile

A small selection of profiles that can be rolled

##### Kugelglätten

Sphere burnishing



##### Beschriften

Marking



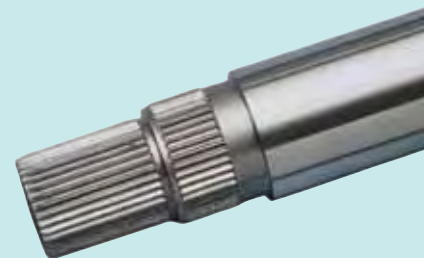
##### Gewinde vor und hinter dem Bund rollen

Thread rolling in the front and behind a shoulder



##### Rändelung RAA in einem Hub

Straight knurls



##### Gewinde auf Achsschenkelbolzen

Thread on axle hub



### 13. Welches Rollsystem und welchen Rollkopf setze ich ein?

Die Auswahlkriterien finden Sie in einer Zusammenstellung auf den Seiten 20 und 21. Je nach vorhandener Drehmaschine, nach Art des Werkstückes und nach zu rollender Gewindelänge wäre zu nächst zu entscheiden, ob ein Axial-, Radial- oder Tangential-Gewinde-Rollkopf in Frage kommt. Auf der Seite 19 finden Sie Rollbeispiele der unterschiedlichen Rollverfahren.

Je nach Größe und Art Ihres Gewindes kann dann die in Frage kommende Rollkopf- und Gewinderollen-Größe aus den jeweiligen Einzelübersichten bestimmt werden.

Natürlich stehen wir Ihnen für eine Beratung bei dem einzelnen Bedarfsfall gern zur Verfügung und kalkulieren dann auch den Aufwand Ihrer Fertigung.

### 14. Welche Kühl- und Schmiermittel werden verwendet?

Bei dem Rollvorgang eignen sich als Kühl- und Schmiermittel Flüssigkeiten, die auch beim Zerspanen Verwendung finden, wie z. B. Emulsionen in der Verdünnung 1:10 bis 1:20 – evtl. mit Hochdruckzusätzen – und dünnflüssige Schneidöle. Hochdruckzusätze verbessern die Gleiteigenschaften zwischen Rolle und Werkstück und erhöhen dadurch die Standmenge der Gewinderollen. Falls Trockenbearbeitung erforderlich ist, bitten wir um Rücksprache!

### 15. Welche Bearbeitungszeiten ergeben sich?

Bei der spanlosen Formgebung sind extrem kurze Bearbeitungszeiten nicht nur ein erfreuliches Attribut, sondern sie sind an sich Voraussetzung des Verfahrens, da das Material bei der plastischen Verformung „zum Fließen“ gebracht werden muss. In diesem Sinne sind daher höhere Rollgeschwindigkeiten günstiger als zu geringe. Als „Rollgeschwindigkeit“ bezeichnet man analog der „Schnittgeschwindigkeit“ die Abwicklung zwischen Rollen- und Werkstückoberfläche in Meter pro Minute ( $v = \text{m/min}$ ).

Grundsätzlich lassen sich Spitzgewinde mit höheren Rollgeschwindigkeiten erzeugen als trapezförmige Gewinde mit ihren größeren Umformungsmassen. Andererseits ist die Rollgeschwindigkeit bei Werkstoffen mit einem höheren Dehnungskoeffizienten größer zu wählen als bei Werkstoffen mit Dehnungswerten an der unteren Grenze von 5 %. Eine Ausnahme bilden die sogenannten VA-Stähle. Höhere Werkstoff-Festigkeiten bedingen dagegen kleinere Rollgeschwindigkeiten.

Da bei dem Axial-, Radial- und Tangential-Rollverfahren durch die unterschiedlichen Bearbeitungseinrichtungen jeweils andere Abhängigkeiten zwischen Drehzahl, Gewinde-Ø, Gewindesteigung, Gewindelänge, Vorschub, Rollgeschwindigkeit und Rollzeit bestehen, wird hierzu Näheres bei den einzelnen Abschnitten angegeben:

- a) **Axialrollen:** ab Seite 24 – empfohlene Rollgeschwindigkeiten 20–60 m/min, evtl. auch bis 90 m/min. Dabei bestimmen Rollgeschwindigkeit und Werkstück-Ø die Drehzahl und diese in Verbindung mit der Gewindesteigung und Gewindelänge die Rollzeit bzw. Bearbeitungszeit.
- b) **Radialrollen:** ab Seite 252 – empfohlene Rollgeschwindigkeiten 20–60 m/min. Da die Rolloperation beim Radialrollen mit nur einer Rollenumdrehung ausgeführt wird, liegen hier die Rollzeiten extrem niedrig.

### 13. Which rolling system and which type of rolling head should be used?

The selection criteria are compiled on pages 20 and 21 depending on the machine available, subject to the type of the component and to the length of thread to be rolled. It must first be decided, whether an axial, radial or tangential side type rolling head should be used. Page 19 shows various components with a note as to which rolling system is particularly recommended for a certain thread rolling process.

Conditional to the size and type of the thread that is to be machined, the rolling head and the size to be used can be determined from the individual tabulated charts.

We would be pleased to provide you with additional technical and price information on request.

### 14. What kind of coolants and lubricants have to be used?

Conventional cutting fluids are normally suitable for rolling applications. For instance emulsions having a 1:10 to 1:20 dilution are commonly used, some times with high pressure additives likewise low viscosity cutting oils. High pressure additives will reduce friction between rolls and components, thereby increasing the tool life of the thread rolls.

Please consult us if dry machining is needed.

### 15. Which cycle times may be expected?

In cold forming operations, extremely short cycle times are not just a welcome attribute, but rather a condition of the process. Because in plastic deforming the material must be caused “to flow”, and, in this case, higher rolling speeds are better than low speeds. Rolling speeds are obtained similar to cutting speeds. SFM or m/min can be calculated using the blank diameter of the thread to be rolled.

Basically, Unified and V-type threads can be generated at higher rolling speeds than Acme, Trapezoidal threads, as these have large masses of deformation to cope with. On the other hand, the rolling speed for materials with a higher coefficient of elongation can be higher than for materials with elongation values at the lower limit of 5 %. Higher material strengths require lower rolling speeds.

In the axial, radial and tangential side rolling process, different relationships are found to exist between speed, thread diameters, pitch of thread, length of thread, feed, rolling speed and rolling time. More information on these factors is presented in individual sections of this catalog.

- a) **Axial rolling:**  
from page 24 – Recommended rolling speed 20–60 m/min. (60 SFM to 180 SFM) possibly to 90 m/min. (270 SFM). Component diameter and RPM along with the thread pitch and length of thread govern cycle time.
- b) **Radial rolling:**  
from page 252 – Recommended rolling speeds are 20–60 m/min. (60–180 SFM). Since the radial rolling operation is performed in only one revolution of the roll, rolling time is extremely short.

c) **Tangentialrollen:** ab Seite 304 – empfohlene Rollgeschwindigkeiten 20–30 m/min. evtl. auch bis 80 m/min. Der hier notwendige zwangsgesteuerte Vorschub muss in Abhängigkeit von möglicher Rollgeschwindigkeit und maschinengegebener Drehzahl so gewählt werden, dass der Rollvorgang innerhalb von 10–35 Werkstückumdrehungen abgeschlossen ist. Mit höchstens 5–7 weiteren Werkstückumdrehungen wird das Werkstück dann im Eilrücklauf außerhalb des Eingriffs gebracht.

c) **Tangential side rolling:** from page 304 – Recommended rolling speeds are 20–80 m/min. (60–240 SFM). The controlled feed required in this operation, must provide that the rolling operation is completed within 15–30 revolutions of the component. Within 5 to 7 additional component revolutions, at the most, the attachment is moved in rapid reverse travel out of the engagement position.

Die Rollzeiten von wenigen Sekunden oder oftmals von nur Sekundenbruchteilen sind ein wesentliches Merkmal dieses Gewinde-Herstelverfahrens, das sich damit immer wirtschaftlich stellt, ob im Handeinlegeverfahren oder eingebaut in automatischen Fertigungsstraßen.

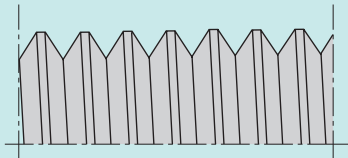
Rolling times of only a few seconds or even fractions of a second are an essential feature of this thread rolling process, which is always of great advantage economically. Close tolerances are easily maintained.

### 10

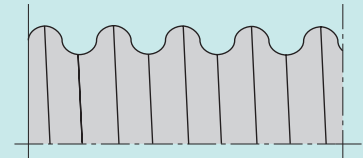
#### Rollzeiten

#### Rolling Times

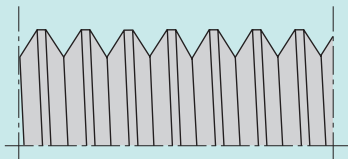
Gewinde M 10 x 1,5 mm  
Gewindelänge 40 mm  
**Rollzeit 0,9 Sekunden**  
Thread M 10 x 1.5 mm  
Thread length 1.575"  
Rolling time 0.9 sec.



Rundgewinde  
Rd. 10 - 1/10 mm  
Gewindelänge 40 mm  
**Rollzeit 0,53 Sekunden**  
Knuckle Type Thread  
Rd. 10 - 1/10 mm  
Thread length 1.575"  
Rolling time 0.53 sec.



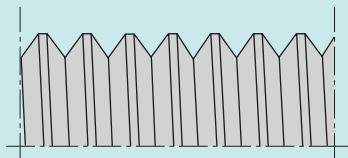
Gewinde M 10 x 3 mm  
Teilung 1,5 mm  
Gewindelänge 40 mm  
**Rollzeit 0,45 Sekunden**  
Thread M 10 x 3 mm  
Pitch 1.5 mm  
Thread length 1.575"  
Rolling time 0.45 sec.



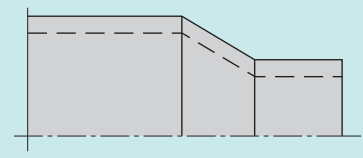
Rändelung 10 mm Ø  
Teilung 1 mm  
Profillänge 40 mm  
**Rollzeit 1,0 Sekunden**  
Knurling 10 mm Ø  
Pitch 1 mm  
Length of profile 1.575"  
Rolling time 1.0 sec.



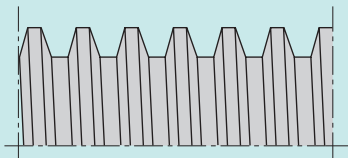
Gewinde M 24 x 1,5 mm  
Gewindelänge 12 mm  
**Rollzeit 1,3 Sekunden**  
Thread M 24 x 1.5 mm  
Thread length 0.472"  
Rolling time 1.3 sec.



Reduzierung von Rohr-Ø,  
von 9 auf 7 mm Ø  
auf 10 mm Länge  
Rohrwandung 1 mm  
**Rollzeit 0,3 Sekunden**  
Tube reduction  
from 9 to 7 mm diameter,  
over a length of 10 mm  
and 1 mm wall thickness  
Rolling time 0.3 sec.

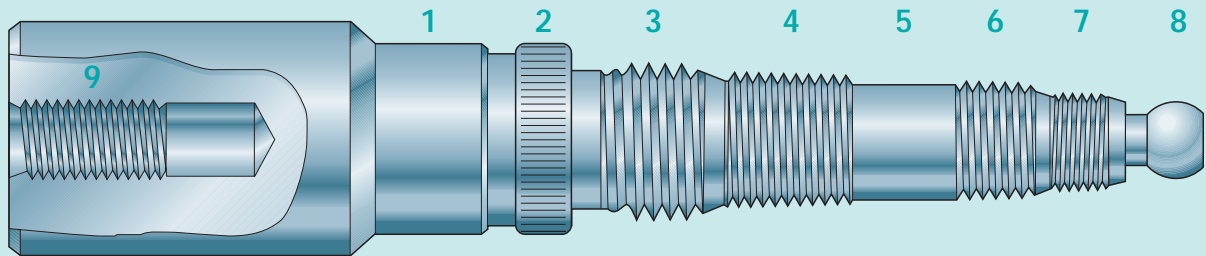


Gewinde Tr. 10 x 2  
Gewindelänge 40 mm  
**Rollzeit 0,67 Sekunden**  
Thread Tr. 10 x 2  
Thread length 1.575"  
Rolling time 0.67 sec.



# Rollbeispiele der Fette Rollsysteme

## Example of Rolling with Fette Rolling Systems




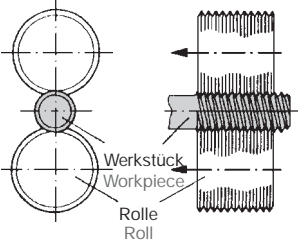


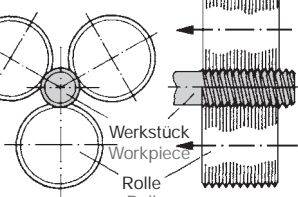


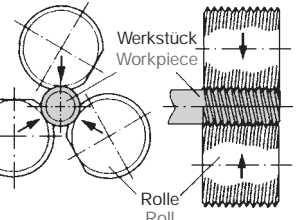


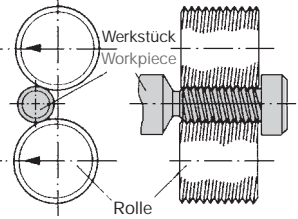

| Pos.<br>Pos.   | Rollsystem<br>Roll Method   | Rollkopf<br>Thread Roll Head Type | Abmessung<br>Rolling Process/Style of Thread   | Profillänge<br>Profile Length                           | Rollzeit bei 50 m/min<br>Rollgeschwindigkeit<br>Rolling Time<br>50 m/min/160 SFM |
|--|---|-----------------------------------|--|---|--|
| 1  | Radial  | C 16 AV                           | Beschriftung Marking<br>Fette Rollsysteme<br>Fette Rolling Systems<br>21493 Schwarzenbek | Ø 20 mm<br>Ø 0.787"<br>auf to 360°                      | 0,08 s   |
| 2  | Axial   | F 23                              | Rändel Straight Knurl<br>Ø 20,5 x 1<br>0.807" x 0.039"<br>RAA DIN 82                     | 6 mm<br>0.240"  | 0,28 s   |
| 3  | Axial   | AC 2                              | Gewinde Thread<br>5/8 – 14 BSF<br>B.S. 84  | 10 mm<br>0.400"   | 0,31 s   |
| 4  | Tangential  | T 18                              | Kegeliges Gewinde Taper Thread<br>R 1/4 – 19<br>DIN 2999                                 | 14 mm<br>0.550"   | 0,58 s   |
| 5  | Axial   | AC2 R                             | Glätten Burnishing<br>Ø 11,9<br>Ø 0.468"   | 10 mm<br>0.400"   | 0,18 s   |
| 6  | Axial   | F 2                               | Gewinde Thread<br>M 12 x 1,5<br>DIN 13   | 10 mm<br>0.400"   | 0,28 s   |
| 7  | Radial  | E 10 A 01                         | Gewinde Thread<br>M 10 x 1 – LH<br>DIN 13  | 8 mm<br>0.320"  | 0,13 s   |
| 8  | Radial  | E 10 A 01                         | Formglätten Burnishing<br>Kugel – Ø 8<br>Sphere – Ø 0.315"                               | 6 mm<br>0.240"  | 0,13 s   |
| <b>Innengewinde gefurcht (geformt)</b><br>Internal Thread (formed) |   |                                   |  |   |  |
| Pos.<br>Pos.   | Werkzeugtyp<br>Tool Type  | Größe<br>Size                     | Gewindelänge<br>Thread Length  | Arbeitsdaten<br>Forming Parameters                      |  |
| 9  | Fette Gewindeformer – Katalog-Nr. 6791 C<br>Fette Forming Tap – Cat.-No. 6791 C | M 8 6HX                           | 16 mm<br>0.630"  | n = 400 min <sup>-1</sup><br>v <sub>c</sub> = 10 m/min. |  |

# Anwendungsübersicht

## Application summary

Die Typen C, E, T, sind vorwiegend für Spitzgewinde ausgelegt. In Ausnahmefällen – z. B. gut rollbarer Werkstoff und extrem kurzes Gewinde – sind auch andere Profile zu rollen.

The Types C, E, T, are primarily designed for rolling V-Type Threads. In special cases – materials with good rolling properties and short thread length – other profile forms can also be rolled.

| Rollkopf-Type<br>Rolling Head Type   | Funktionsprinzip<br>Functional Principle  | Anzahl<br>Rollen<br>No. of<br>Rolls | Rollen-<br>form<br>Form of<br>Rolls   | Arbeits-<br>bereich Ø<br>Work<br>Range Ø | Rollenform<br>Max. Profile<br>Length                       |
|--|---|-------------------------------------|---|--|--|
| <b>Axial-Rollköpfe</b><br><b>Axial-Rolling Heads</b><br>Type AC             |  <p><b>Vorschub erfolgt axial</b><br/>(Pfeilrichtung)<br/>Rollkopf stillstehend,<br/>Werkstück umlaufend<br/>Feed in axial direction<br/>(direction of arrow)<br/>Head stationary,<br/>component part rotating</p>   | 2                                   |    | 8 mm<br>–72 mm<br>0.315"<br>to 2.835"    | unbegrenzt<br>unlimited                                    |
| Type F, FU, F-RN, K    |  <p><b>Vorschub erfolgt axial</b><br/>(Pfeilrichtung)<br/>1. Rollkopf umlaufend,<br/>Werkstück stillstehend<br/>2. Rollkopf stillstehend,<br/>Werkstück umlaufend<br/>Feed in axial direction<br/>(direction of arrow)<br/>1. Rolling Head rotating,<br/>component part stationary<br/>2. Rolling Head stationary,<br/>component part rotating</p>                        | 3 (2-6)                             |    | 1,4 mm<br>–230 mm<br>0.055"<br>to 9.055" | unbegrenzt<br>unlimited                                    |
| <b>Radial-Rollköpfe</b><br><b>Radial-Rolling Heads</b><br>Type E + EW     |  <p><b>Vorschub erfolgt radial</b><br/><b>durch Rollengeometrie</b><br/>1. Rollkopf umlaufend,<br/>Werkstück stillstehend<br/>2. Rollkopf stillstehend,<br/>Werkstück umlaufend<br/>Feed is radial by means of<br/>appropriate Roll geometry<br/>1. Rolling Head rotating,<br/>component part stationary<br/>2. Rolling Head stationary,<br/>component part rotating</p> | 3 (2)                               |  | 3 mm<br>–45 mm<br>0.118"<br>to 1.772"    | Rollenbreite<br>Width of Roll<br>max.<br>39 mm<br>1.535"   |
| <b>Tangential-Rollköpfe</b><br><b>Tangential-Rolling Heads</b><br>Type T  |  <p><b>Vorschub erfolgt tangential</b><br/>(Pfeilrichtung)<br/>Rollkopf stillstehend,<br/>Werkstück umlaufend<br/>Feed is tangential<br/>(direction of arrow)<br/>Rolling Head stationary,<br/>component part rotating</p>   | 2                                   |  | 1,6 mm<br>–64 mm<br>0.063"<br>to 2.52"   | Rollenbreite<br>Width of Roll<br>max.<br>40,5 mm<br>1.594" |

|  | Rollzeit<br>Rolling Time   | Spezielle Vorteile<br>Special Advantages  | Anforderungen/Maschine<br>Machine Requirements   | Rollkopf-Aufnahme<br>Rolling Head Adaption  |
|--|--|---|--|---|
|  | <p><b>Je nach Gewindelänge, Drehzahl und Steigung</b><br/> <b>Beispiel: M 10 x 1,5</b><br/>           Gewindelänge 20 mm<br/>           Drehzahl 1600 min<sup>-1</sup><br/> <b>Rollzeit: 0,5 s</b><br/>           According to thread length, speed &amp; lead<br/> <b>Example: 3/8 x 16 UNC</b><br/>           Thread length 0.150"<br/>           Speed 1600 min<sup>-1</sup>/1600 rpm<br/> <b>0.5 sec.</b></p>                    | <ul style="list-style-type: none"> <li>■ unbegrenzte Profillänge<br/>unlimited profile length</li> <li>■ speziell für CNC-Maschinen<br/>to be used especially on NC/CNC Machines, also for rolling between centers</li> <li>■ besonders zwischen Spitzen</li> </ul>   | <ul style="list-style-type: none"> <li>■ CNC-Drehmaschine<br/>NC Lathe</li> <li>■ CNC-Drehautomat<br/>CNC Lathe</li> </ul>   | Revolver<br>Längsschlitten und Querschlitten<br>NC-CNC gesteuert<br>Turret Horizontal Carriage and Cross Slide<br>NC – CNC controlled |
|  | <p><b>Je nach Gewindelänge, Drehzahl und Steigung</b><br/> <b>Beispiel: M 10 x 1,5</b><br/>           Gewindelänge 20 mm<br/>           Drehzahl 1600 min<sup>-1</sup><br/> <b>Rollzeit: 0,5 s</b><br/>           According to thread length, speed &amp; lead<br/> <b>Example: 3/8 x 16 UNC</b><br/>           Thread length 0.150"<br/>           Speed 1600 min<sup>-1</sup>/1600 rpm<br/> <b>0.5 sec.</b></p>                    | <ul style="list-style-type: none"> <li>■ unbegrenzte Profillänge<br/>unlimited profile length</li> <li>■ Werkstück stillstehend oder umlaufend<br/>component parts stationary or rotating</li> </ul>  | <ul style="list-style-type: none"> <li>■ Universaldrehmaschine<br/>Threading Machines</li> <li>■ CNC-Drehmaschine<br/>CNC Lathe</li> <li>■ CNC-Drehautomat<br/>CNC Lathe</li> <li>■ Revolverdrehmaschine<br/>Turret Lathes</li> <li>■ Mehrspindeldrehmaschine<br/>Hydraulic Copying Lathe</li> <li>■ Dreh-Fräszentren<br/>Drilling Machines</li> </ul> | Längsschlitten<br>Revolver<br>Spindelkopf<br>Reitstock<br>Turret Horizontal Carriage<br>Work Spindle<br>Tail Stock                    |
|  | <p><b>Je nach Drehzahl, Rollenganzahl und Steigung</b><br/> <b>Beispiel: M 10 x 1,5</b><br/>           Gewindelänge 20 mm<br/>           Drehzahl 1600 min<sup>-1</sup><br/> <b>Rollzeit: 0,19 s</b><br/>           According to speed, number of threads on the roll &amp; lead<br/> <b>Example: 3/8 x 16 UNC</b><br/>           Thread length 0.150"<br/>           Speed 1600 min<sup>-1</sup>/1600 rpm<br/> <b>0.19 sec.</b></p> | <ul style="list-style-type: none"> <li>■ extrem kurzer Gewindeauslauf<br/>extremely short thread run out</li> <li>■ extreme Kurzgewinde<br/>extremely short thread length</li> <li>■ extrem kurze Bearbeitungszeit<br/>extremely short rolling time</li> <li>■ Werkstück stillstehend oder umlaufend<br/>component part stationary or rotating</li> <li>■ Einsatz auf Endenbearbeitungsmaschinen<br/>to be used on endworking machines</li> <li>■ automatische Auslösung</li> </ul> | <ul style="list-style-type: none"> <li>■ Rundtaktmaschinen</li> <li>■ Transferstraßen<br/>Transfer Line</li> <li>■ Sonderdrehmaschinen<br/>Special Machines</li> </ul>   | Längsschlitten<br>Revolver<br>Spindelkopf<br>Reitstock<br>Turret Horizontal Carriage<br>Spindle Work<br>Tail Stock                    |
|  | <p><b>Je nach Drehzahl und Eingriffzeit</b><br/> <b>Beispiel: M 10 x 1,5</b><br/>           Gewindelänge 20 mm<br/>           Drehzahl 1600 min<sup>-1</sup><br/> <b>Rollzeit: 0,56 s</b><br/>           According to speed and length of engagement time<br/> <b>Example: 3/8 x 16 UNC</b><br/>           Thread length 0.150"<br/>           Speed 1600 min<sup>-1</sup>/1600 rpm<br/> <b>0.56 sec.</b></p>                        | <ul style="list-style-type: none"> <li>■ Gewinde hinter einem Bund<br/>threads behind a shoulder</li> <li>■ extrem kurzer Gewindeauslauf<br/>extremely short thread run out</li> <li>■ extreme Kurzgewinde<br/>extremely short thread length</li> <li>■ auch zwischen Spitzen</li> </ul>  | <ul style="list-style-type: none"> <li>■ alle Drehmaschinen mit einer gesteuerten Vorschubbewegung</li> </ul>  | Querschlitten<br>Revolver<br>Cross Slide<br>Turret<br>(CN-CNC-Machine)  |

# Rollbare Profile

## Rollable profiles

### Wenn Sie unterschiedlichste Profile rollen wollen!

Fast alle genormten Gewinde oder Sondergewinde – von zylindrischen und kegeligen Spitzgewinden über Trapez-, Rund- und Halbrundgewinden bis zu zylindrischen Holz- und sogar Sägewinden – können gerollt werden.

Außerdem:

- Rändelungen
- Ringprofile ohne Steigung
- Reduzieren von Rohrenden
- Kumpeln von Rohren
- Glätten von Oberflächen
- Sonderprofile
- Beschriften

### When you want to roll a variety of profiles!

Almost all standardized or special threads – from cylindrical and tapered triangular threads, through trapezoidal, round and semi-round threads to cylindrical wood threads and even buttress threads – can be rolled.

And what is more:

- Knurling
- Ring profiles without pitch
- Reduction of pipe ends
- Pipe forming
- Smoothing surfaces
- Special profiles
- Labeling

Spitzgewinden  
Triangular threads



Kegeliges  
Spitzgewinde  
Tapered triangular  
threads



Trapezgewinde  
Trapezoidal threads



Rundgewinde  
Round threads



Halbrundgewinde  
Semi-round threads



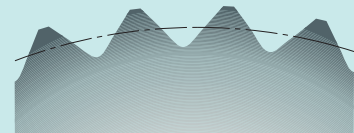
Sägewinde  
Buttress threads



Zylindrisches  
Holzgewinde  
Cylindrical wood  
threads



Kerbverzahnung  
Channel toothing





# Typische Werkstücke Typical workpieces

Eine kleine Auswahl an Werkstücken, die Sie mit unseren Werkzeugen perfekt bearbeiten können!

Hierbei ist es egal, ob das Werkstück feststehend oder umlaufend bearbeitet werden soll. Es können endlose Gewinde oder Kurzgewinde vor oder hinter einem Bund gerollt werden. Es lassen sich fast alle Werkstoffe rollen, die eine Mindestdehnung von ca. 5% aufweisen.

Auch dünnwandige Hohlkörper (Rohre) können mit Hilfe eines Innendornes gerollt werden.

A small selection of workpieces you can machine perfectly with our tools!

It is not important whether the work piece is to be machined when stationary or rotating. Endless threads or short threads can be rolled either in front of or behind a collar. Almost any material that has a minimum extension of about 5% can be rolled.

Thin-walled hollow object (pipes) can be rolled if an internal mandrel is used.





|   |           |
|---|-----------|
| <b>Auswahl der Gewinde-Rollkopfgrößen nach Gewindeabmessungen</b>     | <b>26</b> |
| Selection of Thread Rolling Head Sizes according to Thread Dimensions |           |

## **Axial-Gewinde-Rollkopf F-Typ**

### **Axial Type Thread Rolling Head F-Type**

|                        |     |
|------------------------|-----|
| F0 C1, K0 C1           | 52  |
| F001                   | 56  |
| F01, K01               | 60  |
| F1 C1, K1 C1           | 64  |
| F12 C1, K12 C1         | 68  |
| F1223 C1, K1223 C1     | 72  |
| F2 C2, K2 C2           | 76  |
| F23 C2, K23 C2         | 80  |
| F233400 C2, K233400 C2 | 84  |
| F3 C2, K3 C2           | 88  |
| F34 C2, K34 C2         | 92  |
| FU32                   | 96  |
| FU3-1                  | 100 |
| FU34-1                 | 104 |
| FU4-1                  | 108 |
| FU45-1                 | 112 |
| FU5-1                  | 116 |
| FU56-1                 | 120 |
| FU6a-1                 | 124 |
| FU6b-1                 | 128 |
| FU6700                 | 132 |
| FU700                  | 138 |
| FU7800                 | 142 |
| FU8-1                  | 146 |
| FU96-1S-0° 30'         | 150 |
| FU11600                | 154 |
| FU12600                | 158 |

## **Axial-Gewinde-Rollkopf K-Typ**

### **Axial Type Thread Rolling Head K-Type**

|      |     |
|------|-----|
| K1Y  | 178 |
| K12Y | 182 |
| K2Y  | 186 |
| K23Y | 190 |
| K3Y  | 194 |
| K34Y | 198 |

## **Axial-Gewinde-Rollkopf AC-Typ**

### **Axial Type Thread Rolling Head AC-Type**

|     |     |
|-----|-----|
| AC2 | 222 |
| AC3 | 226 |
| AC4 | 230 |
| AC5 | 234 |
| AC6 | 238 |

Metrisches ISO-Gewinde, DIN 13  
 Metric ISO Threads, DIN 13

| Gewinde-<br>abmessung<br>Thread Size | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
|--------------------------------------|--------------------------|------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|--|--|--|
|                                      | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |  |  |  |
| M 1.4 x 0.3                          | ●                        |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 1.6 x 0.35*                        | ●                        |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 1.8 x 0.35*                        | ●                        |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 2 x 0.4*                           | ●                        |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 2.3 x 0.4                          | ●                        |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 2.2 x 0.45*                        | ●                        |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 2.5 x 0.45*                        | ●                        |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 2.6 x 0.45                         | ●                        | ●    |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 3 x 0.6                            | ●                        | ●    |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 3 x 0.5*                           | ●                        | ●    |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 3.5 x 0.6*                         | ●                        | ●    | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 3.5 x 0.5                          | ●                        | ●    | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 4 x 0.75                           | ●                        | ●    | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 4 x 0.7*                           | ●                        | ●    | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 4 x 0.5                            | S                        | S    | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 4.5 x 0.75*                        | ●                        |      | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 4.5 x 0.5                          | S                        |      | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 5 x 0.9                            | ●                        |      | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 5 x 0.8*                           | ●                        |      | ●           |               |                  | ●             |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 5 x 0.75                           | ●                        |      | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 5 x 0.5                            | S                        |      | S           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 5.5 x 0.9                          | ●                        |      | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 5.5 x 0.75                         | ●                        |      | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 5.5 x 0.5                          | S                        |      | S           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 6 x 1*                             |                          |      | ●           | ●             |                  | ●             |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 6 x 0.75                           |                          |      | S           | ●             | ●                | ●             |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 6 x 0.5                            |                          |      | S           | ●             | ●                | ●             |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 7 x 1*                             |                          |      |             | ●             | ●                | ●             |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 7 x 0.75                           |                          |      |             | ●             | ●                | ●             |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 7 x 0.5                            |                          |      |             |               | ●                | S             |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 8 x 1.25*                          |                          |      |             | ●             | ●                | ●             | ●             |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 8 x 1                              |                          |      |             | ●             | ●                | ●             | ●             |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 8 x 0.75                           |                          |      |             |               | ●                | ●             | ●             | ●                |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 8 x 0.5                            |                          |      |             |               | ●                | S             | ●             | ●                |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 9 x 1.25*                          |                          |      |             | ●             | ●                | ●             | ●             |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 9 x 1                              |                          |      |             | ●             | ●                | ●             | ●             |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 9 x 0.75                           |                          |      |             |               | ●                | ●             | ●             | ●                |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 9 x 0.5                            |                          |      |             |               | S                | ●             | ●             | ●                |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 10 x 1.5*                          |                          |      |             | ●             | ●                | ●             | ●             |                  |                   |         |           | ●    |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 10 x 1.25                          |                          |      |             | ●             | ●                | ●             | ●             |                  |                   |         |           | ●    |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 10 x 1                             |                          |      |             | ●             | ●                | ●             | ●             |                  |                   |         |           | ●    |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 10 x 0.75                          |                          |      |             |               | ●                | ●             | ●             | ●                |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 10 x 0.5                           |                          |      |             |               | S                | ●             | ●             | ●                |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 11 x 1.5*                          |                          |      |             |               |                  | ●             | ●             | ●                |                   |         |           | ●    |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 11 x 1                             |                          |      |             |               | 14               | ●             | ●             | ●                |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 11 x 0.75                          |                          |      |             |               | 14               | ●             | ●             | ●                |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| M 11 x 0.5                           |                          |      |             |               | S <sub>14</sub>  | ●             | ●             | ●                |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |

\* = Regelgewinde (nach DIN 13 Teil 1) standard thread (to DIN 13 part 1)  
 ● = Rolllänge unbegrenzt unlimited length of thread  
 S = Semi-Standard-Rollkopf-Winkel, Rolllänge unbegrenzt special rolling head helix angle, unlimited length of thread  
 14 = max. Rolllänge (14 mm) maximum length of rolling (0.551")

**Metrisches ISO-Gewinde, DIN 13**  
Metric ISO Threads, DIN 13

| Gewinde-<br>abmessung<br>Thread Size | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                  |                   |         |                 |                 |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
|--------------------------------------|--------------------------|------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------------|-----------------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|
|                                      | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34       | FU32            | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |
| M 12 x 1.75*                         |                          |      |             |               |                  | ●             |               |                  | ●                 |         |                 | ●               | ●     |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   | ●   |     |     |     |
| M 12 x 1.5                           |                          |      |             |               | 14               | ●             |               |                  | ●                 |         |                 | ●               | ●     |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   | ●   |     |     |     |
| M 12 x 1.25                          |                          |      |             |               | 14               | ●             |               |                  | ●                 |         |                 | ●               | ●     |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   | ●   |     |     |     |
| M 12 x 1                             |                          |      |             |               | 14               |               |               |                  | ●                 |         | ●               |                 |       | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 12 x 0.75                          |                          |      |             |               | 14               |               |               |                  | ●                 |         | ●               |                 |       | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 12 x 0.5                           |                          |      |             |               | S <sub>14</sub>  |               |               |                  | S                 |         | ●               |                 |       | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 13 x 1.5                           |                          |      |             |               | 14               | ●             |               |                  | ●                 |         |                 | ●               | ●     |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   | ●   |     |     |     |
| M 13 x 1                             |                          |      |             |               |                  |               |               |                  | ●                 |         | ●               |                 |       | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 13 x 0.75                          |                          |      |             |               |                  |               |               |                  | ●                 |         | ●               |                 |       | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 13 x 0.5                           |                          |      |             |               |                  |               |               |                  | S                 |         | S               |                 |       | S      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 14 x 2*                            |                          |      |             |               |                  |               |               |                  | ●                 |         | ●               | ●               | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         | ●   | ●   |     |     |     |
| M 14 x 1.5                           |                          |      |             |               |                  |               |               |                  | ●                 |         | ●               | ●               | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         | ●   | ●   |     |     |     |
| M 14 x 1.25                          |                          |      |             |               |                  |               |               |                  |                   |         | ●               |                 | ●     |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 14 x 1                             |                          |      |             |               |                  |               |               |                  |                   |         | ●               |                 |       | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 14 x 0.75                          |                          |      |             |               |                  |               |               |                  |                   |         | ●               |                 |       | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 14 x 0.5                           |                          |      |             |               |                  |               |               |                  | S                 |         | S               |                 |       | S      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 15 x 1.5                           |                          |      |             |               |                  |               |               |                  | ●                 |         | ●               | ●               | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         |     | ●   |     |     |     |
| M 15 x 1                             |                          |      |             |               |                  |               |               |                  |                   |         | ●               |                 |       | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 15 x 0.75                          |                          |      |             |               |                  |               |               |                  | ●                 |         | ●               | ●               | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 15 x 0.5                           |                          |      |             |               |                  |               |               |                  | S                 |         | S               |                 |       | S      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 16 x 2*                            |                          |      |             |               |                  |               |               |                  | ●                 |         | ●               | ●               | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         | ●   | ●   | ●   |     |     |
| M 16 x 1.5                           |                          |      |             |               |                  |               |               |                  | ●                 |         | ●               | ●               | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         | ●   | ●   | ●   |     |     |
| M 16 x 1.25                          |                          |      |             |               |                  |               |               |                  |                   |         | ●               |                 | ●     |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 16 x 1                             |                          |      |             |               |                  |               |               |                  |                   |         | ●               | 67              |       | ●      |       | ●      |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 16 x 0.75                          |                          |      |             |               |                  |               |               |                  | S                 |         | S               | 67              |       | S      |       | S      |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |
| M 16 x 0.5                           |                          |      |             |               |                  |               |               |                  | S                 |         | S <sub>67</sub> |                 | S     |        | S     |        | S     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 17 x 2                             |                          |      |             |               |                  |               |               |                  |                   |         | ●               |                 | ●     | ●      |       | ●      |       |        |        |        |        |       |        |       |         |         |         |     | ●   | ●   |     |     |
| M 17 x 1.5                           |                          |      |             |               |                  |               |               |                  |                   |         | 19              | 67              | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     | ●   | ●   |     |
| M 17 x 1                             |                          |      |             |               |                  |               |               |                  |                   |         | 67              |                 | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 17 x 0.75                          |                          |      |             |               |                  |               |               |                  |                   |         | S <sub>19</sub> | 67              | S     |        | S     |        | S     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 17 x 0.5                           |                          |      |             |               |                  |               |               |                  |                   |         | S <sub>19</sub> | S <sub>67</sub> | S     |        | S     |        | S     |        | S      |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 18 x 2.5*                          |                          |      |             |               |                  |               |               |                  |                   |         | ●               |                 | ●     | ●      |       | ●      |       |        |        |        |        |       |        |       |         |         |         |     | ●   | ●   |     |     |
| M 18 x 2                             |                          |      |             |               |                  |               |               |                  |                   |         | ●               |                 | ●     | ●      |       | ●      |       |        |        |        |        |       |        |       |         |         |         |     | ●   | ●   |     |     |
| M 18 x 1.5                           |                          |      |             |               |                  |               |               |                  |                   |         | 19              | 67              | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 18 x 1                             |                          |      |             |               |                  |               |               |                  |                   |         | 19              | 67              | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 18 x 0.75                          |                          |      |             |               |                  |               |               |                  |                   |         | S <sub>19</sub> | 67              | S     |        | S     |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 18 x 0.5                           |                          |      |             |               |                  |               |               |                  |                   |         | S <sub>19</sub> | S <sub>67</sub> | S     |        | S     |        | S     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 19 x 2                             |                          |      |             |               |                  |               |               |                  |                   |         | ●               | S               |       | ●      | S     |        | ●     | S      |        |        |        |       |        |       |         |         |         |     | ●   | ●   |     |     |
| M 19 x 1.5                           |                          |      |             |               |                  |               |               |                  |                   |         | 19              | 67              | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 19 x 1                             |                          |      |             |               |                  |               |               |                  |                   |         | 19              | 67              | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 19 x 0.75                          |                          |      |             |               |                  |               |               |                  |                   |         | S <sub>19</sub> | S <sub>67</sub> | S     |        | S     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 19 x 0.5                           |                          |      |             |               |                  |               |               |                  |                   |         | S <sub>19</sub> | S <sub>67</sub> | S     |        | S     |        | S     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| M 20 x 2.5*                          |                          |      |             |               |                  |               |               |                  |                   |         | ●               |                 | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     | ●   | ●   |     |     |
| M 20 x 2                             |                          |      |             |               |                  |               |               |                  |                   |         | ●               |                 | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     | ●   | ●   |     |     |
| M 20 x 1.5                           |                          |      |             |               |                  |               |               |                  |                   |         | 19              | 67              | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     | ●   | ●   |     |     |

\* = Regelgewinde (nach DIN 13 Teil 1) standard thread (to DIN 13 part 1)

● = Rolllänge unbegrenzt unlimited length of thread

S = Semi-Standard-Rollkopf-Winkel, Rolllänge unbegrenzt special rolling head helix angle, unlimited length of thread

14 = max. Rolllänge (14 mm) maximum length of rolling (0.551°)

19 = max. Rolllänge (19 mm) maximum length of rolling (0.748°)

67 = max. Rolllänge (67 mm) maximum length of rolling (2.638°)

Metrisches ISO-Gewinde, DIN 13  
 Metric ISO Threads, DIN 13

| Gewinde-<br>abmessung<br>Thread Size | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                                 |                   |                 |           |      |       |                 |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
|--------------------------------------|--------------------------|------|-------------|---------------|------------------|---------------|---------------|---------------------------------|-------------------|-----------------|-----------|------|-------|-----------------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|---|---|---|--|--|
|                                      | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y                | F233400   K233400 | F3   K3         | F34   K34 | FU32 | FU3-1 | FU34-1          | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |   |   |   |  |  |
| M 20 x 1                             |                          |      |             |               |                  |               |               | 19 67                           |                   | ●               |           |      |       |                 | ●     |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 20 x 0.75                          |                          |      |             |               |                  |               |               | S <sub>19</sub> S <sub>67</sub> |                   | S               |           |      |       | S               |       | ●      |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 21 x 2                             |                          |      |             |               |                  |               |               |                                 |                   | ●               |           |      | ●     |                 | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     | ●   |     | ●   |   |   |   |  |  |
| M 21 x 1.5                           |                          |      |             |               |                  |               |               | 19 67                           |                   | ●               |           |      |       | ●               |       | ●      |       | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 21 x 1                             |                          |      |             |               |                  |               |               | S <sub>19</sub> 67              |                   | ●               |           |      |       | ●               |       | ●      |       | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 21 x 0.75                          |                          |      |             |               |                  |               |               | S <sub>19</sub> S <sub>67</sub> |                   | S               |           |      |       | S               |       | S      |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 22 x 2.5*                          |                          |      |             |               |                  |               |               |                                 |                   | ●               |           |      | ●     |                 | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     | ●   |     | ●   |   |   |   |  |  |
| M 22 x 2                             |                          |      |             |               |                  |               |               | 67                              |                   | ●               |           |      | ●     |                 | ●     |        | ●     |        | ●      |        |        |       |        |       |         |         |         |     |     | ●   |     | ●   |   |   |   |  |  |
| M 22 x 1.5                           |                          |      |             |               |                  |               |               | 19 67                           |                   | 24              |           |      |       | ●               |       | ●      |       | ●      |        | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 22 x 1                             |                          |      |             |               |                  |               |               | S <sub>19</sub> 67              |                   | S <sub>24</sub> |           |      |       | S               |       | ●      |       | ●      |        | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 22 x 0.75                          |                          |      |             |               |                  |               |               | S <sub>19</sub> S <sub>67</sub> |                   | S <sub>24</sub> |           |      |       | S               |       | S      |       | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 23 x 2                             |                          |      |             |               |                  |               |               | 67                              |                   | 24              |           |      |       | ●               | ●     | ●      | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     | ●   |   |   |   |  |  |
| M 23 x 1.5                           |                          |      |             |               |                  |               |               | 67                              |                   | 24              |           |      |       | ●               |       | ●      |       | ●      |        | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 23 x 1                             |                          |      |             |               |                  |               |               | 67                              |                   | S <sub>24</sub> |           |      |       | S               |       | ●      |       | ●      |        | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 23 x 0.75                          |                          |      |             |               |                  |               |               | S <sub>67</sub>                 |                   | S <sub>24</sub> |           |      |       | S               |       | S      |       | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 24 x 3*                            |                          |      |             |               |                  |               |               |                                 |                   |                 |           |      |       |                 | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     | ●   |     | ● |   |   |  |  |
| M 24 x 2                             |                          |      |             |               |                  |               |               | 67                              |                   | 24              |           |      |       | ●               | ●     | ●      | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 24 x 1.5                           |                          |      |             |               |                  |               |               | 67                              |                   | 24              |           |      |       | ●               |       | ●      |       | ●      |        | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 24 x 1                             |                          |      |             |               |                  |               |               | S <sub>67</sub>                 |                   | S <sub>24</sub> |           |      |       | S               |       | ●      |       | ●      |        | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 24 x 0.75                          |                          |      |             |               |                  |               |               | S <sub>67</sub>                 |                   | S <sub>24</sub> |           |      |       | S               |       | S      |       | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 25 x 2                             |                          |      |             |               |                  |               |               | 67                              |                   | 24              |           |      |       | ●               | ●     | ●      | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     | ●   |   |   |   |  |  |
| M 25 x 1.5                           |                          |      |             |               |                  |               |               |                                 |                   | 24              |           |      |       | ●               |       | ●      |       | ●      |        | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 25 x 1                             |                          |      |             |               |                  |               |               | S <sub>67</sub>                 |                   | S <sub>24</sub> |           |      |       | S               |       | ●      |       | ●      |        | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 25 x 0.75                          |                          |      |             |               |                  |               |               | S <sub>67</sub>                 |                   | S <sub>24</sub> |           |      |       | S               |       | S      |       | S      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 26 x 2                             |                          |      |             |               |                  |               |               | 67                              |                   | 24              |           |      |       | ●               |       | ●      |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 26 x 1.5                           |                          |      |             |               |                  |               |               | 67                              |                   | 24              |           |      |       | ●               |       | ●      |       | ●      |        | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 26 x 1                             |                          |      |             |               |                  |               |               | S <sub>67</sub>                 |                   | S <sub>24</sub> |           |      |       | S               |       | ●      |       | ●      |        | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 26 x 0.75                          |                          |      |             |               |                  |               |               | S <sub>67</sub>                 |                   | S <sub>24</sub> |           |      |       | S               |       | S      |       | S      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 27 x 3*                            |                          |      |             |               |                  |               |               |                                 |                   |                 |           |      |       |                 | ●     |        |       | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     | ●   |   | ● |   |  |  |
| M 27 x 2                             |                          |      |             |               |                  |               |               | 67                              |                   | 24              |           |      |       | 75              |       | ●      |       | ●      |        | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 27 x 1.5                           |                          |      |             |               |                  |               |               | 67                              |                   | 24              |           |      |       | 75              |       | ●      |       | ●      |        | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 27 x 1                             |                          |      |             |               |                  |               |               | S <sub>67</sub>                 |                   | S <sub>24</sub> |           |      |       | S <sub>75</sub> |       | ●      |       | ●      |        | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 27 x 0.75                          |                          |      |             |               |                  |               |               | S <sub>67</sub>                 |                   | S <sub>24</sub> |           |      |       | S <sub>75</sub> |       | S      |       | S      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 28 x 3                             |                          |      |             |               |                  |               |               |                                 |                   |                 |           |      |       |                 | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     | ●   |   | ● |   |  |  |
| M 28 x 2                             |                          |      |             |               |                  |               |               |                                 |                   | 24              |           |      |       | 75              |       | ●      |       | ●      |        | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 28 x 1.5                           |                          |      |             |               |                  |               |               |                                 |                   | 24              |           |      |       | 75              |       | ●      |       | ●      |        | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 28 x 1                             |                          |      |             |               |                  |               |               | S <sub>24</sub>                 |                   | S <sub>24</sub> |           |      |       | S <sub>75</sub> |       | S      |       | ●      |        | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 28 x 0.75                          |                          |      |             |               |                  |               |               | S <sub>24</sub>                 |                   | S <sub>24</sub> |           |      |       | S <sub>75</sub> |       | S      |       | S      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 29 x 1.5                           |                          |      |             |               |                  |               |               |                                 |                   | 24              |           |      |       | 75              |       | ●      |       | ●      |        | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 29 x 1                             |                          |      |             |               |                  |               |               | S <sub>24</sub>                 |                   | S <sub>24</sub> |           |      |       | S <sub>75</sub> |       | S      |       | ●      |        | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 30 x 3.5*                          |                          |      |             |               |                  |               |               |                                 |                   |                 |           |      |       |                 | ●     |        | ●     |        | ●      |        | ●      | ●     |        |       |         |         |         |     |     |     |     | ●   |   | ● |   |  |  |
| M 30 x 3                             |                          |      |             |               |                  |               |               |                                 |                   |                 |           |      |       |                 | ●     |        | ●     |        | ●      |        | ●      | ●     |        |       |         |         |         |     |     |     |     |     | ● |   | ● |  |  |
| M 30 x 2                             |                          |      |             |               |                  |               |               |                                 |                   | 24              |           |      |       | 75              |       | ●      |       | ●      |        | ●      |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   |  |  |
| M 30 x 1.5                           |                          |      |             |               |                  |               |               |                                 |                   | 24              |           |      |       | 75              |       | ●      |       | ●      |        | ●      |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   |  |  |

\* = Regelgewinde (nach DIN 13 Teil 1) standard thread (to DIN 13 part 1)  
 ● = Rolllänge unbegrenzt unlimited length of thread  
 S = Semi-Standard-Rollkopf-Winkel, Rolllänge unbegrenzt special rolling head helix angle, unlimited length of thread  
 19= max. Rolllänge (19 mm) maximum length of rolling (0.748")  
 24= max. Rolllänge (24 mm) maximum length of rolling (0.945")  
 67= max. Rolllänge (67 mm) maximum length of rolling (2.638")  
 75= max. Rolllänge (75 mm) maximum length of rolling (2.953")

| Metrisches ISO-Gewinde, DIN 13<br>Metric ISO Threads, DIN 13 |          | Rollkopf<br>Rolling Head |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 |                 |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |
|--|----------|--------------------------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|-----------------|-----------------|------|-------|--------|-------|-----------------|-----------------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|---|---|---|---|---|---|---|---|
| Gewinde-<br>abmessung<br>Thread Size                         | F0   K0  | F001                     | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3         | F34   K34       | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1          | FU5-1           | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |   |   |   |   |   |   |   |   |
|  | M 30 x 1 |                          |             |               |                  |               |               |                  |                   | S <sub>24</sub> |                 |      |       |        |       |                 | S               |        | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |   | ● |   |   |   |   |   |   |
| M 31 x 1.5   |          |                          |             |               |                  |               |               |                  | 24                |                 | S <sub>24</sub> |      |       |        |       | S <sub>75</sub> | ●               | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     | ● | ● |   |   |   |   |   |   |
| M 31 x 1   |          |                          |             |               |                  |               |               |                  | S <sub>24</sub>   |                 |                 |      |       |        |       | S               |                 | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     | ● | ● |   |   |   |   |   |   |
| M 32 x 3   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 | ●               |        | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |
| M 32 x 2   |          |                          |             |               |                  |               |               |                  | 24                |                 |                 |      |       |        |       | ●               |                 | ●      | ●      | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   | ● | ● |   |   |   |   |   |
| M 32 x 1.5   |          |                          |             |               |                  |               |               |                  | 24                |                 |                 |      |       |        |       | ●               |                 | ●      | ●      | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   | ● | ● |   |   |   |   |
| M 32 x 1   |          |                          |             |               |                  |               |               |                  | S <sub>24</sub>   |                 |                 |      |       |        |       | S               |                 | S      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   | ● | ● |   |   |   |   |
| M 33 x 3.5*  |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 | ●               |        | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |
| M 33 x 3   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 | ●               |        | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |
| M 33 x 2   |          |                          |             |               |                  |               |               |                  | 24                |                 |                 |      |       |        |       | ●               |                 | ●      | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   | ● | ● |   |   |   |   |
| M 33 x 1.5   |          |                          |             |               |                  |               |               |                  | S <sub>24</sub>   |                 |                 |      |       |        |       | ●               |                 | ●      | ●      | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   | ● | ● |   |   |   |   |
| M 33 x 1   |          |                          |             |               |                  |               |               |                  | S <sub>24</sub>   |                 |                 |      |       |        |       | S               |                 | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   | ● | ● |   |   |   |   |
| M 34 x 3   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 | ●               |        | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |
| M 34 x 2   |          |                          |             |               |                  |               |               |                  | 24                |                 |                 |      |       |        |       | ●               |                 | ●      | ●      | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   | ● | ● |   |   |   |
| M 34 x 1.5   |          |                          |             |               |                  |               |               |                  | 24                |                 |                 |      |       |        |       | ●               |                 | ●      | ●      | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   | ● | ● |   |   |
| M 34 x 1   |          |                          |             |               |                  |               |               |                  | S <sub>24</sub>   |                 |                 |      |       |        |       | S               |                 | S      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   | ● | ● |   |   |
| M 35 x 3   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 | ●               |        | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |
| M 35 x 2   |          |                          |             |               |                  |               |               |                  | 24                |                 |                 |      |       |        |       | ●               |                 | ●      | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   | ● | ● |   |   |
| M 35 x 1.5   |          |                          |             |               |                  |               |               |                  | S <sub>24</sub>   |                 |                 |      |       |        |       | ●               |                 | ●      | ●      | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   | ● | ● |   |   |
| M 35 x 1   |          |                          |             |               |                  |               |               |                  | S <sub>24</sub>   |                 |                 |      |       |        |       | S               |                 | S      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   | ● | ● |   |   |
| M 36 x 4*  |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 | ●               |        | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |
| M 36 x 3   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 | ●               |        | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |
| M 36 x 2   |          |                          |             |               |                  |               |               |                  | 24                |                 |                 |      |       |        |       | ●               |                 | ●      | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   | ● | ● |   |   |
| M 36 x 1.5   |          |                          |             |               |                  |               |               |                  | 24                |                 |                 |      |       |        |       | ●               |                 | ●      | ●      | ●      |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   | ● | ● |   |   |
| M 36 x 1   |          |                          |             |               |                  |               |               |                  | S <sub>24</sub>   |                 |                 |      |       |        |       | S               |                 | S      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   | ● | ● |   |
| M 37 x 1.5   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 | 28              |        | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   | ● | ● |   |
| M 37 x 1   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 | S <sub>28</sub> |        | S      |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   | ● | ● |   |
| M 38 x 3   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 | ●               |        | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   | ● | ● |   |
| M 38 x 2   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 | 28              |        | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   | ● | ● |   |
| M 38 x 1.5   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 | 28              |        | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   | ● | ● |   |
| M 39 x 4*  |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 | ●               |        | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   | ● | ● |   |
| M 39 x 3   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 |                 | ●      |        | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   | ● | ● |
| M 39 x 2   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 | 28              |        | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   | ● | ● |
| M 39 x 1.5   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 | 28              |        | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   | ● | ● |
| M 40 x 4   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 |                 | ●      |        | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   | ● | ● |
| M 40 x 3   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 |                 | ●      |        | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   | ● | ● |
| M 40 x 2   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 | 28              |        | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   | ● | ● |
| M 40 x 1.5   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 | 28              |        | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   | ● | ● |
| M 42 x 4.5*  |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 |                 | ●      |        | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   | ● | ● |
| M 42 x 4   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 |                 | ●      |        | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   | ● | ● |
| M 42 x 3   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 |                 | ●      |        | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   | ● | ● |
| M 42 x 2   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 | 28              |        | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   | ● | ● |
| M 42 x 1.5   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 |                 | ●      |        | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   | ● | ● |
| M 45 x 4.5*  |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 |                 |        |        | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   | ● | ● |
| M 45 x 4   |          |                          |             |               |                  |               |               |                  |                   |                 |                 |      |       |        |       |                 |                 |        |        | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   | ● | ● |

\* = Regelgewinde (nach DIN 13 Teil 1) standard thread (to DIN 13 part 1)  
 ● = Rolllänge unbegrenzt unlimited length of thread  
 S = Semi-Standard-Rollkopf-Winkel, Rolllänge unbegrenzt special rolling head helix angle, unlimited length of thread  
 24 = max. Rolllänge (24 mm) maximum length of rolling (0.945")  
 28 = max. Rolllänge (28 mm) maximum length of rolling (1.102")  
 75 = max. Rolllänge (75 mm) maximum length of rolling (2.953")

| Metrisches ISO-Gewinde, DIN 13<br>Metric ISO Threads, DIN 13 |         | Rollkopf<br>Rolling Head |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |   |   |   |   |
|--|---------|--------------------------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|-----------------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|---|---|---|---|---|---|---|---|---|---|---|---|
| Gewinde-<br>abmessung<br>Thread Size                         | F0   K0 | F001                     | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1          | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |   |   |   |   |   |   |   |   |   |   |   |   |
| M 45 x 3   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | ●               |        | ●      |        | ●     |        |       |         |         |         |     |     |     |     | ●   | ● |   |   |   |   |   |   |   |   |   |   |   |
| M 45 x 2   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | ●               |        | ●      | ●      |       |        |       |         |         |         |     |     |     |     | ●   | ● |   |   |   |   |   |   |   |   |   |   |   |
| M 45 x 1.5   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | ●               |        |        | ●      |       |        |       |         |         |         |     |     |     |     | ●   | ● |   |   |   |   |   |   |   |   |   |   |   |
| M 48 x 5*  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        | ●      |        | ●     |        |       |         |         |         |     |     |     |     |     | ● | ● |   |   |   |   |   |   |   |   |   |   |
| M 48 x 4   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        | ●      |        | ●     |        |       |         |         |         |     |     |     |     |     | ● | ● |   |   |   |   |   |   |   |   |   |   |
| M 48 x 3   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | 95              |        | ●      |        | ●     |        |       |         |         |         |     |     |     |     |     | ● | ● |   |   |   |   |   |   |   |   |   |   |
| M 48 x 2   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | 95              |        | ●      |        | ●     |        |       |         |         |         |     |     |     |     |     | ● | ● |   |   |   |   |   |   |   |   |   |   |
| M 48 x 1.5   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | 95              |        | ●      |        | ●     |        |       |         |         |         |     |     |     |     |     | ● | ● |   |   |   |   |   |   |   |   |   |   |
| M 50 x 4   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        | ●      | ●      | ●     |        |       |         |         |         |     |     |     |     |     |   | ● | ● |   |   |   |   |   |   |   |   |   |
| M 50 x 3   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | 95              |        | ●      | ●      | ●     |        |       |         |         |         |     |     |     |     |     |   | ● | ● |   |   |   |   |   |   |   |   |   |
| M 50 x 2   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | 95              |        | ●      |        | ●     |        |       |         |         |         |     |     |     |     |     |   | ● | ● |   |   |   |   |   |   |   |   |   |
| M 50 x 1.5   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | S <sub>95</sub> |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   | ● | ● |   |   |   |   |   |   |   |   |
| M 52 x 5*  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        | ●      | ●      | ●     |        |       |         |         |         |     |     |     |     |     |   |   | ● | ● |   |   |   |   |   |   |   |   |
| M 52 x 4   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        | ●      | ●      | ●     |        |       |         |         |         |     |     |     |     |     |   |   |   | ● | ● |   |   |   |   |   |   |   |
| M 52 x 3   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | 95              |        | ●      |        | ●     |        |       |         |         |         |     |     |     |     |     |   |   | ● | ● |   |   |   |   |   |   |   |   |
| M 52 x 2   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | 95              |        | ●      |        | ●     |        |       |         |         |         |     |     |     |     |     |   |   | ● | ● |   |   |   |   |   |   |   |   |
| M 52 x 1.5   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | S <sub>95</sub> |        | ●      |        | ●     |        |       |         |         |         |     |     |     |     |     |   |   |   | ● | ● |   |   |   |   |   |   |   |
| M 55 x 4   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        | ●      |        | ●     |        |       |         |         |         |     |     |     |     |     |   |   |   |   | ● | ● |   |   |   |   |   |   |
| M 55 x 3   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        | S      |        | ●     |        |       |         |         |         |     |     |     |     |     |   |   |   |   | ● | ● |   |   |   |   |   |   |
| M 55 x 2   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        | ●      |       | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   | ● | ● |   |   |   |   |   |
| M 55 x 1.5   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        | ●      |       | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   | ● | ● |   |   |   |   |   |
| M 56 x 5.5*  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        | ●      |        | ●     |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   | ● | ● |   |   |   |   |   |
| M 56 x 4   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        | ●      |        | ●     |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   | ● | ● |   |   |   |   |
| M 56 x 3   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        | S      |        | ●     |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   | ● | ● |   |   |   |   |
| M 56 x 2   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        | ●      |       | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   | ● | ● |   |   |   |
| M 56 x 1.5   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        | ●      |       | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   | ● | ● |   |   |   |
| M 58 x 4   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        | ●      |       | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   | ● | ● |   |   |   |
| M 58 x 3   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        | ●      |       | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   | ● | ● |   |   |   |
| M 58 x 2   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        | ●      |       | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   | ● | ● |   |   |   |
| M 58 x 1.5   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        | ●      |       | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   | ● | ● |   |   |   |
| M 60 x 5.5*  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        | ●      |       | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   | ● | ● |   |   |   |
| M 60 x 4   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        | ●      |       | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   | ● | ● |   |   |   |
| M 60 x 3   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        | S      |       | S      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   | ● | ● |   |   |   |
| M 60 x 2   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        | ●      |       | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   | ● | ● |   |   |
| M 60 x 1.5   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        | ●      |       | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   | ● | ● |   |   |
| M 62 x 4   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        | ●      |       | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   | ● | ● |   |   |
| M 62 x 3   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        | S      |       | S      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   | ● | ● |   |   |
| M 62 x 2   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        | ●      |       | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |   | ● | ● |   |
| M 62 x 1.5   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        | ●      |       | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |   | ● | ● |   |
| M 64 x 6*  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        |        | ●     |        | ●     |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |   | ● | ● |   |
| M 64 x 4   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        |        | ●     |        | ●     |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |   | ● | ● |   |
| M 64 x 3   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        | ●      |       | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |   |   | ● | ● |
| M 64 x 2   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        | ●      |       | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |   |   | ● | ● |
| M 64 x 1.5   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        | ●      |       | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |   |   | ● | ● |
| M 65 x 4   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        |        | ●     |        | ●     |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |   |   | ● | ● |
| M 65 x 3   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        |        | ●     |        | ●     |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |   |   | ● | ● |
| M 65 x 2   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |                 |        |        |        | ●     |        | ●     |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |   |   | ● | ● |

\* = Regelgewinde (nach DIN 13 Teil 1) standard thread (to DIN 13 part 1)  
 ● = Rolllänge unbegrenzt unlimited length of thread  
 S = Semi-Standard-Rollkopf-Winkel, Rolllänge unbegrenzt special rolling head helix angle, unlimited length of thread  
 95 = max. Rolllänge (95 mm) maximum length of rolling (3.740")



| Metrisches ISO-Gewinde, DIN 13<br>Metric ISO Threads, DIN 13 |            | Rollkopf<br>Rolling Head |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |
|--|------------|--------------------------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|--|---|
| Gewinde-<br>abmessung<br>Thread Size                         | F0   K0    | F001                     | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |  |   |
|  | M 65 x 1.5 |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  | ● |
| M 68 x 6*  |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |  |   |
| M 68 x 4   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |  |   |
| M 68 x 3   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |  | ● |
| M 68 x 2   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |  | ● |
| M 68 x 1.5   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |  | ● |
| M 70 x 6   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |  |   |
| M 70 x 4   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |  |   |
| M 70 x 3   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |  | ● |
| M 70 x 2   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |  | ● |
| M 70 x 1.5   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |  | ● |
| M 72 x 6   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |  |   |
| M 72 x 4   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 72 x 3   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  | ● |
| M 72 x 2   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  | ● |
| M 72 x 1.5   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  | ● |
| M 75 x 4   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |  |   |
| M 75 x 3   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |  |   |
| M 75 x 2   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |  |   |
| M 75 x 1.5   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |  |   |
| M 76 x 6   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 76 x 4   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 76 x 3   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 76 x 2   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 76 x 1.5   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 78 x 4   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 78 x 3   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 78 x 2   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 78 x 1.5   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 80 x 6   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 80 x 4   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 80 x 3   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 80 x 2   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 80 x 1.5   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 82 x 4   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 82 x 3   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 82 x 2   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 82 x 1.5   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 85 x 4   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 85 x 3   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 85 x 2   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 85 x 1.5   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 88 x 4   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 88 x 3   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  | S |
| M 88 x 2   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  | ● |
| M 88 x 1.5   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 90 x 6   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  |   |
| M 90 x 4   |            |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     | ●      |       | ●       |         |         |     |     |     |     |     |  | S |

\* = Regelgewinde (nach DIN 13 Teil 1) standard thread (to DIN 13 part 1)  
 ● = Rolllänge unbegrenzt unlimited length of thread  
 S = Semi-Standard-Rollkopf-Winkel, Rolllänge unbegrenzt special rolling head helix angle, unlimited length of thread



Metrisches ISO-Gewinde, DIN 13  
Metric ISO Threads, DIN 13

| Gewinde-<br>abmessung<br>Thread Size | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
|--------------------------------------|--------------------------|------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-----------------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|--|--|--|--|
|                                      | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700           | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |  |  |  |  |
| M 90 x 3                             |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        | 50     |                 | ●      |       | ●       |         |         |     |     |     |     |     |  |  |  |  |
| M 90 x 2                             |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | 50              | ●      |       |         | ●       |         |     |     |     |     |     |  |  |  |  |
| M 90 x 1.5                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | S <sub>50</sub> |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| M 92 x 4                             |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 | ●      | ●     | S       |         |         |     |     |     |     |     |  |  |  |  |
| M 92 x 3                             |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | 50              | ●      |       |         | ●       |         |     |     |     |     |     |  |  |  |  |
| M 92 x 2                             |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | 50              | ●      |       |         | ●       |         |     |     |     |     |     |  |  |  |  |
| M 92 x 1.5                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | S <sub>50</sub> |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| M 95 x 6                             |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | S <sub>50</sub> |        |       | ●       | S       |         |     |     |     |     |     |  |  |  |  |
| M 95 x 4                             |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 | ●      | ●     | ●       |         |         |     |     |     |     |     |  |  |  |  |
| M 95 x 3                             |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | 50              | ●      |       |         | ●       |         |     |     |     |     |     |  |  |  |  |
| M 95 x 2                             |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | 50              | ●      |       |         | ●       |         |     |     |     |     |     |  |  |  |  |
| M 98 x 4                             |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 | ●      | ●     |         |         |         |     |     |     |     |     |  |  |  |  |
| M 98 x 3                             |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 | ●      |       |         | ●       |         |     |     |     |     |     |  |  |  |  |
| M 98 x 2                             |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 | ●      |       |         | ●       |         |     |     |     |     |     |  |  |  |  |
| M 100 x 6                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 |        | ●     | S       |         |         |     |     |     |     |     |  |  |  |  |
| M 100 x 4                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 | ●      |       |         | S       |         |     |     |     |     |     |  |  |  |  |
| M 100 x 3                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 | ●      |       |         |         | ●       |     |     |     |     |     |  |  |  |  |
| M 100 x 2                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 | ●      |       |         | ●       |         |     |     |     |     |     |  |  |  |  |
| M 102 x 4                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 | ●      |       |         |         | ●       |     |     |     |     |     |  |  |  |  |
| M 102 x 3                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 | ●      |       |         |         | ●       |     |     |     |     |     |  |  |  |  |
| M 102 x 2                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 | ●      |       |         | ●       |         |     |     |     |     |     |  |  |  |  |
| M 105 x 6                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 |        |       |         | S       |         |     |     |     |     |     |  |  |  |  |
| M 105 x 4                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 | ●      |       |         |         |         |     |     |     |     |     |  |  |  |  |
| M 105 x 3                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 | ●      |       |         | ●       | ●       |     |     |     |     |     |  |  |  |  |
| M 105 x 2                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 | ●      |       |         | ●       |         |     |     |     |     |     |  |  |  |  |
| M 108 x 4                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 | ●      |       |         | ●       |         |     |     |     |     |     |  |  |  |  |
| M 108 x 3                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 | ●      |       |         | ●       | ●       |     |     |     |     |     |  |  |  |  |
| M 108 x 2                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 | ●      |       |         | ●       |         |     |     |     |     |     |  |  |  |  |
| M 110 x 6                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 |        |       | S       |         |         |     |     |     |     |     |  |  |  |  |
| M 110 x 4                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 | ●      |       |         |         |         |     |     |     |     |     |  |  |  |  |
| M 110 x 3                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 | ●      |       |         | ●       | ●       |     |     |     |     |     |  |  |  |  |
| M 110 x 2                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 | ●      |       |         |         |         |     |     |     |     |     |  |  |  |  |
| M 112 x 4                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 |        |       | ●       | ●       |         |     |     |     |     |     |  |  |  |  |
| M 112 x 3                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 |        |       | ●       | ●       | ●       |     |     |     |     |     |  |  |  |  |
| M 112 x 2                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 |        |       | ●       | ●       | ●       |     |     |     |     |     |  |  |  |  |
| M 115 x 6                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 |        |       | S       |         |         |     |     |     |     |     |  |  |  |  |
| M 115 x 4                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 |        |       | ●       | ●       | ●       |     |     |     |     |     |  |  |  |  |
| M 115 x 3                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 |        |       | ●       | ●       | ●       |     |     |     |     |     |  |  |  |  |
| M 115 x 2                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 |        |       | ●       | ●       | ●       |     |     |     |     |     |  |  |  |  |
| M 118 x 4                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 |        |       | ●       | ●       | ●       |     |     |     |     |     |  |  |  |  |
| M 118 x 3                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 |        |       | ●       | ●       | ●       |     |     |     |     |     |  |  |  |  |
| M 118 x 2                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 |        |       | ●       | ●       | ●       |     |     |     |     |     |  |  |  |  |
| M 120 x 6                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 |        |       | S       |         |         |     |     |     |     |     |  |  |  |  |
| M 120 x 4                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 |        |       | ●       | ●       | ●       |     |     |     |     |     |  |  |  |  |
| M 120 x 3                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 |        |       | ●       | ●       | ●       |     |     |     |     |     |  |  |  |  |
| M 120 x 2                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 |        |       | ●       | ●       | ●       |     |     |     |     |     |  |  |  |  |
| M 122 x 4                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 |        |       | ●       | ●       | ●       |     |     |     |     |     |  |  |  |  |
| M 122 x 3                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |                 |        |       | ●       | ●       | ●       |     |     |     |     |     |  |  |  |  |

● = Rolllänge unbegrenzt unlimited length of thread

S = Semi-Standard-Rollkopf-Winkel, Rolllänge unbegrenzt special rolling head helix angle, unlimited length of thread

50= max. Rolllänge (50 mm) maximum length of rolling (1.969")

| Metrisches ISO-Gewinde, DIN 13<br>Metric ISO Threads, DIN 13 |           | Rollkopf<br>Rolling Head |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |
|--|-----------|--------------------------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|--|--|
| Gewinde-<br>abmessung<br>Thread Size                         | F0   K0   | F001                     | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |  |  |
|  | M 122 x 2 |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       |         |     |     |     |     |     |  |  |
| M 125 x 6  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | S       | ●       |         |     |     |     |     |     |  |  |
| M 125 x 4  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | ●       | ●       |         |     |     |     |     |     |  |  |
| M 125 x 3  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | ●       | ●       | ●       |     |     |     |     |     |  |  |
| M 125 x 2  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | ●       | ●       | ●       |     |     |     |     |     |  |  |
| M 128 x 4  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 128 x 3  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 128 x 2  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 130 x 4  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 130 x 3  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 130 x 2  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 132 x 4  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 132 x 3  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 132 x 2  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 135 x 4  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 135 x 3  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 135 x 2  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 138 x 4  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 138 x 3  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 138 x 2  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 140 x 4  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 140 x 3  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 140 x 2  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 142 x 4  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 142 x 3  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 142 x 2  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 145 x 4  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 145 x 3  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 145 x 2  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 148 x 4  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 148 x 3  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 150 x 4  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 150 x 3  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 152 x 4  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 152 x 3  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 155 x 4  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 155 x 3  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 158 x 4  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 158 x 3  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 160 x 4  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 160 x 3  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 162 x 4  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 162 x 3  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 165 x 4  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 165 x 3  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 168 x 4  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 168 x 3  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |
| M 170 x 4  |           |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       | ●   |     |     |     |     |  |  |

● = Rolllänge unbegrenzt unlimited length of thread  
 S = Semi-Standard-Rollkopf-Winkel, Rolllänge unbegrenzt special rolling head helix angle, unlimited length of thread



| Metrisches ISO-Gewinde, DIN 13<br>Metric ISO Threads, DIN 13 |         | Rollkopf<br>Rolling Head |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
|--|---------|--------------------------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|--|--|--|--|--|
| Gewinde-<br>abmessung<br>Thread Size                         | F0   K0 | F001                     | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |  |  |  |  |  |
| M 170 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         | ●       |     |     |     |     |     |  |  |  |  |  |
| M 172 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 172 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 175 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 175 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 180 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 180 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 182 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 182 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 185 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 185 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 188 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 188 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 190 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 190 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 192 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 192 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 195 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 195 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 198 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 198 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 200 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 200 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 202 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 202 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 205 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 205 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 208 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 208 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 210 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 210 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 212 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 212 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 215 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 215 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 218 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 218 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 220 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 220 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 222 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 222 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 225 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 225 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 228 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 228 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 230 x 4  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |
| M 230 x 3  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   |     |     |     |     |  |  |  |  |  |

● = Rolllänge unbegrenzt unlimited length of thread

| Unified-Gewinde, ANSI B1.1<br>Unified Threads, ANSI B1.1 |      | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
|--|------|--------------------------|------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|--|---|---|
| Gewinde-<br>abmessung<br>Thread Size                     |      | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |  |   |   |
|  |      | 0-80                     | UNF  | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 1-64   | UNC  | ●                        |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 1-72   | UNF  | ●                        |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 2-56   | UNC  | ●                        |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 3-64   | UNF  | ●                        |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 3-48   | UNC  | ●                        |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 3-56   | UNF  | ●                        |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 4-40   | UNC  | ●                        | ●    |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 4-48   | UNF  | ●                        | ●    |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 5-40   | UNC  | ●                        | ●    |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 5-44   | UNF  | ●                        | ●    |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 6-32   | UNC  | ●                        | ●    |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 6-40   | UNF  | ●                        | ●    | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 8-32   | UNC  | ●                        | ●    | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 8-36   | UNF  | ●                        |      | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 10-24  | UNC  | ●                        |      | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 10-32  | UNF  | ●                        |      | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 12-24  | UNC  | ●                        |      | ●           |               |                  | ●             |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 12-28  | UNF  | ●                        |      | ●           |               |                  | ●             |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 12-32  | UNEF | ●                        |      | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 1/4-20   | UNC  |                          |      | ●           | ●             |                  | ●             |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 1/4-28   | UNF  |                          |      | ●           | ●             |                  | ●             |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 1/4-32   | UNEF |                          |      | ●           |               |                  | ●             |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 5/16-18  | UNC  |                          |      |             | ●             |                  | ●             | ●             |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  | ● |   |
| 5/16-20  | UN   |                          |      |             | ●             |                  | ●             | ●             |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  | ● |   |
| 5/16-24  | UNF  |                          |      |             | ●             |                  | ●             | ●             |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  | ● |   |
| 5/16-28  | UN   |                          |      |             | ●             |                  | ●             | ●             |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  | ● |   |
| 5/16-32  | UNEF |                          |      |             |               | ●                |               | ●             | ●                |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 3/8-16   | UNC  |                          |      |             | ●             |                  | ●             | ●             |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  | ● |   |
| 3/8-20   | UN   |                          |      |             | ●             |                  | ●             | ●             |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  | ● |   |
| 3/8-24   | UNF  |                          |      |             | ●             | ●                |               | ●             |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  | ● |   |
| 3/8-28   | UN   |                          |      |             |               | ●                |               | ●             |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 3/8-32   | UNEF |                          |      |             |               | ●                |               | ●             |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 7/16-14  | UNC  |                          |      |             | 14            |                  |               | ●             |                  |                   |         | ●         |      | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  | ● | ● |
| 7/16-16  | UN   |                          |      |             |               |                  |               | ●             |                  |                   |         |           | ●    | ●     |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  | ● | ● |
| 7/16-20  | UNF  |                          |      |             | 14            | 14               |               | ●             |                  |                   |         |           | ●    | ●     |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  | ● | ● |
| 7/16-28  | UNEF |                          |      |             |               | 14               |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 7/16-32  | UN   |                          |      |             |               |                  |               |               | ●                |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 1/2-13   | UNC  |                          |      |             |               |                  |               | ●             |                  |                   |         | ●         |      | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  | ● | ● |
| 1/2-16   | UN   |                          |      |             |               |                  |               | ●             |                  |                   |         | ●         |      | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  | ● | ● |
| 1/2-18   | UN   |                          |      |             |               |                  |               | ●             |                  |                   |         | ●         |      | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  | ● | ● |
| 1/2-20   | UNF  |                          |      |             |               | 14               |               | ●             | ●                |                   |         | ●         |      | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  | ● | ● |
| 1/2-28   | UNEF |                          |      |             |               | 14               |               |               |                  |                   |         |           | ●    |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 1/2-32   | UN   |                          |      |             |               |                  |               |               | ●                |                   |         |           | ●    |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  | ● | ● |
| 9/16-12  | UN   |                          |      |             |               |                  |               | ●             |                  |                   |         | ●         |      | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  | ● | ● |
| 9/16-14  | UN   |                          |      |             |               |                  |               | ●             |                  |                   |         | ●         |      | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 9/16-16  | UN   |                          |      |             |               |                  |               | ●             |                  |                   |         | ●         |      | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 9/16-18  | UNF  |                          |      |             |               |                  |               | ●             | ●                |                   |         | ●         |      | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |

● = Rolllänge unbegrenzt unlimited length of thread  
14 = max. Rolllänge (14 mm) maximum length of rolling (0.551")



Unified-Gewinde, ANSI B1.1  
Unified Threads, ANSI B1.1

| Gewinde-<br>abmessung<br>Thread Size | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
|--------------------------------------|--------------------------|------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|--|--|--|
|                                      | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |  |  |  |
| 9/16-20 UN                           |                          |      |             |               |                  |               | ●             |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 9/16-22 UN                           |                          |      |             |               |                  |               | ●             |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 9/16-24 UNEF                         |                          |      |             |               |                  |               | ●             |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 9/16-26 UNEF                         |                          |      |             |               |                  |               | ●             |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 9/16-28 UN                           |                          |      |             |               |                  |               | ●             |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 9/16-32 UN                           |                          |      |             |               |                  |               | ●             |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 5/8-11 UNC                           |                          |      |             |               |                  |               | ●             |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 5/8-12 UN                            |                          |      |             |               |                  |               | ●             |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 5/8-16 UN                            |                          |      |             |               |                  |               | ●             |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 5/8-18 UNF                           |                          |      |             |               |                  |               | ●             |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 5/8-20 UN                            |                          |      |             |               |                  |               | ●             |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 5/8-24 UNEF                          |                          |      |             |               |                  |               | ●             |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 5/8-28 UN                            |                          |      |             |               |                  |               | ●             |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 5/8-32 UN                            |                          |      |             |               |                  |               | ●             |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 11/16-12 UN                          |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 11/16-16 UN                          |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 11/16-20 UN                          |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 11/16-24 UNEF                        |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 11/16-28 UN                          |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 11/16-32 UN                          |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 3/4-10 UNC                           |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 3/4-12 UN                            |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 3/4-16 UNF                           |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 3/4-20 UNEF                          |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 3/4-24 UN                            |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 3/4-28 UN                            |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 3/4-32 UN                            |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 13/16-12 UN                          |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 13/16-16 UN                          |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 13/16-20 UNEF                        |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 13/16-28 UN                          |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 13/16-32 UN                          |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 7/8-9 UNC                            |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 7/8-12 UN                            |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 7/8-14 UNF                           |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 7/8-16 UN                            |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 7/8-20 UNEF                          |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 7/8-28 UN                            |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 7/8-32 UN                            |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 15/16-12 UN                          |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 15/16-16 UN                          |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 15/16-20 UNEF                        |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 15/16-28 UN                          |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 15/16-32 UN                          |                          |      |             |               |                  |               |               |                  |                   | ●       | ●         | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 1-8 UNC                              |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |

- = Rolllänge unbegrenzt unlimited length of thread
- S = Semi-Standard-Rollkopf-Winkel, Rolllänge unbegrenzt special rolling head helix angle, unlimited length of thread
- 19 = max. Rolllänge (19 mm) maximum length of rolling (0.748")
- 24 = max. Rolllänge (24 mm) maximum length of rolling (0.945")
- 67 = max. Rolllänge (67 mm) maximum length of rolling (2.638")

| Unified-Gewinde, ANSI B1.1<br>Unified Threads, ANSI B1.1 |  | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
|--|--|--------------------------|------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|---|---|---|---|
| Gewinde-<br>abmessung<br>Thread Size                     |  | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |   |   |   |   |
|  |  | 1-12 UNF                 |      |             |               |                  |               |               |                  |                   | 67      |           | 24   |       |        |       | ●      | ●     | ●      | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 1-16 UN  |  |                          |      |             |               |                  |               |               | 67               |                   | 24      |           |      |       | ●      |       | ●      | ●     |        | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     | ● |   |   |   |
| 1-20 UNEF  |  |                          |      |             |               |                  |               |               | 67               |                   | 24      |           |      |       | ●      |       | ●      | ●     |        | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 1-28 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 1-32 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 1 1/16-8 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        | ●     |        | ●     | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 1 1/16-12 UN   |  |                          |      |             |               |                  |               |               | 67               |                   | 24      |           | 75   |       |        | ●     | ●      | ●     |        | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 1 1/16-16 UN   |  |                          |      |             |               |                  |               |               | 67               |                   | 24      |           | 75   |       |        | ●     | ●      | ●     |        | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |   | ● |   |   |
| 1 1/16-18 UNEF   |  |                          |      |             |               |                  |               |               | 67               |                   | 24      |           | 75   |       |        | ●     | ●      | ●     |        | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 1 1/16-20 UN   |  |                          |      |             |               |                  |               |               | 67               |                   | 24      |           | 75   |       |        | ●     | ●      | ●     |        | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |   | ● |   |   |
| 1 1/16-28 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |   | ● |   |   |
| 1 1/8-7 UNC  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        | ●     |        | ●     | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 1 1/8-8 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        | ●     |        | ●     | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 1 1/8-12 UNF   |  |                          |      |             |               |                  |               |               | 24               |                   |         |           |      |       |        | S     | ●      | ●     |        | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |   | ● |   |   |
| 1 1/8-16 UN  |  |                          |      |             |               |                  |               |               | 24               |                   | 24      |           | 75   |       |        | ●     | ●      | ●     |        | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   | ● |   |
| 1 1/8-18 UNEF  |  |                          |      |             |               |                  |               |               | 24               |                   | 24      |           | 75   |       |        | ●     | ●      | ●     |        | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   | ● |
| 1 1/8-20 UN  |  |                          |      |             |               |                  |               |               | 24               |                   | 24      |           | 75   |       |        | ●     | ●      | ●     |        | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   | ● |
| 1 1/8-28 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   | ● |   |
| 1 3/16-8 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        | ●     |        | ●     | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 1 3/16-12 UN   |  |                          |      |             |               |                  |               |               | 24               |                   | 24      |           | 75   |       |        | ●     | ●      | ●     |        | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   | ● |   |
| 1 3/16-16 UN   |  |                          |      |             |               |                  |               |               | 24               |                   | 24      |           | 75   |       |        | ●     | ●      | ●     |        | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   | ● |
| 1 3/16-18 UNEF   |  |                          |      |             |               |                  |               |               | 24               |                   | 24      |           | 75   |       |        | ●     | ●      | ●     |        | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   | ● |
| 1 3/16-20 UN   |  |                          |      |             |               |                  |               |               | 24               |                   | 24      |           | 75   |       |        | ●     | ●      | ●     |        | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   | ● |
| 1 3/16-28 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   | ● |
| 1 1/4-7 UNC  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        | ●      |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 1 1/4-8 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        | ●      |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 1 1/4-12 UNF   |  |                          |      |             |               |                  |               |               | 24               |                   |         |           |      |       |        | ●     | ●      | ●     |        | ●      |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   | ● |   |
| 1 1/4-16 UN  |  |                          |      |             |               |                  |               |               | 24               |                   |         |           |      |       |        | ●     | ●      | ●     |        | ●      |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   | ● |
| 1 1/4-18 UNEF  |  |                          |      |             |               |                  |               |               | 24               |                   |         |           |      |       |        | ●     | ●      | ●     |        | ●      |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   | ● |
| 1 1/4-20 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        | ●     | ●      | ●     |        | ●      |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   | ● |
| 1 1/4-28 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        | ●      |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   | ● |
| 1 5/16-8 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        | ●      |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 1 5/16-12 UN   |  |                          |      |             |               |                  |               |               | 24               |                   |         |           |      |       |        | ●     | ●      | ●     |        | ●      |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   | ● |
| 1 5/16-16 UN   |  |                          |      |             |               |                  |               |               | 24               |                   |         |           |      |       |        | ●     | ●      | ●     |        | ●      |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   | ● |
| 1 5/16-18 UNEF   |  |                          |      |             |               |                  |               |               | 24               |                   |         |           |      |       |        | ●     | ●      | ●     |        | ●      |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   | ● |
| 1 5/16-20 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        | ●     | ●      | ●     |        | ●      |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   | ● |
| 1 5/16-28 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        | ●      |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   | ● |
| 1 3/8-6 UNC  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        | ●      |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 1 3/8-8 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        | ●      |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 1 3/8-12 UNF   |  |                          |      |             |               |                  |               |               | 24               |                   |         |           |      |       |        | ●     | ●      | ●     |        | ●      |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   | ● |
| 1 3/8-16 UN  |  |                          |      |             |               |                  |               |               | 24               |                   |         |           |      |       |        | ●     | ●      | ●     |        | ●      |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   | ● |
| 1 3/8-18 UNEF  |  |                          |      |             |               |                  |               |               | 24               |                   |         |           |      |       |        | ●     | ●      | ●     |        | ●      |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   | ● |
| 1 3/8-20 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        | ●      |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   | ● |
| 1 3/8-28 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        | S      |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   | ● |
| 1 7/16-6 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        | ●      |        |        | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |

● = Rolllänge unbegrenzt unlimited length of thread  
 S = Semi-Standard-Rollkopf-Winkel, Rolllänge unbegrenzt special rolling head helix angle, unlimited length of thread  
 24 = max. Rolllänge (24 mm) maximum length of rolling (0.945")  
 67 = max. Rolllänge (67 mm) maximum length of rolling (2.638")  
 75 = max. Rolllänge (75 mm) maximum length of rolling (2.953")

### Unified-Gewinde, ANSI B1.1

### Unified Threads, ANSI B1.1

| Gewinde-<br>abmessung<br>Thread Size | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
|--------------------------------------|--------------------------|------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|--|---|---|
|                                      | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |  |   |   |
| 17/16-8 UN                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 17/16-12 UN                          |                          |      |             |               |                  |               |               |                  |                   | 24      |           |      |       |        |       | 28     | ●     | ●      | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |  | ● |   |
| 17/16-16 UN                          |                          |      |             |               |                  |               |               |                  | 24                |         |           |      |       |        | 28    | ●      | ●     | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  | ● | ● |
| 17/16-18 UNEF                        |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  | ● | ● |
| 17/16-20 UN                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  | ● |   |
| 17/16-28 UN                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | S     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  | ● |   |
| 11/2-6 UNC                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       | ●      | ●     | ●      | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 11/2-8 UN                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       | ●      | ●     | ●      | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 11/2-12 UNF                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        | 28    | ●      | ●     | ●      | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 11/2-16 UN                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        | 28    | ●      | ●     | ●      | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 11/2-18 UNEF                         |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 11/2-20 UN                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 11/2-28 UN                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | S     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 19/16-6 UN                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | ●      | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 19/16-8 UN                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | ●      | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 19/16-12 UN                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        | 28    | ●      | ●     | ●      | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 19/16-16 UN                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        | 28    | ●      | ●     | ●      | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 19/16-18 UNEF                        |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 19/16-20 UN                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | S     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 15/8-6 UN                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | ●      | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 15/8-8 UN                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | ●      | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 15/8-12 UN                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 15/8-16 UN                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 15/8-18 UNEF                         |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 15/8-20 UN                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | S     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 111/16-6 UN                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        | ●      |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 111/16-8 UN                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        | ●      |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 111/16-12 UN                         |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 111/16-16 UN                         |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 111/16-18 UNEF                       |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 111/16-20 UN                         |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | S     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 13/4-5 UNC                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        | ●      |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 13/4-6 UN                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        | ●      |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 13/4-8 UN                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | ●      | ●      |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 13/4-12 UN                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     | ●      |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 13/4-16 UN                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     | ●      |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 13/4-20 UN                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | S     |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 113/16-6 UN                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        | ●      |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 113/16-8 UN                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     | ●      |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 113/16-12 UN                         |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     | ●      |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 113/16-16 UN                         |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     | ●      |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 113/16-20 UN                         |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | S     |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 17/8-6 UN                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        | ●      |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 17/8-8 UN                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | 95     | ●      |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |   |   |
| 17/8-12 UN                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | 95     | ●      |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |   | ● |
| 17/8-16 UN                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | 95     | ●      |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |   | ● |

● = Rolllänge unbegrenzt unlimited length of thread

S = Semi-Standard-Rollkopf-Winkel, Rolllänge unbegrenzt special rolling head helix angle, unlimited length of thread

24 = max. Rolllänge (24 mm) maximum length of rolling (0.945")

28 = max. Rolllänge (28 mm) maximum length of rolling (1.102")

95 = max. Rolllänge (95 mm) maximum length of rolling (3.740")





| Unified-Gewinde, ANSI B1.1<br>Unified Threads, ANSI B1.1 |  | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
|--|--|--------------------------|------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|--|--|--|--|
| Gewinde-<br>abmessung<br>Thread Size                     |  | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |  |  |  |  |
| 27/8-12 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        | ●      |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 27/8-16 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 27/8-20 UNC  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 3-4 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       | ●      |       | ●       |         |         |     |     |     |     |     |  |  |  |  |
| 3-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       | ●      |       |         | ●       |         |     |     |     |     |     |  |  |  |  |
| 3-8 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       | ●       |         |         |     |     |     |     |     |  |  |  |  |
| 3-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         | S       |         |     |     |     |     |     |  |  |  |  |
| 3-16 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         | S       |         |     |     |     |     |     |  |  |  |  |
| 3-20 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | S     |        |       |         | S       |         |     |     |     |     |     |  |  |  |  |
| 3 1/8-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | ●       |         |         |     |     |     |     |     |  |  |  |  |
| 3 1/8-8 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        | ●     |         | ●       |         |     |     |     |     |     |  |  |  |  |
| 3 1/8-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        | ●     |         | S       |         |     |     |     |     |     |  |  |  |  |
| 3 1/8-16 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        | ●     |         | S       |         |     |     |     |     |     |  |  |  |  |
| 3 1/4-4 UNC  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | ●       |         |         |     |     |     |     |     |  |  |  |  |
| 3 1/4-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         | ●       |         |     |     |     |     |     |  |  |  |  |
| 3 1/4-8 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        | ●     |         | S       |         |     |     |     |     |     |  |  |  |  |
| 3 1/4-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        | ●     |         | S       |         |     |     |     |     |     |  |  |  |  |
| 3 1/4-16 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        | ●     |         | S       |         |     |     |     |     |     |  |  |  |  |
| 3 3/8-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         | ●       |         | ●   |     |     |     |     |  |  |  |  |
| 3 3/8-8 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        | ●     |         | S       |         |     |     |     |     |     |  |  |  |  |
| 3 3/8-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        | ●     |         | S       |         |     |     |     |     |     |  |  |  |  |
| 3 3/8-16 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        | ●     |         | S       |         |     |     |     |     |     |  |  |  |  |
| 3 1/2-4 UNC  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | ●       |         |         |     |     |     |     |     |  |  |  |  |
| 3 1/2-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        | ●     |         | S       |         |     |     |     |     |     |  |  |  |  |
| 3 1/2-8 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        | ●     |         | S       |         |     |     |     |     |     |  |  |  |  |
| 3 1/2-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        | ●     |         | S       |         |     |     |     |     |     |  |  |  |  |
| 3 1/2-16 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        | ●     |         | ●       |         |     |     |     |     |     |  |  |  |  |
| 3 5/8-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | 50    |        | ●     |         | S       |         |     |     |     |     |     |  |  |  |  |
| 3 5/8-8 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | 50    |        | ●     |         | S       | ●       |     |     |     |     |     |  |  |  |  |
| 3 5/8-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | 50    |        | ●     |         | S       | ●       |     |     |     |     |     |  |  |  |  |
| 3 5/8-16 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | S       | ●       |         |     |     |     |     |     |  |  |  |  |
| 3 3/4-4 UNC  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | ●       |         |         |     |     |     |     |     |  |  |  |  |
| 3 3/4-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | 50    |        | ●     |         | S       |         |     |     |     |     |     |  |  |  |  |
| 3 3/4-8 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | 50    |        | ●     |         | S       | ●       |     |     |     |     |     |  |  |  |  |
| 3 3/4-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | 50    |        | ●     |         | S       | ●       |     |     |     |     |     |  |  |  |  |
| 3 3/4-16 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         | S       | ●       |     |     |     |     |     |  |  |  |  |
| 3 7/8-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         | ●       |         | ●   |     |     |     |     |  |  |  |  |
| 3 7/8-8 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         | S       | ●       |     |     |     |     |     |  |  |  |  |
| 3 7/8-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         | S       | ●       |     |     |     |     |     |  |  |  |  |
| 3 7/8-16 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       |         | ●   |     |     |     |     |  |  |  |  |
| 4-4 UNC  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | ●       |         | S       |     |     |     |     |     |  |  |  |  |
| 4-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         | ●       |         |     |     |     |     |     |  |  |  |  |
| 4-8 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         |         | ●       |     |     |     |     |     |  |  |  |  |
| 4-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         |         | ●       |     |     |     |     |     |  |  |  |  |
| 4-16 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         | ●       |     |     |     |     |     |  |  |  |  |
| 4 1/8-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         |         | ●       |     |     |     |     |     |  |  |  |  |
| 4 1/8-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         |         | ●       |     |     |     |     |     |  |  |  |  |

● = Rolllänge unbegrenzt unlimited length of thread

S = Semi-Standard-Rollkopf-Winkel, Rolllänge unbegrenzt special rolling head helix angle, unlimited length of thread

50 = max. Rolllänge (50 mm) maximum length of rolling (1.969")

| Unified-Gewinde, ANSI B1.1<br>Unified Threads, ANSI B1.1 |  | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
|--|--|--------------------------|------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|--|--|--|--|
| Gewinde-<br>abmessung<br>Thread Size                     |  | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |  |  |  |  |
|  |  | 4 1/8-16 UN              |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 4 1/4-4 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 4 1/4-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 4 1/4-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 4 1/4-16 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 4 3/8-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 4 3/8-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 4 3/8-16 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 4 1/2-4 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 4 1/2-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 4 1/2-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 4 1/2-16 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 4 5/8-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 4 5/8-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 4 5/8-16 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 4 3/4-4 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 4 3/4-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 4 3/4-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 4 3/4-16 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 4 7/8-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 4 7/8-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 4 7/8-16 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 5-4 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 5-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 5-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 5-16 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 5 1/8-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 5 1/8-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 5 1/8-16 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 5 1/4-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 5 1/4-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 5 1/4-16 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 5 3/8-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 5 3/8-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 5 3/8-16 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 5 1/2-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 5 1/2-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 5 5/8-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 5 5/8-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 5 3/4-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 5 3/4-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 5 7/8-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 5 7/8-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 6-6 UN   |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 6-12 UN  |  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |

● = Rolllänge unbegrenzt unlimited length of thread  
 S = Semi-Standard-Rollkopf-Winkel, Rolllänge unbegrenzt special rolling head helix angle, unlimited length of thread

Whitworth-Gewinde, DIN ISO 228

Whitworth Pipe Threads, straight, DIN ISO 228

| Gewinde-<br>abmessung<br>Thread Size | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|--------------------------------------|--------------------------|------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|-----------------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
|                                      | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3         | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G 1/8-28                             |                          |      |             |               | ●                |               |               |                  |                   |                 |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G 1/4-19                             |                          |      |             |               | 14               |               | ●             | ●                |                   | ●               |           | ●    | ●     |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     | ●   | ●   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G 3/8-19                             |                          |      |             |               |                  |               |               | 19               | 67                | ●               | ●         | ●    | ●     | ●      | ●     | ●      |       |        |        |        |        |       |        |       |         |         |         |     |     | ●   | ●   | ●   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G 1/2-14                             |                          |      |             |               |                  |               |               | 19               | 67                | ●               | ●         | ●    | ●     | ●      | ●     | ●      | ●     |        |        |        |        |       |        |       |         |         |         |     |     | ●   | ●   | ●   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G 5/8-14                             |                          |      |             |               |                  |               |               |                  | 67                | S <sub>24</sub> | 24        |      |       | ●      | ●     | ●      | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     | ●   | ●   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G 3/4-14                             |                          |      |             |               |                  |               |               |                  | 67                |                 | 24        |      |       | ●      | ●     | ●      | ●     | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     | ●   | ● |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G 7/8-14                             |                          |      |             |               |                  |               |               |                  | 67                |                 | 24        |      |       |        | 75    | ●      | ●     | ●      | ●      | ●      |        |       |        |       |         |         |         |     |     |     |     | ●   | ● | ● |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G 1-11                               |                          |      |             |               |                  |               |               |                  | 67                |                 |           |      |       |        |       | ●      | ●     | ●      | ●      | ●      |        |       |        |       |         |         |         |     |     |     |     | ●   | ● | ● |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G 1 1/8-11                           |                          |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       | 28     | ●     | ●      | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     | ● | ● | ● |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G 1 1/4-11                           |                          |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       | 28     | ●     | ●      | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   | ● | ● | ● |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G 1 3/8-11                           |                          |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       |        | ●     | ●      | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |   | ● | ● | ● |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G 1 1/2-11                           |                          |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       |        | 95    | ●      | ●      | ●      | ●      | ●     |        |       |         |         |         |     |     |     |     |     |   |   | ● | ● | ● |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G 1 3/4-11                           |                          |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       |        | 38    | ●      | ●      | ●      | ●      | ●     |        |       |         |         |         |     |     |     |     |     |   |   | ● | ● | ● |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G 2-11                               |                          |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       |        |       | ●      | ●      | ●      | ●      | ●     |        |       |         |         |         |     |     |     |     |     |   |   |   | ● | ● | ● |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G 2 1/4-11                           |                          |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       |        |       | ●      | ●      | ●      | ●      | ●     |        |       |         |         |         |     |     |     |     |     |   |   |   |   | ● | ● | ● |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G 2 1/2-11                           |                          |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       |        |       | ●      | ●      | ●      | ●      | ●     |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   | ● | ● | ● |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G 2 3/4-11                           |                          |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       |        |       | ●      | ●      | ●      | ●      | ●     |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   | ● | ● | ● |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G 3-11                               |                          |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       |        |       | ●      | ●      | ●      | ●      | ●     |        |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   | ● | ● | ● |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G 3 1/4-11                           |                          |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       |        |       | 50     | ●      | ●      | ●      | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   | ● | ● | ● |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G 3 1/2-11                           |                          |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       |        |       |        | ●      | ●      | ●      | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |   | ● | ● | ● |   |   |   |   |   |   |   |   |   |   |   |  |
| G 3 3/4-11                           |                          |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       |        |       |        | ●      | ●      | ●      | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |   |   |   | ● | ● | ● |   |   |   |   |   |   |   |   |   |  |
| G 4-11                               |                          |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       |        |       |        | ●      | ●      | ●      | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   | ● | ● | ● |   |   |   |   |   |   |   |  |
| G 4 1/2-11                           |                          |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       |        |       |        | ●      | ●      | ●      | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | ● | ● | ● |   |   |   |   |   |  |
| G 5-11                               |                          |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       |        |       |        | ●      | ●      | ●      | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | ● | ● | ● |   |   |   |  |
| G 5 1/2-11                           |                          |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       |        |       |        | ●      | ●      | ●      | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | ● | ● | ● |   |  |
| G 6-11                               |                          |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       |        |       |        | ●      | ●      | ●      | ●     | ●      |       |         |         |         |     |     |     |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | ● | ● | ● |  |

- = Rolllänge unbegrenzt unlimited length of thread
- S = Semi-Standard-Rollkopf-Winkel, Rolllänge unbegrenzt special rolling head helix angle, unlimited length of thread
- 14 = max. Rolllänge (14 mm) maximum length of rolling (0.551")
- 19 = max. Rolllänge (19 mm) maximum length of rolling (0.748")
- 24 = max. Rolllänge (24 mm) maximum length of rolling (0.945")
- 28 = max. Rolllänge (28 mm) maximum length of rolling (1.102")
- 38 = max. Rolllänge (38 mm) maximum length of rolling (1.496")
- 50 = max. Rolllänge (50 mm) maximum length of rolling (1.968")
- 67 = max. Rolllänge (67 mm) maximum length of rolling (2.638")
- 75 = max. Rolllänge (75 mm) maximum length of rolling (2.953")
- 95 = max. Rolllänge (95 mm) maximum length of rolling (3.74")

**Whitworth-Rohrgewinde, kegelig, DIN 2999, DIN 3858**  
 Whitworth Pipe Threads, taper, DIN 2999, DIN 3858

| Gewinde-abmessung<br>Thread Size | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
|----------------------------------|--------------------------|------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|--|--|--|--|
|                                  | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |  |  |  |  |
| R 1/16-28 <sup>1)</sup>          |                          |      |             | X             |                  |               | S             |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| R 1/8-28                         |                          |      |             | S             | X                |               | S             |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| R 1/4-19                         |                          |      |             |               |                  |               | X             | X                |                   |         |           |      |       | X      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| R 3/8-19                         |                          |      |             |               |                  |               |               | X                | X                 |         |           |      | S     | X      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| R 1/2-14                         |                          |      |             |               |                  |               |               |                  | X                 | X       |           |      | X     |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| R 3/4-14                         |                          |      |             |               |                  |               |               |                  | X                 | X       |           |      | X     |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| R 1-11                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| R 1 1/4-11                       |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| R 1 1/2-11                       |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| R 2-11                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |

1) für DIN 3858 nicht gültig not valid for DIN 3858

X = Rolllänge nach Norm length of thread according to standard

S = Semi-Standard-Rollkopf-Winkel, Rolllänge nach Norm special rolling head helix angle, length of thread according to standard

**Whitworth-Gewinde B.S. 84**  
 Whitworth Threads B.S. 84

| Gewinde-abmessung<br>Thread Size | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
|----------------------------------|--------------------------|------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|--|--|--|--|--|
|                                  | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |  |  |  |  |  |
| 1/16-60 BSW                      | ●                        |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 3/32-48 BSW                      | ●                        |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 1/8-40 BSW                       | ●                        | ●    |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 5/32-32 BSW                      | ●                        | ●    | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 3/16-24 BSW                      | ●                        |      | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 3/16-32 BSF                      | ●                        | ●    |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 7/32-24 BSW                      | ●                        |      | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 7/32-28 BSF                      | ●                        | ●    |             |               |                  |               |               | ●                |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 1/4-20 BSW                       |                          |      | ●           | ●             |                  |               |               | ●                |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 1/4-26 BSF                       |                          |      | ●           | ●             |                  |               |               | ●                |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 1/4-32 BSFS                      |                          |      | ●           | ●             | ●                |               |               | ●                |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 9/32-26 BSF                      |                          |      |             | ●             | ●                |               |               | ●                |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 5/16-18 BSW                      |                          |      |             | ●             | ●                |               |               | ●                | ●                 |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 5/16-20 BSF                      |                          |      |             | ●             | ●                |               |               | ●                | ●                 |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 5/16-26 BSFS                     |                          |      |             | ●             | ●                |               |               | ●                | ●                 |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 5/16-32 BSFS                     |                          |      |             | ●             | ●                |               |               | ●                | ●                 |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 3/8-16 BSW                       |                          |      |             | ●             | ●                |               |               | ●                | ●                 |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 3/8-20 BSF                       |                          |      |             | ●             | ●                |               |               | ●                | ●                 |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 3/8-26 BSFS                      |                          |      |             | ●             | ●                |               |               | ●                | ●                 |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 3/8-32 BSFS                      |                          |      |             | ●             | ●                |               |               | ●                | ●                 |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 7/16-14 BSW                      |                          |      |             |               |                  |               |               | ●                | ●                 |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |

● = Rolllänge unbegrenzt unlimited length of thread

### Whitworth-Gewinde B.S. 84 Whitworth Threads B.S. 84

| Gewinde-<br>abmessung<br>Thread Size | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
|--------------------------------------|--------------------------|------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|--|--|--|
|                                      | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |  |  |  |
| 7/16-18 BSF                          |                          |      |             |               |                  | ●             |               |                  | ●                 |         | ●         | ●    | ●     |        |       |        |       |        |        |        |        |       |        |       |         |         |         | ●   | ●   |     |     |     |  |  |  |
| 7/16-26 BSFS                         |                          |      |             |               | 14               |               | ●             |                  |                   |         | ●         | ●    | ●     |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     | ●   | ●   |     |     |  |  |  |
| 1/2-12 BSW                           |                          |      |             |               |                  | ●             |               |                  |                   |         | ●         | ●    | ●     |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     | ●   | ●   |     |  |  |  |
| 1/2-16 BSF                           |                          |      |             |               |                  | ●             |               |                  |                   |         | ●         | ●    | ●     |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     | ●   | ●   |     |     |  |  |  |
| 1/2-20 BSFS                          |                          |      |             |               | 14               | ●             | ●             |                  |                   | ●       | ●         | ●    | ●     |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 1/2-24 BSFS                          |                          |      |             |               | 14               | ●             | ●             |                  |                   | ●       | ●         | ●    | ●     |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 1/2-26 BSFS                          |                          |      |             |               | 14               | ●             | ●             |                  |                   | ●       | ●         | ●    | ●     |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 9/16-12 BSW                          |                          |      |             |               |                  | ●             |               |                  |                   |         | ●         | ●    | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 9/16-16 BSF                          |                          |      |             |               |                  | ●             |               |                  |                   |         | ●         | ●    | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 9/16-20 BSFS                         |                          |      |             |               |                  | ●             | ●             |                  |                   |         | ●         | ●    | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         |     | ●   | ●   |     |     |  |  |  |
| 9/16-26 BSFS                         |                          |      |             |               |                  | ●             | ●             |                  |                   |         | ●         | ●    | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 5/8-11 BSW                           |                          |      |             |               |                  | ●             |               |                  |                   |         | ●         | ●    | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 5/8-13 BSFS                          |                          |      |             |               |                  | ●             |               |                  |                   |         | ●         | ●    | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 5/8-14 BSF                           |                          |      |             |               |                  | ●             |               |                  |                   |         | ●         | ●    | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         |     | ●   | ●   | ●   |     |  |  |  |
| 5/8-20 BSFS                          |                          |      |             |               |                  |               | ●             | 67               |                   |         | ●         | ●    | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 5/8-22 BSFS                          |                          |      |             |               |                  |               | ●             | 67               |                   |         | ●         | ●    | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 5/8-26 BSFS                          |                          |      |             |               |                  |               | ●             | 67               |                   |         | ●         | ●    | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 11/16-11 BSW                         |                          |      |             |               |                  |               |               |                  |                   |         | ●         | ●    | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 11/16-14 BSF                         |                          |      |             |               |                  |               |               |                  |                   |         | ●         | ●    | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 11/16-16 BSFS                        |                          |      |             |               |                  |               |               | 19               | 67                |         | ●         | ●    | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 11/16-20 BSFS                        |                          |      |             |               |                  |               |               | 19               | 67                |         | ●         | ●    | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 11/16-26 BSFS                        |                          |      |             |               |                  |               |               | 19               | 67                |         | ●         | ●    | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 3/4-10 BSW                           |                          |      |             |               |                  |               |               |                  |                   |         | ●         | ●    | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 3/4-12 BSF                           |                          |      |             |               |                  |               |               |                  |                   |         | ●         | ●    | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 3/4-14 BSFS                          |                          |      |             |               |                  |               |               |                  |                   |         |           | ●    | ●     |        | ●     |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 3/4-16 BSFS                          |                          |      |             |               |                  |               |               | 19               | 67                |         | ●         | ●    | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 3/4-18 BSFS                          |                          |      |             |               |                  |               |               |                  |                   |         | ●         | ●    | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 3/4-20 BSFS                          |                          |      |             |               |                  |               |               | 19               | 67                |         | ●         | ●    | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 3/4-26 BSFS                          |                          |      |             |               |                  |               |               | 19               | 67                |         | ●         | ●    | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 13/16-12 BSF                         |                          |      |             |               |                  |               |               |                  |                   |         | ●         | ●    | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 13/16-16 BSFS                        |                          |      |             |               |                  |               |               | 19               | 67                |         | ●         | ●    | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 13/16-20 BSFS                        |                          |      |             |               |                  |               |               | 19               | 67                |         | ●         | ●    | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 13/16-26 BSFS                        |                          |      |             |               |                  |               |               |                  | 67                |         | ●         | ●    | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 7/8-9 BSW                            |                          |      |             |               |                  |               |               |                  |                   |         | ●         | ●    | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 7/8-11 BSF                           |                          |      |             |               |                  |               |               |                  |                   |         | ●         | ●    | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 7/8-18 BSFS                          |                          |      |             |               |                  |               |               |                  | 67                | 24      |           | ●    | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 7/8-20 BSFS                          |                          |      |             |               |                  |               |               |                  | 67                | 24      |           | ●    | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 15/16-12 BSFS                        |                          |      |             |               |                  |               |               |                  |                   | 24      |           | ●    | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 15/16-20 BSFS                        |                          |      |             |               |                  |               |               |                  | 67                | 24      |           | ●    | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 1-8 BSW                              |                          |      |             |               |                  |               |               |                  |                   |         |           | ●    | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 1-10 BSF                             |                          |      |             |               |                  |               |               |                  |                   |         |           | ●    | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 1-12 BSFS                            |                          |      |             |               |                  |               |               |                  |                   |         |           | ●    | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 1-20 BSFS                            |                          |      |             |               |                  |               |               |                  | 67                | 24      |           | ●    | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 11/16-12 BSFS                        |                          |      |             |               |                  |               |               |                  |                   | 24      |           | ●    | ●     |        | 75    |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |
| 11/16-20 BSFS                        |                          |      |             |               |                  |               |               |                  | 67                |         |           | ●    | ●     |        | ●     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |

- = Rolllänge unbegrenzt unlimited length of thread
- 14 = max. Rolllänge (14 mm) maximum length of rolling (0.551")
- 19 = max. Rolllänge (19 mm) maximum length of rolling (0.748")
- 24 = max. Rolllänge (24 mm) maximum length of rolling (0.945")
- 67 = max. Rolllänge (67 mm) maximum length of rolling (2.638")
- 75 = max. Rolllänge (75 mm) maximum length of rolling (2.953")

| Whitworth-Gewinde B.S. 84<br>Whitworth Threads B.S. 84 |                    | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        |       |        |                 |                 |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
|--|--------------------|--------------------------|------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-----------------|--------|-------|--------|-----------------|-----------------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|---|---|---|---|
| Gewinde-<br>abmessung<br>Thread Size                   | BSW<br>BSF<br>BSFS | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1           | FU45-1 | FU5-1 | FU56-1 | FU6a-1          | FU6b-1          | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |   |   |   |   |
|  |                    | 11/8-7                   | BSW  |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        | ●     |        | ●               |                 |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 11/8-9   | BSF                |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        | ●               |        | ●     |        |                 |                 |        |       |        |       |         |         |         |     |     |     |     |     | ● |   |   |   |
| 11/8-12  | BSFS               |                          |      |             |               |                  |               |               |                  | 24                |         | 24        |      |       | 75     | ●               |        | ●     |        | ●               |                 |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 11/8-20  | BSFS               |                          |      |             |               |                  |               |               |                  | 24                |         |           |      |       |        | ●               |        | ●     |        | ●               |                 |        |       |        |       |         |         |         |     |     |     |     |     |   | ● |   |   |
| 13/16-12   | BSFS               |                          |      |             |               |                  |               |               |                  | 24                |         |           |      |       |        | ●               |        | ●     |        | ●               |                 |        |       |        |       |         |         |         |     |     |     |     |     |   | ● |   |   |
| 13/16-20   | BSFS               |                          |      |             |               |                  |               |               |                  | 24                |         |           |      |       |        | ●               |        | ●     |        | ●               |                 |        |       |        |       |         |         |         |     |     |     |     |     |   | ● |   |   |
| 11/4-7   | BSW                |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        | ●     |        |                 | ●               | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 11/4-9   | BSF                |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        | ●     |        |                 | ●               | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 11/4-12  | BSFS               |                          |      |             |               |                  |               |               |                  | 24                |         |           |      |       |        |                 | ●      |       |        | ●               |                 |        |       |        |       |         |         |         |     |     |     |     |     |   | ● |   |   |
| 11/4-16  | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        |       |        |                 |                 |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 11/4-18  | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        |       |        |                 |                 |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 11/4-20  | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 | ●      |       |        | ●               |                 |        |       |        |       |         |         |         |     |     |     |     |     |   | ● |   |   |
| 15/16-12   | BSFS               |                          |      |             |               |                  |               |               |                  | 24                |         |           |      |       |        | ●               |        |       | ●      |                 |                 |        |       |        |       |         |         |         |     |     |     |     |     |   | ● |   |   |
| 15/16-20   | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        | ●               |        |       | ●      |                 |                 |        |       |        |       |         |         |         |     |     |     |     |     |   | ● |   |   |
| 13/8-8   | BSF                |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        | ●     |        |                 | ●               | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 13/8-12  | BSFS               |                          |      |             |               |                  |               |               |                  | 24                |         |           |      |       |        |                 | ●      |       |        | ●               |                 |        |       |        |       |         |         |         |     |     |     |     |     |   | ● |   |   |
| 13/8-20  | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        |       |        |                 |                 |        |       |        |       |         |         |         |     |     |     |     |     |   |   | ● |   |
| 17/16-12   | BSFS               |                          |      |             |               |                  |               |               |                  | 24                |         |           |      |       |        |                 | S      |       |        | ●               |                 |        |       |        |       |         |         |         |     |     |     |     |     |   | ● |   |   |
| 17/16-20   | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        | S <sub>28</sub> |        |       | ●      |                 |                 |        |       |        |       |         |         |         |     |     |     |     |     |   | ● |   |   |
| 11/2-6   | BSW                |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        | ●     |        |                 | ●               | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 11/2-8   | BSF                |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        | ●     |        |                 | ●               | ●      |       |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 11/2-12  | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 | 28     |       |        | ●               |                 |        |       |        |       |         |         |         |     |     |     |     |     |   | ● |   |   |
| 11/2-20  | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        | S <sub>28</sub> |        |       | ●      |                 |                 |        |       |        |       |         |         |         |     |     |     |     |     |   | ● |   |   |
| 15/8-8   | BSF                |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        |       |        |                 | ●               | ●      |       |        |       | S       |         |         |     |     |     |     |     |   |   |   |   |
| 15/8-12  | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 | 28     |       |        | ●               |                 |        |       |        |       |         |         |         |     |     |     |     |     |   |   | ● |   |
| 15/8-16  | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 | 28     |       |        | ●               |                 |        |       |        |       |         |         |         |     |     |     |     |     |   |   | ● |   |
| 15/8-20  | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        | S <sub>28</sub> |        |       | S      |                 |                 |        |       |        |       |         |         |         |     |     |     |     |     |   | ● |   |   |
| 13/4-5   | BSW                |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        |       |        |                 | ●               |        | ●     |        |       |         |         |         |     |     |     |     |     |   |   |   |   |
| 13/4-7   | BSF                |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        |       |        |                 | ●               |        | ●     |        |       | ●       |         |         |     |     |     |     |     |   |   |   |   |
| 13/4-12  | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        |       |        | ●               |                 |        |       |        |       |         |         |         |     |     |     |     |     |   | ● |   |   |
| 13/4-16  | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        |       |        | ●               |                 |        |       |        |       |         |         |         |     |     |     |     |     |   |   | ● |   |
| 13/4-20  | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        |       |        | S               |                 |        |       |        |       |         |         |         |     |     |     |     |     |   |   | ● |   |
| 17/8-12  | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        |       |        |                 |                 |        |       |        |       |         |         |         |     |     |     |     |     |   |   | ● | ● |
| 17/8-16  | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        |       |        |                 |                 |        |       |        |       |         |         |         |     |     |     |     |     |   |   | ● | ● |
| 17/8-20  | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        |       |        | S <sub>95</sub> |                 |        |       |        |       |         |         |         |     |     |     |     |     |   |   | ● | ● |
| 2-4 1/2  | BSW                |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        |       |        |                 | ●               |        |       |        | ●     |         |         |         |     |     |     |     |     |   |   |   |   |
| 2-7  | BSF                |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        |       |        |                 | ●               |        |       |        | ●     |         |         |         |     |     |     |     |     |   |   |   |   |
| 2-12   | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        |       |        |                 |                 |        |       |        |       |         |         |         |     |     |     |     |     |   |   | ● | ● |
| 2-16   | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        |       |        |                 |                 |        |       |        |       |         |         |         |     |     |     |     |     |   |   | ● | ● |
| 2-20   | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        |       |        |                 | S <sub>95</sub> |        |       |        |       |         |         |         |     |     |     |     |     |   |   | ● | ● |
| 2 1/8-8  | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        |       |        |                 |                 |        |       |        |       |         |         |         |     |     |     |     |     |   |   |   | ● |
| 2 1/8-12   | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        |       |        |                 |                 |        |       |        |       |         |         |         |     |     |     |     |     |   |   | ● | ● |
| 2 1/8-16   | BSFS               |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |                 |        |       |        |                 | S <sub>38</sub> |        |       |        |       |         |         |         |     |     |     |     |     |   |   | ● | ● |

- = Rolllänge unbegrenzt unlimited length of thread
- S = Semi-Standard-Rollkopf-Winkel, Rolllänge unbegrenzt special rolling head helix angle, unlimited length of thread
- 24 = max. Rolllänge (24 mm) maximum length of rolling (0.945")
- 28 = max. Rolllänge (28 mm) maximum length of rolling (1.102")
- 38 = max. Rolllänge (38 mm) maximum length of rolling (1.496")
- 75 = max. Rolllänge (75 mm) maximum length of rolling (2.953")
- 95 = max. Rolllänge (95 mm) maximum length of rolling (3.740")

### Whitworth-Gewinde B.S. 84 Whitworth Threads B.S. 84

| Gewinde-<br>abmessung<br>Thread Size                             | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
|--|--------------------------|------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|--|--|--|--|
|  | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |  |  |  |  |
| 2 <sup>1</sup> / <sub>4</sub> -4 BSW                             |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        | ●      |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>1</sup> / <sub>4</sub> -6 BSF                             |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>1</sup> / <sub>4</sub> -8 BSFS                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>1</sup> / <sub>4</sub> -12 BSFS                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>1</sup> / <sub>4</sub> -16 BSFS                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>3</sup> / <sub>8</sub> -8 BSFS                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>3</sup> / <sub>8</sub> -12 BSFS                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>3</sup> / <sub>8</sub> -16 BSFS                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>1</sup> / <sub>2</sub> -4 BSW                             |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>1</sup> / <sub>2</sub> -6 BSF                             |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>1</sup> / <sub>2</sub> -8 BSFS                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>1</sup> / <sub>2</sub> -12 BSFS                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>1</sup> / <sub>2</sub> -16 BSFS                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>5</sup> / <sub>8</sub> -8 BSFS                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>5</sup> / <sub>8</sub> -12 BSFS                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>5</sup> / <sub>8</sub> -16 BSFS                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>3</sup> / <sub>4</sub> -3 <sup>1</sup> / <sub>2</sub> BSW |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>3</sup> / <sub>4</sub> -6 BSF                             |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>3</sup> / <sub>4</sub> -8 BSFS                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>3</sup> / <sub>4</sub> -12 BSFS                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>3</sup> / <sub>4</sub> -16 BSFS                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>7</sup> / <sub>8</sub> -8 BSFS                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>7</sup> / <sub>8</sub> -12 BSFS                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2 <sup>7</sup> / <sub>8</sub> -16 BSFS                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 3-3 <sup>1</sup> / <sub>2</sub> BSW                              |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 3-5 BSF  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 3-8 BSFS   |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 3-12 BSFS  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       | S       |         |         |     |     |     |     |     |  |  |  |  |
| 3-16 BSFS  |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       | S       |         |         |     |     |     |     |     |  |  |  |  |
| 3 <sup>1</sup> / <sub>8</sub> -8 BSFS                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 3 <sup>1</sup> / <sub>8</sub> -16 BSFS                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       | S       |         |         |     |     |     |     |     |  |  |  |  |
| 3 <sup>1</sup> / <sub>4</sub> -3 <sup>1</sup> / <sub>4</sub> BSW |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 3 <sup>1</sup> / <sub>4</sub> -5 BSF                             |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 3 <sup>1</sup> / <sub>4</sub> -8 BSFS                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 3 <sup>1</sup> / <sub>4</sub> -16 BSFS                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       | S       |         |         |     |     |     |     |     |  |  |  |  |
| 3 <sup>3</sup> / <sub>8</sub> -8 BSFS                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 3 <sup>3</sup> / <sub>8</sub> -16 BSFS                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       | S       |         |         |     |     |     |     |     |  |  |  |  |
| 3 <sup>1</sup> / <sub>2</sub> -3 <sup>1</sup> / <sub>4</sub> BSW |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 3 <sup>1</sup> / <sub>2</sub> -4 <sup>1</sup> / <sub>2</sub> BSF |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 3 <sup>1</sup> / <sub>2</sub> -8 BSFS                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       | S       |         |         |     |     |     |     |     |  |  |  |  |
| 3 <sup>1</sup> / <sub>2</sub> -16 BSFS                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 3 <sup>5</sup> / <sub>8</sub> -8 BSFS                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       | S       |         |         |     |     |     |     |     |  |  |  |  |
| 3 <sup>5</sup> / <sub>8</sub> -16 BSFS                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       | S       |         |         |     |     |     |     |     |  |  |  |  |
| 3 <sup>3</sup> / <sub>4</sub> -3 BSW                             |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 3 <sup>3</sup> / <sub>4</sub> -4 <sup>1</sup> / <sub>2</sub> BSF |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 3 <sup>3</sup> / <sub>4</sub> -8 BSFS                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       | S       |         |         |     |     |     |     |     |  |  |  |  |
| 3 <sup>3</sup> / <sub>4</sub> -16 BSFS                           |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 3 <sup>7</sup> / <sub>8</sub> -8 BSFS                            |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       | S       |         |         |     |     |     |     |     |  |  |  |  |

● = Rolllänge unbegrenzt unlimited length of thread

S = Semi-Standard-Rollkopf-Winkel, Rolllänge unbegrenzt special rolling head helix angle, unlimited length of thread



| Whitworth-Gewinde B.S. 84<br>Whitworth Threads B.S. 84 |              | Rollkopf<br>Rolling Head |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |
|--|--------------|--------------------------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|--|--|
| Gewinde-<br>abmessung<br>Thread Size                   | F0   K0      | F001                     | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |  |  |
|  | 37/8-16 BSFS |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       |         |     |     |     |     |     |  |  |
| 4-3 BSF  |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     | S       |         |         |     |     |     |     |     |  |  |
| 4-4 1/2 BSF  |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     | S       |         |         |     |     |     |     |     |  |  |
| 4-8 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         |         |         |     |     |     |     |     |  |  |
| 4-16 BSFS  |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         |         |         |     |     |     |     |     |  |  |
| 4 1/8-8 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         |         |         |     |     |     |     |     |  |  |
| 4 1/8-16 BSFS  |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         |         |         |     |     |     |     |     |  |  |
| 4 1/4-4 BSF  |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | S       |         |         |     |     |     |     |     |  |  |
| 4 1/4-8 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     | ●       |         |         |     |     |     |     |     |  |  |
| 4 1/4-16 BSFS  |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     | ●       |         |         |     |     |     |     |     |  |  |
| 4 3/8-4 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | S       |         |         |     |     |     |     |     |  |  |
| 4 3/8-8 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         |         |         |     |     |     |     |     |  |  |
| 4 3/8-16 BSFS  |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       |         |     |     |     |     |     |  |  |
| 4 1/2-2 7/8 BSW  |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | S       |         |         |     |     |     |     |     |  |  |
| 4 1/2-4 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | S       |         |         |     |     |     |     |     |  |  |
| 4 1/2-8 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       |         |     |     |     |     |     |  |  |
| 4 1/2-16 BSFS  |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | ●       | ●       |         |     |     |     |     |     |  |  |
| 4 5/8-4 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | S       |         |         |     |     |     |     |     |  |  |
| 4 5/8-8 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       |         |     |     |     |     |     |  |  |
| 4 5/8-16 BSFS  |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       |         |     |     |     |     |     |  |  |
| 4 3/4-4 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | S       |         |         |     |     |     |     |     |  |  |
| 4 3/4-8 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       |         |     |     |     |     |     |  |  |
| 4 3/4-16 BSFS  |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       |         |     |     |     |     |     |  |  |
| 4 7/8-4 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | S       |         |         |     |     |     |     |     |  |  |
| 4 7/8-8 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       |         |     |     |     |     |     |  |  |
| 4 7/8-16 BSFS  |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       |         |     |     |     |     |     |  |  |
| 5-2 3/4 BSW  |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | S       |         |         |     |     |     |     |     |  |  |
| 5-4 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | S       |         |         |     |     |     |     |     |  |  |
| 5-8 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       |         |     |     |     |     |     |  |  |
| 5-16 BSFS  |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       |         |     |     |     |     |     |  |  |
| 5 1/8-4 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | S       |         |         |     |     |     |     |     |  |  |
| 5 1/8-8 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       |     |     |     |     |     |  |  |
| 5 1/8-16 BSFS  |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | ●       | ●       |         |     |     |     |     |     |  |  |
| 5 1/4-8 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       |     |     |     |     |     |  |  |
| 5 1/4-16 BSFS  |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       |     |     |     |     |     |  |  |
| 5 3/8-8 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       |     |     |     |     |     |  |  |
| 5 3/8-16 BSFS  |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | S       |         |     |     |     |     |     |  |  |
| 5 1/2-8 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       |     |     |     |     |     |  |  |
| 5 1/2-16 BSFS  |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | S       |         |     |     |     |     |     |  |  |
| 5 5/8-8 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       |     |     |     |     |     |  |  |
| 5 3/4-8 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       |     |     |     |     |     |  |  |
| 5 7/8-8 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       |     |     |     |     |     |  |  |
| 6-8 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       |     |     |     |     |     |  |  |
| 6 1/4-8 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       |     |     |     |     |     |  |  |
| 6 1/2-8 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       |     |     |     |     |     |  |  |
| 6 3/4-8 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       |     |     |     |     |     |  |  |
| 7-6 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       |     |     |     |     |     |  |  |
| 7-8 BSFS   |              |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         | ●       | ●       |     |     |     |     |     |  |  |

● = Rolllänge unbegrenzt unlimited length of thread

S = Semi-Standard-Rollkopf-Winkel, Rolllänge unbegrenzt special rolling head helix angle, unlimited length of thread

**Amerikanisches Rohrgewinde, NPTF, kegelig, ANSI B1.20.3**  
**American Dryseal Pipe Threads, NPTF, taper, ANSI B1.20.3**

| Gewinde-<br>abmessung<br>Thread Size |      | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
|--------------------------------------|------|--------------------------|------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|--|--|--|--|
|                                      |      | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |  |  |  |  |
| 1/16-27                              | NPTF |                          |      |             | X             |                  |               | S             |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 1/8-27                               | NPTF |                          |      |             | S             | X                |               | S             |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 1/4-18                               | NPTF |                          |      |             |               |                  |               | X             | X                |                   |         |           |      | X     |        |       | X      |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 3/8-18                               | NPTF |                          |      |             |               |                  |               |               | X                | X                 |         |           |      | S     | X      |       | S      | X     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 1/2-14                               | NPTF |                          |      |             |               |                  |               |               |                  |                   |         |           | S    | X     |        | S     | X      |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 3/4-14                               | NPTF |                          |      |             |               |                  |               |               |                  |                   |         |           |      | X     |        |       |        | X     | X      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 1-11 1/2                             | NPTF |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       | X      | X     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 1 1/4-11 1/2                         | NPTF |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | X     | X      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 1 1/2-11 1/2                         | NPTF |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | X     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| 2-11 1/2                             | NPTF |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | X     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |

**Amerikanisches Rohrgewinde, NPTF, kegelig, ANSI B1.20.1**  
**American Pipe Threads, NPTF, taper, ANSI B1.20.1**

| Gewinde-<br>abmessung<br>Thread Size |     | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
|--------------------------------------|-----|--------------------------|------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|--|--|--|--|--|
|                                      |     | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |  |  |  |  |  |
| 1/16-27                              | NPT |                          |      |             | X             |                  |               | S             |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 1/8-27                               | NPT |                          |      |             | S             | X                |               | S             |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 1/4-18                               | NPT |                          |      |             |               |                  |               | X             | X                |                   |         |           |      | X     |        |       | S      | X     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 3/8-18                               | NPT |                          |      |             |               |                  |               |               | X                | X                 |         |           |      | X     |        |       | S      | X     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 1/2-14                               | NPT |                          |      |             |               |                  |               |               |                  |                   |         |           |      | S     | X      |       | S      | X     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 3/4-14                               | NPT |                          |      |             |               |                  |               |               |                  |                   |         |           |      | X     |        |       |        | X     | X      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 1-11 1/2                             | NPT |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       | X      | X     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 1 1/4-11 1/2                         | NPT |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | X     | X      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 1 1/2-11 1/2                         | NPT |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | X     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |
| 2-11 1/2                             | NPT |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | X     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |  |

S = Semi-Standard-Rollkopf-Winkel/ Rolllänge nach Norm special rolling head helix angle, length of thread according to standard  
 X = Rolllänge nach Norm length of thread according to standard

**Valve-Gewinde DIN 7756**  
 Valve Threads DIN 7756

| Gewinde-<br>abmessung<br>Thread Size | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |
|--------------------------------------|--------------------------|------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|--|
|                                      | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |  |
| Vg 5-36                              | S                        |      | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |
| Vg 5.2-24                            | ●                        |      | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |
| Vg 6-32                              |                          |      | ●           | ●             |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |
| Vg 7.8-30                            |                          |      |             | ●             | ●                |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |
| Vg 8-32                              |                          |      |             | S             | ●                |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |
| Vg 10-28                             |                          |      |             |               | ●                |               |               |                  |                   | ●       |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |
| Vg 12-26                             |                          |      |             |               | 14               |               |               |                  |                   | ●       |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |

● = Rolllänge unbegrenzt unlimited length of thread  
 S = Semi-Standard-Rollkopf-Winkel, Rolllänge unbegrenzt special rolling head helix angle, unlimited length of thread  
 14 = max. Rolllänge (14 mm) maximum length of rolling (0.551")

**B.A.-Gewinde B.S. 93**  
 B.A. Threads B.S. 93

| Gewinde-<br>abmessung<br>Thread Size | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |
|--------------------------------------|--------------------------|------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|--|--|
|                                      | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |  |  |
| 12-90.7 BA                           | ●                        |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |
| 11-81.9 BA                           | ●                        |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |
| 10-72.6 BA                           | ●                        |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |
| 9-65.1 BA                            | ●                        |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |
| 8-59.1 BA                            | ●                        |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |
| 7-52.9 BA                            | ●                        |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |
| 6-47.9 BA                            | ●                        | ●    |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |
| 5-43.1 BA                            | ●                        | ●    | ●           |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |
| 4-38.5 BA                            | ●                        | ●    | ●           | ●             |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |
| 3-34.8 BA                            | ●                        |      | ●           | ●             |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |
| 2-31.3 BA                            | ●                        |      | ●           | ●             |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |
| 1-28.2 BA                            | ●                        |      | ●           | ●             |                  | ●             |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |
| 0-25.4 BA                            |                          |      | ●           | ●             |                  | ●             |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |

● = Rolllänge unbegrenzt unlimited length of thread

Zweirad-Gewinde DIN 79012  
Bicycle Thread DIN 79012

| Gewinde-<br>abmessung<br>Thread Size | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
|--------------------------------------|--------------------------|------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|-----------------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|
|                                      | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3         | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |
| FG 2-56                              | ●                        |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| FG 2.3-56                            | ●                        |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| FG 2.6-56                            | ●                        | ●    |             |               |                  |               |               |                  |                   |                 |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| FG 6.35-26                           |                          |      | ●           | ●             |                  | ●             |               |                  |                   |                 |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| FG 7.9-26                            |                          |      | ●           | ●             | ●                | ●             |               |                  |                   |                 |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| FG 9.5-26                            |                          |      |             | ●             | ●                |               | S             | ●                |                   |                 |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| FG 14.3-20                           |                          |      |             |               |                  |               |               | ●                |                   | ●               | ●         | ●    | ●     | ●      | ●     |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| FG 25.4-24                           |                          |      |             |               |                  |               |               | S <sub>67</sub>  |                   | S <sub>24</sub> |           |      |       |        |       | ●      |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| FG 32.8-24                           |                          |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        | S     |        | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |
| FG 34.8-24                           |                          |      |             |               |                  |               |               |                  |                   |                 |           |      |       |        | S     | ●      |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |

● = Rolllänge unbegrenzt unlimited length of thread  
 S = Semi-Standard-Rollkopf-Winkel, Rolllänge unbegrenzt special rolling head helix angle, unlimited length of thread  
 24 = max. Rolllänge (24 mm) maximum length of rolling (0.945")  
 67 = max. Rolllänge (67 mm) maximum length of rolling (2.638")

Rundgewinde DIN 405  
Knuckle Thread DIN 405

| Gewinde-<br>abmessung<br>Thread Size | Rollkopf<br>Rolling Head |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |
|--------------------------------------|--------------------------|------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|--|
|                                      | F0   K0                  | F001 | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |  |
| Rd 16 x 1/8                          |                          |      |             |               |                  |               | ●             |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |
| Rd 18 x 1/8                          |                          |      |             |               |                  |               |               |                  |                   | ●       |           | ●    | ●     |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |
| Rd 20 x 1/8                          |                          |      |             |               |                  |               |               |                  |                   | ●       |           | ●    | ●     | ●      |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |
| Rd 22 x 1/8                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      | ●     | ●      | ●     | ●      | ●     |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |
| Rd 24 x 1/8                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       | ●      | ●     | ●      | ●     | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |
| Rd 26 x 1/8                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        | ●     | ●      | ●     | ●      |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |
| Rd 28 x 1/8                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       | ●      | ●     | ●      | ●      |        |        |       |        |       |         |         |         |     |     |     |     |     |  |
| Rd 30 x 1/8                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       | ●      | ●     | ●      | ●      | ●      |        |       |        |       |         |         |         |     |     |     |     |     |  |
| Rd 32 x 1/8                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       | ●      | ●     | ●      | ●      | ●      | ●      |       |        |       |         |         |         |     |     |     |     |     |  |
| Rd 34 x 1/8                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     | ●      | ●      | ●      | ●      | ●     |        |       |         |         |         |     |     |     |     |     |  |
| Rd 36 x 1/8                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     | ●      | ●      | ●      | ●      | ●     | ●      |       |         |         |         |     |     |     |     |     |  |
| Rd 38 x 1/8                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     | ●      | ●      | ●      | ●      | ●     | ●      |       |         |         |         |     |     |     |     |     |  |
| Rd 40 x 1/6                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     | ●      | ●      | ●      | ●      | ●     | ●      |       |         |         |         |     |     |     |     |     |  |
| Rd 42 x 1/6                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        | ●     | ●      | ●      | ●      | ●      | ●     | ●      |       |         |         |         |     |     |     |     |     |  |
| Rd 44 x 1/6                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | ●      | ●      | ●      | ●      | ●     | ●      |       |         |         |         |     |     |     |     |     |  |
| Rd 46 x 1/6                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | ●      | ●      | ●      | ●      | ●     | ●      |       |         |         |         |     |     |     |     |     |  |
| Rd 48 x 1/6                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | ●      | ●      | ●      | ●      | ●     | ●      |       |         |         |         |     |     |     |     |     |  |
| Rd 50 x 1/6                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | ●      | ●      | ●      | ●      | ●     | ●      |       |         |         |         |     |     |     |     |     |  |
| Rd 52 x 1/6                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | ●      | ●      | ●      | ●      | ●     | ●      |       |         |         |         |     |     |     |     |     |  |
| Rd 55 x 1/6                          |                          |      |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       | ●      | ●      | ●      | ●      | ●     | ●      |       |         |         |         |     |     |     |     |     |  |

● = Rolllänge unbegrenzt unlimited length of thread

| Rundgewinde DIN 405<br>Knuckle Thread DIN 405 |         | Rollkopf<br>Rolling Head |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
|---|---------|--------------------------|-------------|---------------|------------------|---------------|---------------|------------------|-------------------|---------|-----------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|---------|---------|---------|-----|-----|-----|-----|-----|--|--|--|--|
| Gewinde-<br>abmessung<br>Thread Size          | F0   K0 | F001                     | F01   K01-1 | F1   K1   K1Y | F12   K12   K12Y | F1223   K1223 | F2   K2   K2Y | F23   K23   K23Y | F233400   K233400 | F3   K3 | F34   K34 | FU32 | FU3-1 | FU34-1 | FU4-1 | FU45-1 | FU5-1 | FU56-1 | FU6a-1 | FU6b-1 | FU6700 | FU700 | FU7800 | FU8-1 | FU96-1S | FU11600 | FU12600 | AC2 | AC3 | AC4 | AC5 | AC6 |  |  |  |  |
| Rd 58 x 1/6                                   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        | ●     |        |       |         |         |         |     |     |     |     |     |  |  |  |  |
| Rd 60 x 1/6                                   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       | ●      |       |         |         |         |     |     |     |     |     |  |  |  |  |
| Rd 62 x 1/6                                   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       | ●      |       |         |         |         |     |     |     |     |     |  |  |  |  |
| Rd 65 x 1/6                                   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       | ●      |       |         |         |         |     |     |     |     |     |  |  |  |  |
| Rd 68 x 1/6                                   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       | ●      |       |         |         |         |     |     |     |     |     |  |  |  |  |
| Rd 70 x 1/6                                   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       | ●      |       |         |         |         |     |     |     |     |     |  |  |  |  |
| Rd 72 x 1/6                                   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       | ●      |       |         |         |         |     |     |     |     |     |  |  |  |  |
| Rd 75 x 1/6                                   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       | ●      |       | ●       |         |         |     |     |     |     |     |  |  |  |  |
| Rd 78 x 1/6                                   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         | ●       |         |     |     |     |     |     |  |  |  |  |
| Rd 80 x 1/6                                   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         | ●       |         |     |     |     |     |     |  |  |  |  |
| Rd 82 x 1/6                                   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         | ●       |         |     |     |     |     |     |  |  |  |  |
| Rd 85 x 1/6                                   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         | ●       |         |     |     |     |     |     |  |  |  |  |
| Rd 88 x 1/6                                   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         | ●       |         |     |     |     |     |     |  |  |  |  |
| Rd 90 x 1/6                                   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         | ●       | ●       |     |     |     |     |     |  |  |  |  |
| Rd 92 x 1/6                                   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         | ●       | ●       |     |     |     |     |     |  |  |  |  |
| Rd 95 x 1/6                                   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         | ●       | ●       |     |     |     |     |     |  |  |  |  |
| Rd 98 x 1/6                                   |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         | ●       | ●       |     |     |     |     |     |  |  |  |  |
| Rd 100 x 1/6                                  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         | ●       | ●       |     |     |     |     |     |  |  |  |  |
| Rd 105 x 1/4                                  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        | ●     |         | ●       | ●       |     |     |     |     |     |  |  |  |  |
| Rd 110 x 1/4                                  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | ●       |         | ●       | ●   |     |     |     |     |  |  |  |  |
| Rd 115 x 1/4                                  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | ●       |         | ●       | ●   |     |     |     |     |  |  |  |  |
| Rd 120 x 1/4                                  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | ●       |         | ●       | ●   |     |     |     |     |  |  |  |  |
| Rd 125 x 1/4                                  |         |                          |             |               |                  |               |               |                  |                   |         |           |      |       |        |       |        |       |        |        |        |        |       |        |       | ●       |         | ●       | ●   |     |     |     |     |  |  |  |  |

● = Rolllänge unbegrenzt unlimited length of thread

**für Rechtsgewinde**

- F0 C1 nur feststehend verwendbar
- K0 C1 feststehend und umlaufend verwendbar
- Rollen-Schrägstellung = 4°
- Gewicht ohne Rollen = ca. 0,5 kg

**für Linksgewinde**

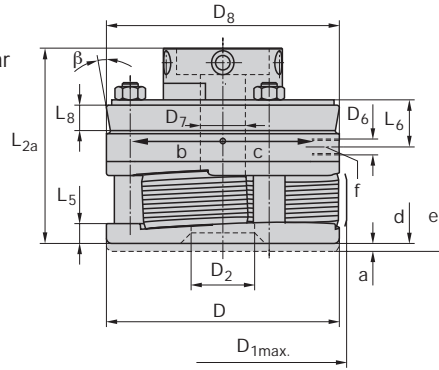
- Typ FOL C1, KOL C1
- Baumaß wie für Rechtsgewinde-Rollkopf

**for right-hand threads**

- F0 C1 to be used stationary only
- K0 C1 used stationary or rotating
- inclined position of rolls = 4°
- weight without rolls = approx. 1.0 lb

**for left-hand threads**

- Type FOL C1, KOL C1
- Dimensions like right-hand thread rolling head



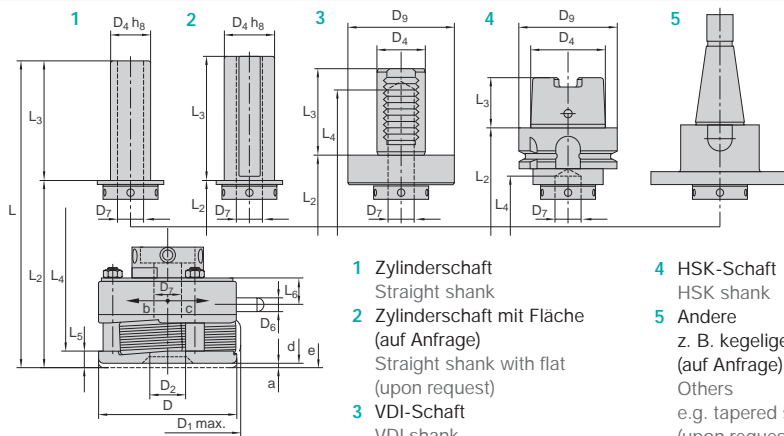
**Baumaße in mm Dimension in inches**

| D      | D <sub>1max.</sub> | D <sub>2</sub> | D <sub>6</sub> | D <sub>7</sub> | D <sub>8</sub> <sup>1)</sup> | L <sub>2a</sub> | L <sub>5</sub> | L <sub>6</sub> | L <sub>8</sub> <sup>1)</sup> | a      | α   | β <sup>1)</sup> | Ident No. |        |
|--------|--------------------|----------------|----------------|----------------|------------------------------|-----------------|----------------|----------------|------------------------------|--------|-----|-----------------|-----------|--------|
| 50     | 54,5               | 11,5           | M5             | 6,5            | 55                           | 46              | 5              | 5,7            | 13,9                         | 2      | 50° | 10°             | 2430900   | F0 C1  |
| 1.968" | 2.145"             | 0.453"         |                | 0.256"         | 2.165"                       | 1.811"          | 0.197"         | 0.224"         | 0.547"                       | 0.079" |     |                 | 2430901   | FOL C1 |
|        |                    |                |                |                |                              |                 |                |                |                              |        |     |                 | 2430902   | K0 C1  |
|        |                    |                |                |                |                              |                 |                |                |                              |        |     |                 | 2430903   | KOL C1 |

<sup>1)</sup> Nur für Typ K Only for Type K

**Wechselschäfte ... -C1**  
**Change shanks ... -C1**

- a = Schalthub Pull off for opening
- b = Kopf öffnet bei Typ K, schließt bei Typ F  
Head opens when Type K, and closes when Type F
- c = Kopf schließt bei Typ K, öffnet bei Typ F  
(Bei Rollköpfen für Linksgewinde ist die Schalrichtung entgegengesetzt)  
Head closes when Type K, and opens when Type F (For Rolling Heads for left-hand threads, the direction of operation is reversed)
- d = Rollkopf geschlossen Rolling Head closed
- e = Rollkopf geöffnet Rolling Head opened
- f = Gewinde für Griff bei feststehender Verwendung  
Thread for handle with stationary operation
- α = Schließwinkel Closing angle



- 1 Zylinderschaft  
Straight shank
- 2 Zylinderschaft mit Fläche  
(auf Anfrage)  
Straight shank with flat  
(upon request)
- 3 VDI-Schaft  
VDI shank
- 4 HSK-Schaft  
HSK shank
- 5 Andere  
z. B. kegeliger Schaft  
(auf Anfrage)  
Others  
e.g. tapered shanks  
(upon request)

Schäfte werden mit Befestigungsschrauben geliefert. Shanks will be delivered with the according fastening screws.

**Baumaße in mm Dimension in inches**

|  | D <sub>4</sub>  | D <sub>9</sub> | L               | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | Ident No. |            |
|--|-----------------|----------------|-----------------|----------------|----------------|----------------|-----------|------------|
| Schaft Ø 20<br>Shank dia. Ø 20         | 20<br>0.984"    | -              | 108,5<br>4.272" | 48,5<br>1.909" | 60<br>2.362"   | -              | 2430980   | R20-C1     |
| Schaft Ø 25<br>Shank dia. Ø 25         | 25<br>0.984"    | -              | 108,5<br>4.272" | 48,5<br>1.909" | 60<br>2.362"   | -              | 2430973   | R25-C1     |
| Schaft Ø 3/4"<br>Shank dia. Ø 3/4"     | 19,05<br>0.75"  | -              | 108,5<br>4.272" | 48,5<br>1.909" | 60<br>2.362"   | -              | 2430981   | R3/4-C1    |
| Schaft Ø 1"<br>Shank dia. Ø 1"         | 25,4<br>1"      | -              | 108,5<br>4.272" | 48,5<br>1.909" | 60<br>2.362"   | -              | 2430977   | R1-C1      |
| Schaft Ø 1 1/4"<br>Shank dia. Ø 1 1/4" | 31,75<br>1.125" | -              | 108,5<br>4.272" | 48,5<br>1.909" | 60<br>2.362"   | -              | 2430982   | R1 1/4-C1  |
| Schaft VDI Ø 20<br>Shank VDI dia. Ø 20 | 20<br>0.787     | 50<br>1.968"   | 104,5<br>4.114" | 64,5<br>2.539" | 40<br>1.574"   | 62<br>2.441"   | 2430984   | VDI20-C1   |
| Schaft VDI Ø 25<br>Shank VDI dia. Ø 25 | 25<br>0.984"    | 58<br>2.283"   | 112,5<br>4.429" | 64,5<br>2.539" | 48<br>1.889"   | 97<br>3.819"   | 2430986   | VDI25-C1   |
| Schaft VDI Ø 30<br>Shank dia. VDI Ø 30 | 30<br>1.181"    | 68<br>2.677"   | 119,5<br>4.704" | 64,5<br>2.539" | 55<br>2.165"   | 104<br>4.094"  | 2430988   | VDI30-C1   |
| Schaft HSK-A63<br>Shank HSK-A63        | 48<br>1.889"    | 63<br>2.480"   | 121<br>4.764"   | 89<br>3.504"   | 32<br>1.259"   | 54<br>2.126"   | 2430990   | HSK-A63-C1 |

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Gewinde <b>M</b> |           |           |  |
|---------------------------------|-----------|-----------|--|
| Metric ISO Threads              |           |           |  |
| Nennmaß x Steigung<br>mm        | Anlauf 1k | Anlauf 2K |  |
|                                 | Lead 1k   | Lead 2k   |  |
| Nominal Size x Pitch            | Ident No. |           |  |
| M 1,4 x 0,3                     | 1500201   | 1500210   |  |
| M 1,6 ... 1,8 x 0,35            | 1500229   | 1500238   |  |
| M 2 ... 2,3 x 0,4               | 1500247   | 1500256   |  |
| M 2,2 ... 2,6 x 0,45            | 1500265   | 1500274   |  |
| M 2,5 ... 3 x 0,5               | 1500283   | 1500292   |  |
| M 3 ... 3,5 x 0,6               | 1500318   | 1500327   |  |
| M 4 x 0,7                       | 1500345   | 1500354   |  |
| M 4 ... 4,5 x 0,75              | 1500363   | 1500372   |  |
| M 5 ... 5,5 x 0,8               | 1500381   | 1500407   |  |
| M 5 ... 5,5 x 0,9               | 1500416   | 1500425   |  |

| Unified-Gewinde, fein <b>UNF</b> |           |           |  |
|----------------------------------|-----------|-----------|--|
| Unified Threads, Fine Pitch      |           |           |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |  |
|                                  | Lead 1k   | Lead 2k   |  |
| Nominal Size x TPI               | Ident No. |           |  |
| Nr. 0 – 80 UNF                   | 2166136   | 2166137   |  |
| Nr. 1 – 72 UNF                   | 2241182   | 2241183   |  |
| Nr. 2 – 64 UNF                   | 1500657   | 2241185   |  |
| Nr. 3 – 56 UNF                   | 2164714   | 2241186   |  |
| Nr. 4 – 48 UNF                   | 1500675   | 1500684   |  |
| Nr. 5 – 44 UNF                   | 1500693   | 1500700   |  |
| Nr. 6 – 40 UNF                   | 1500719   | 2169077   |  |
| Nr. 8 – 36 UNF                   | 1500737   | 1500746   |  |
| Nr. 10 – 32 UNF                  | 1500755   | 1500764   |  |
| Nr. 12 – 28 UNF                  | 1500773   | 1500782   |  |

| Unified-Gewinde, grob <b>UNC</b> |           |           |  |
|----------------------------------|-----------|-----------|--|
| Unified Threads, Coarse Pitch    |           |           |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |  |
|                                  | Lead 1k   | Lead 2k   |  |
| Nominal Size x TPI               | Ident No. |           |  |
| Nr. 1 – 64 UNC                   | 2166134   | 2241178   |  |
| Nr. 2 – 56 UNC                   | 2166135   | 1500568   |  |
| Nr. 3 – 48 UNC                   | 2240154   | 2241179   |  |
| Nr. 4... 5 – 40 UNC              | 1500577   | 1500586   |  |
| Nr. 6... 8 – 32 UNC              | 1500595   | 1500602   |  |
| Nr. 10... 12 – 24 UNC            | 1500611   | 1500620   |  |

| Whitworth-Feingewinde <b>BSF</b> |           |           |  |
|----------------------------------|-----------|-----------|--|
| Whitworth Fine Pitch Threads     |           |           |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |  |
|                                  | Lead 1k   | Lead 2k   |  |
| Nominal Size x TPI               | Ident No. |           |  |
| 3/16 – 32 BSF                    | 2241174   | 1500540   |  |
| 7/32 – 28 BSF                    | 2241175   | 2241176   |  |

| Rändel<br>Knurls  |                             |           |         |
|---|-----------------------------|-----------|---------|
| Nennmaß x Steigung<br>Nominal Size x Pitch<br>mm   inch |                             | RAA       | RGE     |
|   |                             | Ident No. |         |
| Ø 2 ... Ø 3 x 0,5                                       | Ø 0.079 ... Ø 0.118 x 0.02  | 1500871   | 2241216 |
| Ø 3 ... Ø 4 x 0,5                                       | Ø 0.118 ... Ø 0.157 x 0.02  | 2241206   | 2241217 |
| Ø 4,5 ... Ø 5,5 x 0,5                                   | Ø 0.177 ... Ø 0.217 x 0.02  | 1500880   | 2241218 |
| Ø 2,5 ... Ø 3,5 x 0,6                                   | Ø 0.098 ... Ø 0.138 x 0.024 | 2241207   | 2241219 |
| Ø 3,5 ... Ø 4,5 x 0,6                                   | Ø 0.138 ... Ø 0.177 x 0.024 | 1500899   | 2241220 |
| Ø 4,5 ... Ø 5,5 x 0,6                                   | Ø 0.177 ... Ø 0.217 x 0.024 | 1500906   | 2169006 |
| Ø 2,5 ... Ø 3,5 x 0,8                                   | Ø 0.098 ... Ø 0.138 x 0.031 | 2241208   | 2241221 |
| Ø 3,5 ... Ø 4,5 x 0,8                                   | Ø 0.138 ... Ø 0.177 x 0.031 | 2241209   | 2241222 |
| Ø 4,5 ... Ø 5,5 x 0,8                                   | Ø 0.177 ... Ø 0.217 x 0.031 | 2241210   | 1500924 |
| Ø 3,5 ... Ø 4,5 x 1,0                                   | Ø 0.138 ... Ø 0.177 x 0.039 | 2241211   | 2241223 |
| Ø 4,5 ... Ø 5,5 x 1,0                                   | Ø 0.177 ... Ø 0.217 x 0.039 | 2241212   | 2241224 |
| Ø 3,5 ... Ø 4,5 x 1,2                                   | Ø 0.138 ... Ø 0.177 x 0.047 | 2241213   | 1500951 |
| Ø 4,5 ... Ø 5,5 x 1,2                                   | Ø 0.177 ... Ø 0.217 x 0.047 | 2241214   | 2241225 |
| Ø 4,5 ... Ø 5,5 x 1,5                                   | Ø 0.177 ... Ø 0.217 x 0.059 | 2241215   | 2241226 |

Rändelrollen, für Ø 1,6 mm bis kleiner als angegebener kleinster Ø, auf Anfrage.  
Knurling Rolls for 1.6 mm | 0.063" diameter and below, on request.

| Glätten<br>Burnishing                |                   |           |
|--------------------------------------|-------------------|-----------|
| Nennmaß<br>Nominal Size<br>mm   inch |                   | Ident No. |
| Ø 1,5 – Ø 2                          | Ø 0.059 – Ø 0.079 | 2243035   |
| Ø 2 – Ø 2,5                          | Ø 0.079 – Ø 0.098 | 2243036   |
| Ø 2,5 – Ø 3                          | Ø 0.098 – Ø 0.118 | 2241227   |
| Ø 3 – Ø 3,5                          | Ø 0.118 – Ø 0.138 | 2241228   |
| Ø 3,5 – Ø 4                          | Ø 0.138 – Ø 0.157 | 2167680   |
| Ø 4 – Ø 4,5                          | Ø 0.157 – Ø 0.177 | 2241229   |
| Ø 4,5 – Ø 5                          | Ø 0.177 – Ø 0.197 | 2241230   |
| Ø 5 – Ø 5,5                          | Ø 0.197 – Ø 0.217 | 2241231   |

| British-Association-Gewinde <b>BA</b> |           |           |  |
|---------------------------------------|-----------|-----------|--|
| British Association Threads           |           |           |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll      | Anlauf 1k | Anlauf 2K |  |
|                                       | Lead 1k   | Lead 2k   |  |
| Nominal Size x TPI                    | Ident No. |           |  |
| Nr. 12 – 90.7 BA                      | 2241187   | 2241188   |  |
| Nr. 11 – 81.9 BA                      | 2241189   | 2241190   |  |
| Nr. 10 – 72.6 BA                      | 2241191   | 2164713   |  |
| Nr. 9 – 65.1 BA                       | 2241192   | 2241193   |  |
| Nr. 8 – 59.1 BA                       | 2164712   | 2241194   |  |
| Nr. 7 – 52.9 BA                       | 2164711   | 2241195   |  |
| Nr. 6 – 47.9 BA                       | 1500853   | 1500862   |  |
| Nr. 5 – 43.1 BA                       | 2164710   | 2241196   |  |
| Nr. 4 – 38.5 BA                       | 1500835   | 1500844   |  |
| Nr. 3 – 34.8 BA                       | 1500817   | 2241197   |  |
| Nr. 2 – 31.3 BA                       | 1500791   | 1500808   |  |
| Nr. 1 – 28.2 BA                       | 2164709   | 2241198   |  |

| Whitworth-Gewinde <b>BSW</b>     |           |           |  |
|----------------------------------|-----------|-----------|--|
| Whitworth Threads                |           |           |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |  |
|                                  | Lead 1k   | Lead 2k   |  |
| Nominal Size x TPI               | Ident No. |           |  |
| 1/16 – 60 BSW                    | 2241172   | 1500443   |  |
| 3/32 – 48 BSW                    | 1500452   | 2241173   |  |
| 1/8 – 40 BSW                     | 1500470   | 1500489   |  |
| 5/32 – 32 BSW                    | 1500498   | 1500504   |  |
| 3/16 ... 7/32 – 24 BSW           | 1500513   | 1500522   |  |

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 2 Stück Rollen je nach Gewinde-Nennmaß etwa 0,030 bis 0,050 kg.

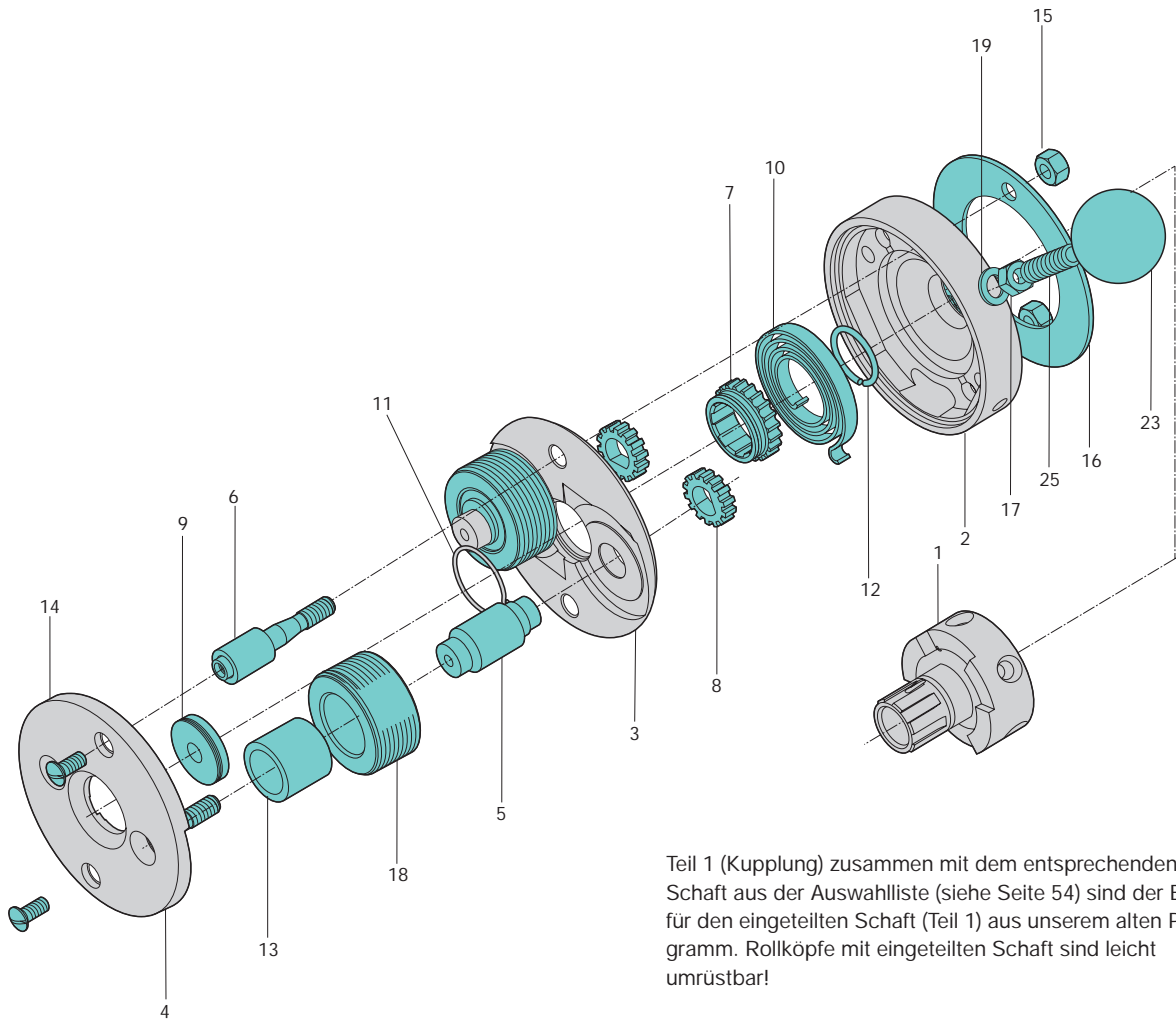
Statt mit Griff können die Rollköpfe auch mit Schließstift, Schließrolle und Schließfeder geliefert werden (siehe Seite 203).

Thread dimensions combined in one block can be rolled with **one** set of Rolls. Weight of 1 set of 2 Rolls according to Nominal Thread size approx 0.07 to 0.11 lb. Rolling Heads can also be delivered with closing rod, closing roller and closing spring, instead of handle (see page 203).

| Rollkopf<br>Rolling Head   |                             |   | F0 C1                           | F0L C1           | Rollkopf<br>Rolling Head  |               |  | K0 C1                           | K0L C1    |
|--|-----------------------------|---|---------------------------------|------------------|---|---------------|--|---------------------------------|-----------|
| Teil Nr.<br>Part No.   | Stück<br>Qty.               | Benennung<br>Part description               | Ident No.                       | Ident No.        | Teil Nr.<br>Part No.  | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No. |
| 1  | 1                           | Kupplung<br>Clutch                          | 2430904                         | 2430905          | 1   | 1             | Kupplung<br>Clutch                       | 2430905                         | 2430904   |
| 2  | 1                           | Federgehäuse<br>Spring housing              | 2164502                         | 2164511          | 2   | 1             | Federgehäuse<br>Spring housing           | 2164543                         | 2168919   |
| 3  | 1                           | Zwischenplatte<br>Centre plate              | 2164503                         | 2164516          | 3   | 1             | Zwischenplatte<br>Centre plate           | 2164544                         | 2168920   |
| 4  | 1                           | Frontplatte<br>Front plate                  | 2164504                         | 2164519          | 4   | 1             | Frontplatte<br>Front plate               | 2164545                         | 2168921   |
| 5  | 2                           | Exzenterbolzen<br>Eccentric spindles        | 2164505                         |                  | 5   | 2             | Exzenterbolzen<br>Eccentric spindles     | 2164505                         |           |
| 6  | 2                           | Distanzbolzen<br>Spacer studs               | 2164506                         |                  | 6   | 2             | Distanzbolzen<br>Spacer studs            | 2164506                         |           |
| 7  | 1                           | Zahnrad<br>Center gear                      | 2164507                         | 2164520          | 7   | 1             | Zahnrad<br>Center gear                   | 2164507                         | 2164520   |
| 8  | 2                           | Zahnrad<br>Spur gear                        | 2164508                         |                  | 8   | 2             | Zahnrad<br>Spur gear                     | 2164508                         |           |
| 9  | 1                           | Führungsbuchse<br>Guide bushing             | siehe Einsatzfall<br>individual |                  | 9   | 1             | Führungsbuchse<br>Guide bushing          | siehe Einsatzfall<br>individual |           |
| 10   | 1                           | Spiralfeder<br>Coil spring                  | 2164512                         | 2164521          | 10  | 1             | Spiralfeder<br>Coil spring               | 2164521                         |           |
| 11   | 1                           | Sicherungsring<br>Circlip                   | 2164513                         |                  | 11  | 1             | Sicherungsring<br>Circlip                | 2164513                         |           |
| 12   | 1                           | Sicherung<br>Circlip                        | 2164514                         |                  | 12  | 1             | Sicherung<br>Circlip                     | 2164514                         |           |
| 13   | 2                           | Hartmetall-Laufbuchse<br>Carbide bushing    | 2167472                         |                  | 13  | 2             | Hartmetall-Laufbuchse<br>Carbide bushing | 2167472                         |           |
| 14   | 2                           | Linsensenkschraube<br>Front plate screw     | 2142488                         |                  | 14  | 2             | Zylinderschraube<br>Front plate screw    | 2142488                         |           |
| 15   | 2                           | Sechskantmutter<br>Hexagon nut              | 2148397                         |                  | 15  | 2             | Sechskantmutter<br>Hexagon nut           | 2148397                         |           |
| 16   | 1                           | Ringscheibe<br>Ring washer                  | 2164515                         |                  | 16  | 1             | Ringscheibe<br>Ring washer               | 2164515                         |           |
| 17   | 1                           | Sechskantmutter<br>Hexagon nut              | 2148397                         |                  | 17  | 1             | Sechskantmutter<br>Hexagon nut           | 2148397                         |           |
| 18   | 2                           | Gewinderolle<br>Thread roll                 | siehe Einsatzfall<br>individual |                  | 18  | 2             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual |           |
| 19   | 1                           | Scheibe<br>Washer                           | 2148867                         |                  | 19  | 1             | Scheibe<br>Washer                        | 2148867                         |           |
| 23   | 1                           | Kugelknopf<br>Ball                          | 2141699                         |                  | 23  | 1             | Kugelknopf<br>Ball                       | 2141699                         |           |
| 24   | 2                           | Gewindestift<br>Set screw                   | -                               |                  | 24  | 2             | Gewindestift <sup>1)</sup><br>Set screw  | 2142064 + 2142062<br>2142065    |           |
| 25   | 1                           | Griff<br>Handle                             | 2148840                         |                  | 25  | 1             | Griff<br>Handle                          | 2148840                         |           |
| <b>Zubehör Innenanschlag<sup>2)</sup></b><br><b>Option Internal stop</b> |                             |   | <b>ISO C1</b>                   | <b>ISOL C1</b>   | <sup>1)</sup> Teil 24 wird in der Explosionszeichnung nicht gezeigt.<br>(Zum Festsetzen eines Gewindebolzens.)<br><sup>1)</sup> Part 24 not shown in the view (Locking screw for Adjustment with Type K)<br><sup>2)</sup> Nur für Maschinen ohne gesteuerter Vorschub. Bitte zusätzlich bestellen.<br><sup>2)</sup> Only required for machines without controlled feed stop.<br>If required, please order additionally! |               |  |                                 |           |
| <b>Artikel-Nr.</b><br><b>Part No.</b>                                    | <b>Stück</b><br><b>Qty.</b> | <b>Benennung</b><br><b>Part description</b> | <b>Ident No.</b>                | <b>Ident No.</b> |   |               |  |                                 |           |
|  |                             | Innenanschlag<br>Internal stop complete     | 2430906                         | 2430908          |   |               |  |                                 |           |
| 20   | 1                           | Schraubenstutzen<br>Stop screw body         | 2430907                         | 2430909          |   |               |  |                                 |           |
| 21   | 1                           | Anschlagschraube<br>Stop screw              | 2164518                         | 2164523          |   |               |  |                                 |           |
| 22   | 1                           | Sechskantmutter<br>Hexagon nut              | 2168387                         | 2168389          |   |               |  |                                 |           |

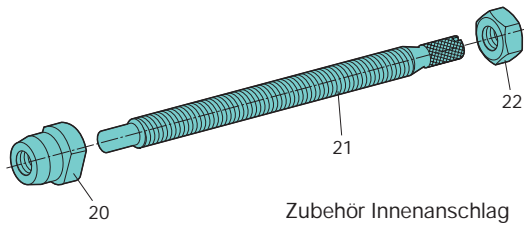
Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
 When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!





Teil 1 (Kupplung) zusammen mit dem entsprechenden Schaft aus der Auswahlliste (siehe Seite 54) sind der Ersatz für den eingeteilten Schaft (Teil 1) aus unserem alten Programm. Rollköpfe mit eingeteilten Schaft sind leicht umrüstbar!

Part 1 (coupling) together with the corresponding shank from the selection list (see page 54) are the replacements for the graduated shank (Part 1) from our old range. Rolling heads with graduated shanks can easily be changed over!



Zubehör Innenanschlag  
Option Internal stop

### für Rechtsgewinde

- nur feststehend verwendbar
- Rollen-Schrägstellung = 4°
- Gewicht ohne Rollen = ca. 0,3 kg

### for right-hand threads

- used stationary
- inclined position of rolls = 4°
- weight without rolls = approx. 0.1 lb

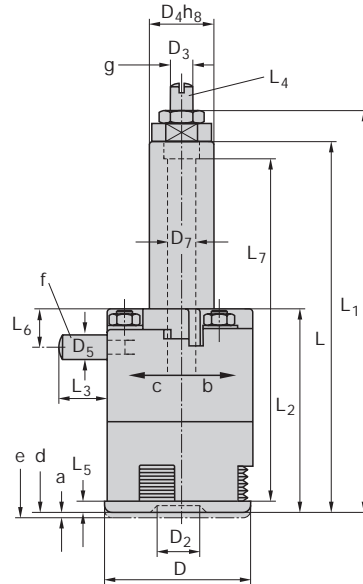
### für Linksgewinde

- Typ F001L
- Baumaß wie für Rechtsgewinde-Rollkopf

### for left-hand threads

- Type F001L
- Dimensions like right-hand thread rolling head

- a = Schalthub  
Pull off for opening
- b = Rollkopf öffnet  
Rolling Head/opening direction
- c = Rollkopf schließt  
(Bei Rollköpfen für Linksgewinde ist die Schaltrichtung entgegengesetzt)  
Rolling Head/closing direction  
(For Rolling Heads for left-hand threads, the direction of operation is reversed)
- d = Rollkopf geschlossen  
Rolling Head closed
- e = Rollkopf geöffnet  
Rolling Head opened
- f = Normalausführung mit Schließgriff  
Auch mit Schließrolle und Feder lieferbar  
For left-hand thread rolling heads right-hand thread
- L<sub>4</sub> = Länge der Innenanschlagschraube  
Length of internal stop screw
- α = Schließwinkel  
Closing angle



### Baumaße in mm

### Dimension in inches

| Baumaße in mm       |                |                |                              |                |                |                |                |        |                |                |                |                | F001         | F001L <sup>2)</sup> |  |
|---------------------|----------------|----------------|------------------------------|----------------|----------------|----------------|----------------|--------|----------------|----------------|----------------|----------------|--------------|---------------------|--|
| Dimension in inches |                |                |                              |                |                |                |                |        |                |                |                |                | Schaft Shank | Schaft Shank        |  |
| D                   | D <sub>1</sub> | D <sub>2</sub> | D <sub>3</sub> <sup>1)</sup> | D <sub>4</sub> | D <sub>5</sub> | D <sub>6</sub> | D <sub>7</sub> | L      | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | Ident No.    | Ident No.           |  |
| 40                  | -              | 7              | M6 - links                   | 15,875         | 8              | M5             | 7,5            | 65,4   | 72,9           | 40,4           | 14             | 66             | Ø 16         | Ø 16                |  |
| 1.575"              |                | 0.276"         | M6 - L.H.                    | 5/8"           | 0.315"         |                | 0.295"         | 2.575" | 2.870"         | 1.591"         | 0.551"         | 2.598"         | 1501326      | 2168417             |  |
|                     |                |                |                              | 16             |                |                |                |        |                |                |                |                | 1501308      | 2168415             |  |
|                     |                |                |                              | 19,05          |                |                |                |        |                |                |                |                | 5/8"         | 5/8"                |  |
|                     |                |                |                              | 3/4"           |                |                |                |        |                |                |                |                | 1501335      | 2168418             |  |
|                     |                |                |                              | 20             |                |                |                |        |                |                |                |                | 3/4"         | 3/4"                |  |
|                     |                |                |                              | 0.787"         |                |                |                |        |                |                |                |                | 1501317      | 2168416             |  |
| L <sub>5</sub>      | L <sub>6</sub> | L <sub>7</sub> | a                            | α              |                |                |                |        |                |                |                |                |              |                     |  |
| 2,5                 | 10,5           | 50             | 1,5                          | 32°            |                |                |                |        |                |                |                |                |              |                     |  |
| 0.098"              | 0.413"         | 1.968"         | 0.059"                       |                |                |                |                |        |                |                |                |                |              |                     |  |

<sup>1)</sup> Bei Linksgewinde-Rollköpfen Rechtsgewinde

<sup>1)</sup> For L. H. thread rolling heads: R. H. thread.

<sup>2)</sup> L = für Linksgewinde

<sup>2)</sup> L = for Left-hand threads

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Gewinde <b>M</b><br>Metric ISO Threads |                      |                      |           |
|---|----------------------|----------------------|-----------|
| Nennmaß x Steigung<br>mm                              | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k | Ident No. |
|   |                      |                      |           |
| M 2,6 x 0,45  | 1501406              | 1501415              |           |
| M 3 x 0,5   | 1501460              | 1501479              |           |
| M 3 ... 3,5 x 0,6                                     | 1501497              | 1501503              |           |
| M 4 x 0,7   | 1501521              | 1501530              |           |

| Unified-Gewinde, grob <b>UNC</b><br>Unified Threads, Coarse Pitch |                      |                      |           |
|---|----------------------|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll                                  | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k | Ident No. |
|   |                      |                      |           |
| Nr. 4 ... 5 – 40 UNC  | 1501567              | 1501576              |           |
| Nr. 6 ... 8 – 32 UNC  | 1501585              | 1501594              |           |

| Unified-Gewinde, fein <b>UNF</b><br>Unified Threads, Fine Pitch |                      |                      |           |
|---|----------------------|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll                                | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k | Ident No. |
|   |                      |                      |           |
| Nr. 4 – 48 UNF  | 1501601              | 1501610              |           |
| Nr. 5 – 44 UNF  | 1501629              | 1501638              |           |
| Nr. 6 – 40 UNF  | 1501647              | 1501656              |           |

| Whitworth-Gewinde <b>BSW</b><br>Whitworth Threads |                      |                      |           |
|---|----------------------|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll                  | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k | Ident No. |
|   |                      |                      |           |
| 1/8 – 40 BSW                                      | 1501549              | 1501558              |           |
| 5/32 – 32 BSW                                     | 2241239              | 2241240              |           |

| British-Association-Gewinde <b>BA</b><br>British Association Threads |                      |                      |           |
|--|----------------------|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll                                     | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k | Ident No. |
|  |                      |                      |           |
| Nr. 6 – 47.9 BA  | 2240386              | 1501692              |           |
| Nr. 5 – 43.1 BA  | 1501683              | 2241241              |           |
| Nr. 4 – 38.5 BA  | 2167630              | 1501674              |           |

| Rändel<br>Knurls  |                             |           |         |
|---|-----------------------------|-----------|---------|
| Nennmaß x Steigung<br>Nominal Size x Pitch<br>mm   inch |                             | RAA       | RGE     |
|   |                             | Ident No. |         |
| Ø 3 ... Ø 3,5 x 0,5                                     | Ø 0.118 ... Ø 0.138 x 0.02  | 1501816   | 2241244 |
| Ø 3,5 ... Ø 4 x 0,5                                     | Ø 0.138 ... Ø 0.157 x 0.02  | 2241242   | 2214245 |
| Ø 3 ... Ø 3,5 x 0,6                                     | Ø 0.118 ... Ø 0.138 x 0.024 | 1501834   | 2167328 |
| Ø 3,5 ... Ø 4 x 0,6                                     | Ø 0.138 ... Ø 0.157 x 0.024 | 1501843   | 2167415 |
| Ø 3 ... Ø 3,5 x 0,8                                     | Ø 0.118 ... Ø 0.138 x 0.031 | 1501852   | 2241246 |
| Ø 3,5 ... Ø 4 x 0,8                                     | Ø 0.138 ... Ø 0.157 x 0.031 | 1501861   | 2241247 |
| Ø 3,2 ... Ø 3,5 x 1,0                                   | Ø 0.126 ... Ø 0.138 x 0.039 | 2169679   | 2241248 |
| Ø 3,5 ... Ø 4 x 1,0                                     | Ø 0.138 ... Ø 0.157 x 0.039 | 2241243   | 2241249 |
| Ø 3,2 ... Ø 3,5 x 1,2                                   | Ø 0.126 ... Ø 0.138 x 0.047 | 2245283   | 2168268 |
| Ø 3,5 ... Ø 4,0 x 1,2                                   | Ø 0.138 ... Ø 0.016 x 0.047 | 2245284   | 1501905 |

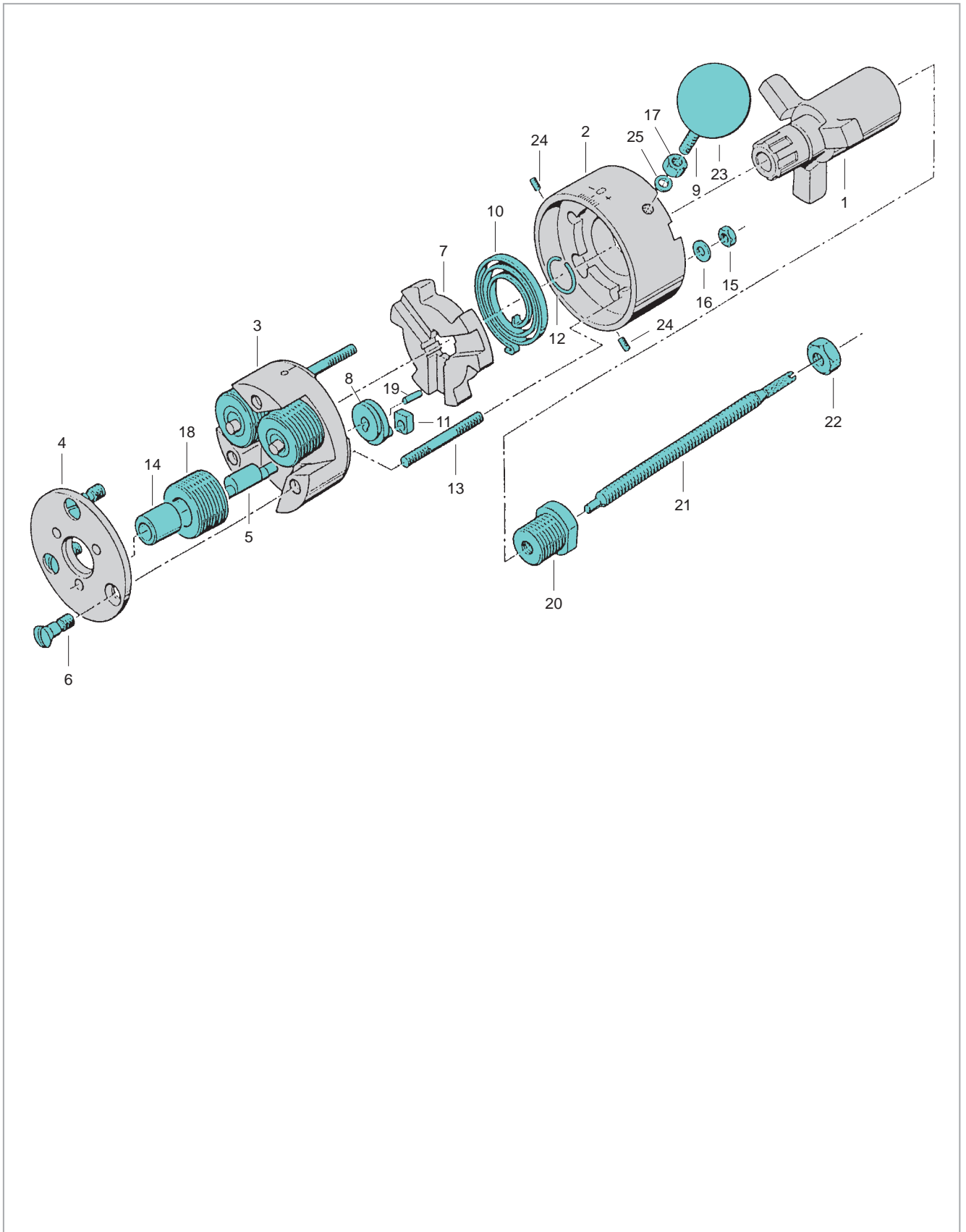
| Glätten<br>Burnishing                |                   | Ident No. |
|--------------------------------------|-------------------|-----------|
| Nennmaß<br>Nominal Size<br>mm   inch |                   |           |
| Ø 2,2 – Ø 2,5                        | Ø 0.087 – Ø 0.098 | 2241250   |
| Ø 2,5 – Ø 3                          | Ø 0.098 – Ø 0.118 | 2241251   |
| Ø 3 – Ø 3,5                          | Ø 0.118 – Ø 0.138 | 2241252   |
| Ø 3,5 – Ø 4                          | Ø 0.138 – Ø 0.157 | 2167307   |

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 0,030 bis 0,040 kg. Statt mit Griff können die Rollköpfe auch mit Schließstift, Schließrolle und Schließfeder geliefert werden (siehe Seite 203). Rollköpfe mit Schäften nach DIN 69880 siehe Seiten 164/165.

Thread dimensions combined in **one** block can be rolled with one set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 0.07 to 0.09 lb. Rolling Heads can also be delivered with closing rod, closing roller and closing spring, instead of handle (see page 203). Rolling Heads with shank to DIN 69880 see pages 164/164.

| Rollkopf<br>Rolling Head |               |                                      | F001      | F001 L    | Rollkopf<br>Rolling Head |               |  | F001                           | F001 L    |
|--------------------------|---------------|--------------------------------------|-----------|-----------|--------------------------|---------------|--|--------------------------------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description        | Ident No. | Ident No. | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                      | Ident No. |
| 1                        | 1             | Schaft Ø 16<br>Shank Ø 16            | 2164562   |           | 12                       | 1             | Sicherungsring<br>Circlip                | 2164556                        |           |
| 1                        | 1             | Schaft Ø 20<br>Shank Ø 20            | 2164546   |           | 13                       | 3             | Stiftschraube<br>Studs                   | 2164557                        |           |
| 1                        | 1             | Schaft Ø 5/8"<br>Shank Ø 5/8"        | 2164563   |           | 14                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2164558                        |           |
| 1                        | 1             | Shank Ø 3/4"<br>Schaft Ø 3/4"        | 2164561   |           | 15                       | 3             | Sechskantmutter<br>Hexagon nut           | 2148395                        |           |
| 2                        | 1             | Federgehäuse<br>Spring housing       | 2164547   | 2168109   | 16                       | 3             | Scheibe<br>Washer                        | 2141462                        |           |
| 3                        | 1             | Zwischenplatte<br>Centre plate       | 2164548   | 2168106   | 17                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148397                        |           |
| 4                        | 1             | Frontplatte<br>Front plate           | 2164549   | 2168107   | 18                       | 3             | Gewinderolle<br>Thread roll              | siehe Einzelfall<br>individual |           |
| 5                        | 3             | Exzenterbolzen<br>Eccentric spindles | 2164550   | 2168108   | 19                       | 3             | Zylinderstift<br>Shear pins              | 2127386                        |           |
| 6                        | 3             | Passschraube<br>Front plate screw    | 2164551   |           | 20                       | 1             | Schraubenstutzen<br>Stop screw body      | 2164559                        | 2164581   |
| 7                        | 1             | Kupplungsscheibe<br>Clutch plate     | 2164552   | 2168105   | 21                       | 1             | Anschlagschraube<br>Stop screw           | 2164560                        | 2164582   |
| 8                        | 3             | Kugelhebel<br>Ball lever             | 2164553   |           | 22                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148387                        | 2142394   |
| 9                        | 1             | Griff<br>Handle                      | 2148840   |           | 23                       | 1             | Kugelknopf<br>Ball                       | 2141699                        |           |
| 10                       | 1             | Spiralfeder<br>Coil spring           | 2164554   | 2164580   | 24                       | 2             | Gewindestift<br>Set screw                | 2142058                        |           |
| 11                       | 3             | Nutenstein<br>Hardened slides        | 2164555   |           | 25                       | 1             | Scheibe<br>Washer                        | 2148867                        |           |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!



### für Rechtsgewinde

- F01 feststehend verwendbar
- K01-1 feststehend und umlaufend verwendbar
- Rollen-Schrägstellung = 3° 30'
- Gewicht ohne Rollen = ca. 0,34 kg

### for right-hand threads

- F01 used stationary
- K01-1 used stationary or rotating
- inclined position of rolls = 3° 30'
- weight without rolls = approx. 0.8 lb

### für Linksgewinde

- Typ F01L, K01-1L
- Baumaß wie für Rechtsgewinde-Rollkopf

### for left-hand threads

- Type F01L, K01-1L
- Dimensions like right-hand thread rolling head

a = Schalthub

Pull off for opening

b = Kopf öffnet bei Typ K, schließt bei Typ F

Head opens when Type K, and closes when Type F

c = Kopf schließt bei Typ K, öffnet bei Typ F

(Bei Rollköpfen für Linksgewinde

ist die Schaltrichtung entgegengesetzt)

Head closes when Type K, and opens when Type F

(For Rolling Heads for left-hand threads, the direction of operation is reversed)

d = Rollkopf geschlossen

Rolling Head closed

e = Rollkopf geöffnet

Rolling Head opened

f = Gewinde für Griff bei feststehender

Verwendung

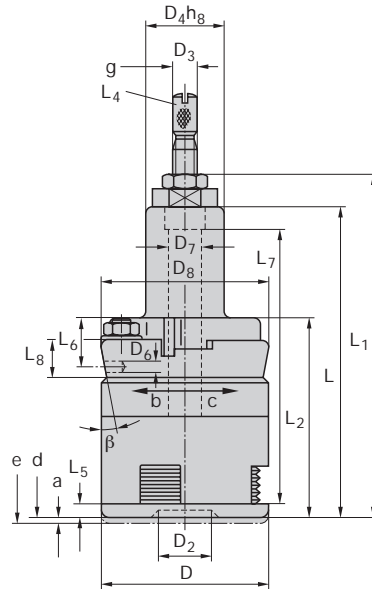
Thread for handle with stationary operation

L<sub>4</sub> = Länge der Innenanlagschraube

Length of internal stop screw

α = Schließwinkel

Closing angle



### Baumaße in mm

### Dimension in inches

|                |                |                |                              |                              |                |                |                |                              |        |                |                |                | F01                       | F01L <sup>3)</sup>        |
|----------------|----------------|----------------|------------------------------|------------------------------|----------------|----------------|----------------|------------------------------|--------|----------------|----------------|----------------|---------------------------|---------------------------|
| D              | D <sub>1</sub> | D <sub>2</sub> | D <sub>3</sub> <sup>1)</sup> | D <sub>4</sub>               | D <sub>5</sub> | D <sub>6</sub> | D <sub>7</sub> | D <sub>8</sub> <sup>2)</sup> | L      | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | Schaft Shank<br>Ident No. | Schaft Shank<br>Ident No. |
| 40             | -              | 12             | M6 - links                   | 15,875                       | -              | M5             | 7,5            | 40                           | 70,3   | 77,8           | 45,3           | -              | Ø 16                      | Ø 16                      |
| 1.575"         |                | 0.472"         | M6 - L.H.                    | 3/4"                         |                |                | 0.295"         | 1.575"                       | 2.768" | 3.063"         | 1.783"         |                | 1502227                   | 2168424                   |
|                |                |                |                              | 16                           |                |                |                |                              |        |                |                |                | Ø 20                      | Ø 20                      |
|                |                |                |                              | 0.630"                       |                |                |                |                              |        |                |                |                | 1502209                   | 1502245                   |
|                |                |                |                              | 19,05                        |                |                |                |                              |        |                |                |                | 5/8"                      | 5/8"                      |
|                |                |                |                              | 3/4"                         |                |                |                |                              |        |                |                |                | 1502236                   | 2168425                   |
|                |                |                |                              | 20                           |                |                |                |                              |        |                |                |                | 3/4"                      | 3/4"                      |
|                |                |                |                              | 0.787"                       |                |                |                |                              |        |                |                |                | 1502218                   | 1502254                   |
| L <sub>4</sub> | L <sub>5</sub> | L <sub>6</sub> | L <sub>7</sub>               | L <sub>8</sub> <sup>2)</sup> | a              | α              | β              |                              |        |                |                |                | K01-1                     | K01-1L <sup>3)</sup>      |
| 69             | 4,5            | 10,5           | 54,8                         | 8,5                          | 1,5            | 32°            | 10°            |                              |        |                |                |                | Schaft Shank<br>Ident No. | Schaft Shank<br>Ident No. |
| 2.717"         | 0.177"         | 0.413"         | 2.157"                       | 0.335                        | 0.059"         |                |                |                              |        |                |                |                | 1503423                   | 2168923                   |
|                |                |                |                              |                              |                |                |                |                              |        |                |                |                | Ø 20                      | Ø 20                      |
|                |                |                |                              |                              |                |                |                |                              |        |                |                |                | 1502405                   | 1502441                   |
|                |                |                |                              |                              |                |                |                |                              |        |                |                |                | 5/8"                      | 5/8"                      |
|                |                |                |                              |                              |                |                |                |                              |        |                |                |                | 1502432                   | 2168924                   |
|                |                |                |                              |                              |                |                |                |                              |        |                |                |                | 3/4"                      | 3/4"                      |
|                |                |                |                              |                              |                |                |                |                              |        |                |                |                | 1502414                   | 1502450                   |

<sup>1)</sup> Bei Linksgewinde-Rollköpfen Rechtsgewinde

<sup>1)</sup> For L. H. thread rolling heads: R. H. thread.

<sup>2)</sup> Nur für Typ K

<sup>2)</sup> Only for type K

<sup>3)</sup> L = für Linksgewinde

<sup>3)</sup> L = for Left-hand threads

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Gewinde <b>M</b> |           |           |  |
|---------------------------------|-----------|-----------|--|
| Metric ISO Threads              |           |           |  |
| Nennmaß x Steigung<br>mm        | Anlauf 1k | Anlauf 2K |  |
|                                 | Lead 1k   | Lead 2k   |  |
| Nominal Size x Pitch            | Ident No. |           |  |
| M 3,5 x 0,6                     | 1502539   | 1502548   |  |
| M 4 x 0,7                       | 1502619   | 1502628   |  |
| M 4 ... 4,5 x 0,75              | 1502655   | 1502664   |  |
| M 5 x 0,8                       | 1502762   | 1502771   |  |
| M 5 ... 5,5 x 0,9               | 1502806   | 1502815   |  |
| M 6 x 1                         | 1502879   | 1502888   |  |

| Metrisches ISO-Feingewinde <b>M</b> |           |           |  |
|-------------------------------------|-----------|-----------|--|
| Metric ISO Fine Pitch Threads       |           |           |  |
| Nennmaß x Steigung<br>mm            | Anlauf 1k | Anlauf 2K |  |
|                                     | Lead 1k   | Lead 2k   |  |
| Nominal Size x Pitch                | Ident No. |           |  |
| M 4 ... 5,0 x 0,5                   | 2167460   | 1502584   |  |

| Unified-Gewinde, grob <b>UNC</b> |           |           |  |
|----------------------------------|-----------|-----------|--|
| Unified Threads, Coarse Pitch    |           |           |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |  |
|                                  | Lead 1k   | Lead 2k   |  |
| Nominal Size x TPI               | Ident No. |           |  |
| Nr. 8 – 32 UNC                   | 1503039   | 1503048   |  |
| Nr. 10... 12 – 24 UNC            | 1503057   | 1503066   |  |
| 1/4 – 20 UNC                     | 2169901   | 1503093   |  |

| Unified-Gewinde, fein <b>UNF</b> |           |           |  |
|----------------------------------|-----------|-----------|--|
| Unified Threads, Fine Pitch      |           |           |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |  |
|                                  | Lead 1k   | Lead 2k   |  |
| Nominal Size x TPI               | Ident No. |           |  |
| Nr. 6 – 40 UNF                   | 2240710   | 2168469   |  |
| Nr. 8 – 36 UNF                   | 1503100   | 1503119   |  |
| Nr. 10 – 32 UNF                  | 1503128   | 1503137   |  |
| Nr. 12 – 28 UNF                  | 1503146   | 1503155   |  |
| 1/4 – 28 UNF                     | 1503164   | 1503173   |  |

| British-Association-Gewinde <b>BA</b> |           |           |  |
|---------------------------------------|-----------|-----------|--|
| British Association Threads           |           |           |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll      | Anlauf 1k | Anlauf 2K |  |
|                                       | Lead 1k   | Lead 2k   |  |
| Nominal Size x TPI                    | Ident No. |           |  |
| Nr. 4 – 38.5 BA                       | 2240387   | 1503262   |  |
| Nr. 3 – 34.8 BA                       | 1503253   | 2241265   |  |
| Nr. 2 – 31.3 BA                       | 1503235   | 1503244   |  |
| Nr. 1 – 28.2 BA                       | 1503217   | 2241266   |  |
| Nr. 0 – 25.4 BA                       | 1503208   | 2241267   |  |

| Rändel<br>Knurls  |                             |           |         |
|---|-----------------------------|-----------|---------|
| Nennmaß x Steigung<br>Nominal Size x Pitch<br>mm   inch |                             | RAA       | RGE     |
|   |                             | Ident No. |         |
| Ø 3,5 ... Ø 4 x 0,5                                     | Ø 0.138 ... Ø 0.157 x 0.02  | 1503404   | 2241275 |
| Ø 4 ... Ø 4,5 x 0,5                                     | Ø 0.157 ... Ø 0.177 x 0.02  | 2241268   | 2242388 |
| Ø 4,5 ... Ø 5 x 0,5                                     | Ø 0.177 ... Ø 0.197 x 0.02  | 1503413   | 2241277 |
| Ø 5 ... Ø 5,5 x 0,5                                     | Ø 0.197 ... Ø 0.217 x 0.02  | 2164607   | 2241278 |
| Ø 5,5 ... Ø 6 x 0,5                                     | Ø 0.217 ... Ø 0.236 x 0.02  | 1503431   | 1503574 |
| Ø 3,5 ... Ø 4 x 0,6                                     | Ø 0.138 ... Ø 0.157 x 0.024 | 1503440   | 1503583 |
| Ø 4 ... Ø 4,5 x 0,6                                     | Ø 0.157 ... Ø 0.177 x 0.024 | 1503459   | 2241279 |
| Ø 4,5 ... Ø 5 x 0,6                                     | Ø 0.177 ... Ø 0.197 x 0.024 | 1503468   | 1503592 |
| Ø 5 ... Ø 5,5 x 0,6                                     | Ø 0.197 ... Ø 0.217 x 0.024 | 2169748   | 2241281 |
| Ø 5,5 ... Ø 6 x 0,6                                     | Ø 0.217 ... Ø 0.236 x 0.024 | 1503477   | 2241282 |
| Ø 4 ... Ø 4,5 x 0,8                                     | Ø 0.157 ... Ø 0.177 x 0.031 | 1503486   | 1503609 |
| Ø 4,5 ... Ø 5 x 0,8                                     | Ø 0.177 ... Ø 0.197 x 0.031 | 2241269   | 2241283 |
| Ø 5 ... Ø 5,5 x 0,8                                     | Ø 0.197 ... Ø 0.217 x 0.031 | 1503495   | 1503619 |
| Ø 5,5 ... Ø 6 x 0,8                                     | Ø 0.217 ... Ø 0.236 x 0.031 | 1503501   | 1503627 |
| Ø 4 ... Ø 4,5 x 1,0                                     | Ø 0.157 ... Ø 0.177 x 0.039 | 2241270   | 2241284 |
| Ø 4,5 ... Ø 5 x 1,0                                     | Ø 0.177 ... Ø 0.197 x 0.039 | 1503510   | 2166776 |
| Ø 5 ... Ø 5,5 x 1,0                                     | Ø 0.197 ... Ø 0.217 x 0.039 | 2241271   | 2241285 |
| Ø 5,5 ... Ø 6 x 1,0                                     | Ø 0.217 ... Ø 0.236 x 0.039 | 1503529   | 1503636 |
| Ø 4 ... Ø 4,5 x 1,2                                     | Ø 0.157 ... Ø 0.177 x 0.047 | 2241272   | 2241286 |
| Ø 4,5 ... Ø 5 x 1,2                                     | Ø 0.177 ... Ø 0.197 x 0.047 | 1503538   | 2241287 |
| Ø 5 ... Ø 5,5 x 1,2                                     | Ø 0.197 ... Ø 0.217 x 0.047 | 2241273   | 2241288 |
| Ø 5,5 ... Ø 6 x 1,2                                     | Ø 0.217 ... Ø 0.236 x 0.047 | 2241274   | 2241289 |

| Glätten<br>Burnishing                |                   |           |  |
|--------------------------------------|-------------------|-----------|--|
| Nennmaß<br>Nominal Size<br>mm   inch |                   | Ident No. |  |
| Ø 3 – Ø 3,5                          | Ø 0.118 – Ø 0.138 | 1503707   |  |
| Ø 3,5 – Ø 4                          | Ø 0.138 – Ø 0.157 | 1503716   |  |
| Ø 4 – Ø 4,5                          | Ø 0.157 – Ø 0.177 | 1503725   |  |
| Ø 4,5 – Ø 5                          | Ø 0.177 – Ø 0.197 | 1503734   |  |
| Ø 5 – Ø 5,5                          | Ø 0.197 – Ø 0.217 | 1503743   |  |
| Ø 5,5 – Ø 6                          | Ø 0.217 – Ø 0.236 | 1503752   |  |

| Whitworth-Gewinde <b>BSW</b>     |           |           |  |
|----------------------------------|-----------|-----------|--|
| Whitworth Threads                |           |           |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2k |  |
|                                  | Lead 1k   | Lead 2k   |  |
| Nominal Size x TPI               | Ident No. |           |  |
| 5/32 – 32 BSW                    | 1502904   | 1502913   |  |
| 3/16 ... 7/32 – 24 BSW           | 1502922   | 1502931   |  |

| Whitworth-Feingewinde <b>BSF</b> |           |           |  |
|----------------------------------|-----------|-----------|--|
| Whitworth Fine Pitch Threads     |           |           |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2k |  |
|                                  | Lead 1k   | Lead 2k   |  |
| Nominal Size x TPI               | Ident No. |           |  |
| 3/16 – 32 BSF                    | 1502940   | 1502959   |  |
| 7/32 – 28 BSF                    | 1502968   | 1502977   |  |
| 1/4 – 26 BSF                     | 1502995   | 1503002   |  |

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 0,030 bis 0,040 kg. Statt mit Griff können die Rollköpfe auch mit Schließstift, Schließrolle und Schließfeder geliefert werden (siehe Seite 203). Rollköpfe mit Schäften nach DIN 69880 siehe Seiten 164/165.

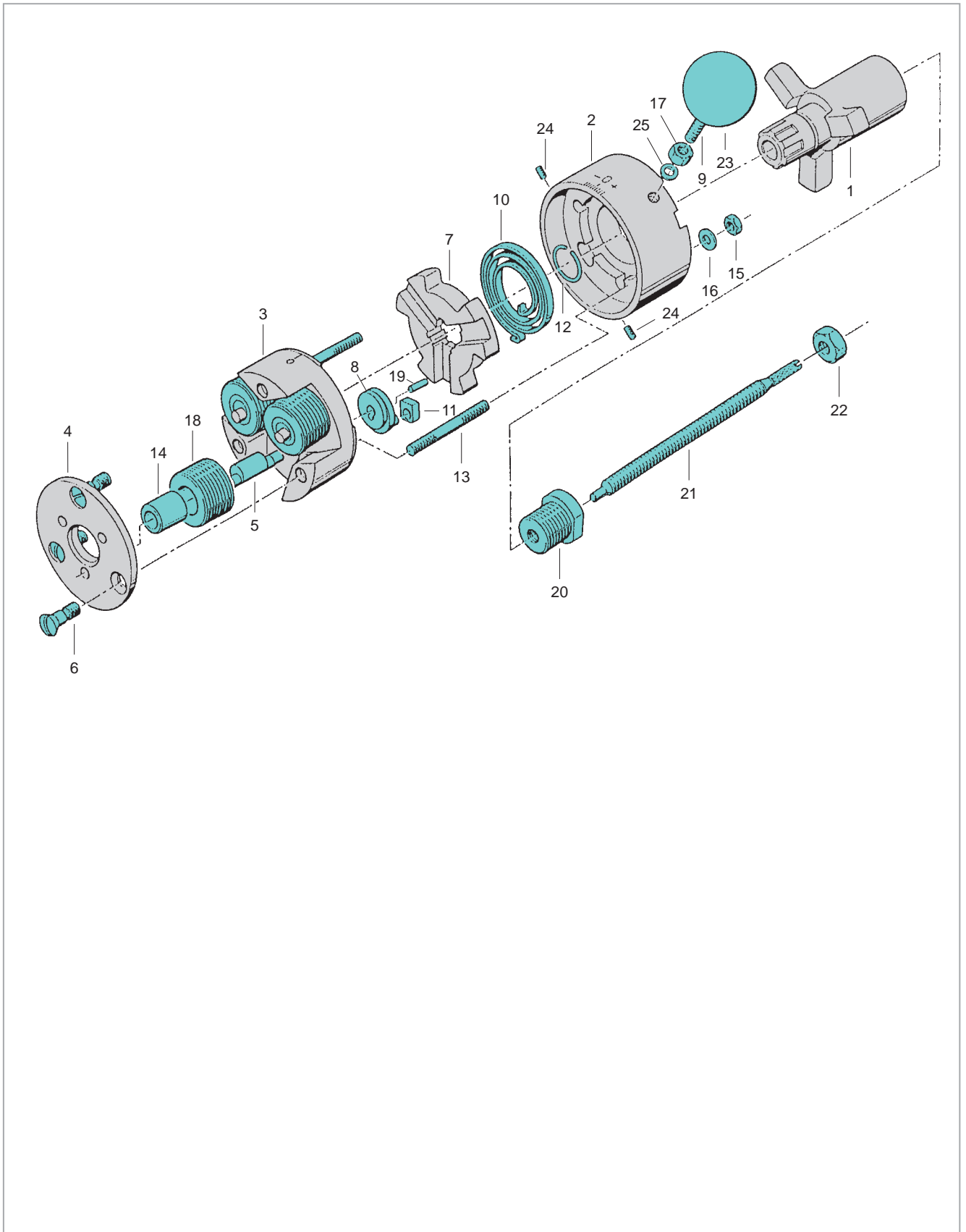
Thread dimensions combined in **one** block can be rolled with one set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 0.07 to 0.09 lb. Rolling Heads can also be delivered with closing rod, closing roller and closing spring, instead of handle (see page 203). Rolling Heads with shank to DIN 69880 see pages 164/165.

| Rollkopf<br>Rolling Head |               |  | F01                             |           | F01L<br>Linksgewinde<br>Left hand thread |           | Rollkopf<br>Rolling Head |               |  | K01-1                           |           | K01-1L<br>Linksgewinde<br>Left hand thread |           |
|--------------------------|---------------|--|---------------------------------|-----------|--|-----------|--------------------------|---------------|--|---------------------------------|-----------|--|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No. | Ident No.                                | Ident No. | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No. | Ident No.                                  | Ident No. |
| 1                        | 1             | Schaft Ø 16<br>Shank Ø 16                | 2164562                         |           |  |           | 1                        | 1             | Schaft Ø 16<br>Shank Ø 16                | 2164562                         |           |  |           |
| 1                        | 1             | Schaft Ø 20<br>Shank Ø 20                | 2164546                         |           |  |           | 1                        | 1             | Schaft Ø 20<br>Shank Ø 20                | 2164546                         |           |  |           |
| 1                        | 1             | Schaft Ø 5/8"<br>Shank Ø 5/8"            | 2164563                         |           |  |           | 1                        | 1             | Schaft Ø 5/8"<br>Shank Ø 5/8"            | 2164563                         |           |  |           |
| 1                        | 1             | Shank Ø 3/4"<br>Schaft Ø 3/4"            | 2164561                         |           |  |           | 1                        | 1             | Shank Ø 3/4"<br>Schaft Ø 3/4"            | 2164561                         |           |  |           |
| 2                        | 1             | Federgehäuse<br>Spring housing           | 2164568                         | 2164575   |  |           | 2                        | 1             | Federgehäuse<br>Spring housing           | 2164600                         | 2164603   |  |           |
| 3                        | 1             | Zwischenplatte<br>Centre plate           | 2164569                         | 2164576   |  |           | 3                        | 1             | Zwischenplatte<br>Centre plate           | 2164601                         | 2164604   |  |           |
| 4                        | 1             | Frontplatte<br>Front plate               | 2164570                         | 2164577   |  |           | 4                        | 1             | Frontplatte<br>Front plate               | 2164602                         | 2164605   |  |           |
| 5                        | 3             | Exzenterbolzen<br>Eccentric spindles     | 2164571                         | 2164578   |  |           | 5                        | 3             | Exzenterbolzen<br>Eccentric spindles     | 2164578                         | 2164571   |  |           |
| 6                        | 3             | Passschraube<br>Front plate screw        | 2164551                         |           |  |           | 6                        | 3             | Passschraube<br>Front plate screw        | 2164551                         |           |  |           |
| 7                        | 1             | Kupplungsscheibe<br>Clutch plate         | 2164572                         | 2164579   |  |           | 7                        | 1             | Kupplungsscheibe<br>Clutch plate         | 2164579                         | 2164572   |  |           |
| 8                        | 3             | Kugelhebel<br>Ball lever                 | 2164553                         |           |  |           | 8                        | 3             | Kugelhebel<br>Ball lever                 | 2164553                         |           |  |           |
| 9                        | 1             | Griff<br>Handle                          | 2148840                         |           |  |           | 9                        | 1             | Griff<br>Handle                          | 2148840                         |           |  |           |
| 10                       | 1             | Spiralfeder<br>Coil spring               | 2164554                         | 2164580   |  |           | 10                       | 1             | Spiralfeder<br>Coil spring               | 2164580                         | 2164554   |  |           |
| 11                       | 3             | Nutenstein<br>Hardened slides            | 2164555                         |           |  |           | 11                       | 3             | Nutenstein<br>Hardened slides            | 2164555                         |           |  |           |
| 12                       | 1             | Sicherungsring<br>Circlip                | 2164556                         |           |  |           | 12                       | 1             | Sicherungsring<br>Circlip                | 2164556                         |           |  |           |
| 13                       | 3             | Stiftschraube<br>Studs                   | 2164573                         |           |  |           | 13                       | 3             | Stiftschraube<br>Studs                   | 2164573                         |           |  |           |
| 14                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2164574                         |           |  |           | 14                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2164574                         |           |  |           |
| 15                       | 3             | Sechskantmutter<br>Hexagon nut           | 2148395                         |           |  |           | 15                       | 3             | Sechskantmutter<br>Hexagon nut           | 2148395                         |           |  |           |
| 16                       | 3             | Scheibe<br>Washer                        | 2141462                         |           |  |           | 16                       | 3             | Scheibe<br>Washer                        | 2141462                         |           |  |           |
| 17                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148397                         |           |  |           | 17                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148397                         |           |  |           |
| 18                       | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual |           |  |           | 18                       | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual |           |  |           |
| 19                       | 3             | Zylinderstift<br>Shear pins              | 2127386                         |           |  |           | 19                       | 3             | Zylinderstift<br>Shear pins              | 2127386                         |           |  |           |
| 20                       | 1             | Schraubenstutzen<br>Stop screw body      | 2164559                         | 2164581   |  |           | 20                       | 1             | Schraubenstutzen<br>Stop screw body      | 2164559                         | 2164581   |  |           |
| 21                       | 1             | Anschlagschraube<br>Stop screw           | 2164560                         | 2164582   |  |           | 21                       | 1             | Anschlagschraube<br>Stop screw           | 2164560                         | 2164582   |  |           |
| 22                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148387                         | 2142393   |  |           | 22                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148387                         | 2142393   |  |           |
| 23                       | 1             | Kugelknopf<br>Ball                       | 2141699                         |           |  |           | 23                       | 1             | Kugelknopf<br>Ball                       | 2141699                         |           |  |           |
| 24                       | 2             | Gewindestift<br>Set screw                | 2142058                         |           |  |           | 24                       | 2             | Gewindestift <sup>1)</sup><br>Set screw  | 2142058                         |           |  |           |
| 25                       | 1             | Scheibe<br>Washer                        | 2148867                         |           |  |           | 25                       | 1             | Scheibe<br>Washer                        | 2148867                         |           |  |           |

<sup>1)</sup> Zum Festsetzen eines Gewindebolzens Locking screw for Adjustment

**Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!**  
**When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!**





für Rechtsgewinde

- F1 C1 nur feststehend verwendbar
- K1 C1 feststehend und umlaufend verwendbar
- Rollen-Schrägstellung = 3° 30'
- Gewicht ohne Rollen = ca. 0,8 kg

für Linksgewinde

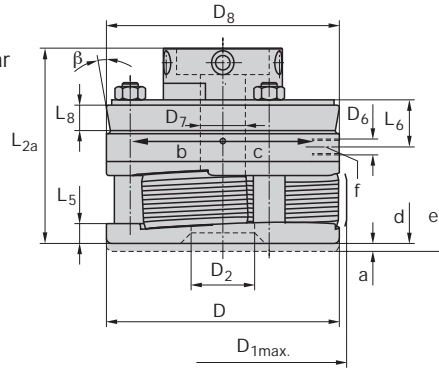
- Typ F1L C1, K1L C1
- Baumaß wie für Rechtsgewinde-Rollkopf

for right-hand threads

- F1 C1 to be used stationary only
- K1 C1 used stationary or rotating
- inclined position of rolls = 3° 30'
- weight without rolls = approx. 1.9 lb

for left-hand threads

- Type F1L C1, K1L C1
- Dimensions like right-hand thread rolling head



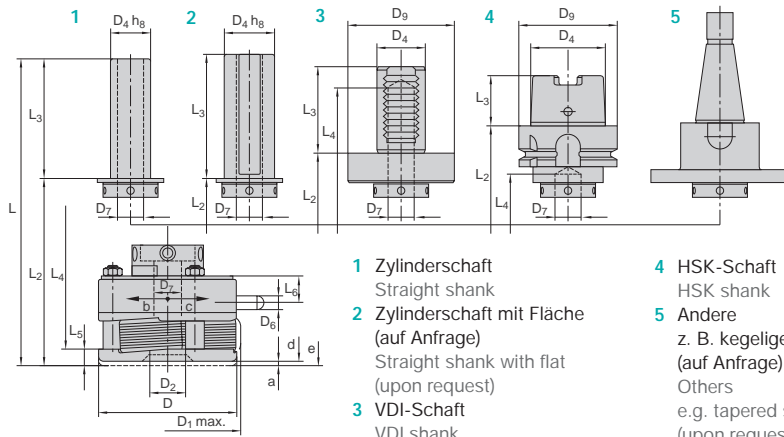
Baumaße in mm Dimension in inches

| D      | D <sub>1max.</sub> | D <sub>2</sub> | D <sub>6</sub> | D <sub>7</sub> | D <sub>8</sub> <sup>1)</sup> | L <sub>2a</sub> | L <sub>5</sub> | L <sub>6</sub> | L <sub>g</sub> <sup>1)</sup> | a      | α   | β <sup>1)</sup> | Ident No. |        |
|--------|--------------------|----------------|----------------|----------------|------------------------------|-----------------|----------------|----------------|------------------------------|--------|-----|-----------------|-----------|--------|
| 64     | 70                 | 17             | M6             | 11,4           | 64                           | 57              | 6              | 7,5            | 9,5                          | 2      | 60° | 10°             | 2430910   | F1 C1  |
| 2.520" | 2.756"             | 0.669"         | Typ „F“        | 0.453"         | 2.519"                       | 2.244"          | 0.236"         | 2.953"         | 0.374"                       | 0.079" |     |                 | 2430911   | F1L C1 |
|        |                    |                | M5             |                |                              |                 |                |                |                              |        |     |                 | 2430912   | K1 C1  |
|        |                    |                | Typ „K“        |                |                              |                 |                |                |                              |        |     |                 | 2430913   | K1L C1 |

<sup>1)</sup> Nur für Typ K Only for Type K

Wechselschäfte ... -C1  
Change shanks ... -C1

- a = Schalhub Pull off for opening
- b = Kopf öffnet bei Typ K, schließt bei Typ F  
Head opens when Type K, and closes when Type F
- c = Kopf schließt bei Typ K, öffnet bei Typ F  
(Bei Rollköpfen für Linksgewinde ist die Schalrichtung entgegengesetzt)  
Head closes when Type K, and opens when Type F (For Rolling Heads for left-hand threads, the direction of operation is reversed)
- d = Rollkopf geschlossen Rolling Head closed
- e = Rollkopf geöffnet Rolling Head opened
- f = Gewinde für Griff bei feststehender Verwendung  
Thread for handle with stationary operation
- α = Schließwinkel Closing angle



- 1 Zylinderschaft  
Straight shank
- 2 Zylinderschaft mit Fläche  
(auf Anfrage)  
Straight shank with flat  
(upon request)
- 3 VDI-Schaft  
VDI shank
- 4 HSK-Schaft  
HSK shank
- 5 Andere  
z. B. kegeliger Schaft  
(auf Anfrage)  
Others  
e.g. tapered shanks  
(upon request)

Schäfte werden mit Befestigungsschrauben geliefert. Shanks will be delivered with the according fastening screws.

Baumaße in mm Dimension in inches

|  | D <sub>4</sub>  | D <sub>9</sub> | L               | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | Ident No. |            |
|--|-----------------|----------------|-----------------|----------------|----------------|----------------|-----------|------------|
| Schaft Ø 20<br>Shank dia. Ø 20         | 20<br>0.984"    | -              | 119,5<br>4.704" | 59,5<br>2.342" | 60<br>2.362"   | -              | 2430980   | R20-C1     |
| Schaft Ø 25<br>Shank dia. Ø 25         | 25<br>0.984"    | -              | 119,5<br>4.704" | 59,5<br>2.342" | 60<br>2.362"   | -              | 2430973   | R25-C1     |
| Schaft Ø 3/4"<br>Shank dia. Ø 3/4"     | 19,05<br>0.75"  | -              | 119,5<br>4.704" | 59,5<br>2.342" | 60<br>2.362"   | -              | 2430981   | R3/4-C1    |
| Schaft Ø 1"<br>Shank dia. Ø 1"         | 25,4<br>1"      | -              | 119,5<br>4.704" | 59,5<br>2.342" | 60<br>2.362"   | -              | 2430977   | R1-C1      |
| Schaft Ø 1 1/4"<br>Shank dia. Ø 1 1/4" | 31,75<br>1.125" | -              | 119,5<br>4.704" | 59,5<br>2.342" | 60<br>2.362"   | -              | 2430982   | R1 1/4-C1  |
| Schaft VDI Ø 20<br>Shank VDI dia. Ø 20 | 20<br>0.787     | 50<br>1.968"   | 115,5<br>4.547" | 75,5<br>2.972" | 40<br>1.574"   | 72<br>2.834"   | 2430984   | VDI20-C1   |
| Schaft VDI Ø 25<br>Shank VDI dia. Ø 25 | 25<br>0.984"    | 58<br>2.283"   | 123,5<br>4.862" | 75,5<br>2.972" | 48<br>1.889"   | 107<br>4.212"  | 2430986   | VDI25-C1   |
| Schaft VDI Ø 30<br>Shank dia. VDI Ø 30 | 30<br>1.181"    | 68<br>2.677"   | 130,5<br>5.137" | 75,5<br>2.972" | 55<br>2.165"   | 114<br>4.488"  | 2430988   | VDI30-C1   |
| Schaft HSK-A63<br>Shank HSK-A63        | 48<br>1.889"    | 63<br>2.480"   | 132<br>5.196"   | 100<br>3.937"  | 32<br>1.259"   | 64<br>2.519"   | 2430990   | HSK-A63-C1 |

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Gewinde <b>M</b> |           |           |
|---------------------------------|-----------|-----------|
| Metric ISO Threads              |           |           |
| Nennmaß x Steigung<br>mm        | Anlauf 1k | Anlauf 2K |
|                                 | Lead 1k   | Lead 2k   |
| Nominal Size x Pitch            | Ident No. |           |
| M 6 ... 8 x 1                   | 1504564   | 1504573   |
| M 8 ... 9 x 1,25                | 1504653   | 1504671   |
| M 10 x 1,5                      | 1504715   | 1504724   |

| Metrisches ISO-Feingewinde <b>M</b> |           |           |
|-------------------------------------|-----------|-----------|
| Metric ISO Fine Pitch Threads       |           |           |
| Nennmaß x Steigung<br>mm            | Anlauf 1k | Anlauf 2K |
|                                     | Lead 1k   | Lead 2k   |
| Nominal Size x Pitch                | Ident No. |           |
| M 6 ... 8 x 0,75                    | 1504779   | 1504788   |
| M 8 ... 10 x 1                      | 1504813   | 1504822   |
| M 10 ... 11 x 1,25                  | 1505000   | 1505019   |

| Unified-Gewinde, grob <b>UNC</b> |           |           |
|----------------------------------|-----------|-----------|
| Unified Threads, Coarse Pitch    |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 1/4 - 20 UNC                     | 1505545   | 1505554   |
| 5/16 - 18 UNC                    | 1505563   | 1505572   |
| 3/8 - 16 UNC                     | 1505581   | 1505590   |
| 7/16 - 14 UNC                    | 2166949   | 2166784   |

| Unified-Gewinde, fein <b>UNF</b> |           |           |
|----------------------------------|-----------|-----------|
| Unified Threads, Fine Pitch      |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 1/4 - 28 UNF                     | 1505625   | 1505634   |
| 5/16 ... 3/8 - 24 UNF            | 1505652   | 1505661   |
| 7/16 - 20 UNF                    | 2241471   | 2169909   |

| Whitworth-Feingewinde <b>BSF</b> |           |           |
|----------------------------------|-----------|-----------|
| Whitworth Fine Pitch Threads     |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2k |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 1/4 - 26 BSF                     | 1505304   | 1505313   |
| 5/16 - 22 BSF                    | 1505322   | 1505331   |
| 3/8 - 20 BSF                     | 1505359   | 1505368   |
| 7/16 - 20 BSF                    | 2241469   | 2241470   |

| Rändel<br>Knurls                           |                             |           |         |
|--|-----------------------------|-----------|---------|
| Nennmaß x Steigung<br>Nominal Size x Pitch |                             | RAA       | RGE     |
| mm   inch                                  |                             | Ident No. |         |
| Ø 6 ... Ø 8 x 0,5                          | Ø 0.236 ... Ø 0.315 x 0.02  | 1505901   | 1506205 |
| Ø 8 ... Ø 10 x 0,5                         | Ø 0.315 ... Ø 0.394 x 0.02  | 2168750   | 1506214 |
| Ø 6 ... Ø 8 x 0,6                          | Ø 0.236 ... Ø 0.315 x 0.024 | 1505910   | 1506223 |
| Ø 8 ... Ø 10 x 0,6                         | Ø 0.315 ... Ø 0.394 x 0.024 | 1505929   | 1506232 |
| Ø 6 ... Ø 8 x 0,8                          | Ø 0.236 ... Ø 0.315 x 0.031 | 1505947   | 1506241 |
| Ø 8 ... Ø 10 x 0,8                         | Ø 0.315 ... Ø 0.394 x 0.031 | 1505956   | 1506250 |
| Ø 6 ... Ø 8 x 1,0                          | Ø 0.236 ... Ø 0.315 x 0.039 | 2166321   | 1506269 |
| Ø 8 ... Ø 10 x 1,0                         | Ø 0.315 ... Ø 0.394 x 0.039 | 1505983   | 1506278 |
| Ø 6 ... Ø 8 x 1,2                          | Ø 0.236 ... Ø 0.315 x 0.047 | 1505992   | 1506287 |
| Ø 8 ... Ø 10 x 1,2                         | Ø 0.315 ... Ø 0.394 x 0.047 | 1506009   | 1506296 |
| Ø 6 ... Ø 8 x 1,5                          | Ø 0.236 ... Ø 0.315 x 0.059 | 1506027   | 1506312 |
| Ø 8 ... Ø 10 x 1,5                         | Ø 0.315 ... Ø 0.394 x 0.059 | 1506036   | 1506321 |
| Ø 7 ... Ø 8 x 1,6                          | Ø 0.276 ... Ø 0.315 x 0.063 | 2242104   | 2242108 |
| Ø 8 ... Ø 10 x 1,6                         | Ø 0.315 ... Ø 0.394 x 0.063 | 2242105   | 2242109 |
| Ø 7 ... Ø 8 x 2,0                          | Ø 0.276 ... Ø 0.315 x 0.079 | 2242106   | 2242110 |
| Ø 8 ... Ø 10 x 2,0                         | Ø 0.315 ... Ø 0.394 x 0.079 | 2242107   | 2242111 |

| Glätten<br>Burnishing   |                   | Ident No. |
|-------------------------|-------------------|-----------|
| Nennmaß<br>Nominal Size |                   | Ident No. |
| mm   inch               |                   |           |
| Ø 6 - Ø 8               | Ø 0.236 - Ø 0.315 | 1506330   |
| Ø 7 - Ø 10              | Ø 0.276 - Ø 0.394 | 1506349   |

| Whitworth-Gewinde <b>BSW</b>     |           |           |
|----------------------------------|-----------|-----------|
| Whitworth Threads                |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2k |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 1/4 - 20 BSW                     | 1505215   | 1505224   |
| 5/16 - 18 BSW                    | 1505233   | 1505242   |
| 3/8 - 16 BSW                     | 1505279   | 1505288   |

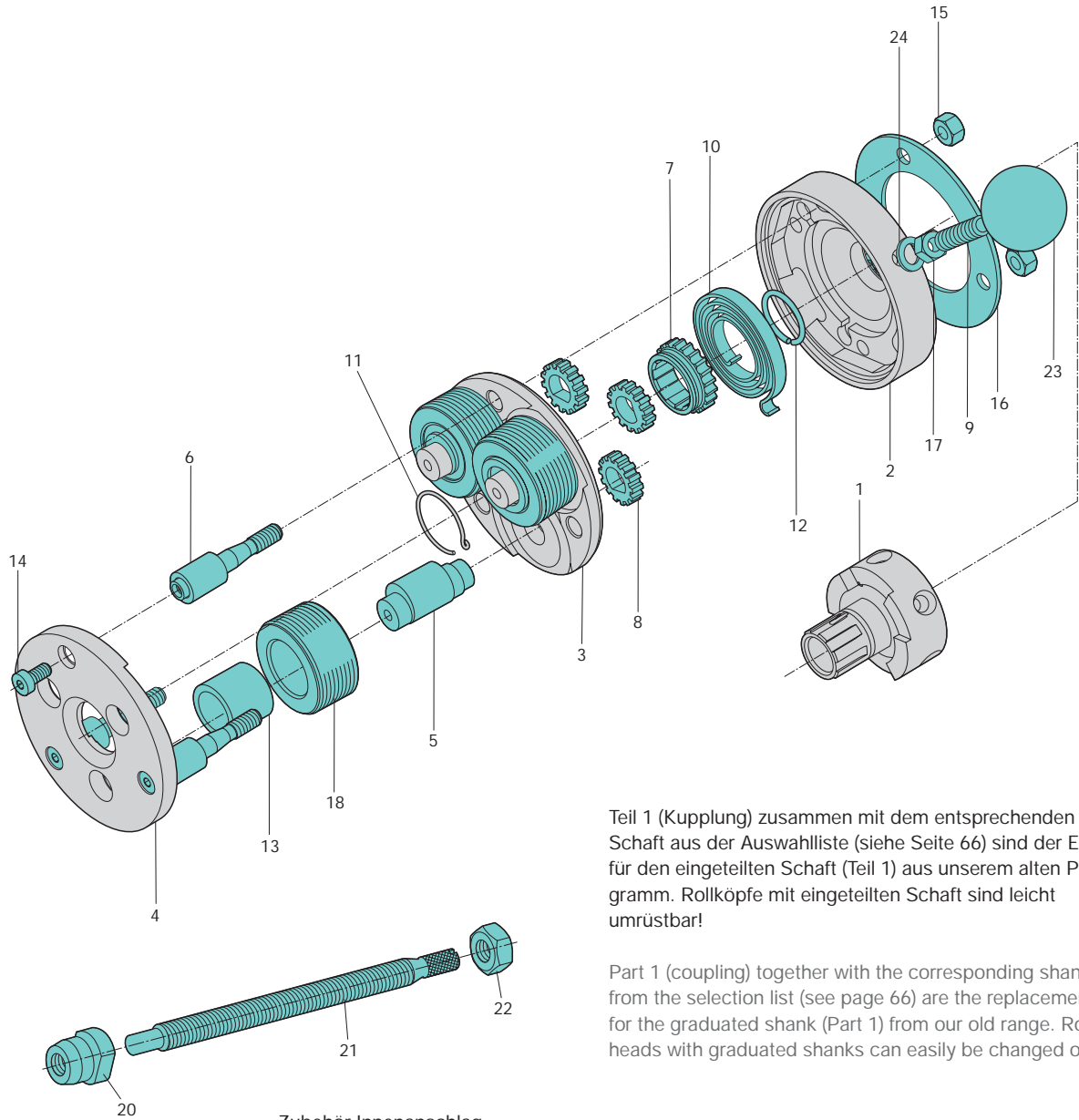
| Amerikanisches Rohrgewinde <b>NPT</b> |           |
|---------------------------------------|-----------|
| American Pipe Threads                 |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll      | Anlauf 1k |
|                                       | Lead 1k   |
| Nominal Size x TPI                    | Ident No. |
| 1/16 - 27 NPT                         | 1506964   |
| 1/8 - 27 NPT                          | 1506973   |

| Amerikanisches Rohrgewinde <b>NPTF</b> |           |
|--|-----------|
| American Dryseal Pipe Threads          |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll       | Anlauf 1k |
|  | Lead 1k   |
| Nominal Size x TPI                     | Ident No. |
| 1/16 - 27 NPTF                         | 2248946   |
| 1/8 - 27 NPTF                          | 2245597   |

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 0,105 bis 0,155 kg. Statt mit Griff können die Rollköpfe auch mit Schließstift, Schließrolle und Schließfeder geliefert werden (siehe Seite 203). Rollköpfe mit Schäften nach DIN 69880 siehe Seiten 164/165.

Thread dimensions combined in one block can be rolled with one set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 0.23 to 0.34 lb. Rolling Heads can also be delivered with closing rod, closing roller and closing spring, instead of handle (see page 203). Rolling Heads with shank to DIN 69880 see pages 164/165.

| Rollkopf<br>Rolling Head   |               |  | F1 C1                           | F1L C1<br>Linksgewinde<br>Left hand thread         | Rollkopf<br>Rolling Head  |               |  | K1 C1                           | K1L C1<br>Linksgewinde<br>Left hand thread |
|--|---------------|--|---------------------------------|--|---|---------------|--|---------------------------------|--|
| Teil Nr.<br>Part No.   | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No.  | Teil Nr.<br>Part No.  | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No.                                  |
| 1  | 1             | Kupplung<br>Clutch                       | 2430914                         | 2430915  | 1   | 1             | Kupplung<br>Clutch                       | 2430915                         | 2430914                                    |
| 2  | 1             | Federgehäuse<br>Spring housing           | 2164634                         | 2164649  | 2   | 1             | Federgehäuse<br>Spring housing           | 2164719                         | 2164722                                    |
| 3  | 1             | Zwischenplatte<br>Centre plate           | 2164635                         | 2164650  | 3   | 1             | Zwischenplatte<br>Centre plate           | 2164720                         | 2164723                                    |
| 4  | 1             | Frontplatte<br>Front plate               | 2164636                         | 2164651  | 4   | 1             | Frontplatte<br>Front plate               | 2164721                         | 2164724                                    |
| 5  | 3             | Exzenterbolzen<br>Eccentric spindles     | 2164637                         |  | 5   | 3             | Exzenterbolzen<br>Eccentric spindles     | 2164637                         |  |
| 6  | 3             | Distanzbolzen<br>Spacer studs            | 2164638                         |  | 6   | 3             | Distanzbolzen<br>Spacer studs            | 2164638                         |  |
| 7  | 1             | Zahnrad<br>Center gear                   | 2164639                         | 2164652  | 7   | 1             | Zahnrad<br>Center gear                   | 2164639                         | 2164652                                    |
| 8  | 3             | Zahnrad<br>Spur gear                     | 2164640                         |  | 8   | 3             | Zahnrad<br>Spur gear                     | 2164640                         |  |
| 9  | 1             | Griff<br>Handle                          | 2148841                         |  | 9   | 1             | Griff<br>Handle                          | 2148840                         |  |
| 10   | 1             | Spiralfeder<br>Coil spring               | 2164641                         | 2164653  | 10  | 1             | Spiralfeder<br>Coil spring               | 2164653                         | 2164641                                    |
| 11   | 1             | Sicherungsring<br>Circlip                | 2164642                         |  | 11  | 1             | Sicherungsring<br>Circlip                | 2164642                         |  |
| 12   | 1             | Sicherung<br>Circlip                     | 2164643                         |  | 12  | 1             | Sicherung<br>Circlip                     | 2164643                         |  |
| 13   | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2164705                         |  | 13  | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2164705                         |  |
| 14   | 3             | Zylinderschraube<br>Cap screw            | 2148736                         |  | 14  | 3             | Zylinderschraube<br>Cap screw            | 2148736                         |  |
| 15   | 3             | Sechskantmutter<br>Hexagon nut           | 2148397                         |  | 15  | 3             | Sechskantmutter<br>Hexagon nut           | 2148397                         |  |
| 16   | 1             | Ringscheibe<br>Ring washer               | 2146644                         |  | 16  | 1             | Ringscheibe<br>Ring washer               | 2146644                         |  |
| 17   | 1             | Sechskantmutter<br>Hexagon nut           | 2148393                         |  | 17  | 1             | Sechskantmutter<br>Hexagon nut           | 2148397                         |  |
| 18   | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual |  | 18  | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual |  |
| 19   | 2             | Gewindestift<br>Set screw                | -                               |  | 19  | 2             | Gewindestift <sup>2)</sup><br>Set screw  | 2142064                         |  |
| 19   | 1             | Gewindestift<br>Set screw                | -                               |  | 19  | 1             | Gewindestift <sup>2)</sup><br>Set screw  | 2142062                         |  |
| 19   | 1             | Gewindestift<br>Set screw                | -                               |  | 19  | 1             | Gewindestift <sup>2)</sup><br>Set screw  | 2142065                         |  |
| 23   | 1             | Kugelknopf<br>Ball                       | 2141700                         |  | 23  | 1             | Kugelknopf<br>Ball                       | 2141699                         |  |
| 24   | 1             | Scheibe<br>Washer                        | 2144250                         |  | 24  | 1             | Scheibe<br>Washer                        | 2148867                         |  |
| <b>Zubehör Innenanschlag<sup>1)</sup></b><br><b>Option Internal stop</b> |               |  | <b>IS1 C1</b>                   | <b>IS1L C1</b><br>Linksgewinde<br>Left hand thread | <sup>1)</sup> Nur für Maschinen ohne gesteuerten Vorschub. Bitte zusätzlich bestellen.<br><sup>1)</sup> Only required for machines without controlled feed stop.<br>If required, please order additionally!<br><sup>2)</sup> Teil 19 wird in der Explosionszeichnung nicht gezeigt<br>(Zum Festsetzen eines Gewindebolzens)<br><sup>2)</sup> Part 19 not shown in the view (Locking screw for Adjustment with Type K) |               |  |                                 |  |
| Teil Nr.<br>Part No.   | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No.  |   |               |  |                                 |  |
|  |               | Innenanschlag<br>Internal stop complete  | 2430916                         | 2430917  |   |               |  |                                 |  |
| 20   | 1             | Schraubenstutzen<br>Stop screw body      | 2164645                         | 2164654  |   |               |  |                                 |  |
| 21   | 1             | Anschlagschraube<br>Stop screw           | 2164646                         | 2164655  |   |               |  |                                 |  |
| 22   | 1             | Sechskantmutter<br>Hexagon nut           | 2166124                         | 2166125  |   |               |  |                                 |  |
|  |               |  |                                 |  | <b>Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!</b><br><b>When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!</b>  |               |  |                                 |  |



Teil 1 (Kupplung) zusammen mit dem entsprechenden Schaft aus der Auswahlliste (siehe Seite 66) sind der Ersatz für den eingeteilten Schaft (Teil 1) aus unserem alten Programm. Rollköpfe mit eingeteilten Schaft sind leicht umrüstbar!

Part 1 (coupling) together with the corresponding shank from the selection list (see page 66) are the replacements for the graduated shank (Part 1) from our old range. Rolling heads with graduated shanks can easily be changed over!

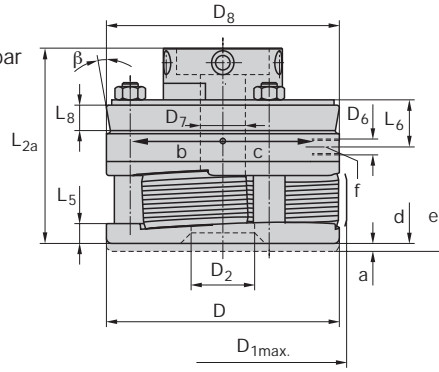
Zubehör Innenanschlag  
Option Internal stop

- für Rechtsgewinde**
- F12 C1 nur feststehend verwendbar
  - K12 C1 feststehend und umlaufend verwendbar
  - Rollen-Schrägstellung = 1° 50'
  - Gewicht ohne Rollen = ca. 0,8 kg

- für Linksgewinde**
- Typ F12L C1, K12L C1
  - Baumaß wie für Rechtsgewinde-Rollkopf

- for right-hand threads**
- F12 C1 to be used stationary only
  - K12 C1 used stationary or rotating
  - inclined position of rolls = 1° 50'
  - weight without rolls = approx. 1.9 lb

- for left-hand threads**
- Type F12L C1, K12L C1
  - Dimensions like right-hand thread rolling head



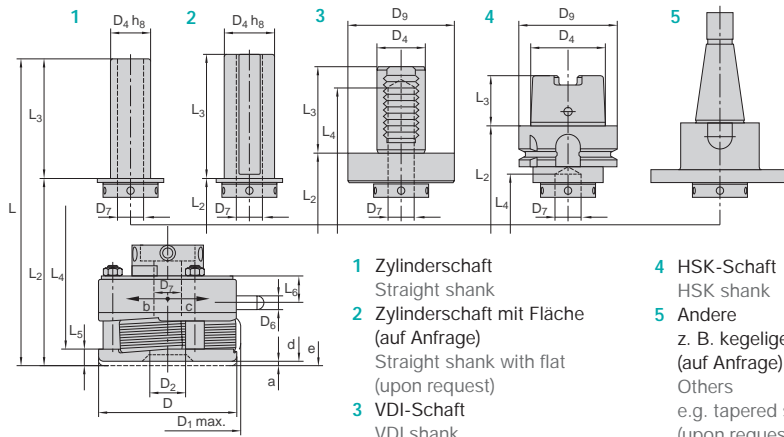
**Baumaße in mm Dimension in inches**

| D      | D <sub>1max.</sub> | D <sub>2</sub> | D <sub>6</sub> | D <sub>7</sub> | D <sub>8</sub> <sup>1)</sup> | L <sub>2a</sub> | L <sub>5</sub> | L <sub>6</sub> | L <sub>8</sub> <sup>1)</sup> | a      | α   | β <sup>1)</sup> | Ident No. |         |
|--------|--------------------|----------------|----------------|----------------|------------------------------|-----------------|----------------|----------------|------------------------------|--------|-----|-----------------|-----------|---------|
| 64     | 70                 | 20             | M6             | 11,4           | 64                           | 58              | 6              | 7,5            | 9,5                          | 2      | 60° | 10°             | 2430918   | F12 C1  |
| 2.520" | 2.756"             | 0.787"         | Typ „F“        | 0.453"         | 2.519"                       | 2.283"          | 0.236"         | 0.295"         | 0.374"                       | 0.079" |     |                 | 2430919   | F12L C1 |
|        |                    |                | M5             |                |                              |                 |                |                |                              |        |     |                 | 2430938   | K12 C1  |
|        |                    |                | Typ „K“        |                |                              |                 |                |                |                              |        |     |                 | 2430939   | K12L C1 |

<sup>1)</sup> Nur für Typ K Only for Type K

**Wechselschäfte ... -C1**  
 Change shanks ... -C1

- a = Schalhub Pull off for opening  
 b = Kopf öffnet bei Typ K, schließt bei Typ F  
 Head opens when Type K, and closes when Type F  
 c = Kopf schließt bei Typ K, öffnet bei Typ F  
 (Bei Rollköpfen für Linksgewinde ist die Schalrichtung entgegengesetzt)  
 Head closes when Type K, and opens when Type F (For Rolling Heads for left-hand threads, the direction of operation is reversed)  
 d = Rollkopf geschlossen Rolling Head closed  
 e = Rollkopf geöffnet Rolling Head opened  
 f = Gewinde für Griff bei feststehender Verwendung  
 Thread for handle with stationary operation  
 α = Schließwinkel Closing angle



- 1 Zylinderschaft  
Straight shank
- 2 Zylinderschaft mit Fläche  
(auf Anfrage)  
Straight shank with flat  
(upon request)
- 3 VDI-Schaft  
VDI shank
- 4 HSK-Schaft  
HSK shank
- 5 Andere  
z. B. kegeliger Schaft  
(auf Anfrage)  
Others  
e.g. tapered shanks  
(upon request)

Schäfte werden mit Befestigungsschrauben geliefert. Shanks will be delivered with the according fastening screws.

**Baumaße in mm Dimension in inches**

|  | D <sub>4</sub>  | D <sub>9</sub> | L               | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | Ident No. |            |
|--|-----------------|----------------|-----------------|----------------|----------------|----------------|-----------|------------|
| Schaft Ø 20<br>Shank dia. Ø 20         | 20<br>0.984"    | -              | 120,5<br>4.744" | 60,5<br>2.382" | 60<br>2.362"   | -              | 2430980   | R20-C1     |
| Schaft Ø 25<br>Shank dia. Ø 25         | 25<br>0.984"    | -              | 120,5<br>4.744" | 60,5<br>2.382" | 60<br>2.362"   | -              | 2430973   | R25-C1     |
| Schaft Ø 3/4"<br>Shank dia. Ø 3/4"     | 19,05<br>0.75"  | -              | 120,5<br>4.744" | 60,5<br>2.382" | 60<br>2.362"   | -              | 2430981   | R3/4-C1    |
| Schaft Ø 1"<br>Shank dia. Ø 1"         | 25,4<br>1"      | -              | 120,5<br>4.744" | 60,5<br>2.382" | 60<br>2.362"   | -              | 2430977   | R1-C1      |
| Schaft Ø 1 1/4"<br>Shank dia. Ø 1 1/4" | 31,75<br>1.125" | -              | 120,5<br>4.744" | 60,5<br>2.382" | 60<br>2.362"   | -              | 2430982   | R1 1/4-C1  |
| Schaft VDI Ø 20<br>Shank VDI dia. Ø 20 | 20<br>0.787     | 50<br>1.968"   | 116,5<br>4.586" | 76,5<br>3.012" | 40<br>1.574"   | 73<br>2.874"   | 2430984   | VDI20-C1   |
| Schaft VDI Ø 25<br>Shank VDI dia. Ø 25 | 25<br>0.984"    | 58<br>2.283"   | 124,5<br>4.901" | 76,5<br>3.012" | 48<br>1.889"   | 108<br>4.252"  | 2430986   | VDI25-C1   |
| Schaft VDI Ø 30<br>Shank dia. VDI Ø 30 | 30<br>1.181"    | 68<br>2.677"   | 131,5<br>5.177" | 76,5<br>3.012" | 55<br>2.165"   | 115<br>4.527"  | 2430988   | VDI30-C1   |
| Schaft HSK-A63<br>Shank HSK-A63        | 48<br>1.889"    | 63<br>2.480"   | 133<br>5.236"   | 101<br>3.976"  | 32<br>1.259"   | 65<br>2.559"   | 2430990   | HSK-A63-C1 |

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Feingewinde    |               |               | M         |
|-------------------------------|---------------|---------------|-----------|
| Metric ISO Fine Pitch Threads |               |               |           |
| Nennmaß x Steigung<br>mm      | Anlauf        |               | Ident No. |
|                               | 1k<br>Lead 1k | 2K<br>Lead 2k |           |
| M 6 ... 7 x 0,5               | 1507516       | 1507525       |           |
| M 7 ... 8 x 0,5               | 1507534       | 1507543       |           |
| M 6 ... 7 x 0,75              | 1507605       | 1507614       |           |
| M 8 ... 9 x 0,75              | 1507632       | 1507641       |           |
| M 9 ... 10 x 0,75             | 1507669       | 1507678       |           |
| M 10 ... 11 x 0,75            | 1507703       | 1507712       |           |
| M 11 ... 12 x 0,75            | 1507721       | 1507730       |           |
| M 8 ... 9 x 1                 | 1507767       | 1507776       |           |
| M 9 ... 10 x 1                | 1507785       | 1507794       |           |
| M 10 ... 11 x 1               | 1507838       | 1507847       |           |
| M 11 ... 12 x 1               | 1507865       | 1507874       |           |
| M 10 ... 11 x 1,25            | 1507892       | 1507909       |           |
| M 11 ... 12 x 1,25            | 1507918       | 1507927       |           |
| M 12 x 1,5                    | 1507963       | 1507972       |           |

| Amerikanisches Rohrgewinde       |                      | NPT |
|----------------------------------|----------------------|-----|
| American Pipe Threads            |                      |     |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k |     |
|                                  | Ident No.            |     |
| 1/8 – 27 NPT                     | 2164716              |     |
| 1/4 – 18 NPT                     | 2167396              |     |

| Amerikanisches Rohrgewinde       |                      | NPTF |
|----------------------------------|----------------------|------|
| American Dryseal Pipe Threads    |                      |      |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k |      |
|                                  | Ident No.            |      |
| 1/8 – 27 NPTF                    | 2166823              |      |
| 1/4 – 18 NPTF                    | 2243188              |      |

| Unified-Gewinde, fein                |               |               | UNF/UNS   |
|--------------------------------------|---------------|---------------|-----------|
| Unified Threads, Fine Pitch          |               |               |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll     | Anlauf        |               | Ident No. |
|                                      | 1k<br>Lead 1k | 2K<br>Lead 2k |           |
| 1/4 ... 5/16 – 40 UNS                | 2241721       | 2169907       |           |
| 5/16 ... 3/8 – 36 UNF                | 2242136       | 2242137       |           |
| 7/16 – 36 UNF                        | 2242138       | 2242139       |           |
| 5/16 ... 3/8 – 32 UNEF               | 1508105       | 1508114       |           |
| 3/8 ... 7/16 – 32 UN                 | 2242122       | 2242123       |           |
| 7/16 ... 1/2 <sup>1)</sup> – 32 UNF  | 2242140       | 2242141       |           |
| 3/8 ... 7/16 – 28 UNF                | 2242142       | 2242143       |           |
| 7/16 ... 1/2 <sup>1)</sup> – 28 UNEF | 1508123       | 1508132       |           |
| 7/16 ... 1/2 <sup>1)</sup> – 26 UNF  | 2242144       | 2242145       |           |
| 3/8 ... 7/16 – 24 UNS                | 2167553       | 1508150       |           |
| 7/16 ... 1/2 <sup>1)</sup> – 24 UNS  | 1508203       | 2242147       |           |
| 7/16 ... 1/2 <sup>1)</sup> – 22 UNF  | 2242146       | 2242148       |           |
| 7/16 ... 1/2 <sup>1)</sup> – 20 UNF  | 1508178       | 1508187       |           |

| Whitworth-Rohrgewinde            |               |               | G         |
|----------------------------------|---------------|---------------|-----------|
| Whitworth Pipe Threads           |               |               |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf        |               | Ident No. |
|                                  | 1k<br>Lead 1k | 2k<br>Lead 2k |           |
| G 1/8 – 28                       | 1508052       | 1508061       |           |
| G 1/4 <sup>1)</sup> – 19         | 1508089       | 1508098       |           |

| Whitworth-Feingewinde                |               |               | BSFS      |
|--------------------------------------|---------------|---------------|-----------|
| Whitworth Fine Pitch Threads         |               |               |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll     | Anlauf        |               | Ident No. |
|                                      | 1k<br>Lead 1k | 2k<br>Lead 2k |           |
| 1/4 ... 5/16 – 32 BSFS               | 2242112       | 2242113       |           |
| 5/16 ... 3/8 – 26 BSFS               | 2242114       | 2242115       |           |
| 5/16 ... 3/8 – 32 BSFS               | 2242118       | 2242119       |           |
| 7/16 ... 1/2 <sup>1)</sup> – 26 BSFS | 2242126       | 2242127       |           |
| 7/16 ... 1/2 <sup>1)</sup> – 20 BSFS | 2242134       | 2242135       |           |

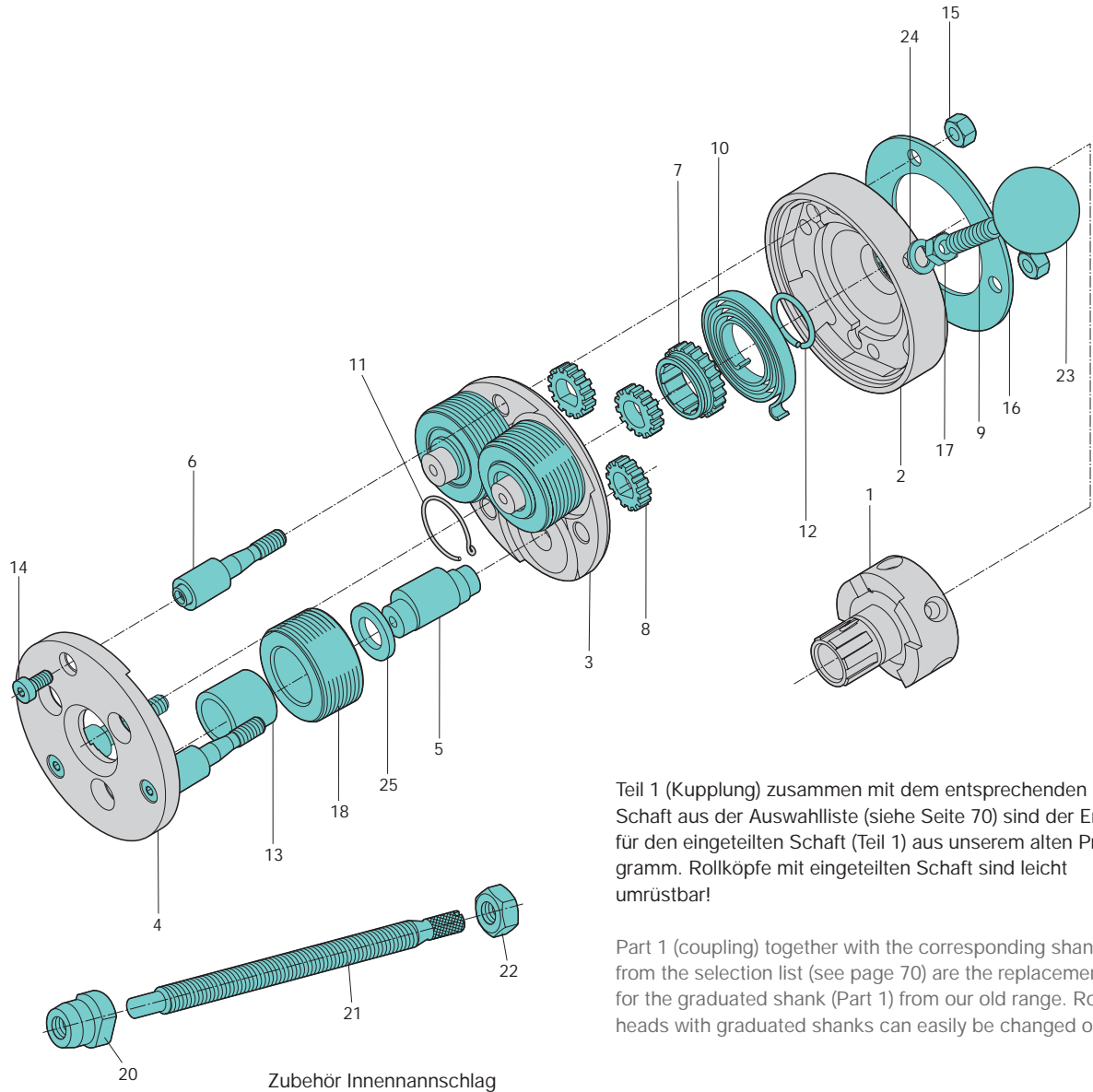
Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 0,070 bis 0,130 kg. Statt mit Griff können die Rollköpfe auch mit Schließstift, Schließrolle und Schließfeder geliefert werden (siehe Seite 203). Rollköpfe mit Schäften nach DIN 69880 siehe Seiten 164/165.

Thread dimensions combined in **one** block can be rolled with one set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 0.15 to 0.29 lb. Rolling Heads can also be delivered with closing rod, closing roller and closing spring, instead of handle (see page 203). Rolling Heads with shank to DIN 69880 see pages 164/165.

<sup>1)</sup> Für Kurzgewinde bis 14 mm Länge einschließlich Auslauf.  
<sup>1)</sup> For short threads up to 14 mm/0.551" including runout.

| Rollkopf<br>Rolling Head  |               |  | F12 C1                          | F12L C1     | Rollkopf<br>Rolling Head  |               |  | K12 C1                          | K12L C1   |
|---|---------------|--|---------------------------------|-------------|---|---------------|--|---------------------------------|-----------|
| Teil Nr.<br>Part No.  | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No.   | Teil Nr.<br>Part No.  | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No. |
| 1   | 1             | Kupplung<br>Clutch                       | 2430914                         | 2430915     | 1   | 1             | Kupplung<br>Clutch                       | 2430915                         | 2430914   |
| 2   | 1             | Federgehäuse<br>Spring housing           | 2164634                         | 2164649     | 2   | 1             | Federgehäuse<br>Spring housing           | 2164719                         | 2164722   |
| 3   | 1             | Zwischenplatte<br>Centre plate           | 2164735                         | 2164742     | 3   | 1             | Zwischenplatte<br>Centre plate           | 2164756                         | 2164758   |
| 4   | 1             | Frontplatte<br>Front plate               | 2164736                         | 2164743     | 4   | 1             | Frontplatte<br>Front plate               | 2164757                         | 2164759   |
| 5   | 3             | Exzenterbolzen<br>Eccentric spindles     | 2164737                         |             | 5   | 3             | Exzenterbolzen<br>Eccentric spindles     | 2164737                         |           |
| 6   | 3             | Distanzbolzen<br>Spacer studs            | 2164738                         |             | 6   | 3             | Distanzbolzen<br>Spacer studs            | 2164738                         |           |
| 7   | 1             | Zahnrad<br>Center gear                   | 2164739                         | 2164744     | 7   | 1             | Zahnrad<br>Center gear                   | 2164739                         | 2164744   |
| 8   | 3             | Zahnrad<br>Spur gear                     | 2164740                         |             | 8   | 3             | Zahnrad<br>Spur gear                     | 2164740                         |           |
| 9   | 1             | Griff<br>Handle                          | 2148841                         |             | 9   | 1             | Griff<br>Handle                          | 2148840                         |           |
| 10  | 1             | Spiralfeder<br>Coil spring               | 2164641                         | 2164653     | 10  | 1             | Spiralfeder<br>Coil spring               | 2164653                         | 2164641   |
| 11  | 1             | Sicherungsring<br>Circlip                | 2164642                         |             | 11  | 1             | Sicherungsring<br>Circlip                | 2164642                         |           |
| 12  | 1             | Sicherung<br>Circlip                     | 2164643                         |             | 12  | 1             | Sicherung<br>Circlip                     | 2164643                         |           |
| 13  | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2173512                         |             | 13  | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2173512                         |           |
| 14  | 3             | Zylinderschraube<br>Cap screw            | 2148736                         |             | 14  | 3             | Zylinderschraube<br>Cap screw            | 2148736                         |           |
| 15  | 3             | Sechskantmutter<br>Hexagon nut           | 2148397                         |             | 15  | 3             | Sechskantmutter<br>Hexagon nut           | 2148397                         |           |
| 16  | 1             | Ringscheibe<br>Ring washer               | 2164644                         |             | 16  | 1             | Ringscheibe<br>Ring washer               | 2164644                         |           |
| 17  | 1             | Sechskantmutter<br>Hexagon nut           | 2148393                         |             | 17  | 1             | Sechskantmutter<br>Hexagon nut           | 2148397                         |           |
| 18  | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual |             | 18  | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual |           |
| 19  | 2             | Gewindestift<br>Set screw                | -                               |             | 19  | 2             | Gewindestift <sup>1)</sup><br>Set screw  | 2142064                         |           |
| 19  | 1             | Gewindestift<br>Set screw                | -                               |             | 19  | 1             | Gewindestift <sup>1)</sup><br>Set screw  | 2142062                         |           |
| 19  | 1             | Gewindestift<br>Set screw                | -                               |             | 19  | 1             | Gewindestift <sup>1)</sup><br>Set screw  | 2142065                         |           |
| 23  | 1             | Kugelknopf<br>Ball                       | 2141700                         |             | 23  | 1             | Kugelknopf<br>Ball                       | 2141699                         |           |
| 24  | 1             | Scheibe<br>Washer                        | 2144250                         |             | 24  | 1             | Scheibe<br>Washer                        | 2148867                         |           |
| 25  | 3             | Scheibe<br>Washer                        | 2164741                         |             | 25  | 3             | Scheibe<br>Washer                        | 2164741                         |           |
| <b>Zubehör Innenanschlag<sup>2)</sup></b><br>Option Internal stop |               |  | <b>IS1</b>                      | <b>IS1L</b> | <sup>1)</sup> Teil 19 wird in der Explosionszeichnung nicht gezeigt<br>(Zum Festsetzen eines Gewindebolzens)<br><sup>1)</sup> Part 19 not shown in the view (Locking screw for Adjustment with Type K)<br><sup>2)</sup> Nur für Maschinen ohne gesteuerten Vorschub. Bitte zusätzlich bestellen.<br><sup>2)</sup> Only required for machines without controlled feed stop.<br>If required, please order additionally!<br><br><b>Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!</b><br><b>When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!</b> |               |  |                                 |           |
| Teil Nr.<br>Part No.  | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No.   |   |               |  |                                 |           |
|   |               | Innenanschlag<br>Internal stop complete  | 2430916                         | 2430917     |   |               |  |                                 |           |
| 20  | 1             | Schraubenstutzen<br>Stop screw body      | 2164645                         | 2164654     |   |               |  |                                 |           |
| 21  | 1             | Anschlagschraube<br>Stop screw           | 2164646                         | 2164655     |   |               |  |                                 |           |
| 22  | 1             | Sechskantmutter<br>Hexagon nut           | 2166124                         | 2166125     |   |               |  |                                 |           |





Zubehör Innennanschlag  
 Option Internal stop

Teil 1 (Kupplung) zusammen mit dem entsprechenden Schaft aus der Auswahlliste (siehe Seite 70) sind der Ersatz für den eingeteilten Schaft (Teil 1) aus unserem alten Programm. Rollköpfe mit eingeteilten Schaft sind leicht umrüstbar!

Part 1 (coupling) together with the corresponding shank from the selection list (see page 70) are the replacements for the graduated shank (Part 1) from our old range. Rolling heads with graduated shanks can easily be changed over!

**für Rechtsgewinde**

- F1223 C1 nur feststehend verwendbar
- K1223 C1 feststehend und umlaufend verwendbar
- Rollen-Schrägstellung = 3°
- Gewicht ohne Rollen = ca. 0,8 kg

**für Linksgewinde**

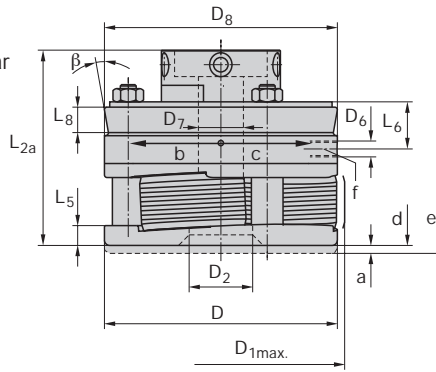
- Typ F1223L C1, K1223L C1
- Baumaß wie für Rechtsgewinde-Rollkopf

**for right-hand threads**

- F1223 C1 to be used stationary only
- K1223 C1 used stationary or rotating
- inclined position of rolls = 3°
- weight without rolls = approx. 1.9 lb

**for left-hand threads**

- Type F1223L C1, K1223L C1
- Dimensions like right-hand thread rolling head



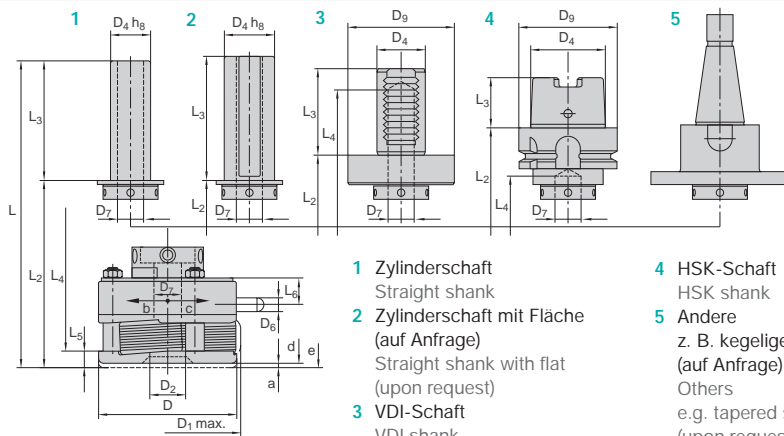
**Baumaße in mm Dimension in inches**

| D      | D <sub>1max.</sub> | D <sub>2</sub> | D <sub>6</sub> | D <sub>7</sub> | D <sub>8</sub> <sup>1)</sup> | L <sub>2a</sub> | L <sub>5</sub> | L <sub>6</sub> | L <sub>8</sub> <sup>1)</sup> | a      | α   | β <sup>1)</sup> | Ident No. |           |
|--------|--------------------|----------------|----------------|----------------|------------------------------|-----------------|----------------|----------------|------------------------------|--------|-----|-----------------|-----------|-----------|
| 56     | 58                 | 16             | M 8 x 1        | 8,2            | 56                           | 58              | 5              | 7,5            | 9,5                          | 2      | 50° | 10°             | 2430920   | F1223 C1  |
| 2.204" | 2.283"             | 0.629"         | Typ „F“        | 0.322"         | 2.205"                       | 2.283"          | 0.196"         | 0.295"         | 0.374"                       | 0.079" |     |                 | 2430921   | F1223L C1 |
|        |                    |                | M5             |                |                              |                 |                |                |                              |        |     |                 | 2430922   | K1223 C1  |
|        |                    |                | Typ „K“        |                |                              |                 |                |                |                              |        |     |                 | 2430923   | K1223L C1 |

<sup>1)</sup> Nur für Typ K Only for Type K

**Wechselschäfte ... -C1**  
 Change shanks ... -C1

- a = Schalhub Pull off for opening
- b = Kopf öffnet bei Typ K, schließt bei Typ F  
 Head opens when Type K, and closes when Type F
- c = Kopf schließt bei Typ K, öffnet bei Typ F  
 (Bei Rollköpfen für Linksgewinde ist die Schalrichtung entgegengesetzt)  
 Head closes when Type K, and opens when Type F (For Rolling Heads for left-hand threads, the direction of operation is reversed)
- d = Rollkopf geschlossen Rolling Head closed
- e = Rollkopf geöffnet Rolling Head opened
- f = Gewinde für Griff bei feststehender Verwendung  
 Thread for handle with stationary operation
- α = Schließwinkel Closing angle



- 1 Zylinderschaft  
 Straight shank
- 2 Zylinderschaft mit Fläche  
 (auf Anfrage)  
 Straight shank with flat  
 (upon request)
- 3 VDI-Schaft  
 VDI shank
- 4 HSK-Schaft  
 HSK shank
- 5 Andere  
 z. B. kegeliger Schaft  
 (auf Anfrage)  
 Others  
 e.g. tapered shanks  
 (upon request)

Schäfte werden mit Befestigungsschrauben geliefert. Shanks will be delivered with the according fastening screws.

**Baumaße in mm Dimension in inches**

|                     | D <sub>4</sub> | D <sub>9</sub> | L      | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | Ident No. |            |
|---------------------|----------------|----------------|--------|----------------|----------------|----------------|-----------|------------|
| Schaft Ø 20         | 20             | -              | 120,5  | 60,5           | 60             | -              | 2430980   | R20-C1     |
| Shank dia. Ø 20     | 0.984"         |                | 4.744" | 2.381"         | 2.362"         |                |           |            |
| Schaft Ø 25         | 25             | -              | 120,5  | 60,5           | 60             | -              | 2430973   | R25-C1     |
| Shank dia. Ø 25     | 0.984"         |                | 4.744" | 2.381"         | 2.362"         |                |           |            |
| Schaft Ø 3/4"       | 19,05          | -              | 120,5  | 60,5           | 60             | -              | 2430981   | R3/4-C1    |
| Shank dia. Ø 3/4"   | 0.75"          |                | 4.744" | 2.381"         | 2.362"         |                |           |            |
| Schaft Ø 1"         | 25,4           | -              | 120,5  | 60,5           | 60             | -              | 2430977   | R1-C1      |
| Shank dia. Ø 1"     | 1"             |                | 4.744" | 2.381"         | 2.362"         |                |           |            |
| Schaft Ø 1 1/4"     | 31,75          | -              | 120,5  | 60,5           | 60             | -              | 2430982   | R1 1/4-C1  |
| Shank dia. Ø 1 1/4" | 1.125"         |                | 4.744" | 2.381"         | 2.362"         |                |           |            |
| Schaft VDI Ø 20     | 20             | 50             | 116,5  | 76,5           | 40             | 74             | 2430984   | VDI20-C1   |
| Shank VDI dia. Ø 20 | 0.787          | 1.968"         | 4.586" | 3.011"         | 1.574"         | 2.913"         |           |            |
| Schaft VDI Ø 25     | 25             | 58             | 124,5  | 76,5           | 48             | 109            | 2430986   | VDI25-C1   |
| Shank VDI dia. Ø 25 | 0.984"         | 2.283"         | 4.901" | 3.011"         | 1.889"         | 4.291"         |           |            |
| Schaft VDI Ø 30     | 30             | 68             | 131,5  | 76,5           | 55             | 116            | 2430988   | VDI30-C1   |
| Shank dia. VDI Ø 30 | 1.181"         | 2.677"         | 5.177" | 3.011"         | 2.165"         | 4.566"         |           |            |
| Schaft HSK-A63      | 48             | 63             | 133    | 101            | 32             | 66             | 2430990   | HSK-A63-C1 |
| Shank HSK-A63       | 1.889"         | 2.480"         | 5.236" | 3.976"         | 1.259"         | 2.598"         |           |            |

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Gewinde <b>M</b> |           |           |
|---------------------------------|-----------|-----------|
| Metric ISO Threads              |           |           |
| Nennmaß x Steigung<br>mm        | Anlauf 1k | Anlauf 2K |
|                                 | Lead 1k   | Lead 2k   |
| Nominal Size x Pitch            | Ident No. |           |
| M 5 ... 6 x 0,8                 | 1508427   | 1508436   |
| M 6 ... 7 x 1                   | 1508490   | 1508506   |
| M 8 x 1,25                      | 1508560   | 1508579   |

| Metrisches ISO-Feingewinde <b>M</b> |           |           |
|-------------------------------------|-----------|-----------|
| Metric ISO Fine Pitch Threads       |           |           |
| Nennmaß x Steigung<br>mm            | Anlauf 1k | Anlauf 2K |
|                                     | Lead 1k   | Lead 2k   |
| Nominal Size x Pitch                | Ident No. |           |
| M 6 ... 7 x 0,75                    | 1508463   | 1508472   |
| M 8 x 1                             | 1508533   | 1508542   |

| Unified-Gewinde, fein <b>UNF</b> |           |           |
|----------------------------------|-----------|-----------|
| Unified Threads, Fine Pitch      |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| Nr. 12 – 28 UNF                  | 2242171   | 2242172   |
| 1/4 – 28 UNF                     | 1508702   | 1508711   |
| 5/16 – 24 UNF                    | 2165600   | 1508720   |

| Unified-Gewinde, grob <b>UNC</b> |           |           |
|----------------------------------|-----------|-----------|
| Unified Threads, Coarse Pitch    |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| Nr. 12 – 24 UNC                  | 2242168   | 2242169   |
| 1/4 – 20 UNC                     | 1508659   | 1508668   |
| 5/16 – 18 UNC                    | 2242170   | 1508677   |

| Whitworth-Feingewinde <b>BSF</b> |           |           |
|----------------------------------|-----------|-----------|
| Whitworth Fine Pitch Threads     |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 7/32 – 28 BSF                    | 2242162   | 2242163   |
| 1/4 ... 9/32 – 26 BSF            | 2242164   | 2242165   |
| 5/16 – 22 BSF                    | 2242166   | 2242167   |

| Rändel<br>Knurls  |                             |           |         |
|---|-----------------------------|-----------|---------|
| Nennmaß x Steigung<br>Nominal Size x Pitch<br>mm   inch |                             | RAA       | RGE     |
|   |                             | Ident No. |         |
| Ø 5 ... Ø 6 x 0,5                                       | Ø 0.197 ... Ø 0.236 x 0.02  | 1508757   | 2242187 |
| Ø 6 ... Ø 7 x 0,5                                       | Ø 0.236 ... Ø 0.276 x 0.02  | 2168733   | 2242188 |
| Ø 7 ... Ø 8 x 0,5                                       | Ø 0.276 ... Ø 0.315 x 0.02  | 2242177   | 2242189 |
| Ø 5 ... Ø 6 x 0,6                                       | Ø 0.197 ... Ø 0.236 x 0.024 | 2242178   | 2166305 |
| Ø 6 ... Ø 7 x 0,6                                       | Ø 0.236 ... Ø 0.276 x 0.024 | 2242179   | 2242190 |
| Ø 7 ... Ø 8 x 0,6                                       | Ø 0.276 ... Ø 0.315 x 0.024 | 2242180   | 2242191 |
| Ø 5 ... Ø 6 x 0,8                                       | Ø 0.197 ... Ø 0.236 x 0.031 | 2167210   | 2241782 |
| Ø 6 ... Ø 7 x 0,8                                       | Ø 0.236 ... Ø 0.276 x 0.031 | 1508766   | 2241783 |
| Ø 7 ... Ø 8 x 0,8                                       | Ø 0.276 ... Ø 0.315 x 0.031 | 1508775   | 2242192 |
| Ø 5 ... Ø 6 x 1,0                                       | Ø 0.197 ... Ø 0.236 x 0.039 | 2241530   | 2242193 |
| Ø 6 ... Ø 7 x 1,0                                       | Ø 0.236 ... Ø 0.276 x 0.039 | 2242181   | 1508800 |
| Ø 7 ... Ø 8 x 1,0                                       | Ø 0.276 ... Ø 0.315 x 0.039 | 2242182   | 1508819 |
| Ø 6 ... Ø 7 x 1,2                                       | Ø 0.236 ... Ø 0.276 x 0.047 | 2242183   | 2242194 |
| Ø 7 ... Ø 8 x 1,2                                       | Ø 0.276 ... Ø 0.315 x 0.047 | 2242184   | 2242195 |
| Ø 6 ... Ø 7 x 1,5                                       | Ø 0.236 ... Ø 0.276 x 0.059 | 2242185   | 1508837 |
| Ø 7 ... Ø 8 x 1,5                                       | Ø 0.276 ... Ø 0.315 x 0.059 | 2242186   | 2242196 |

| Glätten<br>Burnishing                |                   |           |
|--------------------------------------|-------------------|-----------|
| Nennmaß<br>Nominal Size<br>mm   inch |                   | Ident No. |
| Ø 5 – Ø 6                            | Ø 0.197 – Ø 0.236 | 1508864   |
| Ø 6 – Ø 7                            | Ø 0.236 – Ø 0.276 | 1508873   |
| Ø 7 – Ø 8                            | Ø 0.276 – Ø 0.315 | 1508882   |

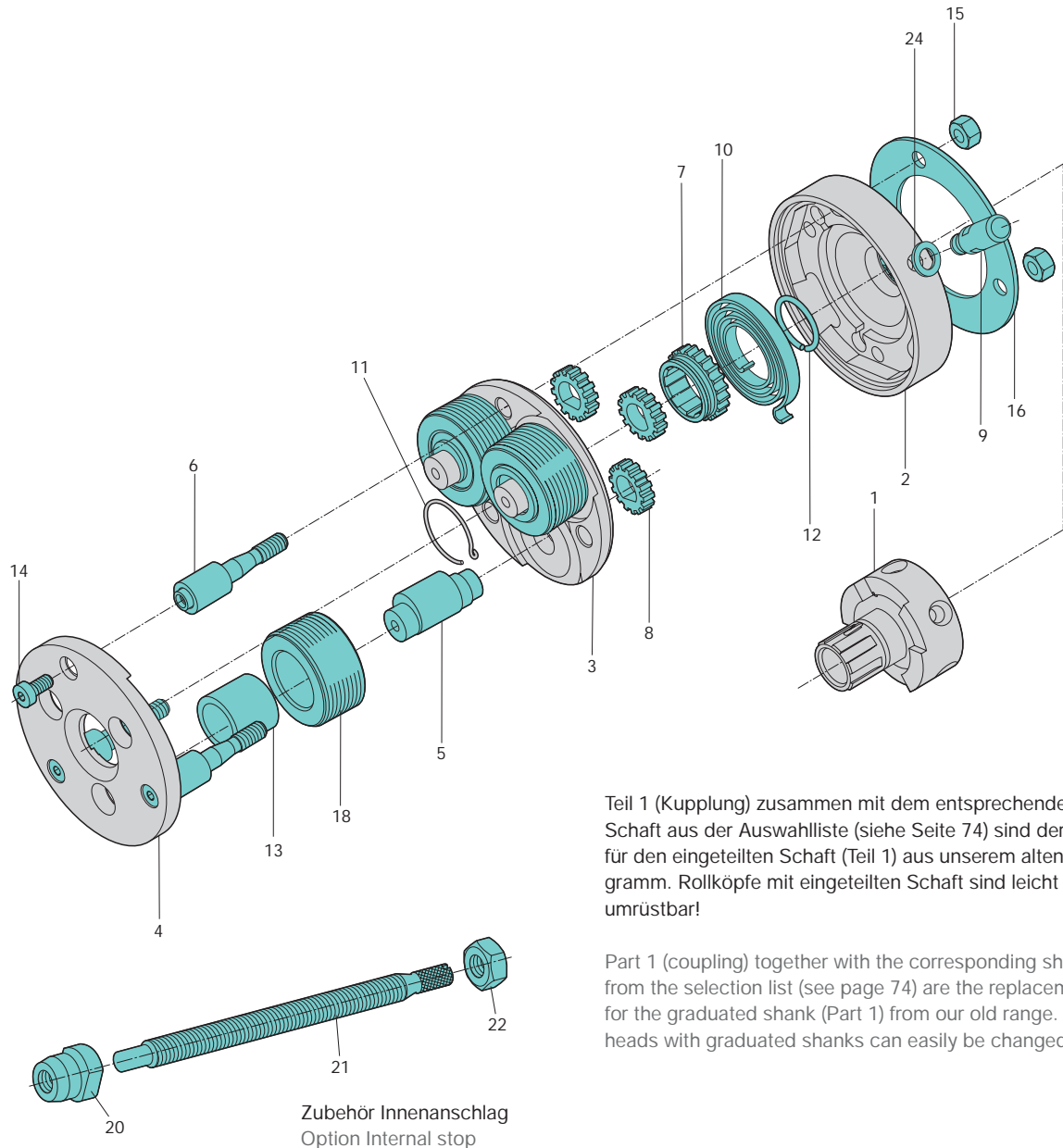
| Whitworth-Gewinde <b>BSW</b>     |           |           |
|----------------------------------|-----------|-----------|
| Whitworth Threads                |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2k |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 7/32 – 24 BSW                    | 2242157   | 2242158   |
| 1/4 – 20 BSW                     | 2242159   | 2168734   |
| 5/16 – 18 BSW                    | 2242197   | 2242161   |

| British-Association-Gewinde <b>BA</b> |           |           |
|---------------------------------------|-----------|-----------|
| British Association Threads           |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll      | Anlauf 1k | Anlauf 2K |
|                                       | Lead 1k   | Lead 2k   |
| Nominal Size x TPI                    | Ident No. |           |
| Nr. 0 – 25.4 BA                       | 2242173   | 2242174   |
| Nr. 1 – 28.2 BA                       | 2242175   | 2242176   |

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 0,090 bis 0,115 kg. Statt mit Griff können die Rollköpfe auch mit Schließstift, Schließrolle und Schließfeder geliefert werden (siehe Seite 203). Rollköpfe mit Schäften nach DIN 69880 siehe Seiten 164/165.

Thread dimensions combined in **one** block can be rolled with one set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 0.2 to 0.25 lb. Rolling Heads can also be delivered with closing rod, closing roller and closing spring, instead of handle (see page 203). Rolling Heads with shank to DIN 69880 see pages 164/165.

| Rollkopf<br>Rolling Head   |                             |   | F1223 C1                        | F1223L C1<br>Linksgewinde<br>Left hand thread         | Rollkopf<br>Rolling Head  |               |  | K1223 C1                        | K1223L C1<br>Linksgewinde<br>Left hand thread |
|--|-----------------------------|---|---------------------------------|---|---|---------------|--|---------------------------------|---|
| Teil Nr.<br>Part No.   | Stück<br>Qty.               | Benennung<br>Part description               | Ident No.                       | Ident No.   | Teil Nr.<br>Part No.  | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No.                                     |
| 1  | 1                           | Kupplung<br>Clutch                          | 2430924                         | 2430925   | 1   | 1             | Kupplung<br>Clutch                       | 2430925                         | 2430924                                       |
| 2  | 1                           | Federgehäuse<br>Spring housing              | 2164821                         | 2168914   | 2   | 1             | Federgehäuse<br>Spring housing           | 2164837                         | 2167219                                       |
| 3  | 1                           | Zwischenplatte<br>Centre plate              | 2164822                         | 2168909   | 3   | 1             | Zwischenplatte<br>Centre plate           | 2164838                         | 2241552                                       |
| 4  | 1                           | Frontplatte<br>Front plate                  | 2164823                         | 2168910   | 4   | 1             | Frontplatte<br>Front plate               | 2164839                         | 2241553                                       |
| 5  | 3                           | Exzenterbolzen<br>Eccentric spindles        | 2164824                         |   | 5   | 3             | Exzenterbolzen<br>Eccentric spindles     | 2164824                         |   |
| 6  | 3                           | Distanzbolzen<br>Spacer studs               | 2164825                         |   | 6   | 3             | Distanzbolzen<br>Spacer studs            | 2164825                         |   |
| 7  | 1                           | Zahnrad<br>Center gear                      | 2164826                         | 2168911   | 7   | 1             | Zahnrad<br>Center gear                   | 2164826                         | 2168911                                       |
| 8  | 3                           | Zahnrad<br>Spur gear                        | 2164827                         |   | 8   | 3             | Zahnrad<br>Spur gear                     | 2164827                         |   |
| 9  | 1                           | Schließstift<br>Closing rod                 | 2164828                         |   | 9   | 1             | Griff<br>Handle                          | 2148840                         |   |
| 10   | 1                           | Spiralfeder<br>Coil spring                  | 2164829                         | 2164840   | 10  | 1             | Spiralfeder<br>Coil spring               | 2164840                         | 2164829                                       |
| 11   | 1                           | Sicherungsring<br>Circlip                   | 2164830                         |   | 11  | 1             | Sicherungsring<br>Circlip                | 2164830                         |   |
| 12   | 1                           | Sicherung<br>Circlip                        | 2164831                         |   | 12  | 1             | Sicherung<br>Circlip                     | 2164831                         |   |
| 13   | 3                           | Hartmetall-Laufbuchse<br>Carbide bushing    | 2168892                         |   | 13  | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2168892                         |   |
| 14   | 3                           | Zylinderschraube<br>Cap screw               | 2148736                         |   | 14  | 3             | Zylinderschraube<br>Cap screw            | 2148736                         |   |
| 15   | 3                           | Sechskantmutter<br>Hexagon nut              | 2148397                         |   | 15  | 3             | Sechskantmutter<br>Hexagon nut           | 2148397                         |   |
| 16   | 1                           | Ringscheibe<br>Ring washer                  | 2164832                         |   | 16  | 1             | Ringscheibe<br>Ring washer               | 2164832                         |   |
| 17   | 1                           | Sechskantmutter<br>Hexagon nut              | -                               |   | 17  | 1             | Sechskantmutter<br>Hexagon nut           | 2148397                         |   |
| 18   | 3                           | Gewinderolle<br>Thread roll                 | siehe Einsatzfall<br>individual |   | 18  | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual |   |
| 19   | 2                           | Gewindestift<br>Set screw                   | -                               |   | 19  | 2             | Gewindestift <sup>1)</sup><br>Set screw  | 2142063                         |   |
| 19   | 1                           | Gewindestift<br>Set screw                   | -                               |   | 19  | 1             | Gewindestift <sup>1)</sup><br>Set screw  | 2142061                         |   |
| 19   | 1                           | Gewindestift<br>Set screw                   | -                               |   | 19  | 1             | Gewindestift <sup>1)</sup><br>Set screw  | 2142065                         |   |
| 23   | 1                           | Kugelknopf<br>Ball                          | -                               |   | 23  | 1             | Kugelknopf<br>Ball                       | 2141699                         |   |
| 24   | 1                           | Scheibe<br>Washer                           | 2144251                         |   | 24  | 1             | Scheibe<br>Washer                        | 2148867                         |   |
| <b>Zubehör Innenanschlag<sup>2)</sup></b><br><b>Option Internal stop</b> |                             |   | <b>IS1223 C1</b>                | <b>IS1223L C1</b><br>Linksgewinde<br>Left hand thread | <sup>1)</sup> Teil 19 wird in der Explosionszeichnung nicht gezeigt<br>(Zum Festsetzen eines Gewindebolzens)<br><sup>1)</sup> Part 19 not shown in the view (Locking screw for Adjustment with Type K)<br><sup>2)</sup> Nur für Maschinen ohne gesteuerten Vorschub. Bitte zusätzlich bestellen.<br><sup>2)</sup> Only required for machines without controlled feed stop.<br>If required, please order additionally! |               |  |                                 |   |
| <b>Teil Nr.</b><br><b>Part No.</b>                                       | <b>Stück</b><br><b>Qty.</b> | <b>Benennung</b><br><b>Part description</b> | <b>Ident No.</b>                | <b>Ident No.</b>                                      |   |               |  |                                 |   |
|  |                             | Innenanschlag<br>Internal stop complete     | 2430926                         | 2430927   |   |               |  |                                 |   |
| 20   | 1                           | Schraubenstutzen<br>Stop screw body         | 2164833                         | 2168912   |   |               |  |                                 |   |
| 21   | 1                           | Anschlagschraube<br>Stop screw              | 2430927                         | 2430929   |   |               |  |                                 |   |
| 22   | 1                           | Sechskantmutter<br>Hexagon nut              | 2168388                         | 2168398   |   |               |  |                                 |   |
|  |                             |   |                                 |   | <b>Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!</b><br><b>When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!</b>  |               |  |                                 |   |



Teil 1 (Kupplung) zusammen mit dem entsprechenden Schaft aus der Auswahlliste (siehe Seite 74) sind der Ersatz für den eingeteilten Schaft (Teil 1) aus unserem alten Programm. Rollköpfe mit eingeteilten Schaft sind leicht umrüstbar!

Part 1 (coupling) together with the corresponding shank from the selection list (see page 74) are the replacements for the graduated shank (Part 1) from our old range. Rolling heads with graduated shanks can easily be changed over!

Zubehör Innenanschlag  
Option Internal stop

für Rechtsgewinde

- F2 C2 nur feststehend verwendbar
- K2 C2 feststehend und umlaufend verwendbar
- Rollen-Schrägstellung = 3°
- Gewicht ohne Rollen = ca. 1,8 kg

für Linksgewinde

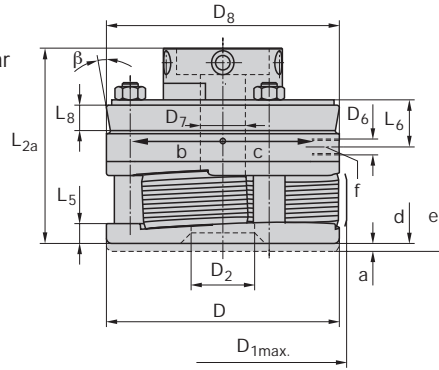
- Typ F2L C2, K2L C2
- Baumaß wie für Rechtsgewinde-Rollkopf

for right-hand threads

- F2 C2 to be used stationary only
- K2 C2 used stationary or rotating
- inclined position of rolls = 3°
- weight without rolls = approx. 3.6 lb

for left-hand threads

- Type F2L C2, K2L C2
- Dimensions like right-hand thread rolling head



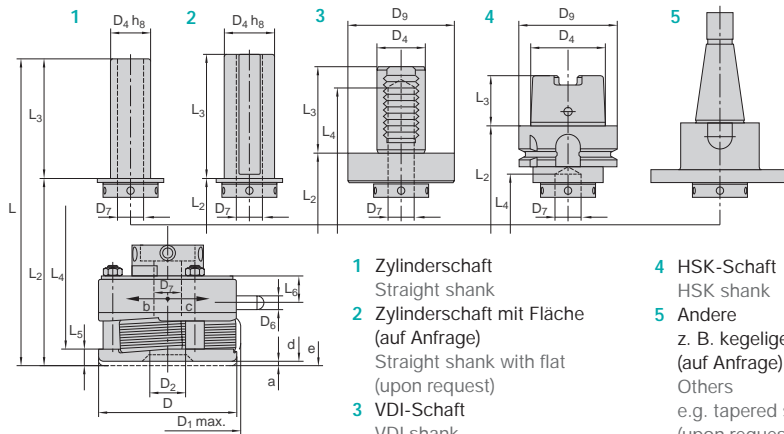
Baumaße in mm Dimension in inches

| D      | D <sub>1max.</sub> | D <sub>2</sub> | D <sub>6</sub> | D <sub>7</sub> | D <sub>8</sub> <sup>1)</sup> | L <sub>2a</sub> | L <sub>5</sub> | L <sub>6</sub> | L <sub>8</sub> <sup>1)</sup> | a      | α   | β <sup>1)</sup> | Ident No. |        |
|--------|--------------------|----------------|----------------|----------------|------------------------------|-----------------|----------------|----------------|------------------------------|--------|-----|-----------------|-----------|--------|
| 88     | 93,5               | 24             | M6             | 17             | 88                           | 74,5            | 7,5            | 16,8           | 9                            | 3      | 60° | 10°             | 2249894   | F2 C2  |
| 3.464" | 3.681"             | 0.944"         |                | 0.669"         | 3.464"                       | 2.905"          | 0.295"         | 0.661"         | 0.354"                       | 0.118" |     |                 | 2430931   | F2L C2 |
|        |                    |                |                |                |                              |                 |                |                |                              |        |     |                 | 2430932   | K2 C2  |
|        |                    |                |                |                |                              |                 |                |                |                              |        |     |                 | 2430933   | K2L C2 |

<sup>1)</sup> Nur für Typ K Only for Type K

Wechselschäfte ... -C2  
Change shanks ... -C2

- a = Schalhub Pull off for opening
- b = Kopf öffnet bei Typ K, schließt bei Typ F  
Head opens when Type K, and closes when Type F
- c = Kopf schließt bei Typ K, öffnet bei Typ F  
(Bei Rollköpfen für Linksgewinde ist die Schalrichtung entgegengesetzt)  
Head closes when Type K, and opens when Type F (For Rolling Heads for left-hand threads, the direction of operation is reversed)
- d = Rollkopf geschlossen Rolling Head closed
- e = Rollkopf geöffnet Rolling Head opened
- f = Gewinde für Griff bei feststehender Verwendung  
Thread for handle with stationary operation
- α = Schließwinkel Closing angle



- 1 Zylinderschaft  
Straight shank
- 2 Zylinderschaft mit Fläche  
(auf Anfrage)  
Straight shank with flat  
(upon request)
- 3 VDI-Schaft  
VDI shank
- 4 HSK-Schaft  
HSK shank
- 5 Andere  
z. B. kegeliger Schaft  
(auf Anfrage)  
Others  
e.g. tapered shanks  
(upon request)

Schäfte werden mit Befestigungsschrauben geliefert. Shanks will be delivered with the according fastening screws.

Baumaße in mm Dimension in inches

|  | D <sub>4</sub>  | D <sub>9</sub> | L             | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | Ident No. |            |
|--|-----------------|----------------|---------------|----------------|----------------|----------------|-----------|------------|
| Schaft Ø 25<br>Shank dia. Ø 25         | 25<br>0.984"    | -              | 152<br>0.000" | 77<br>2.992"   | 75<br>2.952"   | -              | 2249897   | R25-C2     |
| Schaft Ø 30<br>Shank dia. Ø 30         | 30<br>1.181"    | -              | 167<br>0.000" | 77<br>2.992"   | 90<br>3.543"   | -              | 2430967   | R30-C2     |
| Schaft Ø 1"<br>Shank dia. Ø 1"         | 25,4<br>1"      | -              | 152<br>0.000" | 77<br>2.992"   | 75<br>2.952"   | -              | 2249899   | R1-C2      |
| Schaft Ø 1 1/4"<br>Shank dia. Ø 1 1/4" | 31,75<br>1.125" | -              | 167<br>0.000" | 77<br>2.992"   | 90<br>3.543"   | -              | 2430969   | R1 1/4-C2  |
| Schaft Ø 1 1/2"<br>Shank dia. Ø 1 1/2" | 38,1<br>1.5"    | -              | 167<br>0.000" | 77<br>2.992"   | 90<br>3.543"   | -              | 2430971   | R1 1/2-C2  |
| Schaft VDI Ø 25<br>Shank VDI dia. Ø 25 | 25<br>0.984"    | 58<br>2.283"   | 141<br>0.000" | 93<br>3.622"   | 48<br>1.889"   | 90<br>00"      | 2249901   | VDI25-C2   |
| Schaft VDI Ø 30<br>Shank dia. VDI Ø 30 | 30<br>1.181"    | 68<br>2.677"   | 148<br>0.000" | 93<br>3.622"   | 55<br>2.165"   | 123<br>00"     | 2249903   | VDI30-C2   |
| Schaft VDI Ø 40<br>Shank dia. VDI Ø 40 | 40<br>1.574"    | 83<br>3.267"   | 156<br>0.000" | 93<br>3.622"   | 63<br>2.480"   | 134<br>00"     | 2249905   | VDI40-C2   |
| Schaft HSK-A63<br>Shank HSK-A63        | 48<br>1.889"    | 63<br>2.480"   | 150<br>0.000" | 118<br>4.606"  | 32<br>1.259"   | 84<br>00"      | 2249907   | HSK-A63-C2 |

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Gewinde <b>M</b> |           |           |
|---------------------------------|-----------|-----------|
| Metric ISO Threads              |           |           |
| Nennmaß x Steigung<br>mm        | Anlauf 1k | Anlauf 2K |
|                                 | Lead 1k   | Lead 2k   |
| Nominal Size x Pitch            | Ident No. |           |
| M 8 ... 10 x 1,25               | 1509569   | 1509578   |
| M 10 ... 12 x 1,5               | 1509747   | 1509756   |
| M 12 ... 14 x 1,75              | 1509970   | 1509989   |
| M 14 ... 16 x 2                 | 1510085   | 1510094   |

| Metrisches ISO-Feingewinde <b>M</b> |           |           |
|-------------------------------------|-----------|-----------|
| Metric ISO Fine Pitch Threads       |           |           |
| Nennmaß x Steigung<br>mm            | Anlauf 1k | Anlauf 2K |
|                                     | Lead 1k   | Lead 2k   |
| Nominal Size x Pitch                | Ident No. |           |
| M 8 ... 10 x 1                      | 1509532   | 1509541   |
| M 10 ... 12 x 1,25                  | 1509676   | 1509685   |
| M 12 ... 14 x 1,5                   | 1509925   | 1509934   |

| Unified-Gewinde, fein <b>UNF</b> |           |           |
|----------------------------------|-----------|-----------|
| Unified Threads, Fine Pitch      |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 5/16 ... 3/8 – 24 UNF            | 1510717   | 1510726   |
| 7/16 ... 1/2 – 20 UNF            | 1510744   | 1510753   |
| 9/16 ... 5/8 – 18 UNF            | 1510762   | 1510771   |

| Unified-Gewinde, grob <b>UNC</b> |           |           |
|----------------------------------|-----------|-----------|
| Unified Threads, Coarse Pitch    |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 5/16 – 18 UNC                    | 1510502   | 1510511   |
| 3/8 – 16 UNC                     | 1510548   | 1510566   |
| 7/16 – 14 UNC                    | 1510575   | 1510584   |
| 1/2 – 13 UNC                     | 1510593   | 1510600   |
| 9/16 – 12 UNC                    | 1510628   | 1510637   |
| 5/8 – 11 UNC                     | 1510646   | 1510655   |

| Whitworth-Gewinde <b>BSW</b>     |           |           |
|----------------------------------|-----------|-----------|
| Whitworth Threads                |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2k |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 5/16 – 18 BSW                    | 1510209   | 1510218   |
| 3/8 – 16 BSW                     | 1510236   | 1510245   |
| 7/16 – 14 BSW                    | 1510263   | 1510272   |
| 1/2 ... 9/16 – 12 BSW            | 1510281   | 1510290   |
| 5/8 – 11 BSW                     | 1510316   | 1510325   |

| Rändel<br>Knurls  |                             |           |         |
|---|-----------------------------|-----------|---------|
| Nennmaß x Steigung<br>Nominal Size x Pitch<br>mm   inch |                             | RAA       | RGE     |
|   |                             | Ident No. |         |
| Ø 8 ... Ø 10 x 0,5                                      | Ø 0.315 ... Ø 0.394 x 0.02  | 2169065   | 2242649 |
| Ø 10 ... Ø 12 x 0,5                                     | Ø 0.394 ... Ø 0.472 x 0.02  | 2168390   | 2242650 |
| Ø 12 ... Ø 14 x 0,5                                     | Ø 0.472 ... Ø 0.551 x 0.02  | 2169722   | 2242651 |
| Ø 14 ... Ø 16 x 0,5                                     | Ø 0.551 ... Ø 0.63 x 0.02   | 2165306   | 2242652 |
| Ø 8 ... Ø 10 x 0,6                                      | Ø 0.315 ... Ø 0.394 x 0.024 | 2168916   | 2242653 |
| Ø 10 ... Ø 12 x 0,6                                     | Ø 0.394 ... Ø 0.472 x 0.024 | 2165181   | 2242654 |
| Ø 12 ... Ø 14 x 0,6                                     | Ø 0.472 ... Ø 0.551 x 0.024 | 2240175   | 1511119 |
| Ø 14 ... Ø 16 x 0,6                                     | Ø 0.551 ... Ø 0.63 x 0.024  | 1510904   | 2242655 |
| Ø 8 ... Ø 10 x 0,8                                      | Ø 0.315 ... Ø 0.394 x 0.031 | 2242640   | 1511128 |
| Ø 10 ... Ø 12 x 0,8                                     | Ø 0.394 ... Ø 0.472 x 0.031 | 1510913   | 1511137 |
| Ø 12 ... Ø 14 x 0,8                                     | Ø 0.472 ... Ø 0.551 x 0.031 | 2168836   | 1511146 |
| Ø 14 ... Ø 16 x 0,8                                     | Ø 0.551 ... Ø 0.63 x 0.031  | 1510922   | 1511155 |
| Ø 8 ... Ø 10 x 1,0                                      | Ø 0.315 ... Ø 0.394 x 0.039 | 1510931   | 1511173 |
| Ø 10 ... Ø 12 x 1,0                                     | Ø 0.394 ... Ø 0.472 x 0.039 | 1510940   | 1511182 |
| Ø 12 ... Ø 14 x 1,0                                     | Ø 0.472 ... Ø 0.551 x 0.039 | 1510959   | 1511191 |
| Ø 14 ... Ø 16 x 1,0                                     | Ø 0.551 ... Ø 0.63 x 0.039  | 1510968   | 1511208 |
| Ø 8 ... Ø 10 x 1,2                                      | Ø 0.315 ... Ø 0.394 x 0.047 | 2168835   | 2242656 |
| Ø 10 ... Ø 12 x 1,2                                     | Ø 0.394 ... Ø 0.472 x 0.047 | 1510986   | 2167590 |
| Ø 12 ... Ø 14 x 1,2                                     | Ø 0.472 ... Ø 0.551 x 0.047 | 1510995   | 2168410 |
| Ø 14 ... Ø 16 x 1,2                                     | Ø 0.551 ... Ø 0.63 x 0.047  | 1511002   | 1511217 |
| Ø 8 ... Ø 10 x 1,5                                      | Ø 0.315 ... Ø 0.394 x 0.059 | 2168834   | 2169196 |
| Ø 10 ... Ø 12 x 1,5                                     | Ø 0.394 ... Ø 0.472 x 0.059 | 1511011   | 2168833 |
| Ø 12 ... Ø 14 x 1,5                                     | Ø 0.472 ... Ø 0.551 x 0.059 | 1511020   | 2166950 |
| Ø 14 ... Ø 16 x 1,5                                     | Ø 0.551 ... Ø 0.63 x 0.059  | 2167772   | 2168962 |
| Ø 8 ... Ø 10 x 1,6                                      | Ø 0.315 ... Ø 0.394 x 0.063 | 2242641   | 2242657 |
| Ø 10 ... Ø 12 x 1,6                                     | Ø 0.394 ... Ø 0.472 x 0.063 | 2242642   | 2242658 |
| Ø 12 ... Ø 14 x 1,6                                     | Ø 0.472 ... Ø 0.551 x 0.063 | 2242643   | 2242659 |
| Ø 14 ... Ø 16 x 1,6                                     | Ø 0.551 ... Ø 0.63 x 0.063  | 2242644   | 2168821 |
| Ø 9 ... Ø 10 x 2,0                                      | Ø 0.354 ... Ø 0.394 x 0.079 | 2242645   | 2242660 |
| Ø 10 ... Ø 12 x 2,0                                     | Ø 0.394 ... Ø 0.472 x 0.079 | 2242646   | 2242661 |
| Ø 12 ... Ø 14 x 2,0                                     | Ø 0.472 ... Ø 0.551 x 0.079 | 2242647   | 2242662 |
| Ø 14 ... Ø 16 x 2,0                                     | Ø 0.551 ... Ø 0.63 x 0.079  | 2242648   | 2242663 |

| Glätten<br>Burnishing                |                   | Ident No. |
|--------------------------------------|-------------------|-----------|
| Nennmaß<br>Nominal Size<br>mm   inch |                   |           |
| Ø 8 – Ø 10                           | Ø 0.315 – Ø 0.394 | 1511253   |
| Ø 10 – Ø 12                          | Ø 0.394 – Ø 0.472 | 1511262   |
| Ø 12 – Ø 14                          | Ø 0.472 – Ø 0.551 | 1511271   |
| Ø 14 – Ø 16                          | Ø 0.551 – Ø 0.63  | 1511280   |

| Whitworth-Feingewinde <b>BSF</b> |           |           |
|----------------------------------|-----------|-----------|
| Whitworth Fine Pitch Threads     |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2k |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 5/16 – 22 BSF                    | 1510334   | 2240407   |
| 3/8 – 20 BSF                     | 1510352   | 1510361   |
| 7/16 – 18 BSF                    | 1510370   | 1510389   |
| 1/2 ... 9/16 – 16 BSF            | 1510398   | 1510405   |
| 5/8 ... 11/16 – 14 BSF           | 1510414   | 1510423   |

| Whitworth-Rohrgewinde <b>G</b>   |           |           |
|----------------------------------|-----------|-----------|
| Whitworth Pipe Threads           |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2k |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| G 1/4 – 19                       | 1510450   | 2168838   |

| Rundgewinde <b>Rd</b>            |           |           |
|----------------------------------|-----------|-----------|
| Knuckle Form Threads             |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2k |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| Rd 16 x 1/8                      | 2169921   | 2166994   |

| Amerikanisches Rohrgewinde<br>American Pipe Threads    |                      | NPT       |
|--|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Ident No. |
| 1/4 – 18 NPT   | 2164717              |           |

| Amerikanisches Rohrgewinde<br>American Dryseal Pipe Threads |                      | NPTF      |
|---|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI      | Anlauf 1k<br>Lead 1k | Ident No. |
| 1/4 – 18 NPTF   | 2168616              |           |

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 0,245 bis 0,425 kg.

Statt mit Griff können die Rollköpfe auch mit Schließstift, Schließrolle und Schließfeder geliefert werden (siehe Seite 203). Rollköpfe mit Schäften nach DIN 69880 siehe Seiten 164/165.

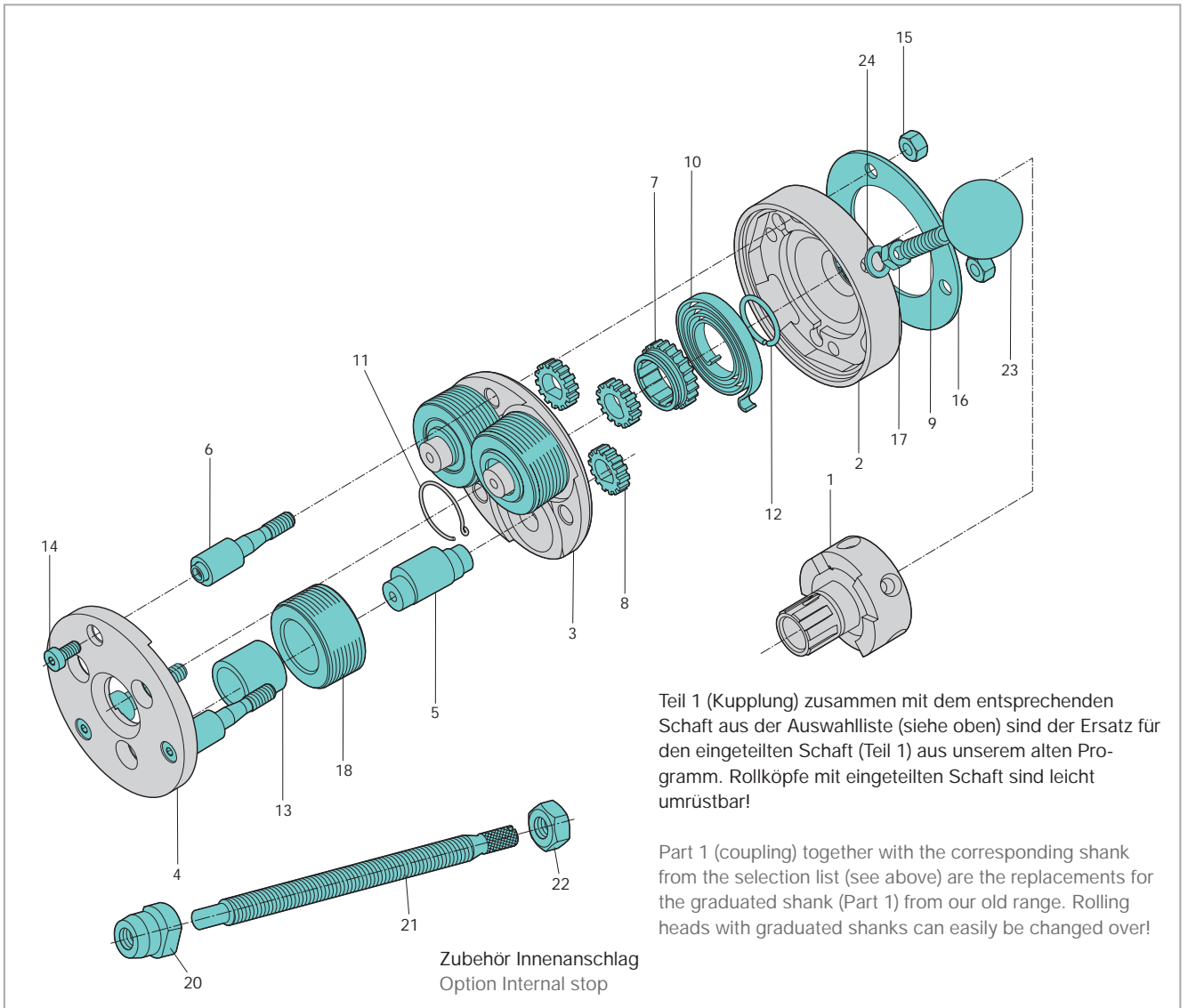
Thread dimensions combined in **one** block can be rolled with one set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 0.54 to 0.94 lb. Rolling Heads can also be delivered with closing rod, closing roller and closing spring, instead of handle (see page 203). Rolling Heads with shank to DIN 69880 see pages 164/165.

### Ersatzteile für Rollkopf F2 C2, K2 C2 Spare Parts for Rolling Head F2 C2, K2 C2

| Rollkopf<br>Rolling Head |               |  | F2 C2                           | F2L C2  | Rollkopf<br>Rolling Head |               |  | K2 C2                           | K2L C2  |
|--------------------------|---------------|--|---------------------------------|---|--------------------------|---------------|--|---------------------------------|---|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Linksgewinde<br>Left hand thread<br>Ident No. | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Linksgewinde<br>Left hand thread<br>Ident No. |
| 1                        | 1             | Kupplung<br>Clutch                       | 2249896                         | 2430935                                       | 1                        | 1             | Kupplung<br>Clutch                       | 2430935                         | 2249896                                       |
| 2                        | 1             | Federgehäuse<br>Spring housing           | 2164767                         | 2164782                                       | 2                        | 1             | Federgehäuse<br>Spring housing           | 2164896                         | 2164899                                       |
| 3                        | 1             | Zwischenplatte<br>Centre plate           | 2164768                         | 2164783                                       | 3                        | 1             | Zwischenplatte<br>Centre plate           | 2164897                         | 2164900                                       |
| 4                        | 1             | Frontplatte<br>Front plate               | 2164769                         | 2164784                                       | 4                        | 1             | Frontplatte<br>Front plate               | 2164898                         | 2164901                                       |
| 5                        | 3             | Exzenterbolzen<br>Eccentric spindles     | 2164770                         |   | 5                        | 3             | Exzenterbolzen<br>Eccentric spindles     | 2164770                         |   |
| 6                        | 3             | Distanzbolzen<br>Spacer studs            | 2164771                         |   | 6                        | 3             | Distanzbolzen<br>Spacer studs            | 2164771                         |   |
| 7                        | 1             | Zahnrad<br>Center gear                   | 2164772                         | 2164785                                       | 7                        | 1             | Zahnrad<br>Center gear                   | 2164772                         | 2164785                                       |
| 8                        | 3             | Zahnrad<br>Spur gear                     | 2164773                         |   | 8                        | 3             | Zahnrad<br>Spur gear                     | 2164773                         |   |
| 9                        | 1             | Griff<br>Handle                          | 2148841                         |   | 9                        | 1             | Griff<br>Handle                          | 2148841                         |   |
| 10                       | 1             | Spiralfeder<br>Coil spring               | 2164774                         | 2164786                                       | 10                       | 1             | Spiralfeder<br>Coil spring               | 2164786                         | 2164774                                       |
| 11                       | 1             | Sicherungsring<br>Circlip                | 2164775                         |   | 11                       | 1             | Sicherungsring<br>Circlip                | 2164775                         |   |
| 12                       | 1             | Sicherung<br>Circlip                     | 2164776                         |   | 12                       | 1             | Sicherung<br>Circlip                     | 2164776                         |   |
| 13                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2164887                         |   | 13                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2164887                         |   |
| 14                       | 3             | Zylinderschraube<br>Cap screw            | 2142999                         |   | 14                       | 3             | Zylinderschraube<br>Cap screw            | 2142999                         |   |
| 15                       | 3             | Sechskantmutter<br>Hexagon nut           | 2148393                         |   | 15                       | 3             | Sechskantmutter<br>Hexagon nut           | 2148393                         |   |
| 16                       | 1             | Ringscheibe<br>Ring washer               | 2164777                         |   | 16                       | 1             | Ringscheibe<br>Ring washer               | 2164777                         |   |
| 17                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148393                         |   | 17                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148393                         |   |
| 18                       | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual |   | 18                       | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual |   |
| 19                       | 2             | Gewindestift<br>Set screw                | -                               |   | 19                       | 2             | Gewindestift <sup>1)</sup><br>Set screw  | 2142077                         |   |
| 19                       | 1             | Gewindestift<br>Set screw                | -                               |   | 19                       | 1             | Gewindestift <sup>1)</sup><br>Set screw  | 2142075                         |   |



| Rollkopf<br>Rolling Head  |               |   | F2 C2         | F2L C2<br>Linksgewinde<br>Left hand thread          | Rollkopf<br>Rolling Head  |               |   | K2 C2     | K2L C2<br>Linksgewinde<br>Left hand thread |
|---|---------------|---|---------------|---|---|---------------|---|-----------|--|
| Teil Nr.<br>Part No.  | Stück<br>Qty. | Benennung<br>Part description           | Ident No.     | Ident No.   | Teil Nr.<br>Part No.  | Stück<br>Qty. | Benennung<br>Part description           | Ident No. | Ident No.                                  |
| 19  | 1             | Gewindestift<br>Set screw               |               | -   | 19  | 1             | Gewindestift <sup>1)</sup><br>Set screw | 2142078   |  |
| 23  | 1             | Kugelknopf<br>Ball                      | 2141700       |   | 23  | 1             | Kugelknopf<br>Ball                      | 2141700   |  |
| 24  | 1             | Scheibe<br>Washer                       | 2144250       |   | 24  | 1             | Scheibe<br>Washer                       | 2144250   |  |
| <b>Zubehör Innenanschlag<sup>2)</sup></b><br>Option Internal stop |               |   | <b>IS2 C2</b> | <b>IS2 L C2</b><br>Linksgewinde<br>Left hand thread | <sup>1)</sup> Teil 19 wird in der Explosionszeichnung nicht gezeigt<br>(Zum Festsetzen eines Gewindebolzens)<br><sup>1)</sup> Part 19 not shown in the view (Locking screw for Adjustment with Type K)<br><sup>2)</sup> Nur für Maschinen ohne gesteuerten Vorschub. Bitte zusätzlich bestellen.<br><sup>2)</sup> Only required for machines without controlled feed stop.<br>If required, please order additionally!<br><br><b>Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!</b><br><b>When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!</b> |               |   |           |  |
| Teil Nr.<br>Part No.  | Stück<br>Qty. | Benennung<br>Part description           | Ident No.     | Ident No.   |   |               |   |           |  |
|   |               | Innenanschlag<br>Internal stop complete | 2430936       | 2430937   |   |               |   |           |  |
| 20  | 1             | Schraubenstutzen<br>Stop screw body     | 2164779       | 2164787   |   |               |   |           |  |
| 21  | 1             | Anschlagschraube<br>Stop screw          | 2164778       | 2164788   |   |               |   |           |  |
| 22  | 1             | Sechskantmutter<br>Hexagon nut          | 2148390       | 2148700   |   |               |   |           |  |



für Rechtsgewinde

- F23 C2 nur feststehend verwendbar
- K23 C2 feststehend und umlaufend verwendbar
- Rollen-Schrägstellung = 1° 25'
- Gewicht ohne Rollen = ca. 1,8 kg

für Linksgewinde

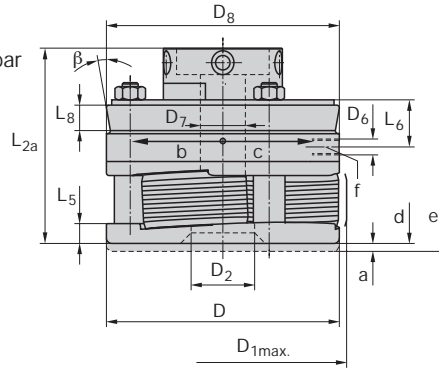
- Typ F23L C2, K23L C2
- Baumaß wie für Rechtsgewinde-Rollkopf

for right-hand threads

- F23 C2 to be used stationary only
- K23 C2 used stationary or rotating
- inclined position of rolls = 1° 25'
- weight without rolls = approx. 3.6 lb

for left-hand threads

- Type F23L C2, K23L C2
- Dimensions like right-hand thread rolling head



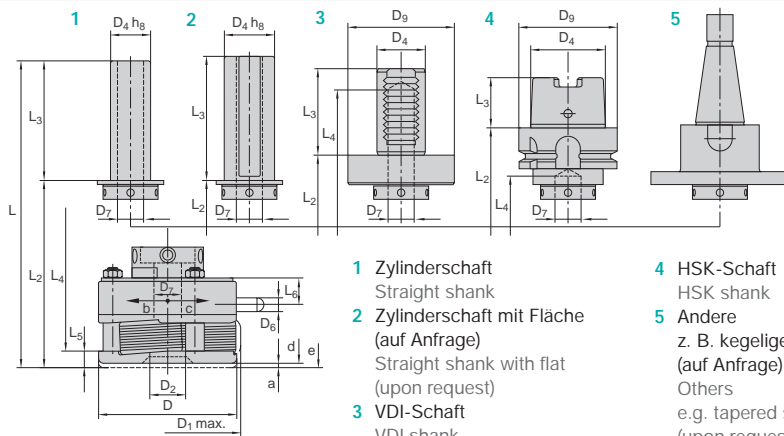
Baumaße in mm Dimension in inches

| D      | D <sub>1max.</sub> | D <sub>2</sub> | D <sub>6</sub> | D <sub>7</sub> | D <sub>8</sub> <sup>1)</sup> | L <sub>2a</sub> | L <sub>5</sub> | L <sub>6</sub> | L <sub>8</sub> <sup>1)</sup> | a      | α   | β <sup>1)</sup> | Ident No. |         |
|--------|--------------------|----------------|----------------|----------------|------------------------------|-----------------|----------------|----------------|------------------------------|--------|-----|-----------------|-----------|---------|
| 88     | 93,5               | 28             | M6             | 17             | 88                           | 75,5            | 7,5            | 16,8           | 9                            | 3      | 60° | 10°             | 2430940   | F23 C2  |
| 3.464" | 3.681"             | 1.102"         |                | 0.669"         | 3.465"                       | 2.944"          | 0.295"         | 0.661"         | 0.354"                       | 0.118" |     |                 | 2430941   | F23L C2 |
|        |                    |                |                |                |                              |                 |                |                |                              |        |     |                 | 2430942   | K23 C2  |
|        |                    |                |                |                |                              |                 |                |                |                              |        |     |                 | 2430943   | K23L C2 |

<sup>1)</sup> Nur für Typ K Only for Type K

Wechselschäfte ... -C2  
Change shanks ... -C2

- a = Schalhub Pull off for opening
- b = Kopf öffnet bei Typ K, schließt bei Typ F  
Head opens when Type K, and closes when Type F
- c = Kopf schließt bei Typ K, öffnet bei Typ F  
(Bei Rollköpfen für Linksgewinde ist die Schalrichtung entgegengesetzt)  
Head closes when Type K, and opens when Type F (For Rolling Heads for left-hand threads, the direction of operation is reversed)
- d = Rollkopf geschlossen Rolling Head closed
- e = Rollkopf geöffnet Rolling Head opened
- f = Gewinde für Griff bei feststehender Verwendung  
Thread for handle with stationary operation
- α = Schließwinkel Closing angle



- 1 Zylinderschaft  
Straight shank
- 2 Zylinderschaft mit Fläche  
(auf Anfrage)  
Straight shank with flat  
(upon request)
- 3 VDI-Schaft  
VDI shank
- 4 HSK-Schaft  
HSK shank
- 5 Andere  
z. B. kegeliger Schaft  
(auf Anfrage)  
Others  
e.g. tapered shanks  
(upon request)

Schäfte werden mit Befestigungsschrauben geliefert. Shanks will be delivered with the according fastening screws.

Baumaße in mm Dimension in inches

|                                      | D <sub>4</sub>  | D <sub>9</sub> | L             | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | Ident No. |            |
|--------------------------------------|-----------------|----------------|---------------|----------------|----------------|----------------|-----------|------------|
| Schaft Ø25<br>Shank dia. Ø25         | 25<br>0.984"    | -              | 153<br>0.000" | 78<br>0.000"   | 75<br>2.952"   | -              | 2249897   | R25-C2     |
| Schaft Ø30<br>Shank dia. Ø30         | 30<br>1.181"    | -              | 168<br>0.000" | 78<br>0.000"   | 90<br>3.543"   | -              | 2430967   | R30-C2     |
| Schaft Ø1"<br>Shank dia. Ø1"         | 25,4<br>1"      | -              | 153<br>0.000" | 78<br>0.000"   | 75<br>2.952"   | -              | 2249899   | R1-C2      |
| Schaft Ø1 1/4"<br>Shank dia. Ø1 1/4" | 31,75<br>1.125" | -              | 168<br>0.000" | 78<br>0.000"   | 90<br>3.543"   | -              | 2430969   | R1 1/4-C2  |
| Schaft Ø1 1/2"<br>Shank dia. Ø1 1/2" | 38,1<br>1.5"    | -              | 168<br>0.000" | 78<br>0.000"   | 90<br>3.543"   | -              | 2430971   | R1 1/2-C2  |
| Schaft VDI Ø25<br>Shank VDI dia. Ø25 | 25<br>0.984"    | 58<br>2.283"   | 142<br>0.000" | 94<br>0.000"   | 48<br>1.889"   | 91<br>00"      | 2249901   | VDI25-C2   |
| Schaft VDI Ø30<br>Shank dia. VDI Ø30 | 30<br>1.181"    | 68<br>2.677"   | 149<br>0.000" | 94<br>0.000"   | 55<br>2.165"   | 124<br>00"     | 2249903   | VDI30-C2   |
| Schaft VDI Ø40<br>Shank dia. VDI Ø40 | 40<br>1.574"    | 83<br>3.267"   | 157<br>0.000" | 94<br>0.000"   | 63<br>2.480"   | 135<br>00"     | 2249905   | VDI40-C2   |
| Schaft HSK-A63<br>Shank HSK-A63      | 48<br>1.889"    | 63<br>2.480"   | 151<br>0.000" | 119<br>0.000"  | 32<br>1.259"   | 85<br>00"      | 2249907   | HSK-A63-C2 |

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Feingewinde                    |                      | M                    |  |
|---|----------------------|----------------------|--|
| Metric ISO Fine Pitch Threads                 |                      |                      |  |
| Nennmaß x Steigung<br>mm                      | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |  |
|   |                      | Ident No.            |  |
| M 8 ... 10 x 0,5                              | 1511725              | 2242958              |  |
| M 8 ... 10 x 0,75                             | 1511707              | 1511716              |  |
| M 10 ... 12 x 0,75                            | 1511743              | 1511752              |  |
| M 10 ... 12 x 1                               | 1511770              | 1511789              |  |
| M 12 ... 14 x 1                               | 1511798              | 1511814              |  |
| M 14 ... 16 x 1                               | 1511887              | 1511912              |  |
| M 16... 18 <sup>1)</sup> x 1                  | 1511985              | 1511994              |  |
| M 18 <sup>1)</sup> ... 20 <sup>1)</sup> x 1   | 1512074              | 1512083              |  |
| M 14 ... 16 x 1,25                            | 1511949              | 1511958              |  |
| M 16... 18 <sup>1)</sup> x 1,5                | 1512029              | 1512038              |  |
| M 18 <sup>1)</sup> ... 20 <sup>1)</sup> x 1,5 | 1512127              | 1512136              |  |
| M 20 <sup>1)</sup> ... 22 <sup>1)</sup> x 1,5 | 1512172              | 1512181              |  |

| Unified-Gewinde                                    |                      | UN/UNF/UNEF          |  |
|--|----------------------|----------------------|--|
| Unified Threads                                    |                      |                      |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll                   | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |  |
|  |                      | Ident No.            |  |
| 5/16 ... 3/8 - 32UNEF                              | 1512403              | 1512412              |  |
| 3/8 ... 7/16 - 32UNEF                              | 2242901              | 2242902              |  |
| 7/16 ... 1/2 - 28UNEF                              | 1512378              | 2242903              |  |
| 7/16 ... 1/2 - 32 UN                               | 2240057              | 2168596              |  |
| 1/2 ... 9/16 - 20 UN                               | 1512421              | 1512430              |  |
| 1/2 ... 9/16 - 28 UN                               | 2242730              | 2242905              |  |
| 1/2 ... 9/16 - 32 UN                               | 2242906              | 2242907              |  |
| 9/16 ... 5/8 - 18 UNF                              | 1512494              | 1512500              |  |
| 9/16 ... 5/8 - 20 UN                               | 2168849              | 2168772              |  |
| 9/16 ... 5/8 - 24UNEF                              | 2169198              | 2242908              |  |
| 9/16 ... 5/8 - 28 UN                               | 2242288              | 2242909              |  |
| 9/16 ... 5/8 - 32 UN                               | 2242087              | 1512369              |  |
| 5/8 ... 11/16 <sup>1)</sup> - 16 UN                | 2242911              | 2242912              |  |
| 5/8 ... 11/16 <sup>1)</sup> - 20 UN                | 2242913              | 2242914              |  |
| 5/8 ... 11/16 <sup>1)</sup> - 24UNEF               | 2242915              | 2242916              |  |
| 5/8 ... 11/16 <sup>1)</sup> - 28 UN                | 2242917              | 2242918              |  |
| 11/16 <sup>1)</sup> ... 3/4 <sup>1)</sup> - 16 UNF | 1512449              | 1512458              |  |
| 11/16 <sup>1)</sup> ... 3/4 <sup>1)</sup> - 20UNEF | 1512387              | 1512396              |  |
| 3/4 <sup>1)</sup> ... 13/16 <sup>1)</sup> - 16 UN  | 2245452              | 2242920              |  |
| 3/4 <sup>1)</sup> ... 13/16 <sup>1)</sup> - 20UNEF | 2242921              | 2242922              |  |
| 13/16 <sup>1)</sup> ... 7/8 <sup>1)</sup> - 20UNEF | 2242923              | 2242924              |  |

| Whitworth-Rohrgewinde            |                      | G                    |  |
|----------------------------------|----------------------|----------------------|--|
| Whitworth Pipe Threads           |                      |                      |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |  |
|                                  |                      | Ident No.            |  |
| G 1/8 - 28                       | 1512305              | 1512314              |  |
| G 1/4 - 19                       | 1512323              | 1512332              |  |
| G 3/8 <sup>1)</sup> - 19         | 1512341              | 1512350              |  |
| G 1/2 <sup>1)</sup> - 14         | 1512519              | 2168208              |  |

| Whitworth-Feingewinde                               |                      | BSF                  |  |
|---|----------------------|----------------------|--|
| Whitworth Fine Pitch Threads                        |                      |                      |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll                    | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |  |
|   |                      | Ident No.            |  |
| 5/16 ... 3/8 - 32 BSFS                              | 2242881              | 2242882              |  |
| 7/16 ... 1/2 - 26 BSFS                              | 2168872              | 2242883              |  |
| 1/2 ... 9/16 - 20 BSFS                              | 2240199              | 2242884              |  |
| 1/2 ... 9/16 - 26 BSFS                              | 2242885              | 2242886              |  |
| 9/16 ... 5/8 - 20 BSFS                              | 2240198              | 2242887              |  |
| 9/16 ... 5/8 - 26 BSFS                              | 2242888              | 2242889              |  |
| 5/8 ... 11/16 <sup>1)</sup> - 20 BSFS               | 2242890              | 2242891              |  |
| 5/8 ... 11/16 <sup>1)</sup> - 26 BSFS               | 2242892              | 2242893              |  |
| 3/4 <sup>1)</sup> ... 13/16 <sup>1)</sup> - 26 BSFS | 2242894              | 2242895              |  |
| 3/4 <sup>1)</sup> ... 13/16 <sup>1)</sup> - 16 BSFS | 2245304              | 2245305              |  |
| 3/4 <sup>1)</sup> ... 13/16 <sup>1)</sup> - 20 BSFS | 2242897              | 2242898              |  |
| 13/16 <sup>1)</sup> ... 7/8 <sup>1)</sup> - 20 BSFS | 2242899              | 2242900              |  |

| Amerikanisches Rohrgewinde       |                      | NPT          |  |
|----------------------------------|----------------------|--------------|--|
| American Pipe Threads            |                      |              |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k | Ident No.    |  |
|                                  |                      | 1/8 - 27 NPT |  |
| 1/4 - 18 NPT                     |                      | 2164611      |  |
| 3/8 - 18 NPT                     |                      | 2166779      |  |

| Amerikanisches Rohrgewinde       |                      | NPTF          |  |
|----------------------------------|----------------------|---------------|--|
| American Dryseal Pipe Threads    |                      |               |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k | Ident No.     |  |
|                                  |                      | 1/8 - 27 NPTF |  |
| 1/4 - 18 NPTF                    |                      | 2166947       |  |
| 3/8 - 18 NPTF                    |                      | 2168651       |  |

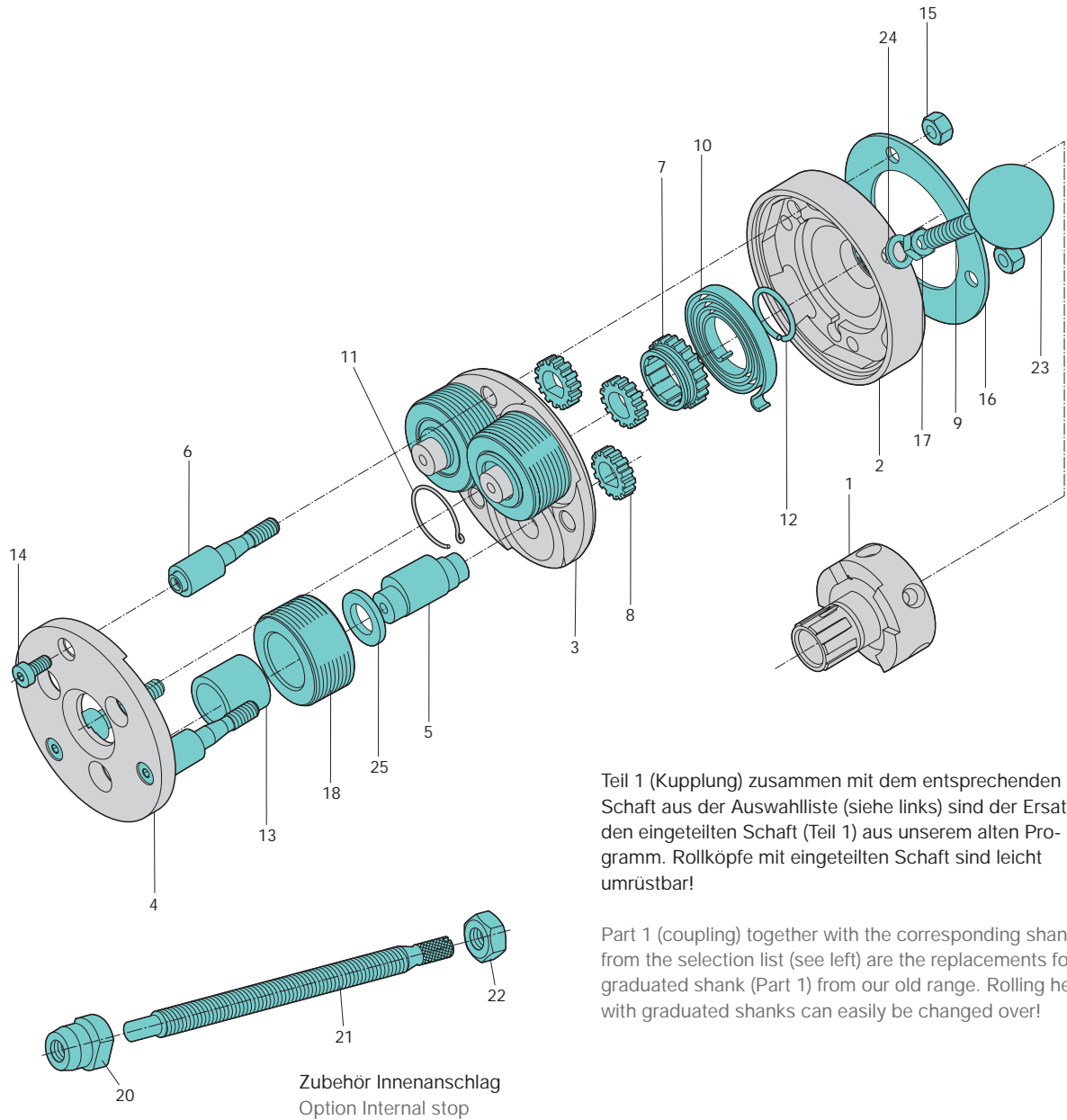
<sup>1)</sup> Für Kurzgewinde bis 19 mm Länge einschließlich Auslauf.

<sup>1)</sup> For short threads up to 19 mm/0.748" including runout.

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 0,170 bis 0,320 kg. Statt mit Griff können die Rollköpfe auch mit Schließstift, Schließrolle und Schließfeder geliefert werden (siehe Seite 203). Rollköpfe mit Schäften nach DIN 69880 siehe Seiten 164/165.

Thread dimensions combined in **one** block can be rolled with one set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 0.38 to 0.7 lb. Rolling Heads can also be delivered with closing rod, closing roller and closing spring, instead of handle (see page 203). Rolling Heads with shank to DIN 69880 see pages 164/165.

| Rollkopf<br>Rolling Head  |               |  | F23 C2                          | F23L C2        | Rollkopf<br>Rolling Head  |               |  | K23 C2                          | K23L C2   |
|---|---------------|--|---------------------------------|----------------|---|---------------|--|---------------------------------|-----------|
| Teil Nr.<br>Part No.  | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No.      | Teil Nr.<br>Part No.  | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No. |
| 1   | 1             | Kupplung<br>Clutch                       | 2249896                         | 2430935        | 1   | 1             | Kupplung<br>Clutch                       | 2430935                         | 2249896   |
| 2   | 1             | Federgehäuse<br>Spring housing           | 2164767                         | 2164782        | 2   | 1             | Federgehäuse<br>Spring housing           | 2164896                         | 2164899   |
| 3   | 1             | Zwischenplatte<br>Centre plate           | 2164929                         | 2164936        | 3   | 1             | Zwischenplatte<br>Centre plate           | 2164927                         | 2167284   |
| 4   | 1             | Frontplatte<br>Front plate               | 2164930                         | 2164937        | 4   | 1             | Frontplatte<br>Front plate               | 2164928                         | 2167285   |
| 5   | 3             | Exzenterbolzen<br>Eccentric spindles     | 2164931                         |                | 5   | 3             | Exzenterbolzen<br>Eccentric spindles     | 2164931                         |           |
| 6   | 3             | Distanzbolzen<br>Spacer studs            | 2164932                         |                | 6   | 3             | Distanzbolzen<br>Spacer studs            | 2164932                         |           |
| 7   | 1             | Zahnrad<br>Center gear                   | 2164933                         | 2164938        | 7   | 1             | Zahnrad<br>Center gear                   | 2164933                         | 2164938   |
| 8   | 3             | Zahnrad<br>Spur gear                     | 2164934                         |                | 8   | 3             | Zahnrad<br>Spur gear                     | 2164934                         |           |
| 9   | 1             | Griff<br>Handle                          | 2148841                         |                | 9   | 1             | Griff<br>Handle                          | 2148841                         |           |
| 10  | 1             | Spiralfeder<br>Coil spring               | 2164774                         | 2164786        | 10  | 1             | Spiralfeder<br>Coil spring               | 2164786                         | 2164774   |
| 11  | 1             | Sicherungsring<br>Circlip                | 2164775                         |                | 11  | 1             | Sicherungsring<br>Circlip                | 2164775                         |           |
| 12  | 1             | Sicherung<br>Circlip                     | 2164776                         |                | 12  | 1             | Sicherung<br>Circlip                     | 2164776                         |           |
| 13  | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2164705                         |                | 13  | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2164705                         |           |
| 14  | 3             | Zylinderschraube<br>Cap screw            | 2142999                         |                | 14  | 3             | Zylinderschraube<br>Cap screw            | 2142999                         |           |
| 15  | 3             | Sechskantmutter<br>Hexagon nut           | 2148393                         |                | 15  | 3             | Sechskantmutter<br>Hexagon nut           | 2148393                         |           |
| 16  | 1             | Ringscheibe<br>Ring washer               | 2164777                         |                | 16  | 1             | Ringscheibe<br>Ring washer               | 2164777                         |           |
| 17  | 1             | Sechskantmutter<br>Hexagon nut           | 2148393                         |                | 17  | 1             | Sechskantmutter<br>Hexagon nut           | 2148393                         |           |
| 18  | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual |                | 18  | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual |           |
| 19  | 2             | Gewindestift<br>Set screw                | -                               |                | 19  | 2             | Gewindestift <sup>1)</sup><br>Set screw  | 2142077                         |           |
| 19  | 1             | Gewindestift<br>Set screw                | -                               |                | 19  | 1             | Gewindestift <sup>1)</sup><br>Set screw  | 2142075                         |           |
| 19  | 1             | Gewindestift<br>Set screw                | -                               |                | 19  | 1             | Gewindestift <sup>1)</sup><br>Set screw  | 2142078                         |           |
| 23  | 1             | Kugelknopf<br>Ball                       | 2141700                         |                | 23  | 1             | Kugelknopf<br>Ball                       | 2141700                         |           |
| 24  | 1             | Scheibe<br>Washer                        | 2144250                         |                | 24  | 1             | Scheibe<br>Washer                        | 2144250                         |           |
| 25  | 3             | Scheibe<br>Washer                        | 2164935                         |                | 25  | 3             | Scheibe<br>Washer                        | 2164935                         |           |
| <b>Zubehör Innenanschlag<sup>2)</sup></b><br>Option Internal stop |               |  | <b>IS2 C2</b>                   | <b>IS2L C2</b> | <sup>1)</sup> Teil 19 wird in der Explosionszeichnung nicht gezeigt<br>(Zum Festsetzen eines Gewindebolzens)<br><sup>1)</sup> Part 19 not shown in the view (Locking screw for Adjustment with Type K)<br><sup>2)</sup> Nur für Maschinen ohne gesteuerten Vorschub. Bitte zusätzlich bestellen.<br><sup>2)</sup> Only required for machines without controlled feed stop.<br>If required, please order additionally!<br><br><b>Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!</b><br><b>When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!</b> |               |  |                                 |           |
| Teil Nr.<br>Part No.  | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No.      |   |               |  |                                 |           |
|   |               | Innenanschlag<br>Internal stop complete  | 2430936                         | 2430937        |   |               |  |                                 |           |
| 20  | 1             | Schraubenstutzen<br>Stop screw body      | 2164779                         | 2164787        |   |               |  |                                 |           |
| 21  | 1             | Anschlagschraube<br>Stop screw           | 2164778                         | 2164788        |   |               |  |                                 |           |
| 22  | 1             | Sechskantmutter<br>Hexagon nut           | 2148390                         | 2148700        |   |               |  |                                 |           |



für Rechtsgewinde

- F233400 C2 nur feststehend verwendbar
- K233400 C2 feststehend und umlaufend verwendbar
- Rollen-Schrägstellung = 1° 15'
- Gewicht ohne Rollen = ca. 2,7 kg

für Linksgewinde

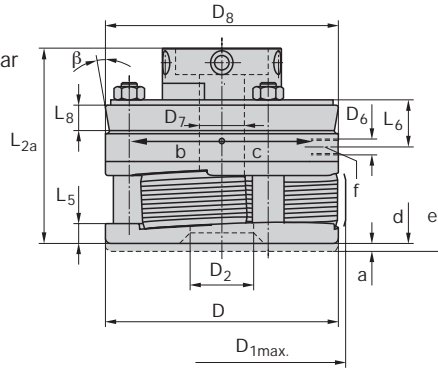
- Typ F233400L C2, K233400L C2
- Baumaß wie für Rechtsgewinde-Rollkopf

for right-hand threads

- F233400 C2 to be used stationary only
- K233400 C2 used stationary or rotating
- inclined position of rolls = 1° 15'
- weight without rolls = approx. 5.4 lb

for left-hand threads

- Type F233400L C2, K233400L C2
- Dimensions like right-hand thread rolling head



Baumaße in mm Dimension in inches

| D      | D <sub>1max.</sub> | D <sub>2</sub> | D <sub>6</sub> | D <sub>7</sub>     | D <sub>8</sub> <sup>1)</sup> | L <sub>2a</sub> | L <sub>5</sub> | L <sub>6</sub> | L <sub>8</sub> <sup>1)</sup> | a      | α   | β <sup>1)</sup> | Ident No. |             |
|--------|--------------------|----------------|----------------|--------------------|------------------------------|-----------------|----------------|----------------|------------------------------|--------|-----|-----------------|-----------|-------------|
| 96     | 115                | 39             | M8             | 28                 | 96                           | 91              | 8              | 9              | 9,5                          | 3      | 30° | 10°             | 2430944   | F233400 C2  |
| 3.779" | 4.527"             | 1.535"         | Typ „F“        | 0.669"             | 3.779"                       | 0.000"          | 0.314"         | 0.354"         | 0.374"                       | 0.118" |     |                 | 2430945   | F233400L C2 |
|        |                    |                | M6             | 22,5 <sup>2)</sup> |                              |                 |                |                |                              |        |     |                 | 2430946   | K233400 C2  |
|        |                    |                | Typ „K“        | 0.886"             |                              |                 |                |                |                              |        |     |                 | 2430947   | K233400L C2 |

<sup>1)</sup> Nur für Typ K

Only for Type K

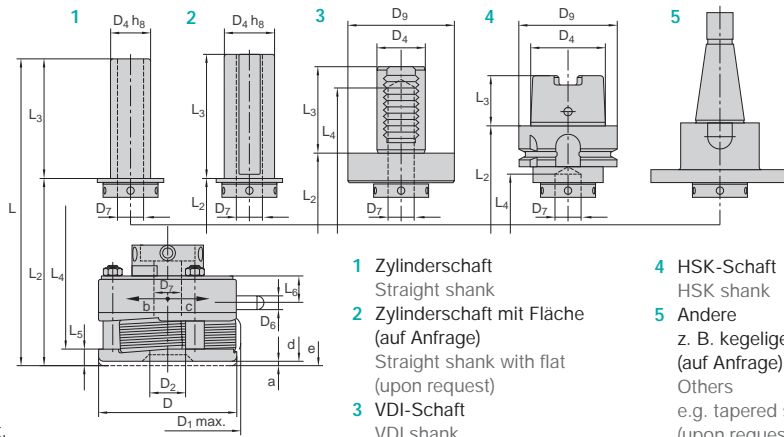
<sup>2)</sup> Ø 28 bis L<sub>4</sub> = 73 mm

Ø 28 up to L<sub>4</sub> = 2.874"

Wechselschäfte ... -C2

Change shanks ... -C2

- a = Schalhub Pull off for opening
- b = Kopf öffnet bei Typ K, schließt bei Typ F  
Head opens when Type K, and closes when Type F
- c = Kopf schließt bei Typ K, öffnet bei Typ F  
(Bei Rollköpfen für Linksgewinde ist die Schalrichtung entgegengesetzt)  
Head closes when Type K, and opens when Type F (For Rolling Heads for left-hand threads, the direction of operation is reversed)
- d = Rollkopf geschlossen Rolling Head closed
- e = Rollkopf geöffnet Rolling Head opened
- f = Gewinde für Griff bei feststehender Verwendung  
Thread for handle with stationary operation
- α = Schließwinkel Closing angle



- 1 Zylinderschaft  
Straight shank
- 2 Zylinderschaft mit Fläche  
(auf Anfrage)  
Straight shank with flat  
(upon request)
- 3 VDI-Schaft  
VDI shank
- 4 HSK-Schaft  
HSK shank
- 5 Andere  
z. B. kegeliger Schaft  
(auf Anfrage)  
Others  
e.g. tapered shanks  
(upon request)

Schäfte werden mit Befestigungsschrauben geliefert.  
 Shanks will be delivered with the according fastening screws.

Baumaße in mm Dimension in inches

|  | D <sub>4</sub>  | D <sub>9</sub> | L               | L <sub>2</sub>  | L <sub>3</sub> | L <sub>4</sub>              | Ident No. |            |
|--|-----------------|----------------|-----------------|-----------------|----------------|-----------------------------|-----------|------------|
| Schaft Ø 25<br>Shank dia. Ø 25         | 25<br>0.984"    | -              | 168,5<br>6.692" | 93,5<br>3.740"  | 75<br>2.952"   | 73<br>2.638"                | 2249897   | R25-C2     |
| Schaft Ø 30<br>Shank dia. Ø 30         | 30<br>1.181"    | -              | 183,5<br>7.283" | 93,5<br>3.740"  | 90<br>3.543"   | - <sup>3)</sup>             | 2430967   | R30-C2     |
| Schaft Ø 1"<br>Shank dia. Ø 1"         | 25,4<br>1"      | -              | 168,5<br>6.692" | 93,5<br>3.740"  | 75<br>2.952"   | 73<br>2.638"                | 2249899   | R1-C2      |
| Schaft Ø 1 1/4"<br>Shank dia. Ø 1 1/4" | 31,75<br>1.125" | -              | 183,5<br>7.283" | 93,5<br>3.740"  | 90<br>3.543"   | - <sup>3)</sup>             | 2430969   | R1 1/4-C2  |
| Schaft Ø 1 1/2"<br>Shank dia. Ø 1 1/2" | 38,1<br>1.5"    | -              | 183,5<br>7.283" | 93,5<br>3.740"  | 90<br>3.543"   | - <sup>3)</sup>             | 2430971   | R1 1/2-C2  |
| Schaft VDI Ø 25<br>Shank VDI dia. Ø 25 | 25<br>0.984"    | 58<br>2.283"   | 157,5<br>6.259" | 109,5<br>4.370" | 48<br>1.889"   | 73<br>2.638"                | 2249901   | VDI25-C2   |
| Schaft VDI Ø 30<br>Shank dia. VDI Ø 30 | 30<br>1.181"    | 68<br>2.677"   | 164,5<br>6.535" | 109,5<br>4.370" | 55<br>2.165"   | 98 <sup>3)</sup><br>3.858"  | 2249903   | VDI30-C2   |
| Schaft VDI Ø 40<br>Shank dia. VDI Ø 40 | 40<br>1.574"    | 83<br>3.267"   | 172,5<br>6.850" | 109,5<br>4.370" | 63<br>2.480"   | 150 <sup>3)</sup><br>5.905" | 2249905   | VDI40-C2   |
| Schaft HSK-A63<br>Shank HSK-A63        | 48<br>1.889"    | 63<br>2.480"   | 166<br>6.594"   | 134<br>5.334"   | 32<br>1.259"   | 100 <sup>3)</sup><br>3.937" | 2249907   | HSK-A63-C2 |

<sup>1)</sup> L<sub>4</sub> = 73 mm bei Gewinden, deren Außen-Ø größer ist als Ø 22,2 mm. L<sub>4</sub> = 73 mm for threads with Major-Ø more than Ø 22,2 mm

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Feingewinde <b>M</b><br>Metric ISO Fine Pitch Threads |                      |                      |
|--|----------------------|----------------------|
| Nennmaß x Steigung<br>mm<br>Nominal Size x Pitch                     | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |
|  | Ident No.            |                      |
| M 16 <sup>1)</sup> ... 18 <sup>1)</sup> x 1,5                        | 1513037              | 1513064              |
| M 18 <sup>1)</sup> ... 20 <sup>1)</sup> x 1,5                        | 1513073              | 1513091              |
| M 20 <sup>1)</sup> ... 22 <sup>1)</sup> x 1,5                        | 1513108              | 1513126              |
| M 22 <sup>1)</sup> ... 24 <sup>1)</sup> x 1,5                        | 1513144              | 1513153              |
| M 24 <sup>1)</sup> ... 26 <sup>1)</sup> x 1,5                        | 1513171              | 1513180              |
| M 26 <sup>1)</sup> ... 28 <sup>2)</sup> x 1,5                        | 1513233              | 1513242              |
| M 28 <sup>2)</sup> ... 30 <sup>2)</sup> x 1,5                        | 2246617              | 2243039              |
| M 30 <sup>2)</sup> ... 32 <sup>2)</sup> x 1,5                        | 1513297              | 1513304              |
| M 32 <sup>2)</sup> ... 34 <sup>2)</sup> x 1,5                        | 1513340              | 1513359              |
| M 34 <sup>2)</sup> ... 36 <sup>2)</sup> x 1,5                        | 2243042              | 1513386              |
| M 22 <sup>1)</sup> ... 24 <sup>1)</sup> x 2                          | 1513162              | 2243044              |
| M 24 <sup>1)</sup> ... 26 <sup>1)</sup> x 2                          | 1513199              | 2169638              |
| M 26 <sup>1)</sup> ... 28 <sup>2)</sup> x 2                          | 1513251              | 2243045              |
| M 28 <sup>2)</sup> ... 30 <sup>2)</sup> x 2                          | 1513288              | 2243046              |
| M 30 <sup>2)</sup> ... 32 <sup>2)</sup> x 2                          | 1513313              | 1513331              |
| M 32 <sup>2)</sup> ... 34 <sup>2)</sup> x 2                          | 1513368              | 2243047              |
| M 34 <sup>2)</sup> ... 36 <sup>2)</sup> x 2                          | 1513402              | 2243048              |

| Whitworth-Feingewinde <b>BSF</b><br>Whitworth Fine Pitch Threads |                      |                      |
|--|----------------------|----------------------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI           | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |
|  | Ident No.            |                      |
| 5/8 <sup>1)</sup> ... 11/16 <sup>1)</sup> -26 <sub>BSFS</sub>    | 2243111              | 2243112              |
| 5/8 <sup>1)</sup> ... 11/16 <sup>1)</sup> -20 <sub>BSFS</sub>    | 2243113              | 2243114              |
| 11/16 <sup>1)</sup> ... 3/4 <sup>1)</sup> -26 <sub>BSFS</sub>    | 2243115              | 2243116              |
| 11/16 <sup>1)</sup> ... 3/4 <sup>1)</sup> -20 <sub>BSFS</sub>    | 2243117              | 2243118              |
| 11/16 <sup>1)</sup> ... 3/4 <sup>1)</sup> -16 <sub>BSFS</sub>    | 2243119              | 2243120              |
| 3/4 <sup>1)</sup> ... 13/16 <sup>1)</sup> -26 <sub>BSFS</sub>    | 2243121              | 2243122              |
| 3/4 <sup>1)</sup> ... 13/16 <sup>1)</sup> -20 <sub>BSFS</sub>    | 2243123              | 2168612              |
| 3/4 <sup>1)</sup> ... 13/16 <sup>1)</sup> -16 <sub>BSFS</sub>    | 2243124              | 2169760              |
| 13/16 <sup>1)</sup> ... 7/8 <sup>1)</sup> -20 <sub>BSFS</sub>    | 2243125              | 2243126              |
| 7/8 <sup>1)</sup> ... 15/16 <sup>1)</sup> -20 <sub>BSFS</sub>    | 2243127              | 2243128              |
| 15/16 <sup>1)</sup> ... 1 <sup>1)</sup> -20 <sub>BSFS</sub>      | 2243129              | 2168574              |
| 1 <sup>1)</sup> ... 11/16 <sup>1)</sup> -20 <sub>BSFS</sub>      | 2243130              | 2243131              |
| 11/16 <sup>1)</sup> ... 11/8 <sup>2)</sup> -20 <sub>BSFS</sub>   | 2243132              | 2232133              |
| 11/8 <sup>2)</sup> ... 13/16 <sup>2)</sup> -20 <sub>BSFS</sub>   | 2243134              | 2243135              |
| 11/8 <sup>2)</sup> ... 13/16 <sup>2)</sup> -12 <sub>BSFS</sub>   | 2243136              | 2243137              |
| 13/16 <sup>2)</sup> ... 11/4 <sup>2)</sup> -12 <sub>BSFS</sub>   | 2243138              | 2243139              |
| 11/4 <sup>2)</sup> ... 15/16 <sup>2)</sup> -12 <sub>BSFS</sub>   | 2243140              | 2243141              |
| 15/16 <sup>2)</sup> ... 13/8 <sup>2)</sup> -12 <sub>BSFS</sub>   | 2243142              | 2243143              |
| 13/8 <sup>2)</sup> ... 17/16 <sup>2)</sup> -12 <sub>BSFS</sub>   | 2243144              | 2243145              |

| Unified-Gewinde <b>UN/UNF/UNEF</b><br>Unified Threads          |                      |                      |
|--|----------------------|----------------------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI         | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |
|  | Ident No.            |                      |
| 5/8 <sup>1)</sup> - 18 <sub>UNF</sub>                          | 2167797              | 2241562              |
| 5/8 <sup>1)</sup> - 24 <sub>UNEF</sub>                         | 2243148              | 2243063              |
| 5/8 <sup>1)</sup> ... 1/16 <sup>1)</sup> -20 <sub>UN</sub>     | 2243064              | 2243065              |
| 11/16 <sup>1)</sup> - 24 <sub>UNEF</sub>                       | 2243066              | 2243067              |
| 11/16 <sup>1)</sup> ... 3/4 <sup>1)</sup> -20 <sub>UN</sub>    | 2166139              | 2243068              |
| 11/16 <sup>1)</sup> ... 3/4 <sup>1)</sup> -16 <sub>UNF</sub>   | 2167188              | 2242668              |
| 3/4 <sup>1)</sup> - 24 <sub>UN</sub>                           | 2240085              | 2243069              |
| 3/4 <sup>1)</sup> ... 13/16 <sup>1)</sup> -20 <sub>UNEF</sub>  | 2243070              | 2243071              |
| 3/4 <sup>1)</sup> ... 13/16 <sup>1)</sup> -16 <sub>UN</sub>    | 2167189              | 1513554              |
| 13/16 <sup>1)</sup> ... 7/8 <sup>1)</sup> -20 <sub>UNEF</sub>  | 2169153              | 2243072              |
| 13/16 <sup>1)</sup> ... 7/8 <sup>1)</sup> -16 <sub>UN</sub>    | 2243073              | 2243074              |
| 13/16 <sup>1)</sup> ... 7/8 <sup>1)</sup> -14 <sub>UNF</sub>   | 1513563              | 1513572              |
| 7/8 <sup>1)</sup> ... 15/16 <sup>1)</sup> -20 <sub>UNEF</sub>  | 2168774              | 2243075              |
| 7/8 <sup>1)</sup> ... 15/16 <sup>1)</sup> -16 <sub>UN</sub>    | 2169149              | 2242227              |
| 7/8 <sup>1)</sup> ... 15/16 <sup>1)</sup> -14 <sub>UNF</sub>   | 2243076              | 2243077              |
| 7/8 <sup>1)</sup> ... 15/16 <sup>1)</sup> -12 <sub>UN</sub>    | 2166038              | 2243078              |
| 15/16 <sup>1)</sup> ... 1 <sup>1)</sup> -20 <sub>UNEF</sub>    | 2242407              | 2243079              |
| 15/16 <sup>1)</sup> ... 1 <sup>1)</sup> -16 <sub>UN</sub>      | 2243080              | 2243081              |
| 15/16 <sup>1)</sup> ... 1 <sup>1)</sup> -12 <sub>UNF</sub>     | 2243082              | 2167075              |
| 1 <sup>1)</sup> ... 11/16 <sup>1)</sup> -20 <sub>UNEF</sub>    | 2169150              | 2243083              |
| 1 <sup>1)</sup> ... 11/16 <sup>1)</sup> -18 <sub>UNEF</sub>    | 2243084              | 2243085              |
| 1 <sup>1)</sup> ... 11/16 <sup>1)</sup> -16 <sub>UN</sub>      | 2168340              | 2166867              |
| 1 <sup>1)</sup> ... 11/16 <sup>1)</sup> -12 <sub>UNF</sub>     | 2168130              | 2243086              |
| 11/16 <sup>1)</sup> ... 11/8 <sup>2)</sup> -20 <sub>UN</sub>   | 2169148              | 2243087              |
| 11/16 <sup>1)</sup> ... 11/8 <sup>2)</sup> -18 <sub>UNEF</sub> | 2240059              | 2243088              |
| 11/16 <sup>1)</sup> ... 11/8 <sup>2)</sup> -16 <sub>UNEF</sub> | 2168691              | 2243089              |
| 11/16 <sup>1)</sup> ... 11/8 <sup>2)</sup> -12 <sub>UNF</sub>  | 2242012              | 2243090              |
| 11/8 <sup>2)</sup> ... 13/16 <sup>2)</sup> -20 <sub>UN</sub>   | 2243091              | 2243092              |
| 11/8 <sup>2)</sup> ... 13/16 <sup>2)</sup> -18 <sub>UNEF</sub> | 2243093              | 2243094              |
| 11/8 <sup>2)</sup> ... 13/16 <sup>2)</sup> -16 <sub>UN</sub>   | 2243095              | 2243096              |
| 11/8 <sup>2)</sup> ... 13/16 <sup>2)</sup> -12 <sub>UN</sub>   | 2241120              | 2243097              |
| 13/16 <sup>2)</sup> ... 11/4 <sup>2)</sup> -16 <sub>UN</sub>   | 2168027              | 2243098              |
| 13/16 <sup>2)</sup> ... 11/4 <sup>2)</sup> -12 <sub>UN</sub>   | 2243099              | 2243100              |
| 11/4 <sup>2)</sup> ... 15/16 <sup>2)</sup> -16 <sub>UN</sub>   | 2243101              | 2243102              |
| 11/4 <sup>2)</sup> ... 15/16 <sup>2)</sup> -12 <sub>UN</sub>   | 2165845              | 2243103              |
| 15/16 <sup>2)</sup> ... 13/8 <sup>2)</sup> -16 <sub>UN</sub>   | 2243104              | 2243105              |
| 15/16 <sup>2)</sup> ... 13/8 <sup>2)</sup> -12 <sub>UN</sub>   | 2243106              | 2243107              |
| 13/8 <sup>2)</sup> ... 17/16 <sup>2)</sup> -16 <sub>UN</sub>   | 2242215              | 2243108              |
| 13/8 <sup>2)</sup> ... 17/16 <sup>2)</sup> -12 <sub>UN</sub>   | 2243109              | 2243110              |

| Whitworth-Rohrgewinde <b>G</b><br>Whitworth Pipe Threads |                      |                      |
|--|----------------------|----------------------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI   | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |
|  | Ident No.            |                      |
| G 3/8 <sup>2)</sup> - 19                                 | 1513411              | 1513439              |
| G 1/2 <sup>1)</sup> - 14                                 | 1513448              | 2168886              |
| G 5/8 <sup>1)</sup> - 14                                 | 1513466              | 2243146              |
| G 3/4 <sup>1)</sup> - 14                                 | 1513484              | 2243147              |
| G 7/8 <sup>1)</sup> - 14                                 | 1513509              | 1513518              |
| G 1 <sup>2)</sup> - 11                                   | 1513527              | 2241298              |

| Amerikanisches Rohrgewinde <b>NPT</b><br>American Pipe Threads |                      |
|--|----------------------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI         | Anlauf 1k<br>Lead 1k |
|  | Ident No.            |
| 3/8 - 18 NPT   | 2164626              |

| Amerikanisches Rohrgewinde <b>NPTF</b><br>American Dryseal Pipe Threads |                      |
|---|----------------------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI                  | Anlauf 1k<br>Lead 1k |
|   | Ident No.            |
| 3/8 - 18 NPTF   | 2165232              |

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 0,185 bis 0,4 kg. Statt mit Griff können die Rollköpfe auch mit Schließstift, Schließrolle und Schließfeder geliefert werden (siehe Seite 203). Rollköpfe mit Schäften nach DIN 69880 siehe Seiten 164/165.

Thread dimensions combined in one block can be rolled with one set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 0.41 to 0.89 lb. Rolling Heads can also be delivered with closing rod, closing roller and closing spring, instead of handle (see page 203). Rolling Heads with shank to DIN 69880 see pages 164/165.

1) Für Kurzgewinde bis 73 mm Länge einschließlich Auslauf.  
1) For short threads up to 73 mm/2.638" including runout.  
2) Für Kurzgewinde bis 24 mm Länge einschließlich Auslauf.  
2) For short threads up to 24 mm/1.063" including runout.

| Rollkopf<br>Rolling Head |               |  | F233400 C2                      | F233400L C2 | Rollkopf<br>Rolling Head |               |  | K233400 C2                      | K233400L C2 |
|--------------------------|---------------|--|---------------------------------|-------------|--------------------------|---------------|--|---------------------------------|-------------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No.   | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No.   |
| 1                        | 1             | Kupplung<br>Clutch                       | 2430948                         | 2430949     | 1                        | 1             | Kupplung<br>Clutch                       | 2430949                         | 2430948     |
| 2                        | 1             | Federgehäuse<br>Spring housing           | 2164966                         | 2164983     | 2                        | 1             | Federgehäuse<br>Spring housing           | 2165004                         | 2168595     |
| 3                        | 1             | Zwischenplatte<br>Centre plate           | 2164967                         | 2164984     | 3                        | 1             | Zwischenplatte<br>Centre plate           | 2165005                         | 2240614     |
| 4                        | 1             | Frontplatte<br>Front plate               | 2164968                         | 2164985     | 4                        | 1             | Frontplatte<br>Front plate               | 2165006                         | 2240613     |
| 5                        | 3             | Exzenterbolzen<br>Eccentric spindles     | 2164969                         |             | 5                        | 3             | Exzenterbolzen<br>Eccentric spindles     | 2164969                         |             |
| 6                        | 3             | Distanzbolzen<br>Spacer studs            | 2164970                         |             | 6                        | 3             | Distanzbolzen<br>Spacer studs            | 2164970                         |             |
| 7                        | 1             | Zahnrad<br>Center gear                   | 2164971                         | 2164986     | 7                        | 1             | Zahnrad<br>Center gear                   | 2164971                         | 2164986     |
| 8                        | 3             | Zahnrad<br>Spur gear                     | 2164972                         |             | 8                        | 3             | Zahnrad<br>Spur gear                     | 2164972                         |             |
| 9                        | 1             | Schließstift<br>Closing rod              | 2164973                         |             | 9                        | 1             | Griff<br>Handle                          | 2148841                         |             |
| 10                       | 1             | Spiralfeder<br>Coil spring               | 2164974                         | 2164987     | 10                       | 1             | Spiralfeder<br>Coil spring               | 2164987                         | 2164974     |
| 11                       | 1             | Sicherungsring<br>Circlip                | 2164975                         |             | 11                       | 1             | Sicherungsring<br>Circlip                | 2164975                         |             |
| 12                       | 1             | Sicherung<br>Circlip                     | 2164976                         |             | 12                       | 1             | Sicherung<br>Circlip                     | 2164976                         |             |
| 13                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2168237                         |             | 13                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2168237                         |             |
| 14                       | 3             | Zylinderschraube<br>Cap screw            | 2143007                         |             | 14                       | 3             | Zylinderschraube<br>Cap screw            | 2143007                         |             |
| 15                       | 3             | Sechskantmutter<br>Hexagon nut           | 2148398                         |             | 15                       | 3             | Sechskantmutter<br>Hexagon nut           | 2148398                         |             |
| 16                       | 1             | Ringscheibe<br>Ring washer               | 2164977                         |             | 16                       | 1             | Ringscheibe<br>Ring washer               | 2164977                         |             |
| 17                       | 1             | Sechskantmutter<br>Hexagon nut           | -                               |             | 17                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148393                         |             |
| 18                       | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual |             | 18                       | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual |             |
| 19                       | 2             | Gewindestift<br>Set screw                | -                               |             | 19                       | 2             | Gewindestift <sup>1)</sup><br>Set screw  | 2142078                         |             |
| 19                       | 1             | Gewindestift<br>Set screw                | -                               |             | 19                       | 1             | Gewindestift <sup>1)</sup><br>Set screw  | 2142076                         |             |
| 19                       | 1             | Gewindestift<br>Set screw                | -                               |             | 19                       | 1             | Gewindestift <sup>1)</sup><br>Set screw  | 2142079                         |             |
| 23                       | 1             | Kugelknopf<br>Ball                       | -                               |             | 23                       | 1             | Kugelknopf<br>Ball                       | 2141700                         |             |
| 24                       | 1             | Scheibe<br>Washer                        | 2144251                         |             | 24                       | 1             | Scheibe<br>Washer                        | 2144250                         |             |
| 25                       | 3             | Scheibe<br>Washer                        | 2164978                         |             | 25                       | 3             | Scheibe<br>Washer                        | 2164978                         |             |

<sup>1)</sup> Teil 19 wird in der Explosionszeichnung nicht gezeigt (Zum Festsetzen eines Gewindebolzens)

<sup>1)</sup> Part 19 not shown in the view (Locking screw for Adjustment with Type K)

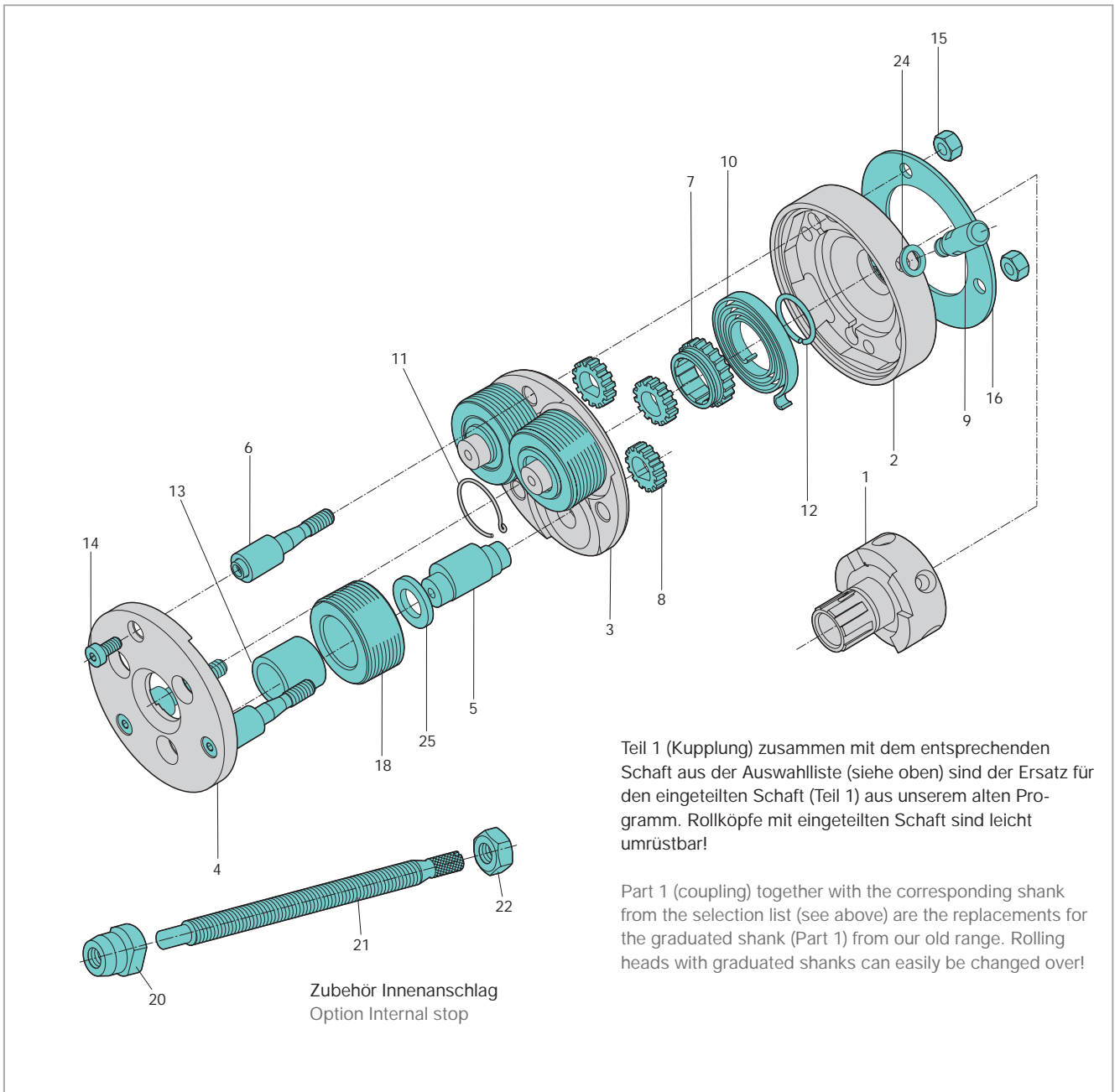
**Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!**  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!



| Zubehör Innenanschlag <sup>1)</sup> Für Schaft-Ø 25 mm; 25,4 mm |       |   | IS233400C2 | IS233400LC2 | Zubehör Innenanschlag <sup>1)</sup> Für Schaft-Ø 30; 31,75; 38,1 mm |       |   | IS3 C2    | IS3L C2   |
|---|-------|---|------------|-------------|---|-------|---|-----------|-----------|
| Option Internal stop For Shank-Ø 25 mm; 25.4 mm                 |       |   | Ident No.  | Ident No.   | Option Internal stop For Shank-Ø 30; 31.75; 38.1 mm                 |       |   | Ident No. | Ident No. |
| Teil Nr.  | Stück | Benennung                               |            |             | Teil Nr.  | Stück | Benennung                               |           |           |
| Part No.  | Qty.  | Part description                        |            |             | Part No.  | Qty.  | Part description                        |           |           |
|   |       | Innenanschlag<br>Internal stop complete | 2430950    | 2430951     |   |       | Innenanschlag<br>Internal stop complete | 2430954   | 2430955   |
| 20  | 1     | Schraubenstutzen<br>Stop screw body     | 2164779    | 2164787     | 20  | 1     | Schraubenstutzen<br>Stop screw body     | 2165036   | 2165046   |
| 21  | 1     | Anschlagschraube<br>Stop screw          | 2430952    | 2430953     | 21  | 1     | Anschlagschraube<br>Stop screw          | 2165037   | 2165047   |
| 22  | 1     | Sechskantmutter<br>Hexagon nut          | 2148390    | 2148700     | 22  | 1     | Sechskantmutter<br>Hexagon nut          | 2148391   | 2148702   |

<sup>1)</sup> Nur für Maschinen ohne gesteuerten Vorschub. Bitte zusätzlich bestellen.

<sup>1)</sup> Only required for machines without controlled feed stop. If required, please order additionally!



für Rechtsgewinde

- F3 C2 nur feststehend verwendbar
- K3 C2 feststehend und umlaufend verwendbar
- Rollen-Schrägstellung = 2° 40'
- Gewicht ohne Rollen = ca. 3,5 kg

für Linksgewinde

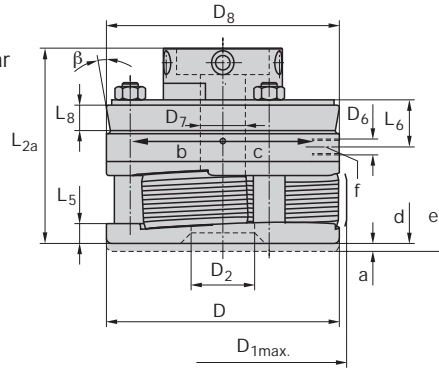
- Typ F3L C2, K3L C2
- Baumaß wie für Rechtsgewinde-Rollkopf

for right-hand threads

- F3 C2 to be used stationary only
- K3 C2 used stationary or rotating
- inclined position of rolls = 2° 40'
- weight without rolls = approx. 7.0 lb

for left-hand threads

- Type F3L C2, K3L C2
- Dimensions like right-hand thread rolling head



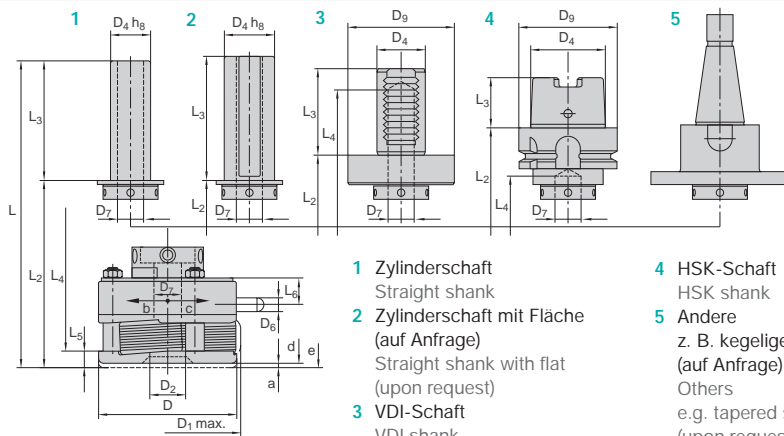
Baumaße in mm Dimension in inches

| D      | D <sub>1max.</sub> | D <sub>2</sub> | D <sub>6</sub> | D <sub>7</sub> | D <sub>8</sub> <sup>1)</sup> | L <sub>2a</sub> | L <sub>5</sub> | L <sub>6</sub> | L <sub>8</sub> <sup>1)</sup> | a      | α   | β <sup>1)</sup> | Ident No. |        |
|--------|--------------------|----------------|----------------|----------------|------------------------------|-----------------|----------------|----------------|------------------------------|--------|-----|-----------------|-----------|--------|
| 117    | 131                | 38             | M 8            | 22,5           | 117                          | 89,5            | 8              | 17,5           | 9,5                          | 4      | 60° | 10°             | 2430956   | F3 C2  |
| 4.606" | 5.157"             | 1.496"         |                | 0.858"         | 4.606"                       | 3.524"          | 0.315"         | 0.689"         | 0.374"                       | 0.157" |     |                 | 2430957   | F3L C2 |
|        |                    |                |                |                |                              |                 |                |                |                              |        |     |                 | 2430958   | K3 C2  |
|        |                    |                |                |                |                              |                 |                |                |                              |        |     |                 | 2430959   | K3L C2 |

<sup>1)</sup> Nur für Typ K Only for Type K

Wechselschäfte ... -C2  
Change shanks ... -C2

- a = Schalhub Pull off for opening
- b = Kopf öffnet bei Typ K, schließt bei Typ F  
Head opens when Type K, and closes when Type F
- c = Kopf schließt bei Typ K, öffnet bei Typ F  
(Bei Rollköpfen für Linksgewinde ist die Schalrichtung entgegengesetzt)  
Head closes when Type K, and opens when Type F (For Rolling Heads for left-hand threads, the direction of operation is reversed)
- d = Rollkopf geschlossen Rolling Head closed
- e = Rollkopf geöffnet Rolling Head opened
- f = Gewinde für Griff bei feststehender Verwendung  
Thread for handle with stationary operation
- α = Schließwinkel Closing angle



- 1 Zylinderschaft  
Straight shank
- 2 Zylinderschaft mit Fläche  
(auf Anfrage)  
Straight shank with flat  
(upon request)
- 3 VDI-Schaft  
VDI shank
- 4 HSK-Schaft  
HSK shank
- 5 Andere  
z. B. kegeliger Schaft  
(auf Anfrage)  
Others  
e.g. tapered shanks  
(upon request)

Schäfte werden mit Befestigungsschrauben geliefert. Shanks will be delivered with the according fastening screws.

Baumaße in mm Dimension in inches

|  | D <sub>4</sub>  | D <sub>9</sub> | L             | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | Ident No. |            |
|--|-----------------|----------------|---------------|----------------|----------------|----------------|-----------|------------|
| Schaft Ø 25<br>Shank dia. Ø 25         | 25<br>0.984"    | -              | 167<br>6.575" | 92<br>3.622"   | 75<br>2.952"   | -              | 2249897   | R25-C2     |
| Schaft Ø 30<br>Shank dia. Ø 30         | 30<br>1.181"    | -              | 182<br>7.165" | 92<br>3.622"   | 90<br>3.543"   | -              | 2430967   | R30-C2     |
| Schaft Ø 1"<br>Shank dia. Ø 1"         | 25,4<br>1"      | -              | 167<br>6.575" | 92<br>3.622"   | 75<br>2.952"   | -              | 2249899   | R1-C2      |
| Schaft Ø 1 1/4"<br>Shank dia. Ø 1 1/4" | 31,75<br>1.125" | -              | 182<br>7.165" | 92<br>3.622"   | 90<br>3.543"   | -              | 2430969   | R1 1/4-C2  |
| Schaft Ø 1 1/2"<br>Shank dia. Ø 1 1/2" | 38,1<br>1.5"    | -              | 182<br>7.165" | 92<br>3.622"   | 90<br>3.543"   | -              | 2430971   | R1 1/2-C2  |
| Schaft VDI Ø 25<br>Shank VDI dia. Ø 25 | 25<br>0.984"    | 58<br>2.283"   | 156<br>6.142" | 108<br>4.252"  | 48<br>1.889"   | 72<br>2.835"   | 2249901   | VDI25-C2   |
| Schaft VDI Ø 30<br>Shank dia. VDI Ø 30 | 30<br>1.181"    | 68<br>2.677"   | 163<br>6.417" | 108<br>4.252"  | 55<br>2.165"   | 96<br>3.779"   | 2249903   | VDI30-C2   |
| Schaft VDI Ø 40<br>Shank dia. VDI Ø 40 | 40<br>1.574"    | 83<br>3.267"   | 171<br>6.732" | 108<br>4.252"  | 63<br>2.480"   | 148<br>5.827"  | 2249905   | VDI40-C2   |
| Schaft HSK-A63<br>Shank HSK-A63        | 48<br>1.889"    | 63<br>2.480"   | 167<br>6.575" | 133<br>5.236"  | 32<br>1.259"   | 99<br>3.898"   | 2249907   | HSK-A63-C2 |

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Gewinde <b>M</b> |           |           |
|---------------------------------|-----------|-----------|
| Metric ISO Threads              |           |           |
| Nennmaß x Steigung<br>mm        | Anlauf 1k | Anlauf 2K |
|                                 | Lead 1k   | Lead 2k   |
| Nominal Size x Pitch            | Ident No. |           |
| M 12 ... 14 x 1,75              | 1514312   | 1514321   |
| M 14 ... 16 x 2                 | 1514438   | 1514447   |
| M 18 ... 20 x 2,5               | 1514642   | 1514660   |
| M 20 ... 22 x 2,5               | 1514768   | 1514777   |

| Metrisches ISO-Feingewinde <b>M</b> |           |           |
|-------------------------------------|-----------|-----------|
| Metric ISO Fine Pitch Threads       |           |           |
| Nennmaß x Steigung<br>mm            | Anlauf 1k | Anlauf 2K |
|                                     | Lead 1k   | Lead 2k   |
| Nominal Size x Pitch                | Ident No. |           |
| M 12 ... 14 x 1,5                   | 1514269   | 1514278   |
| M 14 ... 16 x 1,5                   | 1514385   | 1514401   |
| M 18 ... 20 x 2                     | 1514606   | 1514615   |
| M 20 ... 22 x 2                     | 2168931   | 1514740   |

| Unified-Gewinde, fein <b>UNF</b> |           |           |
|----------------------------------|-----------|-----------|
| Unified Threads, Fine Pitch      |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 7/16 ... 1/2 – 20 UNF            | 1515570   | 1515589   |
| 9/16 ... 5/8 – 18 UNF            | 1515605   | 1515614   |
| 3/4 – 16 UNF                     | 1515650   | 1515669   |
| 7/8 – 14 UNF                     | 1515678   | 2169974   |

| Unified-Gewinde, grob <b>UNC</b> |           |           |
|----------------------------------|-----------|-----------|
| Unified Threads, Coarse Pitch    |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 7/16 – 14 UNC                    | 1515400   | 1515419   |
| 1/2 – 13 UNC                     | 1515437   | 1515446   |
| 9/16 – 12 UNC                    | 1515455   | 1515464   |
| 5/8 – 11 UNC                     | 1515482   | 1515491   |
| 3/4 – 10 UNC                     | 1515507   | 1515516   |
| 7/8 – 9 UNC                      | 1515534   | 1515543   |

| Whitworth-Rohrgewinde <b>G</b>   |           |           |
|----------------------------------|-----------|-----------|
| Whitworth Pipe Threads           |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| G 1/4 ... 3/8 – 19               | 1515044   | 1515053   |
| G 1/2 – 14                       | 1515080   | 1515106   |

| Rändel<br>Knurls  |                             |           |         |
|---|-----------------------------|-----------|---------|
| Nennmaß x Steigung<br>Nominal Size x Pitch<br>mm   inch |                             | RAA       | RGE     |
|   |                             | Ident No. |         |
| Ø 12 ... Ø 14 x 0,5                                     | Ø 0.472 ... Ø 0.551 x 0.02  | 2243564   | 2243585 |
| Ø 14 ... Ø 16 x 0,5                                     | Ø 0.551 ... Ø 0.63 x 0.02   | 2169627   | 2243586 |
| Ø 16 ... Ø 18 x 0,5                                     | Ø 0.63 ... Ø 0.709 x 0.02   | 2243565   | 2243587 |
| Ø 18 ... Ø 20 x 0,5                                     | Ø 0.709 ... Ø 0.787 x 0.02  | 2243566   | 2243588 |
| Ø 20 ... Ø 22 x 0,5                                     | Ø 0.787 ... Ø 0.866 x 0.02  | 2243567   | 2243589 |
| Ø 12 ... Ø 14 x 0,6                                     | Ø 0.472 ... Ø 0.551 x 0.024 | 2243568   | 2243590 |
| Ø 14 ... Ø 16 x 0,6                                     | Ø 0.551 ... Ø 0.63 x 0.024  | 1515909   | 2243591 |
| Ø 16 ... Ø 18 x 0,6                                     | Ø 0.63 ... Ø 0.709 x 0.024  | 2243569   | 2243592 |
| Ø 18 ... Ø 20 x 0,6                                     | Ø 0.709 ... Ø 0.787 x 0.024 | 2243570   | 2243593 |
| Ø 20 ... Ø 22 x 0,6                                     | Ø 0.787 ... Ø 0.866 x 0.024 | 2243571   | 2243594 |
| Ø 12 ... Ø 14 x 0,8                                     | Ø 0.472 ... Ø 0.551 x 0.031 | 1515918   | 2168024 |
| Ø 14 ... Ø 16 x 0,8                                     | Ø 0.551 ... Ø 0.63 x 0.031  | 2243572   | 2165370 |
| Ø 16 ... Ø 18 x 0,8                                     | Ø 0.63 ... Ø 0.709 x 0.031  | 2168428   | 2243595 |
| Ø 18 ... Ø 20 x 0,8                                     | Ø 0.709 ... Ø 0.787 x 0.031 | 1515936   | 2168023 |
| Ø 20 ... Ø 22 x 0,8                                     | Ø 0.787 ... Ø 0.866 x 0.031 | 2243573   | 2243596 |
| Ø 12 ... Ø 14 x 1,0                                     | Ø 0.472 ... Ø 0.551 x 0.039 | 1515972   | 1516114 |
| Ø 14 ... Ø 16 x 1,0                                     | Ø 0.551 ... Ø 0.63 x 0.039  | 2165323   | 2243597 |
| Ø 16 ... Ø 18 x 1,0                                     | Ø 0.63 ... Ø 0.709 x 0.039  | 1515990   | 1516123 |
| Ø 18 ... Ø 20 x 1,0                                     | Ø 0.709 ... Ø 0.787 x 0.039 | 1516007   | 1516132 |
| Ø 20 ... Ø 22 x 1,0                                     | Ø 0.787 ... Ø 0.866 x 0.039 | 1516016   | 2243598 |
| Ø 12 ... Ø 14 x 1,2                                     | Ø 0.472 ... Ø 0.551 x 0.047 | 2241199   | 1516141 |
| Ø 14 ... Ø 16 x 1,2                                     | Ø 0.551 ... Ø 0.63 x 0.047  | 1516025   | 1516150 |
| Ø 16 ... Ø 18 x 1,2                                     | Ø 0.63 ... Ø 0.709 x 0.047  | 1516034   | 2243599 |
| Ø 18 ... Ø 20 x 1,2                                     | Ø 0.709 ... Ø 0.787 x 0.047 | 1516043   | 1516169 |
| Ø 20 ... Ø 22 x 1,2                                     | Ø 0.787 ... Ø 0.866 x 0.047 | 1516052   | 2168022 |
| Ø 12 ... Ø 14 x 1,5                                     | Ø 0.472 ... Ø 0.551 x 0.059 | 1516070   | 1516187 |
| Ø 14 ... Ø 16 x 1,5                                     | Ø 0.551 ... Ø 0.63 x 0.059  | 1516089   | 1516196 |
| Ø 16 ... Ø 18 x 1,5                                     | Ø 0.63 ... Ø 0.709 x 0.059  | 2168315   | 1516203 |
| Ø 18 ... Ø 20 x 1,5                                     | Ø 0.709 ... Ø 0.787 x 0.059 | 1516098   | 1516212 |
| Ø 20 ... Ø 22 x 1,5                                     | Ø 0.787 ... Ø 0.866 x 0.059 | 2242855   | 1516221 |
| Ø 12 ... Ø 14 x 1,6                                     | Ø 0.472 ... Ø 0.551 x 0.063 | 2243575   | 2243600 |
| Ø 14 ... Ø 16 x 1,6                                     | Ø 0.551 ... Ø 0.63 x 0.063  | 2243576   | 2243601 |
| Ø 16 ... Ø 18 x 1,6                                     | Ø 0.63 ... Ø 0.709 x 0.063  | 2243577   | 2243602 |
| Ø 18 ... Ø 20 x 1,6                                     | Ø 0.709 ... Ø 0.787 x 0.063 | 2243578   | 2243603 |
| Ø 20 ... Ø 22 x 1,6                                     | Ø 0.787 ... Ø 0.866 x 0.063 | 2243579   | 2243604 |
| Ø 12 ... Ø 14 x 2,0                                     | Ø 0.472 ... Ø 0.551 x 0.079 | 2243580   | 2243605 |
| Ø 14 ... Ø 16 x 2,0                                     | Ø 0.551 ... Ø 0.63 x 0.079  | 2243581   | 2242539 |
| Ø 16 ... Ø 18 x 2,0                                     | Ø 0.63 ... Ø 0.709 x 0.079  | 2243582   | 2243606 |
| Ø 18 ... Ø 20 x 2,0                                     | Ø 0.709 ... Ø 0.787 x 0.079 | 2243583   | 2243607 |
| Ø 20 ... Ø 22 x 2,0                                     | Ø 0.787 ... Ø 0.866 x 0.079 | 2243584   | 2243608 |

| Whitworth-Feingewinde <b>BSF</b> |           |           |
|----------------------------------|-----------|-----------|
| Whitworth Fine Pitch Threads     |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2k |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 7/16 – 18 BSF                    | 1514900   | 1514928   |
| 1/2 ... 9/16 – 16 BSF            | 1514946   | 1514955   |
| 5/8 ... 11/16 – 14 BSF           | 1514964   | 1514973   |
| 3/4 – 12 BSF                     | 1514982   | 1514991   |
| 7/8 ... 15/16 – 11 BSF           | 2243559   | 1515008   |

| Whitworth-Gewinde <b>BSW</b>     |           |           |
|----------------------------------|-----------|-----------|
| Whitworth Threads                |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2k |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 7/16 – 14 BSW                    | 1515124   | 1515142   |
| 1/2 ... 9/16 – 12 BSW            | 1515151   | 1515160   |
| 5/8 ... 11/16 – 11 BSW           | 1515188   | 1515197   |
| 3/4 – 10 BSW                     | 1515222   | 1515231   |
| 7/8 ... 15/16 – 9 BSW            | 1515259   | 1515268   |

1) Für Kurzgewinde bis 24 mm Länge einschließlich Auslauf.  
1) For short threads up to 24 mm/0.945" including runoff.



| Glätten<br>Burnishing                |                   |           |
|--------------------------------------|-------------------|-----------|
| Nennmaß<br>Nominal Size<br>mm   inch |                   | Ident No. |
| Ø 12 – Ø 14                          | Ø 0.472 – Ø 0.551 | 2241694   |
| Ø 14 – Ø 16                          | Ø 0.551 – Ø 0.63  | 1516249   |
| Ø 16 – Ø 18                          | Ø 0.63 – Ø 0.709  | 2165473   |
| Ø 18 – Ø 20                          | Ø 0.709 – Ø 0.787 | 1516258   |
| Ø 20 – Ø 22                          | Ø 0.787 – Ø 0.866 | 2169908   |

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 0,750 bis 1,200 kg. Statt mit Griff können die Rollköpfe auch mit Schließstift, Schließrolle und Schließfeder geliefert werden (siehe Seite 203). Rollköpfe mit Schäften nach DIN 69880 siehe Seiten 164/165.

| Amerikanisches Rohrgewinde NPT<br>American Pipe Threads |                                   |
|---|-----------------------------------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI  | Anlauf 1k<br>Lead 1k<br>Ident No. |
| 1/4 – 18 NPT  | 2241666                           |

| Rundgewinde<br>Knuckle Form Threads                    |                      |                      |
|--|----------------------|----------------------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |
| Ident No.  |                      |                      |
| Rd 18 – 20 x 1/8                                       | 2168222              | 2240161              |

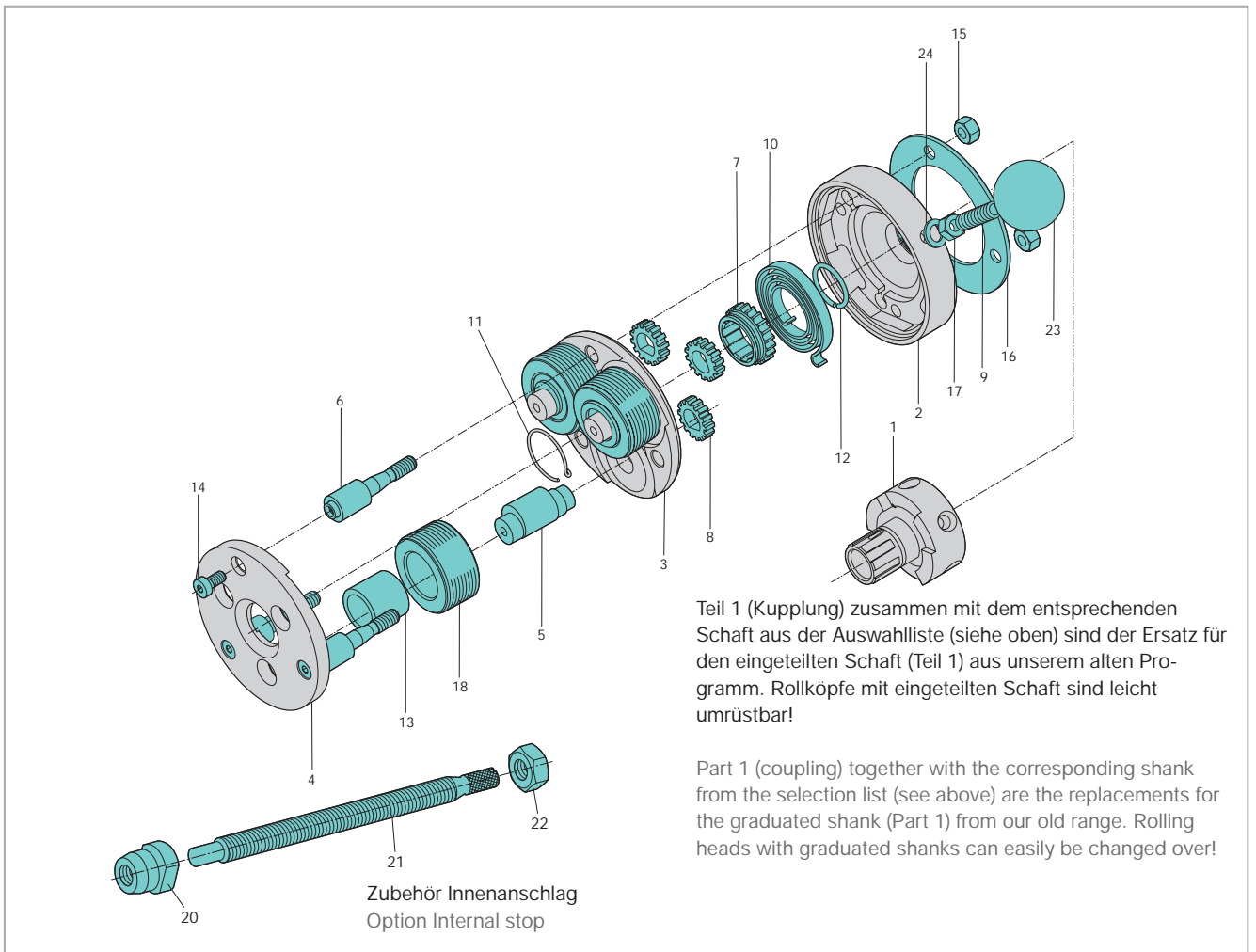
Thread dimensions combined in **one** block can be rolled with one set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 1.6 to 2.7 lb. Rolling Heads can also be delivered with closing rod, closing roller and closing spring, instead of handle (see page 203). Rolling Heads with shank to DIN 69880 see pages 164/165.

| Amerikanisches Rohrgewinde NPTF<br>American Dryseal Pipe Threads |                                   |
|--|-----------------------------------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI           | Anlauf 1k<br>Lead 1k<br>Ident No. |
| 1/4 – 18 NPTF  | 2166887                           |

### Ersatzteile für Rollkopf F3 C2, K3 C2 Spare Parts for Rolling Head F3 C2, K3 C2

| Rollkopf<br>Rolling Head |               |  | F3 C2     | F3L C2<br>Linksgewinde<br>Left hand thread | Rollkopf<br>Rolling Head |               |  | K3 C2     | K3L C2<br>Linksgewinde<br>Left hand thread |
|--------------------------|---------------|--|-----------|--|--------------------------|---------------|--|-----------|--|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No. | Ident No.                                  | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No. | Ident No.                                  |
| 1                        | 1             | Kupplung<br>Clutch                       | 2430960   | 2430961                                    | 1                        | 1             | Kupplung<br>Clutch                       | 2430961   | 2430960                                    |
| 2                        | 1             | Federgehäuse<br>Spring housing           | 2165025   | 2165042                                    | 2                        | 1             | Federgehäuse<br>Spring housing           | 2165453   | 2165456                                    |
| 3                        | 1             | Zwischenplatte<br>Centre plate           | 2165026   | 2165041                                    | 3                        | 1             | Zwischenplatte<br>Centre plate           | 2165454   | 2165457                                    |
| 4                        | 1             | Frontplatte<br>Front plate               | 2165027   | 2165043                                    | 4                        | 1             | Frontplatte<br>Front plate               | 2165455   | 2165458                                    |
| 5                        | 3             | Exzenterbolzen<br>Eccentric spindles     | 2165028   |  | 5                        | 3             | Exzenterbolzen<br>Eccentric spindles     | 2165028   |  |
| 6                        | 3             | Distanzbolzen<br>Spacer studs            | 2165029   |  | 6                        | 3             | Distanzbolzen<br>Spacer studs            | 2165029   |  |
| 7                        | 1             | Zahnrad<br>Center gear                   | 2165030   | 2165044                                    | 7                        | 1             | Zahnrad<br>Center gear                   | 2165030   | 2165044                                    |
| 8                        | 3             | Zahnrad<br>Spur gear                     | 2165031   |  | 8                        | 3             | Zahnrad<br>Spur gear                     | 2165031   |  |
| 9                        | 1             | Griff<br>Handle                          | 2167020   |  | 9                        | 1             | Griff<br>Handle                          | 2167020   |  |
| 10                       | 1             | Spiralfeder<br>Coil spring               | 2165032   | 2165045                                    | 10                       | 1             | Spiralfeder<br>Coil spring               | 2165045   | 2165032                                    |
| 11                       | 1             | Sicherungsring<br>Circlip                | 2165033   |  | 11                       | 1             | Sicherungsring<br>Circlip                | 2165033   |  |
| 12                       | 1             | Sicherung<br>Circlip                     | 2165034   |  | 12                       | 1             | Sicherung<br>Circlip                     | 2165034   |  |
| 13                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2165072   |  | 13                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2165072   |  |
| 14                       | 3             | Zylinderschraube<br>Cap screw            | 2143007   |  | 14                       | 3             | Zylinderschraube<br>Cap screw            | 2143007   |  |
| 15                       | 3             | Sechskantmutter<br>Hexagon nut           | 2148398   |  | 15                       | 3             | Sechskantmutter<br>Hexagon nut           | 2148398   |  |
| 16                       | 1             | Ringscheibe<br>Ring washer               | 2165035   |  | 16                       | 1             | Ringscheibe<br>Ring washer               | 2165035   |  |
| 17                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148398   |  | 17                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148398   |  |

| Rollkopf<br>Rolling Head  |               |   | F3 C2                           | F3L C2<br>Linksgewinde<br>Left hand thread                      | Rollkopf<br>Rolling Head   |               |   | K3 C2                           | K3L C2<br>Linksgewinde<br>Left hand thread |
|---|---------------|---|---------------------------------|---|--|---------------|---|---------------------------------|--|
| Teil Nr.<br>Part No.  | Stück<br>Qty. | Benennung<br>Part description           | Ident No.                       | Ident No.   | Teil Nr.<br>Part No.   | Stück<br>Qty. | Benennung<br>Part description           | Ident No.                       | Ident No.                                  |
| 18  | 3             | Gewinderolle<br>Thread roll             | siehe Einsatzfall<br>individual |   | 18   | 3             | Gewinderolle<br>Thread roll             | siehe Einsatzfall<br>individual |  |
| 19  | 2             | Gewindestift<br>Set screw               | -                               |   | 19   | 2             | Gewindestift <sup>1)</sup><br>Set screw | 2167148                         |  |
| 19  | 1             | Gewindestift<br>Set screw               | -                               |   | 19   | 1             | Gewindestift <sup>1)</sup><br>Set screw | 2142076                         |  |
| 19  | 1             | Gewindestift<br>Set screw               | -                               |   | 19   | 1             | Gewindestift <sup>1)</sup><br>Set screw | 2142080                         |  |
| 23  | 1             | Kugelknopf<br>Ball                      | 2141701                         |   | 23   | 1             | Kugelknopf<br>Ball                      | 2141701                         |  |
| 24  | 1             | Scheibe<br>Washer                       | 2144251                         |   | 24   | 1             | Scheibe<br>Washer                       | 2144251                         |  |
| <b>Zubehör Innenanschlag<sup>2)</sup></b><br>Option Internal stop |               |   | <b>IS3 C2<sup>3)</sup></b>      | <b>IS3L C2<sup>3)</sup></b><br>Linksgewinde<br>Left hand thread | <sup>1)</sup> Teil 19 wird in der Explosionszeichnung nicht gezeigt<br>(Zum Festsetzen eines Gewindebolzens)<br><sup>1)</sup> Part 19 not shown in the view (Locking screw for Adjustment with Type K)<br><sup>2)</sup> Nur für Maschinen ohne gesteuerten Vorschub. Bitte zusätzlich bestellen.<br><sup>2)</sup> Only required for machines without controlled feed stop.<br>If required, please order additionally!<br><sup>3)</sup> Nicht für Schaftdurchmesser 25 mm und 25,4 mm verfügbar.<br><sup>3)</sup> Not available for shank-diameter 25mm and 25.4mm.<br><br><b>Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!</b><br><b>When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!</b> |               |   |                                 |  |
| Teil Nr.<br>Part No.  | Stück<br>Qty. | Benennung<br>Part description           | Ident No.                       | Ident No.   |  |               |   |                                 |  |
|   |               | Innenanschlag<br>Internal stop complete | 2430954                         | 2430955   |  |               |   |                                 |  |
| 20  | 1             | Schraubenstutzen<br>Stop screw body     | 2165036                         | 2165046   |  |               |   |                                 |  |
| 21  | 1             | Anschlagschraube<br>Stop screw          | 2165037                         | 2165047   |  |               |   |                                 |  |
| 22  | 1             | Sechskantmutter<br>Hexagon nut          | 2148391                         | 2148702   |  |               |   |                                 |  |



### für Rechtsgewinde

- F34 C2 nur feststehend verwendbar
- K34 C2 feststehend und umlaufend verwendbar
- Rollen-Schrägstellung = 1° 15'
- Gewicht ohne Rollen = ca. 3,5 kg

### für Linksgewinde

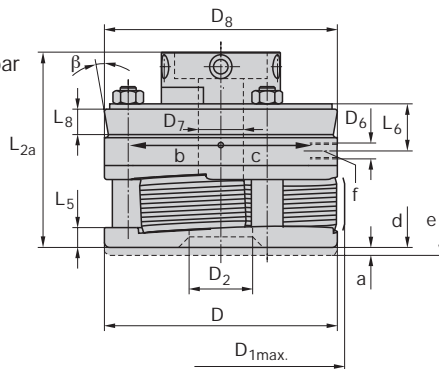
- Typ F34L C2, K34L C2
- Baumaß wie für Rechtsgewinde-Rollkopf

### for right-hand threads

- F34 C2 to be used stationary only
- K34 C2 used stationary or rotating
- inclined position of rolls = 1° 15'
- weight without rolls = approx. 7.0 lb

### for left-hand threads

- Type F34L C2, K34L C2
- Dimensions like right-hand thread rolling head



### Baumaße in mm Dimension in inches

| D      | D <sub>1max.</sub> | D <sub>2</sub> | D <sub>6</sub> | D <sub>7</sub> | D <sub>8</sub> <sup>1)</sup> | L <sub>2a</sub> | L <sub>5</sub> | L <sub>6</sub> | L <sub>8</sub> <sup>1)</sup> | a      | α   | β <sup>1)</sup> | Ident No. |         |
|--------|--------------------|----------------|----------------|----------------|------------------------------|-----------------|----------------|----------------|------------------------------|--------|-----|-----------------|-----------|---------|
| 117    | 128                | 44             | M 8            | 22,5           | 117                          | 91              | 8              | 17,5           | 9,5                          | 4      | 60° | 10°             | 2430962   | F34 C2  |
| 4.606" | 5.039"             | 1.732"         |                | 0.858"         | 4.606"                       | 3.583"          | 0.315"         | 0.689"         | 0.374"                       | 0.157" |     |                 | 2430963   | F34L C2 |
|        |                    |                |                |                |                              |                 |                |                |                              |        |     |                 | 2430964   | K34 C2  |
|        |                    |                |                |                |                              |                 |                |                |                              |        |     |                 | 2430965   | K34L C2 |

<sup>1)</sup> Nur für Typ K Only for Type K

## Wechselschäfte ... -C2 Change shanks ... -C2

a = Schalhub Pull off for opening

b = Kopf öffnet bei Typ K, schließt bei Typ F  
Head opens when Type K, and closes when Type F

c = Kopf schließt bei Typ K, öffnet bei Typ F  
(Bei Rollköpfen für Linksgewinde ist die Schalrichtung entgegengesetzt)  
Head closes when Type K, and opens when Type F (For Rolling Heads for left-hand threads, the direction of operation is reversed)

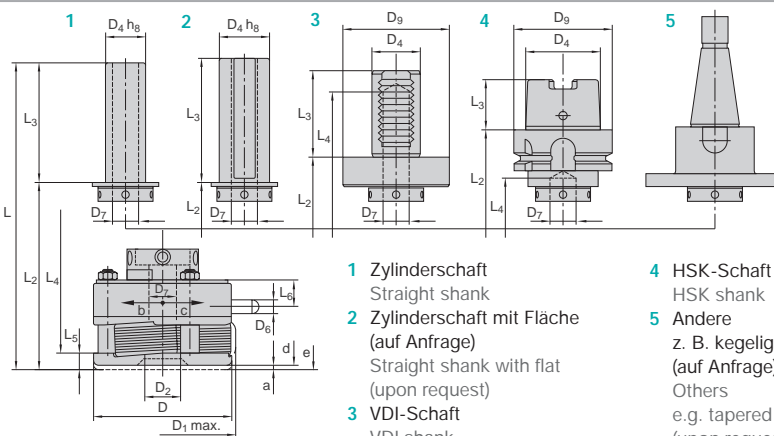
d = Rollkopf geschlossen Rolling Head closed

e = Rollkopf geöffnet Rolling Head opened

f = Gewinde für Griff bei feststehender Verwendung

Thread for handle with stationary operation

α = Schließwinkel Closing angle



1 Zylinderschaft  
Straight shank

2 Zylinderschaft mit Fläche  
(auf Anfrage)  
Straight shank with flat  
(upon request)

3 VDI-Schaft  
VDI shank

4 HSK-Schaft  
HSK shank

5 Andere  
z. B. kegeliger Schaft  
(auf Anfrage)  
Others  
e.g. tapered shanks  
(upon request)

Schäfte werden mit Befestigungsschrauben geliefert. Shanks will be delivered with the according fastening screws.

### Baumaße in mm Dimension in inches

|  | D <sub>4</sub>  | D <sub>9</sub> | L               | L <sub>2</sub>  | L <sub>3</sub> | L <sub>4</sub> | Ident No. |            |
|--|-----------------|----------------|-----------------|-----------------|----------------|----------------|-----------|------------|
| Schaft Ø 25<br>Shank dia. Ø 25         | 25<br>0.984"    | -              | 168,5<br>6.634" | 93,5<br>3.681"  | 75<br>2.952"   | -              | 2249897   | R25-C2     |
| Schaft Ø 30<br>Shank dia. Ø 30         | 30<br>1.181"    | -              | 183,5<br>7.224" | 93,5<br>3.681"  | 90<br>3.543"   | -              | 2430967   | R30-C2     |
| Schaft Ø 1"<br>Shank dia. Ø 1"         | 25,4<br>1"      | -              | 168,5<br>6.634" | 93,5<br>3.681"  | 75<br>2.952"   | -              | 2249899   | R1-C2      |
| Schaft Ø 1 1/4"<br>Shank dia. Ø 1 1/4" | 31,75<br>1.125" | -              | 183,5<br>7.224" | 93,5<br>3.681"  | 90<br>3.543"   | -              | 2430969   | R1 1/4-C2  |
| Schaft Ø 1 1/2"<br>Shank dia. Ø 1 1/2" | 38,1<br>1.5"    | -              | 183,5<br>7.224" | 93,5<br>3.681"  | 90<br>3.543"   | -              | 2430971   | R1 1/2-C2  |
| Schaft VDI Ø 25<br>Shank VDI dia. Ø 25 | 25<br>0.984"    | 58<br>2.283"   | 157,5<br>6.2"   | 109,5<br>4.311" | 48<br>1.889"   | 73<br>2.874"   | 2249901   | VDI25-C2   |
| Schaft VDI Ø 30<br>Shank dia. VDI Ø 30 | 30<br>1.181"    | 68<br>2.677"   | 164,5<br>6.477" | 109,5<br>4.311" | 55<br>2.165"   | 97<br>3.819"   | 2249903   | VDI30-C2   |
| Schaft VDI Ø 40<br>Shank dia. VDI Ø 40 | 40<br>1.574"    | 83<br>3.267"   | 172,5<br>6.791" | 109,5<br>4.311" | 63<br>2.480"   | 149<br>5.866"  | 2249905   | VDI40-C2   |
| Schaft HSK-A63<br>Shank HSK-A63        | 48<br>1.889"    | 63<br>2.480"   | 168,5<br>6.634" | 134,5<br>5.295" | 32<br>1.259"   | 100<br>3.937"  | 2249907   | HSK-A63-C2 |

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Feingewinde                    |  |           | M         |  |
|---|--|-----------|-----------|--|
| Metric ISO Fine Pitch Threads                 |  |           |           |  |
| Nennmaß x Steigung                            |  | Anlauf 1k | Anlauf 2K |  |
| mm  |  | Lead 1k   | Lead 2k   |  |
| Nominal Size x Pitch                          |  | Ident No. |           |  |
| M 12 ... 14 x 1                               |  | 1516800   | 1516819   |  |
| M 14 ... 16 x 1                               |  | 1516828   | 1516837   |  |
| M 16 ... 18 x 1                               |  | 1516846   | 1516855   |  |
| M 18 ... 20 x 1                               |  | 1516864   | 1516882   |  |
| M 16 ... 18 x 1,5                             |  | 1517006   | 1517015   |  |
| M 18 ... 20 x 1,5                             |  | 1517042   | 1517060   |  |
| M 20 ... 22 x 1,5                             |  | 1517088   | 1517113   |  |
| M 22 ... 24 <sup>1)</sup> x 1,5               |  | 1517159   | 1517177   |  |
| M 24 <sup>1)</sup> ... 27 <sup>1)</sup> x 1,5 |  | 1517195   | 1517202   |  |
| M 27 <sup>1)</sup> ... 30 <sup>1)</sup> x 1,5 |  | 1517220   | 1517248   |  |

| Unified-Gewinde                                   |  |           | UN/UNF/UNEF |  |
|---|--|-----------|-------------|--|
| Unified Threads                                   |  |           |             |  |
| Nennmaß x Gangzahl                                |  | Anlauf 1k | Anlauf 2K   |  |
| auf 1 Zoll  |  | Lead 1k   | Lead 2k     |  |
| Nominal Size x TPI                                |  | Ident No. |             |  |
| 1/2 - 28 UNEF                                     |  | 2243550   | 2243655     |  |
| 5/8 ... 11/16 - 28 UN                             |  | 2165494   | 2246320     |  |
| 11/16 ... 3/4 - 28 UN                             |  | 2246314   | 2246321     |  |
| 3/4 ... 13/16 - 28 UN                             |  | 2246315   | 2246322     |  |
| 13/16 ... 7/8 - 28 UN                             |  | 2246318   | 2246324     |  |
| 9/16 ... 5/8 - 24 UNEF                            |  | 2243651   | 2243656     |  |
| 5/8 ... 11/16 - 24 UNEF                           |  | 2240319   | 2243657     |  |
| 5/8 ... 11/16 - 20 UN                             |  | 2246313   | 2246319     |  |
| 3/4 ... 13/16 - 20 UNEF                           |  | 2243652   | 2243658     |  |
| 13/16 ... 7/8 - 20 UNEF                           |  | 2166331   | 2166820     |  |
| 7/8 ... 15/16 <sup>1)</sup> - 20 UNEF             |  | 2243653   | 2243659     |  |
| 15/16 <sup>1)</sup> ... 1 <sup>1)</sup> - 20 UNEF |  | 2168615   | 2243660     |  |
| 5/8 - 18 UNF                                      |  | 1517505   | 1517514     |  |
| 11/16 <sup>1)</sup> ... 11/8 - 18 UNEF            |  | 2243654   | 2243661     |  |
| 3/4 - 16 UNF                                      |  | 2169226   | 2241532     |  |
| 3/4 ... 13/16 - 16 UNF                            |  | 1517523   | 1517541     |  |
| 7/8 ... 15/16 <sup>1)</sup> - 16 UN               |  | 2246317   | 2241474     |  |
| 7/8 ... 7/8 - 14 UNF                              |  | 1517550   | 1517569     |  |
| 7/8 ... 15/16 <sup>1)</sup> - 12 UN               |  | 2246316   | 2246323     |  |
| 1 <sup>1)</sup> - 12 UNF                          |  | 1517578   | 1517587     |  |

| Whitworth-Rohrgewinde            |  |           | G         |  |
|----------------------------------|--|-----------|-----------|--|
| Whitworth Pipe Threads           |  |           |           |  |
| Nennmaß x Gangzahl               |  | Anlauf 1k | Anlauf 2k |  |
| auf 1 Zoll                       |  | Lead 1k   | Lead 2k   |  |
| Nominal Size x TPI               |  | Ident No. |           |  |
| G 3/8 - 19                       |  | 1517408   | 1517417   |  |
| G 1/2 ... 5/8 <sup>1)</sup> - 14 |  | 1517435   | 1517444   |  |
| G 3/4 <sup>1)</sup> - 14         |  | 1517462   | 1517471   |  |
| G 7/8 <sup>1)</sup> - 14         |  | 2168006   | 2243649   |  |

<sup>1)</sup> Für Kurzgewinde bis 24 mm Länge einschließlich Auslauf.

<sup>1)</sup> For short threads up to 24 mm/0.945" including runout.

| Whitworth-Feingewinde                             |  |           | BSFS      |  |
|---|--|-----------|-----------|--|
| Whitworth Fine Pitch Threads                      |  |           |           |  |
| Nennmaß x Gangzahl                                |  | Anlauf 1k | Anlauf 2k |  |
| auf 1 Zoll  |  | Lead 1k   | Lead 2k   |  |
| Nominal Size x TPI                                |  | Ident No. |           |  |
| 9/16 ... 5/8 - 26 BSFS                            |  | 2243620   | 2243634   |  |
| 5/8 ... 11/16 - 26 BSFS                           |  | 2243621   | 2243635   |  |
| 11/16 ... 3/4 - 26 BSFS                           |  | 2243622   | 2243636   |  |
| 3/4 ... 13/16 - 26 BSFS                           |  | 2243623   | 2243637   |  |
| 9/16 ... 5/8 - 20 BSFS                            |  | 2243624   | 2243638   |  |
| 5/8 ... 11/16 - 20 BSFS                           |  | 2243625   | 2243639   |  |
| 11/16 ... 3/4 - 20 BSFS                           |  | 2243626   | 2243640   |  |
| 3/4 ... 13/16 - 20 BSFS                           |  | 2243627   | 2243641   |  |
| 13/16 ... 7/8 <sup>1)</sup> - 20 BSFS             |  | 2243629   | 2243642   |  |
| 7/8 <sup>1)</sup> ... 15/16 - 20 BSFS             |  | 2243630   | 2243643   |  |
| 15/16 <sup>1)</sup> ... 1 <sup>1)</sup> - 20 BSFS |  | 2240197   | 2243644   |  |
| 11/16 ... 3/4 - 16 BSFS                           |  | 2241703   | 2243645   |  |
| 3/4 ... 13/16 - 16 BSFS                           |  | 2243631   | 2243646   |  |
| 1 <sup>1)</sup> - 12 BSFS                         |  | 2243632   | 2243647   |  |
| 1 <sup>1)</sup> - 10 BSFS                         |  | 2243633   | 2243648   |  |

| Amerikanisches Rohrgewinde |  |           | NPT |  |
|----------------------------|--|-----------|-----|--|
| American Pipe Threads      |  |           |     |  |
| Nennmaß x Gangzahl         |  | Anlauf 1k |     |  |
| auf 1 Zoll                 |  | Lead 1k   |     |  |
| Nominal Size x TPI         |  | Ident No. |     |  |
| 3/8 - 18 NPT               |  | 1517710   |     |  |
| 1/2 - 14 NPT               |  | 1517738   |     |  |
| 3/4 - 14 NPT               |  | 1517756   |     |  |

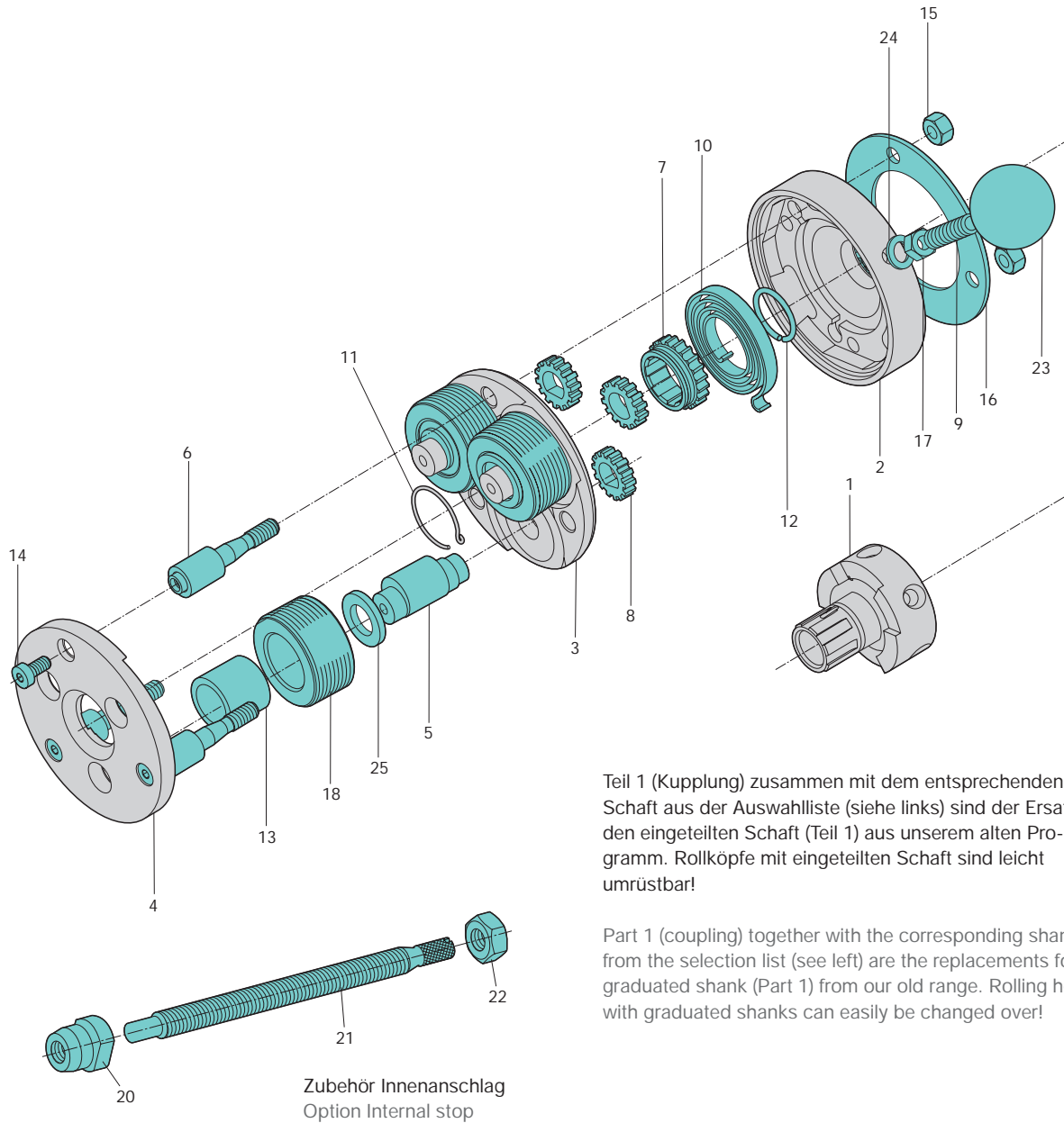
| Amerikanisches Rohrgewinde    |  |           | NPTF |  |
|-------------------------------|--|-----------|------|--|
| American Dryseal Pipe Threads |  |           |      |  |
| Nennmaß x Gangzahl            |  | Anlauf 1k |      |  |
| auf 1 Zoll                    |  | Lead 1k   |      |  |
| Nominal Size x TPI            |  | Ident No. |      |  |
| 3/8 - 18 NPTF                 |  | 2165391   |      |  |
| 1/2 - 14 NPTF                 |  | 1517765   |      |  |
| 3/4 - 14 NPTF                 |  | 1517774   |      |  |

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 0,320 bis 0,850 kg. Statt mit Griff können die Rollköpfe auch mit Schließstift, Schließrolle und Schließfeder geliefert werden (siehe Seite 203). Rollköpfe mit Schäften nach DIN 69880 siehe Seiten 164/165.

Thread dimensions combined in **one** block can be rolled with one set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 0.7 to 1.9 lb. Rolling Heads can also be delivered with closing rod, closing roller and closing spring, instead of handle (see page 203). Rolling Heads with shank to DIN 69880 see pages 164/165.

| Rollkopf<br>Rolling Head  |               |  | F34 C2                          | F34L C2                     | Rollkopf<br>Rolling Head   |               |  | K34 C2                          | K34L C2   |
|---|---------------|--|---------------------------------|-----------------------------|--|---------------|--|---------------------------------|-----------|
| Teil Nr.<br>Part No.  | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No.                   | Teil Nr.<br>Part No.   | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No. |
| 1   | 1             | Kupplung<br>Clutch                       | 2430960                         | 2430961                     | 1  | 1             | Kupplung<br>Clutch                       | 2430961                         | 2430960   |
| 2   | 1             | Federgehäuse<br>Spring housing           | 2165025                         | 2165042                     | 2  | 1             | Federgehäuse<br>Spring housing           | 2165453                         | 2165456   |
| 3   | 1             | Zwischenplatte<br>Centre plate           | 2165532                         | 2165540                     | 3  | 1             | Zwischenplatte<br>Centre plate           | 2165571                         | 2168383   |
| 4   | 1             | Frontplatte<br>Front plate               | 2165533                         | 2165541                     | 4  | 1             | Frontplatte<br>Front plate               | 2165572                         | 2168384   |
| 5   | 3             | Exzenterbolzen<br>Eccentric spindles     | 2165534                         |                             | 5  | 3             | Exzenterbolzen<br>Eccentric spindles     | 2165534                         |           |
| 6   | 3             | Distanzbolzen<br>Spacer studs            | 2165535                         |                             | 6  | 3             | Distanzbolzen<br>Spacer studs            | 2165535                         |           |
| 7   | 1             | Zahnrad<br>Center gear                   | 2165536                         | 2165542                     | 7  | 1             | Zahnrad<br>Center gear                   | 2165536                         | 2165542   |
| 8   | 3             | Zahnrad<br>Spur gear                     | 2165537                         |                             | 8  | 3             | Zahnrad<br>Spur gear                     | 2165537                         |           |
| 9   | 1             | Griff<br>Handle                          | 2167020                         |                             | 9  | 1             | Griff<br>Handle                          | 2167020                         |           |
| 10  | 1             | Spiralfeder<br>Coil spring               | 2165032                         | 2165045                     | 10   | 1             | Spiralfeder<br>Coil spring               | 2165045                         | 2165032   |
| 11  | 1             | Sicherungsring<br>Circlip                | 2165033                         |                             | 11   | 1             | Sicherungsring<br>Circlip                | 2165033                         |           |
| 12  | 1             | Sicherung<br>Circlip                     | 2165034                         |                             | 12   | 1             | Sicherung<br>Circlip                     | 2165034                         |           |
| 13  | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2164887                         |                             | 13   | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2164887                         |           |
| 14  | 3             | Zylinderschraube<br>Cap screw            | 2143007                         |                             | 14   | 3             | Zylinderschraube<br>Cap screw            | 2143007                         |           |
| 15  | 3             | Sechskantmutter<br>Hexagon nut           | 2148398                         |                             | 15   | 3             | Sechskantmutter<br>Hexagon nut           | 2148398                         |           |
| 16  | 1             | Ringscheibe<br>Ring washer               | 2165035                         |                             | 16   | 1             | Ringscheibe<br>Ring washer               | 2165035                         |           |
| 17  | 1             | Sechskantmutter<br>Hexagon nut           | 2148398                         |                             | 17   | 1             | Sechskantmutter<br>Hexagon nut           | 2148398                         |           |
| 18  | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual |                             | 18   | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual |           |
| 19  | 2             | Gewindestift<br>Set screw                | -                               |                             | 19   | 2             | Gewindestift <sup>1)</sup><br>Set screw  | 2167148                         |           |
| 19  | 1             | Gewindestift<br>Set screw                | -                               |                             | 19   | 1             | Gewindestift <sup>1)</sup><br>Set screw  | 2142076                         |           |
| 19  | 1             | Gewindestift<br>Set screw                | -                               |                             | 19   | 1             | Gewindestift <sup>1)</sup><br>Set screw  | 2142080                         |           |
| 23  | 1             | Kugelknopf<br>Ball                       | 2141701                         |                             | 23   | 1             | Kugelknopf<br>Ball                       | 2141701                         |           |
| 24  | 1             | Scheibe<br>Washer                        | 2144251                         |                             | 24   | 1             | Scheibe<br>Washer                        | 2144251                         |           |
| 25  | 3             | Scheibe<br>Washer                        | 2165539                         |                             | 25   | 3             | Scheibe<br>Washer                        | 2165539                         |           |
| <b>Zubehör Innenanschlag<sup>2)</sup></b><br>Option Internal stop |               |  | <b>IS3 C2<sup>3)</sup></b>      | <b>IS3L C2<sup>3)</sup></b> | <sup>1)</sup> Teil 19 wird in der Explosionszeichnung nicht gezeigt<br>(Zum Festsetzen eines Gewindebolzens)<br><sup>1)</sup> Part 19 not shown in the view (Locking screw for Adjustment with Type K)<br><sup>2)</sup> Nur für Maschinen ohne gesteuerten Vorschub. Bitte zusätzlich bestellen.<br><sup>2)</sup> Only required for machines without controlled feed stop.<br>If required, please order additionally!<br><sup>3)</sup> Nicht für Schaftdurchmesser 25 mm und 25,4 mm verfügbar.<br><sup>3)</sup> Not available for shank-diameter 25 mm and 25.4 mm.<br><b>Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!</b><br><b>When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!</b> |               |  |                                 |           |
| Teil Nr.<br>Part No.  | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No.                   |  |               |  |                                 |           |
|   |               | Innenanschlag<br>Internal stop complete  | 2430954                         | 2430955                     |  |               |  |                                 |           |
| 20  | 1             | Schraubenstutzen<br>Stop screw body      | 2165036                         | 2165046                     |  |               |  |                                 |           |
| 21  | 1             | Anschlagschraube<br>Stop screw           | 2165037                         | 2165047                     |  |               |  |                                 |           |
| 22  | 1             | Sechskantmutter<br>Hexagon nut           | 2148391                         | 2148702                     |  |               |  |                                 |           |





Teil 1 (Kupplung) zusammen mit dem entsprechenden Schaft aus der Auswahlliste (siehe links) sind der Ersatz für den eingeteilten Schaft (Teil 1) aus unserem alten Programm. Rollköpfe mit eingeteilten Schaft sind leicht umrüstbar!

Part 1 (coupling) together with the corresponding shank from the selection list (see left) are the replacements for the graduated shank (Part 1) from our old range. Rolling heads with graduated shanks can easily be changed over!

### für Rechtsgewinde

- feststehend und umlaufend verwendbar
- mit Flansch
- Rollen-Schrägstellung = 2° 40'
- Gewicht ohne Rollen = ca. 9,8 kg

### for right-hand threads

- used stationary or rotating
- inclined position of rolls = 2° 40'
- weight without rolls = approx. 21.6 lb

### für Linksgewinde

- Typ FU32L
- Baumaß wie für Rechtsgewinde-Rollkopf

### for left-hand threads

- Type FU32L
- Dimensions like right-hand thread rolling head

a = Schalhub

Opening movement

b = Rollkopf öffnet

Rolling Head/opening direction

c = Rollkopf schließt

(Bei Rollköpfen für Linksgewinde

ist die Schalrichtung entgegengesetzt)

Rolling Head/closing direction

(For Rolling Heads for left-hand threads,

the direction of operation is reversed)

d = L<sub>8</sub> (Rollkopf geschlossen)

L<sub>8</sub> (Rolling Head closed)

e = L<sub>9</sub> (Rollkopf geöffnet)

L<sub>9</sub> (Rolling Head opened)

f = 4 Löcher

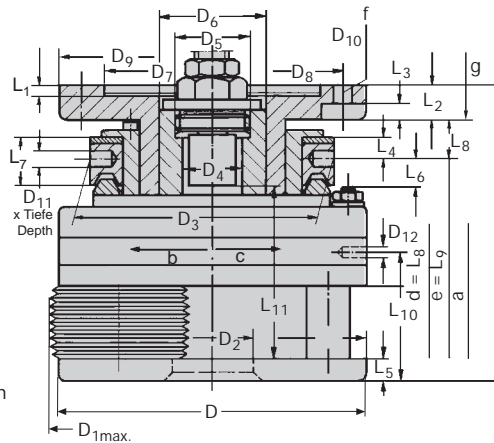
4 Holes

g = Maximale Länge der Befestigungsschrauben

Maximum length of the fastening screws

α = Schließwinkel

Closing angle



### Baumaße in mm

#### Dimension in inches

|                 |                                 |                |                |                |                              |                |                              |                |                |                 |                     | FU32                          | FU32L <sup>5)</sup> |     |
|-----------------|---------------------------------|----------------|----------------|----------------|------------------------------|----------------|------------------------------|----------------|----------------|-----------------|---------------------|-------------------------------|---------------------|-----|
| D               | D <sub>1max</sub> <sup>1)</sup> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | D <sub>5</sub> <sup>2)</sup> | D <sub>6</sub> | D <sub>7</sub> <sup>3)</sup> | D <sub>8</sub> | D <sub>9</sub> | D <sub>10</sub> | D <sub>11</sub> x T | Ident No.                     | Ident No.           |     |
| 125             | 117                             | 38             | 140            | 25             | M 30 x 1.5                   | 40             | 92                           | 110            | 140            | 13              | 8 x 7               | 2168252                       | 2167794             |     |
| 4.921"          | 4.606"                          | 1.496"         | 5.512"         | 0.984"         | links   L.H.                 | 1.575"         | 3.622"                       | 4.331"         | 5.512"         | 0.512"          | 0.315 x 0.276"      |                               |                     |     |
| D <sub>12</sub> | L                               | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub>               | L <sub>5</sub> | L <sub>6</sub>               | L <sub>7</sub> | L <sub>8</sub> | L <sub>9</sub>  | L <sub>10</sub>     | L <sub>11</sub> <sup>4)</sup> | a                   | α   |
| M8              | 150                             | 8,5            | 23             | 8,5            | 11,5                         | 10             | -                            | 21             | 22             | 18              | 54,8                | 51                            | 4                   | 30° |
|                 | 5.906"                          | 0.335"         | 0.906"         | 0.335"         | 0.453"                       | 0.394"         |                              | 0.827"         | 0.866"         | 0.709"          | 2.157"              | 2.008"                        | 0.157"              |     |

<sup>1)</sup> Größter Außen-Ø des Rollkopfes bei Rollenstellung im geöffneten Zustand.

<sup>1)</sup> Largest outside diameter of rolling head when rolls in open position.

<sup>2)</sup> Bei Linksgewinde-Rollköpfen Rechtsgewinde.

<sup>2)</sup> For L. H. thread rolling heads: R. H. thread.

<sup>3)</sup> Toleranz für das Maß D<sub>7</sub> = +0,035 mm, +0,010 mm.

<sup>3)</sup> Tolerance for the dimension D<sub>7</sub> = +0.0014", +0.0004".

<sup>4)</sup> Max. Rolllänge einschließlich Kupplungsweg (a) bei Verwendung von drehbaren Anschlägen.

<sup>4)</sup> Max. rolling length, including clutch travel (a) when using rotating end stops.

<sup>5)</sup> L = für Linksgewinde

<sup>5)</sup> L = for Left-hand threads

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Gewinde <b>M</b> |           |           |
|---------------------------------|-----------|-----------|
| Metric ISO Threads              |           |           |
| Nennmaß x Steigung<br>mm        | Anlauf 1k | Anlauf 2K |
|                                 | Lead 1k   | Lead 2k   |
| Nominal Size x Pitch            | Ident No. |           |
| M 10 ... 12 x 1,5               | 2243662   | 2167592   |
| M 12 ... 14 x 1,75              | 2243663   | 2167593   |
| M 14 ... 16 x 2                 | 2243664   | 2167594   |
| M 16 ... 18 x 2                 | 2243665   | 2241426   |
| M 16 ... 18 x 2,5               | 2243666   | 2167591   |

| Metrisches ISO-Feingewinde <b>M</b> |           |           |
|-------------------------------------|-----------|-----------|
| Metric ISO Fine Pitch Threads       |           |           |
| Nennmaß x Steigung<br>mm            | Anlauf 1k | Anlauf 2K |
|                                     | Lead 1k   | Lead 2k   |
| Nominal Size x Pitch                | Ident No. |           |
| M 10 ... 12 x 1                     | 2243667   | 2242879   |
| M 10 ... 12 x 1,25                  | 2241457   | 2242308   |
| M 12 ... 14 x 1,5                   | 2243668   | 2241427   |
| M 14 ... 16 x 1,5                   | 2243669   | 2167998   |

| Unified-Gewinde, fein <b>UNF</b> |           |           |
|----------------------------------|-----------|-----------|
| Unified Threads, Fine Pitch      |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 7/16 ... 1/2 – 20 UNF            | 2166885   | 2243691   |
| 9/16 ... 5/8 – 18 UNF            | 2243690   | 2243692   |

| Unified-Gewinde, grob <b>UNC</b> |           |           |
|----------------------------------|-----------|-----------|
| Unified Threads, Coarse Pitch    |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 7/16 – 14 UNC                    | 2243682   | 2243686   |
| 1/2 – 13 UNC                     | 2243683   | 2243687   |
| 9/16 – 12 UNC                    | 2243684   | 2243688   |
| 5/8 – 11 UNC                     | 2243685   | 2243689   |

| Whitworth-Feingewinde <b>BSF</b> |           |           |
|----------------------------------|-----------|-----------|
| Whitworth Fine Pitch Threads     |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 7/16 – 18 BSF                    | 2243676   | 2243679   |
| 1/2 ... 9/16 – 16 BSF            | 2243677   | 2243680   |
| 5/8 ... 11/16 – 14 BSF           | 2243678   | 2243681   |

| Rändel<br>Knurls  |                             |           |         |
|---|-----------------------------|-----------|---------|
| Nennmaß x Steigung<br>Nominal Size x Pitch<br>mm   inch |                             | RAA       | RGE     |
|   |                             | Ident No. |         |
| Ø 10 ... Ø 12 x 0,5                                     | Ø 0.394 ... Ø 0.472 x 0.02  | 2243695   | 2243719 |
| Ø 12 ... Ø 14 x 0,5                                     | Ø 0.472 ... Ø 0.551 x 0.02  | 2243696   | 2243720 |
| Ø 14 ... Ø 16 x 0,5                                     | Ø 0.551 ... Ø 0.63 x 0.02   | 2243697   | 2243721 |
| Ø 10 ... Ø 12 x 0,6                                     | Ø 0.394 ... Ø 0.472 x 0.024 | 2243698   | 2243722 |
| Ø 12 ... Ø 14 x 0,6                                     | Ø 0.472 ... Ø 0.551 x 0.024 | 2243699   | 2243723 |
| Ø 14 ... Ø 16 x 0,6                                     | Ø 0.551 ... Ø 0.63 x 0.024  | 2243700   | 2243724 |
| Ø 10 ... Ø 12 x 0,8                                     | Ø 0.394 ... Ø 0.472 x 0.031 | 2243701   | 2243725 |
| Ø 12 ... Ø 14 x 0,8                                     | Ø 0.472 ... Ø 0.551 x 0.031 | 2243702   | 2243726 |
| Ø 14 ... Ø 16 x 0,8                                     | Ø 0.551 ... Ø 0.63 x 0.031  | 2243703   | 2243727 |
| Ø 10 ... Ø 12 x 1,0                                     | Ø 0.394 ... Ø 0.472 x 0.039 | 2243704   | 2243728 |
| Ø 12 ... Ø 14 x 1,0                                     | Ø 0.472 ... Ø 0.551 x 0.039 | 2243705   | 2243729 |
| Ø 14 ... Ø 16 x 1,0                                     | Ø 0.551 ... Ø 0.63 x 0.039  | 2243706   | 2243730 |
| Ø 10 ... Ø 12 x 1,2                                     | Ø 0.394 ... Ø 0.472 x 0.047 | 2243707   | 2243731 |
| Ø 12 ... Ø 14 x 1,2                                     | Ø 0.472 ... Ø 0.551 x 0.047 | 2243708   | 2243732 |
| Ø 14 ... Ø 16 x 1,2                                     | Ø 0.551 ... Ø 0.63 x 0.047  | 2243709   | 2243733 |
| Ø 10 ... Ø 12 x 1,5                                     | Ø 0.394 ... Ø 0.472 x 0.059 | 2243710   | 2243734 |
| Ø 12 ... Ø 14 x 1,5                                     | Ø 0.472 ... Ø 0.551 x 0.059 | 2243711   | 2243735 |
| Ø 14 ... Ø 16 x 1,5                                     | Ø 0.551 ... Ø 0.63 x 0.059  | 2243712   | 2243736 |
| Ø 10 ... Ø 12 x 1,6                                     | Ø 0.394 ... Ø 0.472 x 0.063 | 2243713   | 2243737 |
| Ø 12 ... Ø 14 x 1,6                                     | Ø 0.472 ... Ø 0.551 x 0.063 | 2243714   | 2243738 |
| Ø 14 ... Ø 16 x 1,6                                     | Ø 0.551 ... Ø 0.63 x 0.063  | 2243715   | 2243739 |
| Ø 10 ... Ø 12 x 2,0                                     | Ø 0.394 ... Ø 0.472 x 0.079 | 2243716   | 2243740 |
| Ø 12 ... Ø 14 x 2,0                                     | Ø 0.472 ... Ø 0.551 x 0.079 | 2243717   | 2243741 |
| Ø 14 ... Ø 16 x 2,0                                     | Ø 0.551 ... Ø 0.63 x 0.079  | 2243718   | 2243742 |

| Glätten<br>Burnishing                |                   | Ident No. |
|--------------------------------------|-------------------|-----------|
| Nennmaß<br>Nominal Size<br>mm   inch |                   |           |
| Ø 10 – Ø 12                          | Ø 0.394 – Ø 0.472 | 2243743   |
| Ø 12 – Ø 14                          | Ø 0.472 – Ø 0.551 | 2243744   |
| Ø 14 – Ø 16                          | Ø 0.551 – Ø 0.63  | 2243745   |

| Whitworth-Gewinde <b>BSW</b>     |           |           |
|----------------------------------|-----------|-----------|
| Whitworth Threads                |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2k |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 7/16 – 14 BSW                    | 2243670   | 2243673   |
| 1/2 ... 9/16 – 12 BSW            | 2243671   | 2243674   |
| 5/8 ... 11/16 – 11 BSW           | 2243672   | 2243675   |

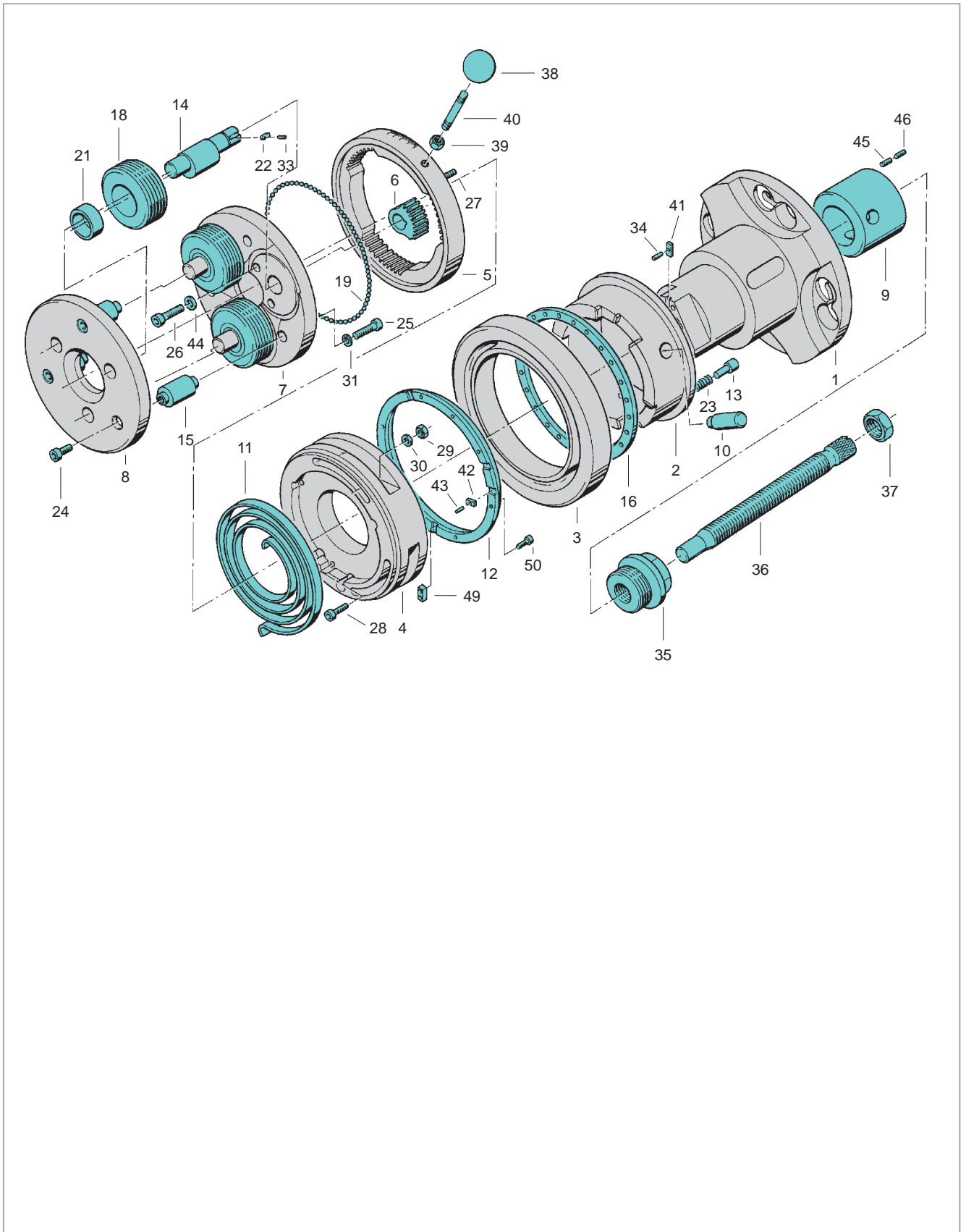
| Whitworth-Rohrgewinde <b>G</b>   |           |           |
|----------------------------------|-----------|-----------|
| Whitworth Pipe Threads           |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2k |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| G 1/4 – 19                       | 2243693   | 2243694   |

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 0,3 bis 0,78 kg.

Thread dimensions combined in one block can be rolled with **one** set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 0.7 to 1.7 lb.

| Rollkopf<br>Rolling Head |               |  | FU32                            | FU32L     | Rollkopf<br>Rolling Head |               |                                   | FU32      | FU32L     |
|--------------------------|---------------|--|---------------------------------|-----------|--------------------------|---------------|-----------------------------------|-----------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No. | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description     | Ident No. | Ident No. |
| 1                        | 1             | Mitnehmer<br>Flange                      | 2169614                         | 2167789   | 26                       | 6             | Zylinderschraube<br>Cap screw     | 2148740   |           |
| 2                        | 1             | Kupplung<br>Clutch                       | 2165079                         | 2165100   | 27                       | 6             | Stiftschraube<br>Stud             | 2148825   |           |
| 3                        | 1             | Schaltring<br>Operating ring             | 2165080                         |           | 28                       | 3             | Zylinderschraube<br>Cap screw     | 2148739   |           |
| 4                        | 1             | Federgehäuse<br>Spring housing           | 2165081                         |           | 29                       | 6             | Sechskantmutter<br>Hexagon nut    | 2148398   |           |
| 5                        | 1             | Zahnkranz<br>Gear ring                   | 2165082                         | 2165101   | 30                       | 6             | Scheibe<br>Washer                 | 2141465   |           |
| 6                        | 3             | Zahnbogen<br>Gear sectors                | 2169615                         | 2167792   | 31                       | 3             | Federring<br>Lock washer          | 2141716   |           |
| 7                        | 1             | Zwischenplatte<br>Centre plate           | 2169616                         | 2167790   | 33                       | 3             | Zylinderstift<br>Shear pins       | 2148376   |           |
| 8                        | 1             | Frontplatte<br>Front plate               | 2169147                         | 2167791   | 34                       | 3             | Spannhülse<br>Roll pins           | 2142566   |           |
| 9                        | 1             | Hülse<br>Sleeve                          | 2165086                         | 2165105   | 35                       | 1             | Schraubstutzen<br>Stop screw body | 2165009   | 2165107   |
| 10                       | 3             | Bolzen<br>Pin                            | 2165087                         |           | 36                       | 1             | Anschlagschraube<br>Stop screw    | 2165003   | 2165108   |
| 11                       | 1             | Spiralfeder<br>Coil spring               | 2165088                         | 2165154   | 37                       | 1             | Sechskantmutter<br>Hexagon nut    | 2148391   | 2148398   |
| 12                       | 1             | Bremsbelag<br>Brake ring                 | 2165089                         |           | 38                       | 1             | Kugelknopf<br>Ball                | 2141701   |           |
| 13                       | 4             | Federbolzen<br>Spring pin                | 2165090                         |           | 39                       | 1             | Sechskantmutter<br>Hexagon nut    | 2148398   |           |
| 14                       | 3             | Exzenterbolzen<br>Eccentric spindles     | 2165091                         | 2165106   | 40                       | 1             | Griff<br>Handle                   | 2148839   |           |
| 15                       | 3             | Distanzbolzen<br>Spacer studs            | 2167793                         |           | 41                       | 3             | Passfeder<br>Fitting key          | 2165096   |           |
| 16                       | 1             | Kugelhäufig<br>Bearing cage              | 2165093                         |           | 42                       | 2             | Passfeder<br>Fitting key          | 2165097   |           |
| 18                       | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual |           | 43                       | 2             | Spannhülse<br>Roll pin            | 2142566   |           |
| 19                       | 87            | Stahlkugel<br>Steel ball                 | 2148807                         |           | 44                       | 6             | Schnorr-Sicherungsring<br>Circlip | 2149274   |           |
| 21                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2165072                         |           | 45                       | 3             | Gewindestift<br>Set screw         | 2148367   |           |
| 22                       | 3             | Passfeder<br>Fitting key                 | 2165094                         |           | 46                       | 3             | Gewindestift<br>Set screw         | 2142058   |           |
| 23                       | 4             | Druckfeder<br>Pressure spring            | 2165095                         |           | 49                       | 3             | Kupplungskeil<br>Clutch wedge     | 2165098   |           |
| 24                       | 3             | Zylinderschraube<br>Cap screw            | 2143007                         |           | 50                       | 8             | Zylinderschraube<br>Cap screw     | 2142992   |           |
| 25                       | 3             | Zylinderschraube<br>Cap screw            | 2143011                         |           |                          |               |                                   |           |           |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!



### für Rechtsgewinde

- feststehend und umlaufend verwendbar
- mit Flansch
- Rollen-Schrägstellung = 2° 40'
- Gewicht ohne Rollen = ca. 9,8 kg

### for right-hand threads

- used stationary or rotating
- inclined position of rolls = 2° 40'
- weight without rolls = approx. 21.6 lb

### für Linksgewinde

- Typ FU3-1L
- Baumaß wie für Rechtsgewinde-Rollkopf

### for left-hand threads

- Type FU3-1L
- Dimensions like right-hand thread rolling head

a = Schalhub

Opening movement

b = Rollkopf öffnet

Rolling Head/opening direction

c = Rollkopf schließt

(Bei Rollköpfen für Linksgewinde ist die Schalrichtung entgegengesetzt)

Rolling Head/closing direction

(For Rolling Heads for left-hand threads, the direction of operation is reversed)

d = L<sub>8</sub> (Rollkopf geschlossen)

L<sub>8</sub> (Rolling Head closed)

e = L<sub>9</sub> (Rollkopf geöffnet)

L<sub>9</sub> (Rolling Head opened)

f = 4 Löcher

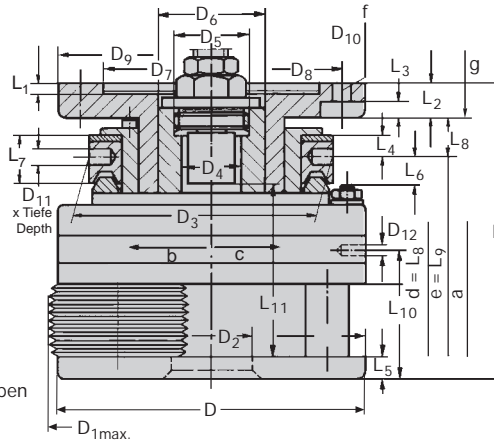
4 Holes

g = Maximale Länge der Befestigungsschrauben

Maximum length of the fastening screws

α = Schließwinkel

Closing angle



### Baumaße in mm

### Dimension in inches

|                 |                                 |                |                |                |                              |                |                              |                |                |                 |                     |                               | FU3-1     | FU3-1L <sup>5)</sup> |
|-----------------|---------------------------------|----------------|----------------|----------------|------------------------------|----------------|------------------------------|----------------|----------------|-----------------|---------------------|-------------------------------|-----------|----------------------|
| D               | D <sub>1max</sub> <sup>1)</sup> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | D <sub>5</sub> <sup>2)</sup> | D <sub>6</sub> | D <sub>7</sub> <sup>3)</sup> | D <sub>8</sub> | D <sub>9</sub> | D <sub>10</sub> | D <sub>11</sub> x T | Ident No.                     | Ident No. |                      |
| 125             | 131                             | 38             | 140            | 25             | M 30 x 1.5                   | 40             | 92                           | 110            | 140            | 13              | 8 x 7               | 1513858                       | 1513867   |                      |
| 4.921"          | 5.157"                          | 1.496"         | 5.512"         | 0.984"         | links   L.H.                 | 1.575"         | 3.622"                       | 4.331"         | 5.512"         | 0.512"          | 0.315 x 0.276"      |                               |           |                      |
| D <sub>12</sub> | L                               | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub>               | L <sub>5</sub> | L <sub>6</sub>               | L <sub>7</sub> | L <sub>8</sub> | L <sub>9</sub>  | L <sub>10</sub>     | L <sub>11</sub> <sup>4)</sup> | a         | α                    |
| M8              | 150                             | 8,5            | 23             | 10,5           | 11,5                         | 10             | -                            | 21             | 22             | 18              | 54,8                | 51                            | 4         | 30°                  |
|                 | 5.906"                          | 0.335"         | 0.906"         | 0.413"         | 0.453"                       | 0.394"         |                              | 0.827"         | 0.866"         | 0.709"          | 2.157"              | 2.008"                        | 0.157"    |                      |

<sup>1)</sup> Größter Außen-Ø des Rollkopfes bei Rollenstellung im geöffneten Zustand.

<sup>1)</sup> Largest outside diameter of rolling head when rolls in open position.

<sup>2)</sup> Bei Linksgewinde-Rollköpfen Rechtsgewinde.

<sup>2)</sup> For L. H. thread rolling heads: R. H. thread.

<sup>3)</sup> Toleranz für das Maß D<sub>7</sub> = +0,035 mm, +0,010 mm.

<sup>3)</sup> Tolerance for the dimension D<sub>7</sub> = +0.0014", +0.0004".

<sup>4)</sup> Max. Rolllänge einschließlich Kupplungsweg (a) bei Verwendung von drehbaren Anschlägen.

<sup>4)</sup> Max. rolling length, including clutch travel (a) when using rotating end stops.

<sup>5)</sup> L = für Linksgewinde

<sup>5)</sup> L = for Left-hand threads

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Gewinde <b>M</b> |           |           |
|---------------------------------|-----------|-----------|
| Metric ISO Threads              |           |           |
| Nennmaß x Steigung<br>mm        | Anlauf 1k | Anlauf 2K |
|                                 | Lead 1k   | Lead 2k   |
| Nominal Size x Pitch            | Ident No. |           |
| M 12 ... 14 x 1,75              | 1514312   | 1514321   |
| M 14 ... 16 x 2                 | 1541438   | 1514447   |
| M 18 ... 20 x 2,5               | 1514642   | 1514660   |
| M 20 ... 22 x 2,5               | 1514768   | 1514777   |

| Metrisches ISO-Feingewinde <b>M</b> |           |           |
|-------------------------------------|-----------|-----------|
| Metric ISO Fine Pitch Threads       |           |           |
| Nennmaß x Steigung<br>mm            | Anlauf 1k | Anlauf 2K |
|                                     | Lead 1k   | Lead 2k   |
| Nominal Size x Pitch                | Ident No. |           |
| M 12 ... 14 x 1,5                   | 1514269   | 1514278   |
| M 14 ... 16 x 1,5                   | 1514385   | 1514401   |
| M 18 ... 20 x 2                     | 1514606   | 1514615   |
| M 20 ... 22 x 2                     | 2168931   | 1514740   |

| Unified-Gewinde, fein <b>UNF</b> |           |           |
|----------------------------------|-----------|-----------|
| Unified Threads, Fine Pitch      |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 7/16 ... 1/2 – 20 UNF            | 1515570   | 1515589   |
| 9/16 ... 5/8 – 18 UNF            | 1515605   | 1515614   |
| 3/4 – 16 UNF                     | 1515650   | 1515669   |
| 7/8 – 14 UNF                     | 1515678   | 2169974   |

| Unified-Gewinde, grob <b>UNC</b> |           |           |
|----------------------------------|-----------|-----------|
| Unified Threads, Coarse Pitch    |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 7/16 – 14 UNC                    | 1515400   | 1515419   |
| 1/2 – 13 UNC                     | 1515437   | 1515446   |
| 9/16 – 12 UNC                    | 1515455   | 1515464   |
| 5/8 – 11 UNC                     | 1515482   | 1515491   |
| 3/4 – 10 UNC                     | 1515507   | 1515516   |
| 7/8 – 9 UNC                      | 1515534   | 1515543   |

| Whitworth-Rohrgewinde <b>G</b>   |           |           |
|----------------------------------|-----------|-----------|
| Whitworth Pipe Threads           |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| G 1/4 ... 3/8 – 19               | 1515044   | 1515053   |
| G ... 1/2 – 14                   | 1515080   | 1515106   |

| Rändel<br>Knurls  |                             |           |         |
|---|-----------------------------|-----------|---------|
| Nennmaß x Steigung<br>Nominal Size x Pitch<br>mm   inch |                             | RAA       | RGE     |
|   |                             | Ident No. |         |
| Ø 12 ... Ø 14 x 0,5                                     | Ø 0.472 ... Ø 0.551 x 0.02  | 2243564   | 2243585 |
| Ø 14 ... Ø 16 x 0,5                                     | Ø 0.551 ... Ø 0.63 x 0.02   | 2169627   | 2243586 |
| Ø 16 ... Ø 18 x 0,5                                     | Ø 0.63 ... Ø 0.709 x 0.02   | 2243565   | 2243587 |
| Ø 18 ... Ø 20 x 0,5                                     | Ø 0.709 ... Ø 0.787 x 0.02  | 2243566   | 2243588 |
| Ø 20 ... Ø 22 x 0,5                                     | Ø 0.787 ... Ø 0.866 x 0.02  | 2243567   | 2243589 |
| Ø 12 ... Ø 14 x 0,6                                     | Ø 0.472 ... Ø 0.551 x 0.024 | 2243568   | 2243590 |
| Ø 14 ... Ø 16 x 0,6                                     | Ø 0.551 ... Ø 0.63 x 0.024  | 1515909   | 2243591 |
| Ø 16 ... Ø 18 x 0,6                                     | Ø 0.63 ... Ø 0.709 x 0.024  | 2243569   | 2243592 |
| Ø 18 ... Ø 20 x 0,6                                     | Ø 0.709 ... Ø 0.787 x 0.024 | 2243570   | 2243593 |
| Ø 20 ... Ø 22 x 0,6                                     | Ø 0.787 ... Ø 0.866 x 0.024 | 2243571   | 2243594 |
| Ø 12 ... Ø 14 x 0,8                                     | Ø 0.472 ... Ø 0.551 x 0.031 | 1515918   | 2168024 |
| Ø 14 ... Ø 16 x 0,8                                     | Ø 0.551 ... Ø 0.63 x 0.031  | 2243572   | 2165370 |
| Ø 16 ... Ø 18 x 0,8                                     | Ø 0.63 ... Ø 0.709 x 0.031  | 2168428   | 2243595 |
| Ø 18 ... Ø 20 x 0,8                                     | Ø 0.709 ... Ø 0.787 x 0.031 | 1515936   | 2168023 |
| Ø 20 ... Ø 22 x 0,8                                     | Ø 0.787 ... Ø 0.866 x 0.031 | 2243573   | 2243596 |
| Ø 12 ... Ø 14 x 1,0                                     | Ø 0.472 ... Ø 0.551 x 0.039 | 1515972   | 1516114 |
| Ø 14 ... Ø 16 x 1,0                                     | Ø 0.551 ... Ø 0.63 x 0.039  | 2165323   | 2243597 |
| Ø 16 ... Ø 18 x 1,0                                     | Ø 0.63 ... Ø 0.709 x 0.039  | 1515990   | 1516123 |
| Ø 18 ... Ø 20 x 1,0                                     | Ø 0.709 ... Ø 0.787 x 0.039 | 1516007   | 1516132 |
| Ø 20 ... Ø 22 x 1,0                                     | Ø 0.787 ... Ø 0.866 x 0.039 | 1516016   | 2243598 |
| Ø 12 ... Ø 14 x 1,2                                     | Ø 0.472 ... Ø 0.551 x 0.047 | 2241199   | 1516141 |
| Ø 14 ... Ø 16 x 1,2                                     | Ø 0.551 ... Ø 0.63 x 0.047  | 1516025   | 1516150 |
| Ø 16 ... Ø 18 x 1,2                                     | Ø 0.63 ... Ø 0.709 x 0.047  | 1516034   | 2243599 |
| Ø 18 ... Ø 20 x 1,2                                     | Ø 0.709 ... Ø 0.787 x 0.047 | 2243574   | 1516169 |
| Ø 20 ... Ø 22 x 1,2                                     | Ø 0.787 ... Ø 0.866 x 0.047 | 1516052   | 2168022 |
| Ø 12 ... Ø 14 x 1,5                                     | Ø 0.472 ... Ø 0.551 x 0.059 | 1516070   | 1516187 |
| Ø 14 ... Ø 16 x 1,5                                     | Ø 0.551 ... Ø 0.63 x 0.059  | 1516089   | 1516196 |
| Ø 16 ... Ø 18 x 1,5                                     | Ø 0.63 ... Ø 0.709 x 0.059  | 2168315   | 1516203 |
| Ø 18 ... Ø 20 x 1,5                                     | Ø 0.709 ... Ø 0.787 x 0.059 | 1516098   | 1516212 |
| Ø 20 ... Ø 22 x 1,5                                     | Ø 0.787 ... Ø 0.866 x 0.059 | 2242855   | 1516221 |
| Ø 12 ... Ø 14 x 1,6                                     | Ø 0.472 ... Ø 0.551 x 0.063 | 2243575   | 2243600 |
| Ø 14 ... Ø 16 x 1,6                                     | Ø 0.551 ... Ø 0.63 x 0.063  | 2243576   | 2243601 |
| Ø 16 ... Ø 18 x 1,6                                     | Ø 0.63 ... Ø 0.709 x 0.063  | 2243577   | 2243602 |
| Ø 18 ... Ø 20 x 1,6                                     | Ø 0.709 ... Ø 0.787 x 0.063 | 2243578   | 2243603 |
| Ø 20 ... Ø 22 x 1,6                                     | Ø 0.787 ... Ø 0.866 x 0.063 | 2243579   | 2243604 |
| Ø 12 ... Ø 14 x 2,0                                     | Ø 0.472 ... Ø 0.551 x 0.079 | 2243580   | 2243605 |
| Ø 14 ... Ø 16 x 2,0                                     | Ø 0.551 ... Ø 0.63 x 0.079  | 2243581   | 2242539 |
| Ø 16 ... Ø 18 x 2,0                                     | Ø 0.63 ... Ø 0.709 x 0.079  | 2243582   | 2243606 |
| Ø 18 ... Ø 20 x 2,0                                     | Ø 0.709 ... Ø 0.787 x 0.079 | 2243583   | 2243607 |
| Ø 20 ... Ø 22 x 2,0                                     | Ø 0.787 ... Ø 0.866 x 0.079 | 2243584   | 2243608 |

| Glätten<br>Burnishing                |                   |           |
|--------------------------------------|-------------------|-----------|
| Nennmaß<br>Nominal Size<br>mm   inch |                   | Ident No. |
| Ø 12 – Ø 14                          | Ø 0.472 – Ø 0.551 | 2241694   |
| Ø 14 – Ø 16                          | Ø 0.551 – Ø 0.63  | 1516249   |
| Ø 16 – Ø 18                          | Ø 0.63 – Ø 0.709  | 2165473   |
| Ø 18 – Ø 20                          | Ø 0.709 – Ø 0.787 | 1516258   |
| Ø 20 – Ø 22                          | Ø 0.787 – Ø 0.866 | 2169908   |

| Whitworth-Gewinde<br>Whitworth Threads                 |                      | BSW                  |           |
|--|----------------------|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k | Ident No. |
|  | 7/16 – 14 BSW        | 1515124              |           |
| 1/2 ... 9/16 – 12 BSW                                  | 1515151              | 1515160              |           |
| 5/8 ... 11/16 – 11 BSW                                 | 1515188              | 1515197              |           |
| 3/4 – 10 BSW   | 1515222              | 1515231              |           |
| 7/8 ... 15/16 – 9 BSW                                  | 1515259              | 1515268              |           |

| Whitworth-Feingewinde<br>Whitworth Fine Pitch Threads  |                      | BSF                  |           |
|--|----------------------|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k | Ident No. |
|  | 7/16 – 18 BSF        | 1514900              |           |
| 1/2 ... 9/16 – 16 BSF                                  | 1514946              | 1514955              |           |
| 5/8 ... 11/16 – 14 BSF                                 | 1514964              | 1514973              |           |
| 3/4 – 12 BSF   | 1514982              | 1514991              |           |
| 7/8 ... 15/16 – 11 BSF                                 | 2243559              | 1515008              |           |

| Rundgewinde<br>Knuckle Form Threads                    |                      |                      |
|--|----------------------|----------------------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |
|  | Ident No.            |                      |
| Rd 18 – 20 x 1/8                                       | 2168222              | 2243560              |

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 0,75 bis 1,2 kg.

Thread dimensions combined in one block can be rolled with **one** set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 1.7 to 2.7 lb.

| Amerikanisches Rohrgewinde<br>American Pipe Threads    |                      | NPT       |
|--|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Ident No. |
|  | 1/4 – 18 NPT         |           |

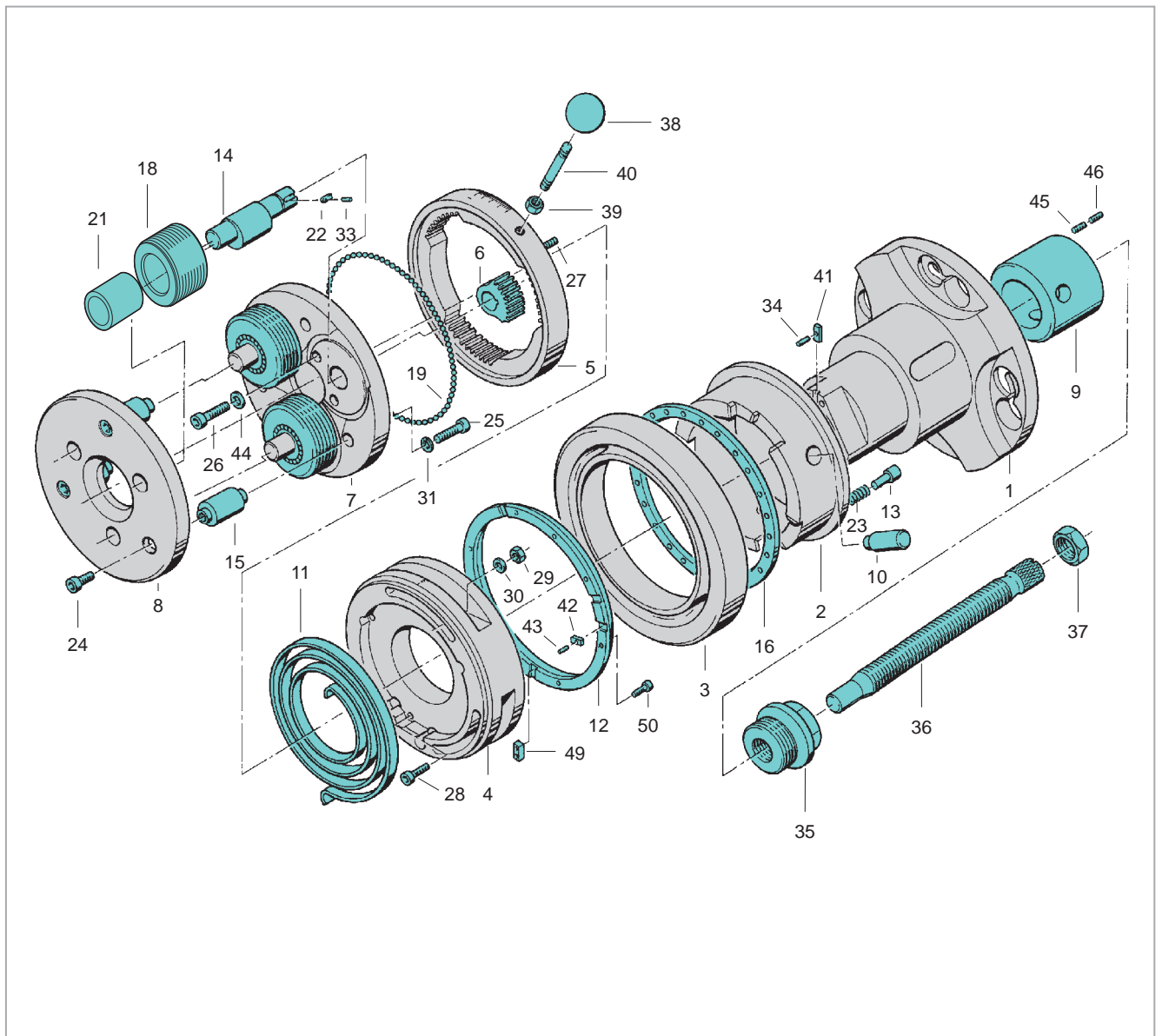
| Amerikanisches Rohrgewinde<br>American Dryseal Pipe Threads |                      | NPTF      |
|---|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI      | Anlauf 1k<br>Lead 1k | Ident No. |
|   | 1/4 – 18 NPTF        |           |

### Ersatzteile für Rollkopf FU3-1 Spare Parts for Rolling Head FU3-1

| Rollkopf<br>Rolling Head |               |                                      | FU3-1                           | FU3-1L    | Rollkopf<br>Rolling Head |               |  | FU3-1     | FU3-1L    |
|--------------------------|---------------|--------------------------------------|---------------------------------|-----------|--------------------------|---------------|--|-----------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description        | Ident No.                       | Ident No. | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No. | Ident No. |
|                          |               |                                      |                                 |           |                          |               |  |           |           |
| 1                        | 1             | Mitnehmer<br>Flange                  | 2165078                         | 2165099   | 19                       | 87            | Stahlkugel<br>Steel ball                 | 2148807   |           |
| 2                        | 1             | Kupplung<br>Clutch                   | 2165079                         | 2165100   | 21                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2165072   |           |
| 3                        | 1             | Schaltring<br>Operating ring         | 2165080                         |           | 22                       | 3             | Passfeder<br>Fitting key                 | 2165094   |           |
| 4                        | 1             | Federgehäuse<br>Spring housing       | 2165081                         |           | 23                       | 4             | Druckfeder<br>Pressure spring            | 2165095   |           |
| 5                        | 1             | Zahnkranz<br>Gear ring               | 2165082                         | 2165101   | 24                       | 3             | Zylinderschraube<br>Cap screw            | 2143007   |           |
| 6                        | 3             | Zahnbogen<br>Gear sectors            | 2165083                         | 2165102   | 25                       | 3             | Zylinderschraube<br>Cap screw            | 2143011   |           |
| 7                        | 1             | Zwischenplatte<br>Centre plate       | 2165084                         | 2165103   | 26                       | 6             | Zylinderschraube<br>Cap screw            | 2148740   |           |
| 8                        | 1             | Frontplatte<br>Front plate           | 2165085                         | 2165104   | 27                       | 6             | Stiftschraube<br>Stud                    | 2148825   |           |
| 9                        | 1             | Hülse<br>Sleeve                      | 2165086                         | 2165105   | 28                       | 3             | Zylinderschraube<br>Cap screw            | 2148739   |           |
| 10                       | 3             | Bolzen<br>Pin                        | 2165087                         |           | 29                       | 6             | Sechskantmutter<br>Hexagon nut           | 2148398   |           |
| 11                       | 1             | Spiralfeder<br>Coil spring           | 2165088                         | 2165154   | 30                       | 6             | Scheibe<br>Washer                        | 2141465   |           |
| 12                       | 1             | Bremsbelag<br>Brake ring             | 2165089                         |           | 31                       | 3             | Federring<br>Lock washer                 | 2141716   |           |
| 13                       | 4             | Federbolzen<br>Spring pin            | 2165090                         |           | 33                       | 3             | Zylinderstift<br>Shear pins              | 2148376   |           |
| 14                       | 3             | Exzenterbolzen<br>Eccentric spindles | 2165091                         | 2165106   | 34                       | 3             | Spannhülse<br>Roll pins                  | 2142566   |           |
| 15                       | 3             | Distanzbolzen<br>Spacer studs        | 2165092                         |           | 35                       | 1             | Schraubstutzen<br>Stop screw body        | 2165009   | 2165107   |
| 16                       | 1             | Kugelkäfig<br>Bearing cage           | 2165093                         |           | 36                       | 1             | Anschlagschraube<br>Stop screw           | 2165003   | 2165108   |
| 18                       | 3             | Gewinderolle<br>Thread roll          | siehe Einsatzfall<br>individual |           | 37                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148391   | 2148702   |



| Rollkopf<br>Rolling Head |               |                                | FU3-1     | FU3-1L<br>Linksgewinde<br>Left hand thread | Rollkopf<br>Rolling Head |               |                                   | FU3-1     | FU3-1L<br>Linksgewinde<br>Left hand thread |
|--------------------------|---------------|--------------------------------|-----------|--|--------------------------|---------------|-----------------------------------|-----------|--|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description  | Ident No. | Ident No.                                  | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description     | Ident No. | Ident No.                                  |
| 38                       | 1             | Kugelknopf<br>Ball             | 2141701   |  | 44                       | 6             | Schnorr-Sicherungsring<br>Circlip | 2149274   |  |
| 39                       | 1             | Sechskantmutter<br>Hexagon nut | 2148398   |  | 45                       | 3             | Gewindestift<br>Set screw         | 2148367   |  |
| 40                       | 1             | Griff<br>Handle                | 2148839   |  | 46                       | 3             | Gewindestift<br>Set screw         | 2142058   |  |
| 41                       | 3             | Passfeder<br>Fitting key       | 2165096   |  | 49                       | 3             | Kupplungskeil<br>Clutch wedge     | 2165098   |  |
| 42                       | 2             | Passfeder<br>Fitting key       | 2165097   |  | 50                       | 8             | Zylinderschraube<br>Cap screw     | 2142992   |  |
| 43                       | 2             | Spannhülse<br>Roll pin         | 2142566   |  |                          |               |                                   |           |  |



Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!

**für Rechtsgewinde**

- feststehend und umlaufend verwendbar
- mit Flansch
- speziell für Feingewinde
- Rollen-Schrägstellung = 1° 15'
- Gewicht ohne Rollen = ca. 9,8 kg

**for right-hand threads**

- used stationary or rotating
- flange type design
- especially for rolling of fine pitch threads
- inclined position of rolls = 2° 40'
- weight without rolls = approx. 21.6 lb

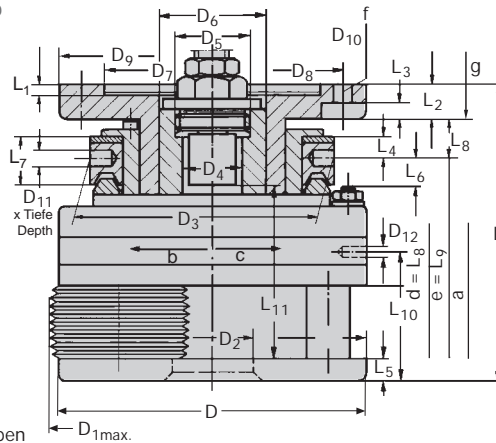
**für Linksgewinde**

- Typ FU34-1L
- Baumaß wie für Rechtsgewinde-Rollkopf

**for left-hand threads**

- Type FU34-1L
- Dimensions like right-hand thread rolling head

- a = Schafthub  
Opening movement
- b = Rollkopf öffnet  
Rolling Head/opening direction
- c = Rollkopf schließt  
(Bei Rollköpfen für Linksgewinde ist die Schallrichtung entgegengesetzt)  
Rolling Head/closing direction  
(For Rolling Heads for left-hand threads, the direction of operation is reversed)
- d = L<sub>8</sub> (Rollkopf geschlossen)  
L<sub>8</sub> (Rolling Head closed)
- e = L<sub>9</sub> (Rollkopf geöffnet)  
L<sub>9</sub> (Rolling Head opened)
- f = 4 Löcher  
4 Holes
- g = Maximale Länge der Befestigungsschrauben  
Maximum length of the fastening screws
- α = Schließwinkel  
Closing angle



**Baumaße in mm**

**Dimension in inches**

| Baumaße in mm       |                                 |                |                |                |                              |                |                |                              |                |                |                 |                               | FU34-1    | FU34-1L <sup>5)</sup> |
|---------------------|---------------------------------|----------------|----------------|----------------|------------------------------|----------------|----------------|------------------------------|----------------|----------------|-----------------|-------------------------------|-----------|-----------------------|
| Dimension in inches |                                 |                |                |                |                              |                |                |                              |                |                |                 |                               | Ident No. | Ident No.             |
| D                   | D <sub>1max</sub> <sup>1)</sup> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | D <sub>5</sub> <sup>2)</sup> |                | D <sub>6</sub> | D <sub>7</sub> <sup>3)</sup> | D <sub>8</sub> | D <sub>9</sub> | D <sub>10</sub> | D <sub>11</sub> x T           | 1516604   | 1516613               |
| 125                 | 128                             | 44             | 140            | 27             | M 30 x 1.5                   |                | 40             | 92                           | 110            | 140            | 13              | 8 x 7                         |           |                       |
| 4.921"              | 5.039"                          | 1.732"         | 5.512"         | 1.063"         | links   L.H.                 |                | 1.575"         | 3.622"                       | 4.331"         | 5.512"         | 0.512"          | 0.315 x 0.276"                |           |                       |
| D <sub>12</sub>     | L                               | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub>               | L <sub>5</sub> | L <sub>6</sub> | L <sub>7</sub>               | L <sub>8</sub> | L <sub>9</sub> | L <sub>10</sub> | L <sub>11</sub> <sup>4)</sup> | a         | α                     |
| M8                  | 151                             | 8,5            | 23             | 10,5           | 11,5                         | 10             | -              | 21                           | 22             | 18             | 56,5            | 52                            | 4         | 30°                   |
|                     | 5.945"                          | 0.335"         | 0.906"         | 0.413"         | 0.453"                       | 0.394"         |                | 0.827"                       | 0.866"         | 0.709"         | 2.224"          | 2.047"                        | 0.157"    |                       |

<sup>1)</sup> Größter Außen-Ø des Rollkopfes bei Rollenstellung im geöffneten Zustand.

<sup>1)</sup> Largest outside diameter of rolling head when rolls in open position.

<sup>2)</sup> Bei Linksgewinde-Rollköpfen Rechtsgewinde.

<sup>2)</sup> For L. H. thread rolling heads: R. H. thread.

<sup>3)</sup> Toleranz für das Maß D<sub>7</sub> = +0,035 mm, +0,010 mm.

<sup>3)</sup> Tolerance for the dimension D<sub>7</sub> = +0.0014", +0.0004".

<sup>4)</sup> Max. Rolllänge einschließlich Kupplungsweg (a) bei Verwendung von drehbaren Anschlägen.

<sup>4)</sup> Max. rolling length, including clutch travel (a) when using rotating end stops.

<sup>5)</sup> L = für Linksgewinde

<sup>5)</sup> L = for Left-hand threads

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Feingewinde M                  |           |           |
|---|-----------|-----------|
| Metric ISO Fine Pitch Threads                 |           |           |
| Nennmaß x Steigung<br>mm                      | Anlauf 1k | Anlauf 2K |
|   | Lead 1k   | Lead 2k   |
| Nominal Size x Pitch                          | Ident No. |           |
| M 12 ... 14 x 1                               | 1516800   | 1516819   |
| M 14 ... 16 x 1                               | 1516828   | 1516837   |
| M 16 ... 18 x 1                               | 1516846   | 1516855   |
| M 18 ... 20 x 1                               | 1516864   | 1516882   |
| M 16 ... 18 x 1,5                             | 1517006   | 1517015   |
| M 18 ... 20 x 1,5                             | 1517042   | 1517060   |
| M 20 ... 22 x 1,5                             | 1517088   | 1517113   |
| M 22 ... 24 <sup>1)</sup> x 1,5               | 1517159   | 1517177   |
| M 24 ... 27 <sup>1)</sup> x 1,5               | 1517195   | 1517202   |
| M 27 <sup>1)</sup> ... 30 <sup>1)</sup> x 1,5 | 1517220   | 1517248   |

| Unified-Gewinde UN/UNC/UNEF  |           |           |
|--|-----------|-----------|
| Unified Threads  |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll   | Anlauf 1k | Anlauf 2K |
|  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI   | Ident No. |           |
| 1/2 - 28 UNEF  | 2243550   | 2243655   |
| 5/8 ... 1 <sup>1)</sup> / <sub>16</sub> - 28 UN                              | 2165494   | 2246320   |
| 1 <sup>1)</sup> / <sub>16</sub> ... 3/4 - 28 UN                              | 2246314   | 2246321   |
| 3/4 ... 1 <sup>3)</sup> / <sub>16</sub> - 28 UN                              | 2246315   | 2246322   |
| 1 <sup>3)</sup> / <sub>16</sub> ... 7/8 - 28 UN                              | 2246318   | 2246324   |
| 9/16 ... 5/8 - 24 UNEF   | 2243651   | 2243656   |
| 5/8 ... 1 <sup>1)</sup> / <sub>16</sub> - 24 UNEF                            | 2240319   | 2243657   |
| 5/8 ... 1 <sup>1)</sup> / <sub>16</sub> - 20 UN                              | 2246313   | 2246319   |
| 3/4 ... 1 <sup>3)</sup> / <sub>16</sub> - 20 UNEF                            | 2243652   | 2243658   |
| 1 <sup>3)</sup> / <sub>16</sub> ... 7/8 - 20 UNEF                            | 2166331   | 2166820   |
| 7/8 ... 1 <sup>5)</sup> / <sub>16</sub> - 20 UNEF                            | 2243653   | 2243659   |
| 1 <sup>5)</sup> / <sub>16</sub> ... 1 <sup>1)</sup> - 20 UNEF                | 2168615   | 2243660   |
| 5/8 - 18 UNC   | 1517505   | 1517514   |
| 1 <sup>1)</sup> / <sub>16</sub> ... 1 <sup>1)</sup> / <sub>8</sub> - 18 UNEF | 2243654   | 2243661   |
| 3/4 - 16 UNC   | 2169226   | 2241532   |
| 3/4 ... 1 <sup>3)</sup> / <sub>16</sub> - 16 UNC                             | 1517523   | 1517541   |
| 7/8 ... 1 <sup>5)</sup> / <sub>16</sub> - 16 UN                              | 2246317   | 2241474   |
| 7/8 ... 7/8 - 14 UNC   | 1517550   | 1517569   |
| 7/8 ... 1 <sup>5)</sup> / <sub>16</sub> - 12 UN                              | 2246316   | 2246323   |
| 1 <sup>1)</sup> - 12 UNC   | 1517578   | 1517587   |

| Whitworth-Rohrgewinde G          |           |           |
|----------------------------------|-----------|-----------|
| Whitworth Pipe Threads           |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2k |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| G 3/8 - 19                       | 1517408   | 1517417   |
| G 1/2 ... 5/8 - 14               | 1517435   | 1517444   |
| G 3/4 - 14                       | 1517462   | 1517471   |
| G 7/8 - 14 <sup>1)</sup>         | 2168006   | 2243649   |

| Whitworth-Feingewinde BSF                                       |           |           |
|---|-----------|-----------|
| Whitworth Fine Pitch Threads                                    |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll                                | Anlauf 1k | Anlauf 2k |
|   | Lead 1k   | Lead 2k   |
| Nominal Size x TPI  | Ident No. |           |
| 9/16 ... 5/8 - 26 BSFS  | 2243620   | 2243634   |
| 5/8 ... 1 <sup>1)</sup> / <sub>16</sub> - 26 BSFS               | 2243621   | 2243635   |
| 1 <sup>1)</sup> / <sub>16</sub> ... 3/4 - 26 BSFS               | 2243622   | 2243636   |
| 3/4 ... 1 <sup>3)</sup> / <sub>16</sub> - 26 BSFS               | 2243623   | 2243637   |
| 9/16 ... 5/8 - 20 BSFS  | 2243624   | 2243638   |
| 5/8 ... 1 <sup>1)</sup> / <sub>16</sub> - 20 BSFS               | 2243625   | 2243639   |
| 1 <sup>1)</sup> / <sub>16</sub> ... 3/4 - 20 BSFS               | 2243626   | 2243640   |
| 3/4 ... 1 <sup>3)</sup> / <sub>16</sub> - 20 BSFS               | 2243627   | 2243641   |
| 1 <sup>3)</sup> / <sub>16</sub> ... 7/8 <sup>1)</sup> - 20 BSFS | 2243629   | 2243642   |
| 7/8 <sup>1)</sup> ... 1 <sup>5)</sup> / <sub>16</sub> - 20 BSFS | 2243630   | 2243643   |
| 1 <sup>5)</sup> / <sub>16</sub> ... 1 <sup>1)</sup> - 20 BSFS   | 2240197   | 2243644   |
| 1 <sup>1)</sup> / <sub>16</sub> ... 3/4 - 16 BSFS               | 2241703   | 2243645   |
| 3/4 ... 1 <sup>3)</sup> / <sub>16</sub> - 16 BSFS               | 2243631   | 2243646   |
| 1 <sup>1)</sup> / <sub>16</sub> - 12 BSFS                       | 2243632   | 2243647   |
| 1 <sup>1)</sup> / <sub>16</sub> - 10 BSFS                       | 2243633   | 2243648   |

| Amerikanisches Rohrgewinde NPT   |           |
|----------------------------------|-----------|
| American Pipe Threads            |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k |
|                                  | Lead 1k   |
| Nominal Size x TPI               | Ident No. |
| 3/8 - 18 NPT                     | 1517710   |
| 1/2 - 14 NPT                     | 1517738   |
| 3/4 - 14 NPT                     | 1517756   |

| Amerikanisches Rohrgewinde NPTF  |           |
|----------------------------------|-----------|
| American Dryseal Pipe Threads    |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k |
|                                  | Lead 1k   |
| Nominal Size x TPI               | Ident No. |
| 3/8 - 18 NPTF                    | 2165391   |
| 1/2 - 14 NPTF                    | 1517765   |
| 3/4 - 14 NPTF                    | 1517774   |

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 0,32 bis 0,85 kg.

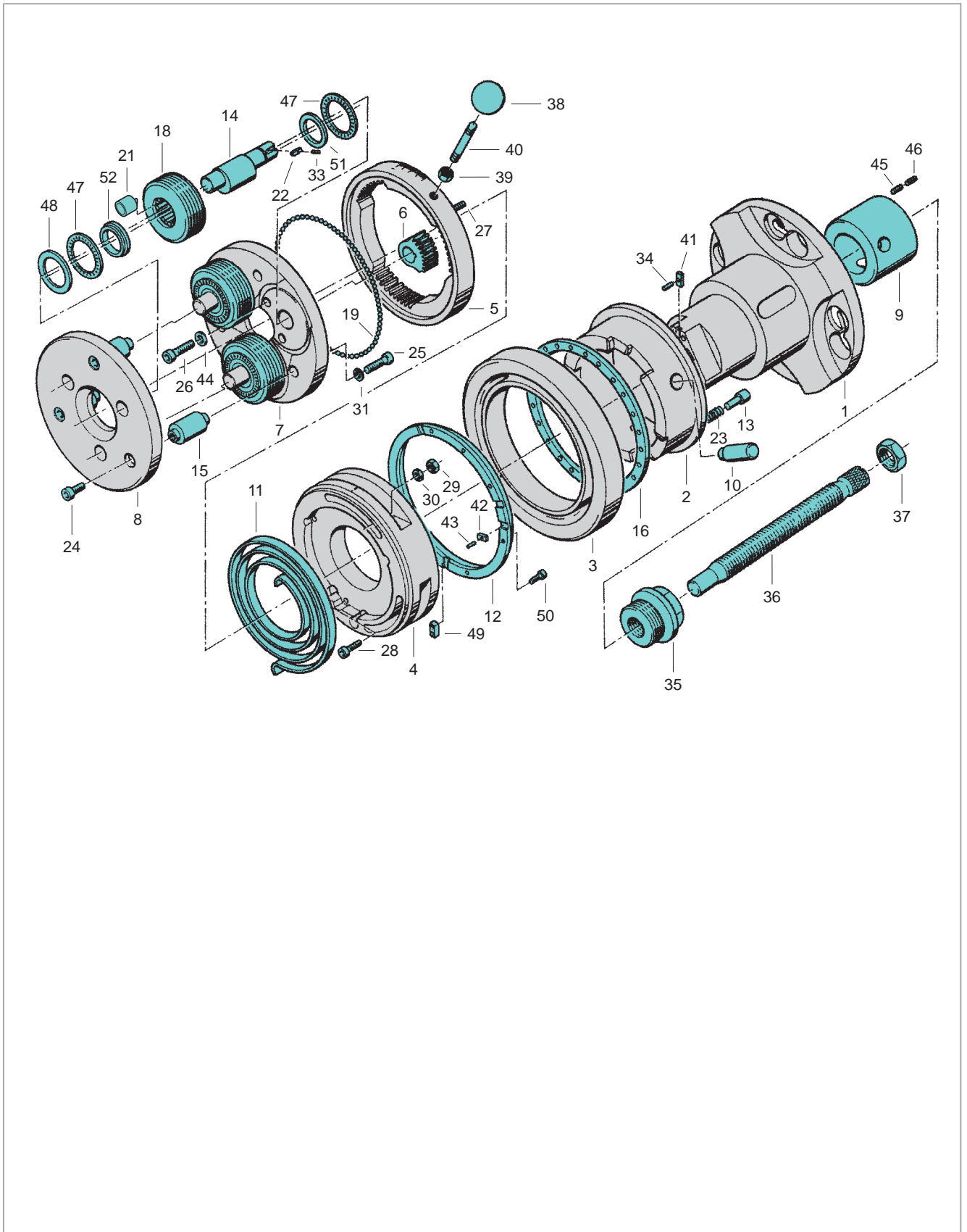
Thread dimensions combined in one block can be rolled with **one** set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 0,7 to 1.9 lb.

<sup>1)</sup> Für Kurzgewinde bis 75 mm Länge einschließlich Auslauf.

<sup>1)</sup> For short threads up to 75 mm/2.953" including runout.

| Rollkopf<br>Rolling Head |               |  | FU34-1                          | FU34-1L<br>Linksgewinde<br>Left hand thread | Rollkopf<br>Rolling Head |               |                                   | FU34-1    | FU34-1L<br>Linksgewinde<br>Left hand thread |
|--------------------------|---------------|--|---------------------------------|---|--------------------------|---------------|-----------------------------------|-----------|---|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No.                                   | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description     | Ident No. | Ident No.                                   |
| 1                        | 1             | Mitnehmer<br>Flange                      | 2165078                         | 2165099                                     | 28                       | 3             | Zylinderschraube<br>Cap screw     | 2148739   |   |
| 2                        | 1             | Kupplung<br>Clutch                       | 2165079                         | 2165100                                     | 29                       | 6             | Sechskantmutter<br>Hexagon nut    | 2148398   |   |
| 3                        | 1             | Schaltring<br>Operating ring             | 2165080                         |   | 30                       | 6             | Scheibe<br>Washer                 | 2141465   |   |
| 4                        | 1             | Federgehäuse<br>Spring housing           | 2165081                         |   | 31                       | 3             | Federring<br>Lock washer          | 2141716   |   |
| 5                        | 1             | Zahnkranz<br>Gear ring                   | 2165082                         | 2165101                                     | 33                       | 3             | Zylinderstift<br>Shear pins       | 2148376   |   |
| 6                        | 3             | Zahnbogen<br>Gear sectors                | 2165543                         | 2165553                                     | 34                       | 3             | Spannhülse<br>Roll pins           | 2142566   |   |
| 7                        | 1             | Zwischenplatte<br>Centre plate           | 2165544                         |   | 35                       | 1             | Schraubstutzen<br>Stop screw body | 2165009   | 2165107                                     |
| 8                        | 1             | Frontplatte<br>Front plate               | 2165545                         | 2165555                                     | 36                       | 1             | Anschlagschraube<br>Stop screw    | 2165003   | 2165108                                     |
| 9                        | 1             | Hülse<br>Sleeve                          | 2165546                         | 2165556                                     | 37                       | 1             | Sechskantmutter<br>Hexagon nut    | 2148391   | 2148702                                     |
| 10                       | 3             | Bolzen<br>Pin                            | 2166919                         |   | 38                       | 1             | Kugelknopf<br>Ball                | 2141701   |   |
| 11                       | 1             | Spiralfeder<br>Coil spring               | 2165088                         | 2165154                                     | 39                       | 1             | Sechskantmutter<br>Hexagon nut    | 2148398   |   |
| 12                       | 1             | Bremsbelag<br>Brake ring                 | 2165089                         |   | 40                       | 1             | Griff<br>Handle                   | 2148839   |   |
| 13                       | 4             | Federbolzen<br>Spring pin                | 2165090                         |   | 41                       | 3             | Passfeder<br>Fitting key          | 2165096   |   |
| 14                       | 3             | Exzenterbolzen<br>Eccentric spindles     | 2165548                         | 2165557                                     | 42                       | 2             | Passfeder<br>Fitting key          | 2165097   |   |
| 15                       | 3             | Distanzbolzen<br>Spacer studs            | 2165549                         |   | 43                       | 2             | Spannhülse<br>Roll pin            | 2142566   |   |
| 16                       | 1             | Kugelkäfig<br>Bearing cage               | 2165093                         |   | 44                       | 6             | Schnorr-Sicherungsring<br>Circlip | 2149274   |   |
| 18                       | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual |   | 45                       | 3             | Gewindestift<br>Set screw         | 2148367   |   |
| 19                       | 87            | Stahlkugel<br>Steel ball                 | 2148807                         |   | 46                       | 3             | Gewindestift<br>Set screw         | 2142058   |   |
| 21                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2165072                         |   | 47                       | 6             | Axialnadellager<br>Thrust bearing | 2149267   |   |
| 22                       | 3             | Passfeder<br>Fitting key                 | 2165550                         |   | 48                       | 3             | Axialscheibe<br>Axial washer      | 2148881   |   |
| 23                       | 4             | Druckfeder<br>Pressure spring            | 2165095                         |   | 49                       | 3             | Kupplungskeil<br>Clutch wedge     | 2165098   |   |
| 24                       | 3             | Zylinderschraube<br>Cap screw            | 2143007                         |   | 50                       | 8             | Zylinderschraube<br>Cap screw     | 2142992   |   |
| 25                       | 3             | Zylinderschraube<br>Cap screw            | 2143011                         |   | 51                       | 3             | Zentrierscheibe<br>Center ring    | 2165552   |   |
| 26                       | 6             | Zylinderschraube<br>Cap screw            | 2148740                         |   | 52                       | 3             | Zentrierscheibe<br>Center ring    | 2165551   |   |
| 27                       | 6             | Stiftschraube<br>Stud                    | 2148825                         |   |                          |               |                                   |           |   |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!



### für Rechtsgewinde

- feststehend und umlaufend verwendbar
- mit Flansch
- Rollen-Schrägstellung = 2° 30'
- Gewicht ohne Rollen = ca. 13,3 kg

### for right-hand threads

- used stationary or rotating
- inclined position of rolls = 2° 30'
- weight without rolls = approx. 29.3 lb

### für Linksgewinde

- Typ FU4-1L
- Baumaß wie für Rechtsgewinde-Rollkopf

### for left-hand threads

- Type FU4-1L
- Dimensions like right-hand thread rolling head

a = Schalhub

Opening movement

b = Rollkopf öffnet

Rolling Head/opening direction

c = Rollkopf schließt

(Bei Rollköpfen für Linksgewinde

ist die Schalrichtung entgegengesetzt)

Rolling Head/closing direction

(For Rolling Heads for left-hand threads,

the direction of operation is reversed)

d = L<sub>8</sub> (Rollkopf geschlossen)

L<sub>8</sub> (Rolling Head closed)

e = L<sub>9</sub> (Rollkopf geöffnet)

L<sub>9</sub> (Rolling Head opened)

f = 4 Löcher

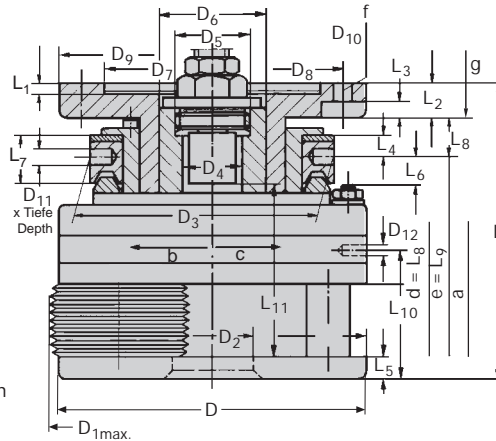
4 Holes

g = Maximale Länge der Befestigungsschrauben

Maximum length of the fastening screws

α = Schließwinkel

Closing angle



### Baumaße in mm

### Dimension in inches

|                 |                                 |                |                |                |                              |                |                              |                |                |                 |                     |                               | FU4-1     | FU4-1L <sup>5)</sup> |
|-----------------|---------------------------------|----------------|----------------|----------------|------------------------------|----------------|------------------------------|----------------|----------------|-----------------|---------------------|-------------------------------|-----------|----------------------|
| D               | D <sub>1max</sub> <sup>1)</sup> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | D <sub>5</sub> <sup>2)</sup> | D <sub>6</sub> | D <sub>7</sub> <sup>3)</sup> | D <sub>8</sub> | D <sub>9</sub> | D <sub>10</sub> | D <sub>11</sub> x T | Ident No.                     | Ident No. |                      |
| 165             | 161                             | 46             | 140            | 32             | M 39 x 1.5                   | 50             | 92                           | 110            | 140            | 13              | 8 x 7               | 1518005                       | 1518014   |                      |
| 6.496"          | 6.339"                          | 1.811"         | 5.512"         | 1.260"         | links   L.H.                 | 1.968"         | 3.622"                       | 4.331"         | 5.512"         | 0.512"          | 0.315 x 0.276"      |                               |           |                      |
| D <sub>12</sub> | L                               | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub>               | L <sub>5</sub> | L <sub>6</sub>               | L <sub>7</sub> | L <sub>8</sub> | L <sub>9</sub>  | L <sub>10</sub>     | L <sub>11</sub> <sup>4)</sup> | a         | α                    |
| M8              | 156                             | 8,5            | 23             | 10,5           | 11,5                         | 10             | 14                           | 21             | 22             | 18              | 62                  | 58                            | 4         | 30°                  |
|                 | 6.142"                          | 0.335"         | 0.906"         | 0.413"         | 0.453"                       | 0.394"         | 0.551"                       | 0.827"         | 0.866"         | 0.709"          | 2.441"              | 2.283"                        | 0.157"    |                      |

<sup>1)</sup> Größter Außen-Ø des Rollkopfes bei Rollenstellung im geöffneten Zustand.

<sup>1)</sup> Largest outside diameter of rolling head when rolls in open position.

<sup>2)</sup> Bei Linksgewinde-Rollköpfen Rechtsgewinde.

<sup>2)</sup> For L. H. thread rolling heads: R. H. thread.

<sup>3)</sup> Toleranz für das Maß D<sub>7</sub> = +0,035 mm, +0,010 mm.

<sup>3)</sup> Tolerance for the dimension D<sub>7</sub> = +0.0014", +0.0004".

<sup>4)</sup> Max. Rolllänge einschließlich Kupplungsweg (a) bei Verwendung von drehbaren Anschlägen.

<sup>4)</sup> Max. rolling length, including clutch travel (a) when using rotating end stops.

<sup>5)</sup> L = für Linksgewinde

<sup>5)</sup> L = for Left-hand threads

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



**Metrisches ISO-Gewinde M**  
Metric ISO Threads

| Nennmaß x Steigung<br>mm<br>Nominal Size x Pitch | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |
|--|----------------------|----------------------|
|  | Ident No.            |                      |
| M 14 ... 16 x 2                                  | 1518531              | 1518540              |
| M 18 ... 20 x 2,5                                | 1518648              | 1518657              |
| M 20 ... 22 x 2,5                                | 1518675              | 1518693              |
| M 24 ... 27 x 3                                  | 1518728              | 1518737              |
| M 27 ... 30 x 3,5                                | 1518764              | 1518773              |

**Metrisches ISO-Feingewinde M**  
Metric ISO Fine Pitch Threads

| Nennmaß x Steigung<br>mm<br>Nominal Size x Pitch | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |
|--|----------------------|----------------------|
|  | Ident No.            |                      |
| M 14 ... 16 x 1,5                                | 1518318              | 1518336              |
| M 16 ... 18 x 1,5                                | 1518345              | 1518354              |
| M 18 ... 20 x 2                                  | 1518586              | 1518595              |
| M 22 ... 24 x 2                                  | 1518611              | 1518620              |

**Unified-Gewinde, fein UNF**  
Unified Threads, Fine Pitch

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |
|--|----------------------|----------------------|
|  | Ident No.            |                      |
| 9/16... 5/8 – 18 UNF                                   | 1519326              | 1519335              |
| 3/4 – 16 UNF   | 1519344              | 1519353              |
| 7/8 – 14 UNF   | 1519362              | 1519371              |
| 1 – 12 UNF   | 1519380              | 1519399              |

**Unified-Gewinde, grob UNC**  
Unified Threads, Coarse Pitch

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |
|--|----------------------|----------------------|
|  | Ident No.            |                      |
| 9/16– 12 UNC   | 1519200              | 2241861              |
| 5/8 – 11 UNC   | 1519219              | 1519228              |
| 3/4 – 10 UNC   | 1519237              | 1519246              |
| 7/8 – 9 UNC  | 1519255              | 1519273              |
| 1 – 8 UNC  | 1519282              | 1519291              |
| 1 1/8 – 7 UNC  | 1519308              | 1519317              |

**Whitworth-Rohrwinde G**  
Whitworth Pipe Threads

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |
|--|----------------------|----------------------|
|  | Ident No.            |                      |
| G 3/8 – 19   | 1518942              | 1518951              |
| G 1/2 ... 5/8 – 14                                     | 1518960              | 1518979              |

**Rändel Knurls**

| Nennmaß x Steigung<br>Nominal Size x Pitch<br>mm   inch | RAA       | RGE     |
|---|-----------|---------|
|   | Ident No. |         |
| Ø 14 ... Ø 17 x 0,5   Ø 0.551 ... Ø 0.669 x 0.02        | 2243750   | 2243780 |
| Ø 17 ... Ø 20,5 x 0,5   Ø 0.669 ... Ø 0.807 x 0.02      | 2243751   | 2243781 |
| Ø 20,5 ... Ø 24 x 0,5   Ø 0.807 ... Ø 0.945 x 0.02      | 2243752   | 2243782 |
| Ø 24 ... Ø 27 x 0,5   Ø 0.945 ... Ø 1.063 x 0.02        | 2243753   | 2243783 |
| Ø 27 ... Ø 30 x 0,5   Ø 1.063 ... Ø 1.181 x 0.02        | 2243754   | 2243784 |
| Ø 14 ... Ø 17 x 0,6   Ø 0.551 ... Ø 0.669 x 0.024       | 2243755   | 2243785 |
| Ø 17 ... Ø 20,5 x 0,6   Ø 0.669 ... Ø 0.807 x 0.024     | 2243756   | 2243786 |
| Ø 20,5 ... Ø 24 x 0,6   Ø 0.807 ... Ø 0.945 x 0.024     | 2243757   | 2243787 |
| Ø 24 ... Ø 27 x 0,6   Ø 0.945 ... Ø 1.063 x 0.024       | 2243758   | 2243788 |
| Ø 27 ... Ø 30 x 0,6   Ø 1.063 ... Ø 1.181 x 0.024       | 2243759   | 2243789 |
| Ø 14 ... Ø 17 x 0,8   Ø 0.551 ... Ø 0.669 x 0.031       | 2243760   | 2243790 |
| Ø 17 ... Ø 20,5 x 0,8   Ø 0.669 ... Ø 0.807 x 0.031     | 2243761   | 2243791 |
| Ø 20,5 ... Ø 24 x 0,8   Ø 0.807 ... Ø 0.945 x 0.031     | 2243762   | 2243792 |
| Ø 24 ... Ø 27 x 0,8   Ø 0.945 ... Ø 1.063 x 0.031       | 2243763   | 2243793 |
| Ø 27 ... Ø 30 x 0,8   Ø 1.063 ... Ø 1.181 x 0.031       | 2240337   | 2243794 |
| Ø 14 ... Ø 17 x 1,0   Ø 0.551 ... Ø 0.669 x 0.039       | 2167487   | 2243795 |
| Ø 17 ... Ø 20,5 x 1,0   Ø 0.669 ... Ø 0.807 x 0.039     | 2243764   | 2243796 |
| Ø 20,5 ... Ø 24 x 1,0   Ø 0.807 ... Ø 0.945 x 0.039     | 2242061   | 2242060 |
| Ø 24 ... Ø 27 x 1,0   Ø 0.945 ... Ø 1.063 x 0.039       | 1519601   | 2242058 |
| Ø 27 ... Ø 30 x 1,0   Ø 1.063 ... Ø 1.181 x 0.039       | 1519610   | 2242059 |
| Ø 14 ... Ø 17 x 1,2   Ø 0.551 ... Ø 0.669 x 0.047       | 2243765   | 2243797 |
| Ø 17 ... Ø 20,5 x 1,2   Ø 0.669 ... Ø 0.807 x 0.047     | 2166036   | 2243798 |
| Ø 20,5 ... Ø 24 x 1,2   Ø 0.807 ... Ø 0.945 x 0.047     | 2167412   | 2243799 |
| Ø 24 ... Ø 27 x 1,2   Ø 0.945 ... Ø 1.063 x 0.047       | 1519638   | 2243800 |
| Ø 27 ... Ø 30 x 1,2   Ø 1.063 ... Ø 1.181 x 0.047       | 1519647   | 2243801 |
| Ø 14 ... Ø 17 x 1,5   Ø 0.551 ... Ø 0.669 x 0.059       | 2243766   | 2241397 |
| Ø 17 ... Ø 20,5 x 1,5   Ø 0.669 ... Ø 0.807 x 0.059     | 2243767   | 2241396 |
| Ø 20,5 ... Ø 24 x 1,5   Ø 0.807 ... Ø 0.945 x 0.059     | 2243768   | 2241395 |
| Ø 24 ... Ø 27 x 1,5   Ø 0.945 ... Ø 1.063 x 0.059       | 2243769   | 2241393 |
| Ø 27 ... Ø 30 x 1,5   Ø 1.063 ... Ø 1.181 x 0.059       | 2167209   | 2241394 |
| Ø 14 ... Ø 17 x 1,6   Ø 0.551 ... Ø 0.669 x 0.063       | 2243770   | 2243802 |
| Ø 17 ... Ø 20,5 x 1,6   Ø 0.669 ... Ø 0.807 x 0.063     | 2243771   | 2243803 |
| Ø 20,5 ... Ø 24 x 1,6   Ø 0.807 ... Ø 0.945 x 0.063     | 2243772   | 2243804 |
| Ø 24 ... Ø 27 x 1,6   Ø 0.945 ... Ø 1.063 x 0.063       | 2243773   | 2243805 |
| Ø 27 ... Ø 30 x 1,6   Ø 1.063 ... Ø 1.181 x 0.063       | 2243774   | 2243806 |
| Ø 14 ... Ø 17 x 2,0   Ø 0.551 ... Ø 0.669 x 0.079       | 2243775   | 2243807 |
| Ø 17 ... Ø 20,5 x 2,0   Ø 0.669 ... Ø 0.807 x 0.079     | 2243776   | 2243808 |
| Ø 20,5 ... Ø 24 x 2,0   Ø 0.807 ... Ø 0.945 x 0.079     | 2243777   | 2243809 |
| Ø 24 ... Ø 27 x 2,0   Ø 0.945 ... Ø 1.063 x 0.079       | 2243778   | 2243810 |
| Ø 27 ... Ø 30 x 2,0   Ø 1.063 ... Ø 1.181 x 0.079       | 2243779   | 2243811 |

**Glätten Burnishing**

| Nennmaß<br>Nominal Size<br>mm   inch | Ident No. |
|--------------------------------------|-----------|
| Ø 14 – Ø 17   Ø 0.551 – Ø 0.669      | 2243812   |
| Ø 17 – Ø 20,5   Ø 0.669 – Ø 0.807    | 2243813   |
| Ø 20,5 – Ø 24   Ø 0.807 – Ø 0.945    | 2241802   |
| Ø 24 – Ø 27   Ø 0.945 – Ø 1.063      | 2167990   |
| Ø 27 – Ø 30   Ø 1.063 – Ø 1.181      | 2167534   |



| Whitworth-Feingewinde<br>Whitworth Fine Pitch Threads  |                      |                      |
|--|----------------------|----------------------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |
|  | Ident No.            |                      |
| 5/8 ... 11/16 – 14 BSF                                 | 1518853              | 1518862              |
| 3/4 ... 13/16 – 12 BSF                                 | 1518871              | 1518880              |
| 7/8 ... 15/16 – 11 BSF                                 | 1518899              | 1518906              |
| 1 – 10 BSF   | 1518915              | 1518924              |
| 1 1/8 – 9 BSF  | 2243746              | 2241819              |

| Whitworth-Gewinde<br>Whitworth Threads                 |                      |                      |
|--|----------------------|----------------------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |
|  | Ident No.            |                      |
| 9/16 – 12 BSW  | 1518988              | 1518997              |
| 5/8 ... 11/16 – 11 BSW                                 | 1519004              | 1519013              |
| 3/4 ... 13/16 – 10 BSW                                 | 1519022              | 1519031              |
| 7/8 ... 15/16 – 9 BSW                                  | 1519040              | 1519059              |
| 1 – 8 BSW  | 1519068              | 1519077              |
| 1 1/8 – 7 BSW  | 1519086              | 1519095              |

| Amerikanisches Rohrgewinde<br>American Pipe Threads    |                      |
|--|----------------------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k |
|  | Ident No.            |
| 1/2 – 14 NPT   | 1519852              |

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 1,1 bis 2,0 kg.

Thread dimensions combined in one block can be rolled with **one** set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 2.4 to 4.4 lb.

| Rundgewinde<br>Knuckle Form Threads                    |                      |                      |
|--|----------------------|----------------------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |
|  | Ident No.            |                      |
| Rd 20 – 22 x 1/8                                       | 2243747              | 2167988              |
| Rd 24 – 26 x 1/8                                       | 2243748              | 2243749              |

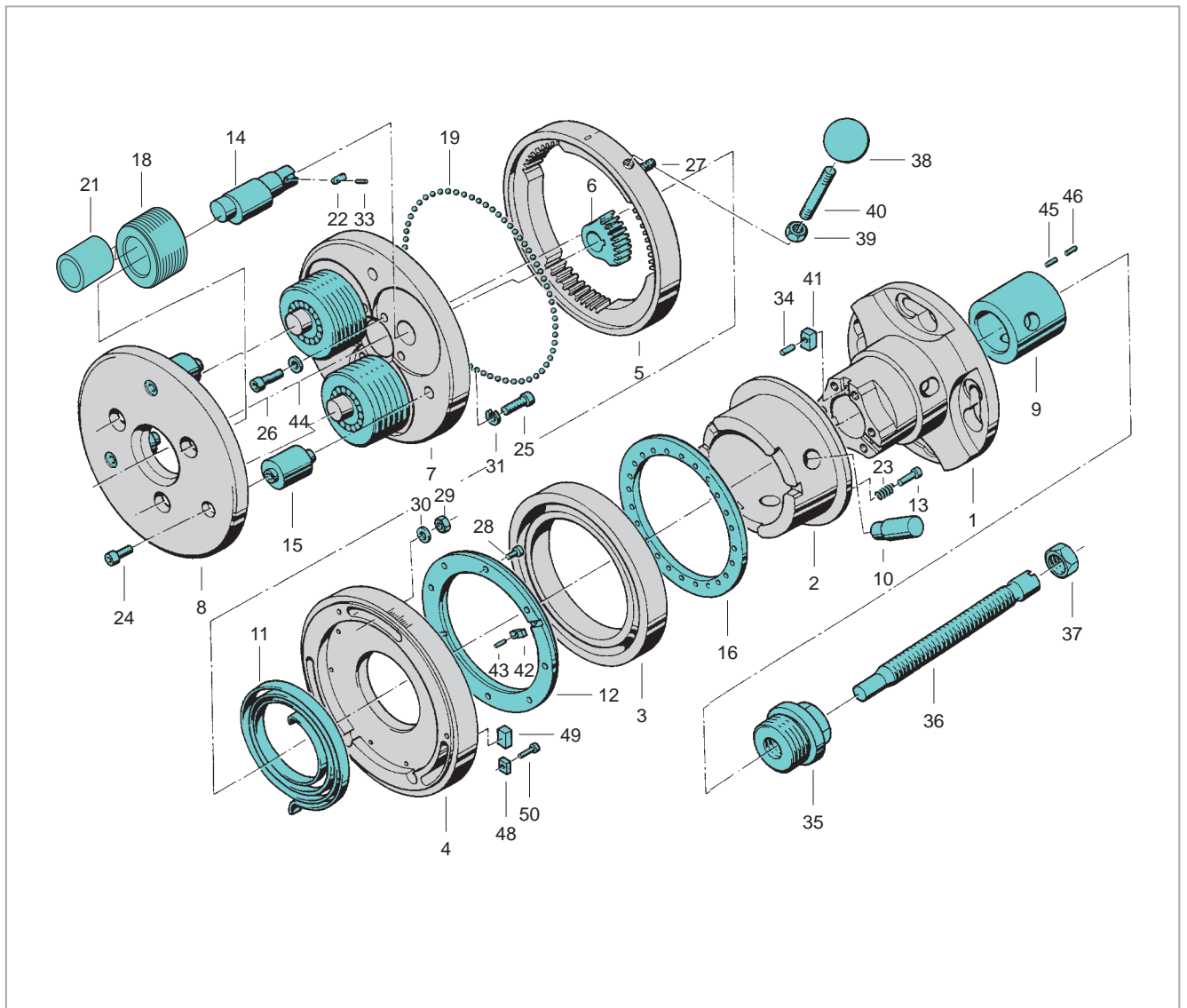
| Amerikanisches Rohrgewinde<br>American Dryseal Pipe Threads |                      |
|---|----------------------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI      | Anlauf 1k<br>Lead 1k |
|   | Ident No.            |
| 1/2 – 14 NPTF   | 2248847              |

### Ersatzteile für Rollkopf FU4-1 Spare Parts for Rolling Head FU4-1

| Rollkopf<br>Rolling Head |               |                                      | FU4-1     | FU4-1L    | Rollkopf<br>Rolling Head |               |  | FU4-1                           | FU4-1L    |
|--------------------------|---------------|--------------------------------------|-----------|-----------|--------------------------|---------------|--|---------------------------------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description        | Ident No. | Ident No. | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No. |
|                          |               |                                      |           |           |                          |               |  |                                 |           |
| 1                        | 1             | Mitnehmer<br>Flange                  | 2165582   | 2165604   | 18                       | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual |           |
| 2                        | 1             | Kupplung<br>Clutch                   | 2165583   | 2165605   | 19                       | 116           | Stahlkugel<br>Steel ball                 | 2148807                         |           |
| 3                        | 1             | Schaltring<br>Operating ring         | 2165080   |           | 21                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2167324                         |           |
| 4                        | 1             | Federgehäuse<br>Spring housing       | 2165584   |           | 22                       | 3             | Passfeder<br>Fitting key                 | 2165595                         |           |
| 5                        | 1             | Zahnkranz<br>Gear ring               | 2165585   | 2165606   | 23                       | 4             | Druckfeder<br>Pressure spring            | 2165095                         |           |
| 6                        | 3             | Zahnbogen<br>Gear sectors            | 2165586   | 2165607   | 24                       | 3             | Zylinderschraube<br>Front plate screw    | 2143016                         |           |
| 7                        | 1             | Zwischenplatte<br>Centre plate       | 2165587   | 2165608   | 25                       | 3             | Zylinderschraube<br>Cap screw            | 2143017                         |           |
| 8                        | 1             | Frontplatte<br>Front plate           | 2165588   | 2165609   | 26                       | 6             | Zylinderschraube<br>Cap screw            | 2148743                         |           |
| 9                        | 1             | Hülse<br>Sleeve                      | 2165589   | 2165612   | 27                       | 6             | Stiftschraube<br>Stud                    | 2148839                         |           |
| 10                       | 3             | Bolzen<br>Pin                        | 2165590   |           | 28                       | 8             | Zylinderschraube<br>Cap screw            | 2142992                         |           |
| 11                       | 1             | Spiralfeder<br>Coil spring           | 2165591   |           | 29                       | 6             | Sechskantmutter<br>Hexagon nut           | 2148398                         |           |
| 12                       | 1             | Bremsbelag<br>Brake ring             | 2165592   |           | 30                       | 6             | Scheibe<br>Washer                        | 2141465                         |           |
| 13                       | 4             | Federbolzen<br>Spring pin            | 2165090   |           | 31                       | 3             | Federring<br>Lock washer                 | 2141717                         |           |
| 14                       | 3             | Exzenterbolzen<br>Eccentric spindles | 2165593   | 2165610   | 33                       | 3             | Zylinderstift<br>Shear pins              | 2141237                         |           |
| 15                       | 3             | Distanzbolzen<br>Spacer studs        | 2165594   |           | 34                       | 3             | Spannhülse<br>Roll pins                  | 2142576                         |           |
| 16                       | 1             | Kugelkäfig<br>Bearing cage           | 2165093   |           | 35                       | 1             | Schraubstutzen<br>Stop screw body        | 2165596                         | 2165611   |



| Rollkopf<br>Rolling Head |               |                                | FU4-1     | FU4-1L<br>Linksgewinde<br>Left hand thread | Rollkopf<br>Rolling Head |               |                                   | FU4-1     | FU4-1L<br>Linksgewinde<br>Left hand thread |
|--------------------------|---------------|--------------------------------|-----------|--|--------------------------|---------------|-----------------------------------|-----------|--|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description  | Ident No. | Ident No.                                  | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description     | Ident No. | Ident No.                                  |
| 36                       | 1             | Anschlagschraube<br>Stop screw | 2165003   | 2165108                                    | 43                       | 2             | Spannhülse<br>Roll pin            | 2142566   |  |
| 37                       | 1             | Sechskantmutter<br>Hexagon nut | 2148391   | 2148702                                    | 44                       | 6             | Schnorr-Sicherungsring<br>Circlip | 2149015   |  |
| 38                       | 1             | Kugelknopf<br>Ball             |           | 2141701                                    | 45                       | 3             | Gewindestift<br>Set screw         | 2148367   |  |
| 39                       | 1             | Sechskantmutter<br>Hexagon nut |           | 2148398                                    | 46                       | 3             | Gewindestift<br>Set screw         | 2142058   |  |
| 40                       | 1             | Griff<br>Handle                |           | 2148839                                    | 48                       | 3             | Abdeckscheibe<br>Cover plate      | 2165597   |  |
| 41                       | 3             | Passfeder<br>Fitting key       |           | 2173673                                    | 49                       | 3             | Kupplungskeil<br>Clutch wedge     | 2165598   |  |
| 42                       | 2             | Passfeder<br>Fitting key       |           | 2165097                                    | 50                       | 3             | Zylinderschraube<br>Cap screw     | 2141882   |  |



Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!

**für Rechtsgewinde**

- feststehend und umlaufend verwendbar
- mit Flansch
- speziell für Feingewinde
- Rollen-Schrägstellung = 1° 10'
- Gewicht ohne Rollen = ca. 13,3 kg

**for right-hand threads**

- used stationary or rotating
- flange type design
- especially for rolling of fine pitch threads
- inclined position of rolls = 1° 10'
- weight without rolls = approx. 29.3 lb

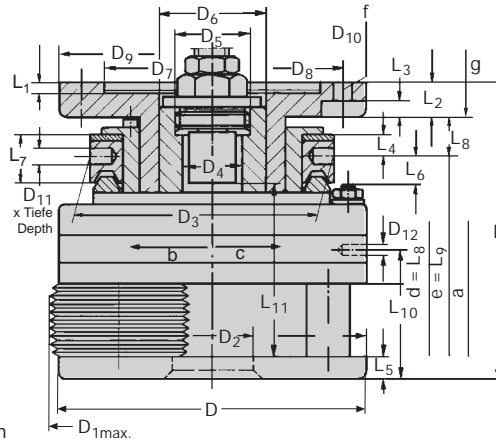
**für Linksgewinde**

- Typ FU45-1L
- Baumaß wie für Rechtsgewinde-Rollkopf

**for left-hand threads**

- Type FU45-1L
- Dimensions like right-hand thread rolling head

- a = Schalthub  
Opening movement
- b = Rollkopf öffnet  
Rolling Head/opening direction
- c = Rollkopf schließt  
(Bei Rollköpfen für Linksgewinde ist die Schaltrichtung entgegengesetzt)  
Rolling Head/closing direction  
(For Rolling Heads for left-hand threads, the direction of operation is reversed)
- d = L<sub>8</sub> (Rollkopf geschlossen)  
L<sub>8</sub> (Rolling Head closed)
- e = L<sub>9</sub> (Rollkopf geöffnet)  
L<sub>9</sub> (Rolling Head opened)
- f = 4 Löcher  
4 Holes
- g = Maximale Länge der Befestigungsschrauben  
Maximum length of the fastening screws
- α = Schließwinkel  
Closing angle



| Baumaße in mm<br>Dimension in inches |                                 |                |                |                |                              |                |                |                              |                |                |                 |                               | FU45-1    | FU45-1L <sup>5)</sup> |
|--------------------------------------|---------------------------------|----------------|----------------|----------------|------------------------------|----------------|----------------|------------------------------|----------------|----------------|-----------------|-------------------------------|-----------|-----------------------|
| D                                    | D <sub>1max</sub> <sup>1)</sup> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | D <sub>5</sub> <sup>2)</sup> |                | D <sub>6</sub> | D <sub>7</sub> <sup>3)</sup> | D <sub>8</sub> | D <sub>9</sub> | D <sub>10</sub> | D <sub>11</sub> x T           | Ident No. | Ident No.             |
| 165                                  | 161                             | 48             | 140            | 37             | M 39 x 1.5                   |                | 50             | 92                           | 110            | 140            | 13              | 8 x 7                         | 1520001   | 1520010               |
| 6.496"                               | 6.339"                          | 1.890"         | 5.512"         | 1.457"         | links   L.H.                 |                | 1.968"         | 3.622"                       | 4.331"         | 5.512"         | 0.512"          | 0.315 x 0.276"                |           |                       |
| D <sub>12</sub>                      | L                               | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub>               | L <sub>5</sub> | L <sub>6</sub> | L <sub>7</sub>               | L <sub>8</sub> | L <sub>9</sub> | L <sub>10</sub> | L <sub>11</sub> <sup>4)</sup> | a         | α                     |
| M8                                   | 159                             | 8,5            | 23             | 10,5           | 11,5                         | 10             | 12             | 21                           | 22             | 18             | 65,2            | 59                            | 4         | 30°                   |
|                                      | 6.260"                          | 0.335"         | 0.906"         | 0.413"         | 0.453"                       | 0.394"         | 0.472"         | 0.827"                       | 0.866"         | 0.709"         | 2.567"          | 2.323"                        | 0.157"    |                       |

<sup>1)</sup> Größter Außen-Ø des Rollkopfes bei Rollenstellung im geöffneten Zustand.  
<sup>1)</sup> Largest outside diameter of rolling head when rolls in open position.  
<sup>2)</sup> Bei Linksgewinde-Rollköpfen Rechtsgewinde.  
<sup>2)</sup> For L. H. thread rolling heads: R. H. thread.  
<sup>3)</sup> Toleranz für das Maß D<sub>7</sub> = +0,035 mm, +0,010 mm.  
<sup>3)</sup> Tolerance for the dimension D<sub>7</sub> = +0.0014", +0.0004".

<sup>4)</sup> Max. Rolllänge einschließlich Kupplungsweg (a) bei Verwendung von drehbaren Anschlägen.  
<sup>4)</sup> Max. rolling length, including clutch travel (a) when using rotating end stops.  
<sup>5)</sup> L = für Linksgewinde  
<sup>5)</sup> L = for Left-hand threads

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



**Metrisches ISO-Feingewinde M**  
Metric ISO Fine Pitch Threads

| Nennmaß x Steigung<br>mm<br>Nominal Size x Pitch | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |
|--|----------------------|----------------------|
|  | Ident No.            |                      |
| M 16 ... 18 x 1                                  | 1520109              | 1520118              |
| M 18 ... 20 x 1                                  | 1520127              | 1520136              |
| M 20 ... 22 x 1                                  | 2243816              | 1520145              |
| M 22 ... 24 x 1                                  | 2243817              | 1520154              |
| M 18 ... 20 x 1,5                                | 1520190              | 1520207              |
| M 20 ... 22 x 1,5                                | 1520216              | 1520225              |
| M 22 ... 24 x 1,5                                | 1520234              | 1520243              |
| M 24 ... 27 x 1,5                                | 1520261              | 1520289              |
| M 27 ... 30 x 1,5                                | 1520298              | 1520314              |
| M 30 ... 33 x 1,5                                | 1520341              | 1520378              |
| M 33 ... 36 x 1,5                                | 1520396              | 1520412              |
| M 36 ... 39 <sup>1)</sup> x 1,5                  | 1520449              | 1520467              |
| M 38 <sup>1)</sup> ... 40 <sup>1)</sup> x 1,5    | 1520476              | 1520485              |
| M 24 ... 27 x 2                                  | 1520528              | 1520537              |
| M 27 ... 30 x 2                                  | 1520546              | 1520555              |
| M 30 ... 33 x 2                                  | 1520564              | 1520573              |
| M 33 ... 36 x 2                                  | 1520591              | 1520608              |
| M 36 ... 39 <sup>1)</sup> x 2                    | 1520626              | 1520635              |
| M 39 <sup>1)</sup> ... 42 <sup>1)</sup> x 2      | 1520644              | 1520653              |

**Unified-Gewinde UN/UNF/UNEF**  
Unified Threads

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |
|--|----------------------|----------------------|
|  | Ident No.            |                      |
| 3/4 ... 13/16 – 32 UN                                  | 2243874              | 2243875              |
| 13/16 ... 7/8 – 32 UN                                  | 2243876              | 2243877              |
| 3/4 ... 13/16 – 28 UN                                  | 2243878              | 2243879              |
| 13/16 ... 7/8 – 28 UN                                  | 2243880              | 2243881              |
| 7/8 ... 15/16 – 28 UN                                  | 2243882              | 2243883              |
| 3/4 ... 13/16 – 20 UNF                                 | 2243884              | 2243885              |
| 13/16 ... 7/8 – 20 UNF                                 | 2243886              | 2242860              |
| 7/8 ... 15/16 – 20 UNF                                 | 2243887              | 2243888              |
| 15/16 ... 1 – 20 UNF                                   | 2243889              | 2168117              |
| 1 ... 1 1/16 – 20 UNF                                  | 2243890              | 2243891              |
| 1 1/16 ... 1 1/8 – 20 UN                               | 2243892              | 2243893              |
| 1 1/8 ... 1 3/16 – 20 UN                               | 2243894              | 2243895              |
| 1 3/16 ... 1 1/4 – 20 UN                               | 2243896              | 2243897              |
| 1 1/4 ... 1 5/16 – 20 UN                               | 2243898              | 2240384              |
| 1 1/16 ... 1 1/8 – 18 UNF                              | 2167041              | 2243899              |
| 1 1/8 ... 1 3/16 – 18 UNF                              | 2243900              | 2243901              |
| 1 3/16 ... 1 1/4 – 18 UNF                              | 2243902              | 2240097              |
| 1 1/4 ... 1 5/16 – 18 UNF                              | 2243903              | 2240384              |
| 1 5/16 ... 1 3/8 – 18 UNF                              | 2243905              | 2243906              |
| 1 3/16 ... 7/8 – 16 UN                                 | 2243907              | 2243908              |
| 7/8 ... 1 5/16 – 16 UN                                 | 2243909              | 2243910              |

**Unified-Gewinde UN/UNF/UNEF**  
Unified Threads

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |
|--|----------------------|----------------------|
|  | Ident No.            |                      |
| 15/16 ... 1 – 16 UN                                    | 2243911              | 2243912              |
| 1 ... 1 1/16 – 16 UN                                   | 2243913              | 2243914              |
| 1 1/16 ... 1 1/8 – 16 UN                               | 2167040              | 2243915              |
| 1 1/8 ... 1 3/16 – 16 UN                               | 2243916              | 2243917              |
| 1 3/16 ... 1 1/4 – 16 UN                               | 2243918              | 1521037              |
| 1 1/4 ... 1 5/16 – 16 UN                               | 2243919              | 2243920              |
| 1 5/16 ... 1 3/8 – 16 UN                               | 2243921              | 2243922              |
| 1 3/8 ... 1 7/16 – 16 UN                               | 2243923              | 2243924              |
| 1 7/16 ... 1 1/2 <sup>1)</sup> – 16 UN                 | 2243925              | 2243926              |
| 1 1/2 <sup>1)</sup> ... 1 9/16 <sup>1)</sup> – 16 UN   | 2243927              | 2243928              |
| 7/8 – 14 UNF   | 2245326              | 1520993              |
| 1 ... 1 1/16 – 12 UNF                                  | 2243930              | 2241312              |
| 1 1/16 ... 1 1/8 – 12 UNF                              | 1520902              | 2243931              |
| 1 1/8 ... 1 3/16 – 12 UNF                              | 1520920              | 1520939              |
| 1 3/16 ... 1 1/4 – 12 UNF                              | 1520948              | 1520957              |
| 1 1/4 ... 1 5/16 – 12 UNF                              | 2243932              | 1520966              |
| 1 5/16 ... 1 3/8 – 12 UNF                              | 2243933              | 1520975              |
| 1 3/8 ... 1 7/16 – 12 UNF                              | 2243934              | 2243935              |
| 1 7/16 ... 1 1/2 <sup>1)</sup> – 12 UNF                | 2241309              | 1520984              |
| 1 1/2 <sup>1)</sup> ... 1 9/16 <sup>1)</sup> – 12 UNF  | 2243936              | 2243937              |

**Whitworth-Feingewinde BSF**  
Whitworth Fine Pitch Threads

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |
|--|----------------------|----------------------|
|  | Ident No.            |                      |
| 1 1/16 ... 3/4 – 26 BSFS                               | 2243818              | 2243819              |
| 3/4 ... 13/16 – 26 BSFS                                | 2243820              | 2243821              |
| 1 1/16 ... 3/4 – 20 BSFS                               | 2243822              | 2243823              |
| 3/4 ... 13/16 – 20 BSFS                                | 2243824              | 2243825              |
| 1 3/16 ... 7/8 – 20 BSFS                               | 2243826              | 2243827              |
| 7/8 ... 1 5/16 – 20 BSFS                               | 2243828              | 2243829              |
| 1 5/16 ... 1 – 20 BSFS                                 | 2243830              | 2243831              |
| 1 ... 1 1/16 – 20 BSFS                                 | 2243832              | 2243833              |
| 1 1/16 ... 1 1/8 – 20 BSFS                             | 2243834              | 2243835              |
| 1 1/8 ... 1 3/16 – 20 BSFS                             | 2243836              | 2243837              |
| 1 3/16 ... 1 1/4 – 20 BSFS                             | 2243838              | 2243839              |
| 1 1/4 ... 1 5/16 – 20 BSFS                             | 2243840              | 2243841              |
| 1 5/16 ... 1 3/8 – 20 BSFS                             | 2243842              | 2243843              |
| 3/4 ... 1 3/16 – 16 BSFS                               | 2243844              | 2243845              |
| 1 5/8 <sup>1)</sup> – 16 BSFS                          | 2243867              | 2243868              |
| 1 ... 1 1/16 – 12 BSFS                                 | 2243846              | 2243847              |
| 1 1/16 ... 1 1/8 – 12 BSFS                             | 2243848              | 2243849              |
| 1 1/8 ... 1 3/16 – 12 BSFS                             | 2243850              | 2243851              |
| 1 3/16 ... 1 1/4 – 12 BSFS                             | 2243852              | 2243853              |
| 1 1/4 ... 1 5/16 – 12 BSFS                             | 2243854              | 2243855              |
| 1 5/16 ... 1 3/8 – 12 BSFS                             | 2243856              | 2243857              |
| 1 3/8 ... 1 7/16 – 12 BSFS                             | 2243858              | 2243859              |
| 1 7/16 ... 1 1/2 <sup>1)</sup> – 12 BSFS               | 2243860              | 2243861              |
| 1 1/2 <sup>1)</sup> ... 1 5/8 <sup>1)</sup> – 12 BSFS  | 2243862              | 2243863              |

**Whitworth-Rohrgewinde G**  
Whitworth Pipe Threads

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |
|--|----------------------|----------------------|
|  | Ident No.            |                      |
| G 3/8 – 19   | 1520751              | 1520760              |
| G 1/2 – 14   | 1520779              | 1520788              |
| G 5/8 – 14   | 1520797              | 1520804              |
| G 3/4 – 14   | 1520813              | 1520822              |
| G 7/8 – 14   | 1520831              | 2243864              |
| G 1 – 11   | 1520859              | 1520868              |
| G 1 1/8 <sup>1)</sup> – 11                             | 2243865              | 1520877              |
| G 1 1/4 <sup>1)</sup> – 11                             | 1520886              | 2243866              |

**Amerikanisches Rohrgewinde NPT**  
American Pipe Threads

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k |
|--|----------------------|
|  | Ident No.            |
| 3/4 – 14 NPT   | 2168213              |
| 1 – 11,5 NPT   | 2248848              |

**Amerikanisches Rohrgewinde NPTF**  
American Dryseal Pipe Threads

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k |
|--|----------------------|
|  | Ident No.            |
| 3/4 – 14 NPTF  | 2248849              |
| 1 – 11,5 NPTF  | 2248850              |

<sup>1)</sup> Für Kurzgewinde bis 28 mm Länge einschließlich Auslauf.

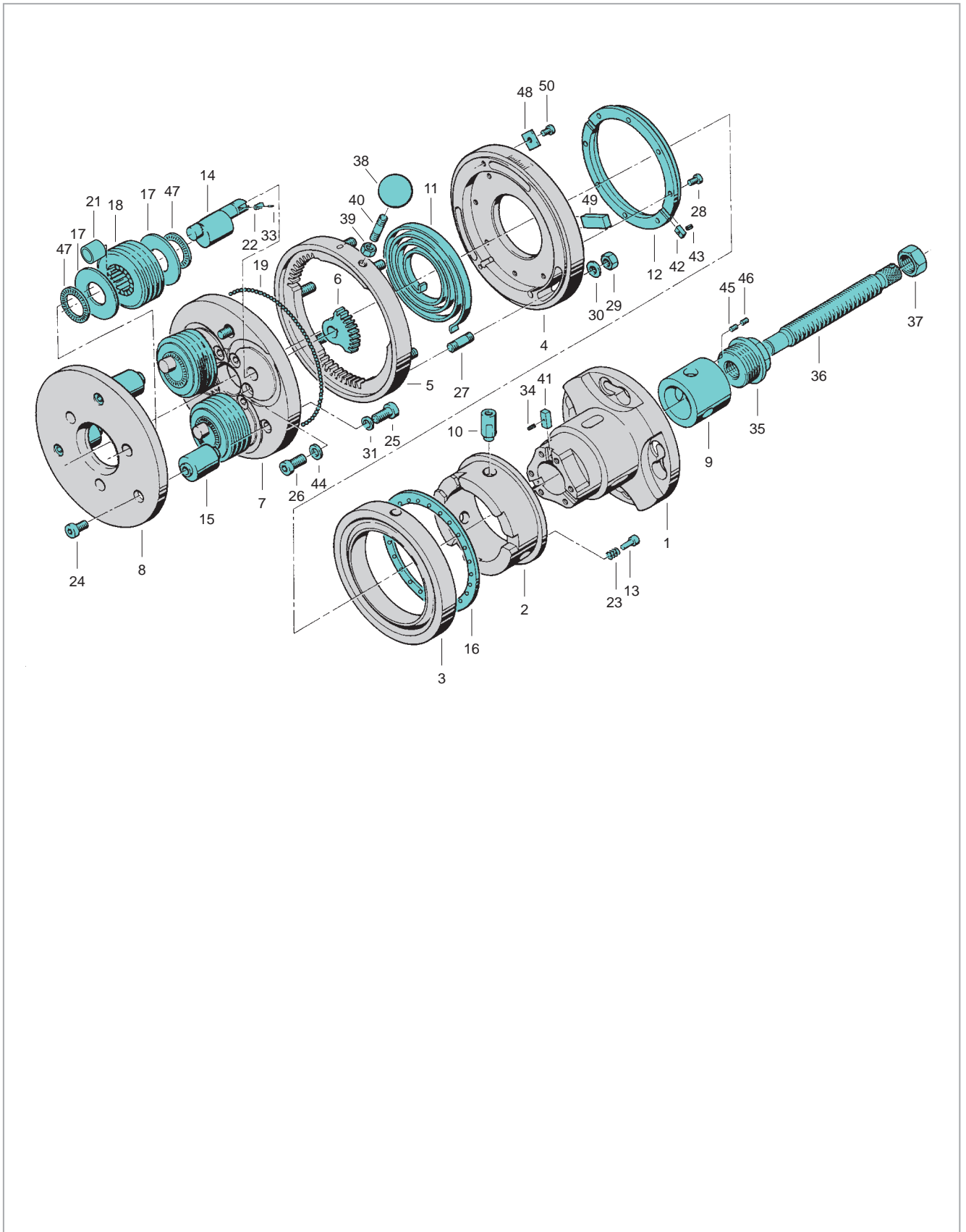
<sup>1)</sup> For short threads up to 28 mm/1.102" including runoff.

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 0,9 bis 1,6 kg.

Thread dimensions combined in one block can be rolled with **one** set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 2 to 3.5 lb.

| Rollkopf<br>Rolling Head |               |  | FU45-1                          | FU45-1L   | Rollkopf<br>Rolling Head |               |                                   | FU45-1    | FU45-1L   |
|--------------------------|---------------|--|---------------------------------|-----------|--------------------------|---------------|-----------------------------------|-----------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No. | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description     | Ident No. | Ident No. |
| 1                        | 1             | Mitnehmer<br>Flange                      | 2165582                         | 2165604   | 26                       | 6             | Zylinderschraube<br>Cap screw     | 2148743   |           |
| 2                        | 1             | Kupplung<br>Clutch                       | 2165583                         | 2165605   | 27                       | 6             | Stiftschraube<br>Stud             | 2148839   |           |
| 3                        | 1             | Schaltring<br>Operating ring             | 2165080                         |           | 28                       | 8             | Zylinderschraube<br>Cap screw     | 2142992   |           |
| 4                        | 1             | Federgehäuse<br>Spring housing           | 2165584                         |           | 29                       | 6             | Sechskantmutter<br>Hexagon nut    | 2148398   |           |
| 5                        | 1             | Zahnkranz<br>Gear ring                   | 2165585                         | 2165606   | 30                       | 6             | Scheibe<br>Washer                 | 2141465   |           |
| 6                        | 3             | Zahnbogen<br>Gear sectors                | 2165653                         | 2165660   | 31                       | 3             | Federring<br>Lock washer          | 2141717   |           |
| 7                        | 1             | Zwischenplatte<br>Centre plate           | 2165654                         | 2165661   | 33                       | 3             | Zylinderstift<br>Shear pins       | 2148376   |           |
| 8                        | 1             | Frontplatte<br>Front plate               | 2165655                         | 2165662   | 34                       | 3             | Spannhülse<br>Roll pins           | 2142576   |           |
| 9                        | 1             | Hülse<br>Sleeve                          | 2165656                         | 2165663   | 35                       | 1             | Schraubstutzen<br>Stop screw body | 2165596   | 2165611   |
| 10                       | 3             | Bolzen<br>Pin                            | 2165657                         |           | 36                       | 1             | Anschlagschraube<br>Stop screw    | 2165003   | 2165108   |
| 11                       | 1             | Spiralfeder<br>Coil spring               | 2165591                         |           | 37                       | 1             | Sechskantmutter<br>Hexagon nut    | 2148391   | 2148702   |
| 12                       | 1             | Bremsbelag<br>Brake ring                 | 2165592                         |           | 38                       | 1             | Kugelknopf<br>Ball                | 2141701   |           |
| 13                       | 4             | Federbolzen<br>Spring pin                | 2165090                         |           | 39                       | 1             | Sechskantmutter<br>Hexagon nut    | 2148398   |           |
| 14                       | 3             | Exzenterbolzen<br>Eccentric spindles     | 2165658                         | 2165664   | 40                       | 1             | Griff<br>Handle                   | 2148839   |           |
| 15                       | 3             | Distanzbolzen<br>Spacer studs            | 2165659                         |           | 41                       | 3             | Passfeder<br>Fitting key          | 2173673   |           |
| 16                       | 1             | Kugelhäufig<br>Bearing cage              | 2165093                         |           | 42                       | 2             | Passfeder<br>Fitting key          | 2165097   |           |
| 17                       | 6             | Axial-Scheibe<br>Axial washer            | 2148881                         |           | 43                       | 2             | Spannhülse<br>Roll pin            | 2142566   |           |
| 18                       | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual |           | 44                       | 6             | Schnorr-Sicherungsring<br>Circlip | 2149015   |           |
| 19                       | 119           | Stahlkugel<br>Steel ball                 | 2148807                         |           | 45                       | 3             | Gewindestift<br>Set screw         | 2148367   |           |
| 21                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2165072                         |           | 46                       | 3             | Gewindestift<br>Set screw         | 2142058   |           |
| 22                       | 3             | Passfeder<br>Fitting key                 | 2165094                         |           | 47                       | 6             | Axialnadelager<br>Thrust bearing  | 2147534   |           |
| 23                       | 4             | Druckfeder<br>Pressure spring            | 2165095                         |           | 48                       | 3             | Abdeckscheibe<br>Cover plate      | 2165597   |           |
| 24                       | 3             | Zylinderschraube<br>Front plate screw    | 2143016                         |           | 49                       | 3             | Kupplungskeil<br>Clutch wedge     | 2165598   |           |
| 25                       | 3             | Zylinderschraube<br>Cap screw            | 2143017                         |           | 50                       | 3             | Zylinderschraube<br>Cap screw     | 2141882   |           |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
 When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!



### für Rechtsgewinde

- feststehend und umlaufend verwendbar
- mit Flansch
- Rollen-Schrägstellung = 2° 30'
- Gewicht ohne Rollen = ca. 26,2 kg

### for right-hand threads

- used stationary or rotating
- flange type design
- inclined position of rolls = 2° 30'
- weight without rolls = approx. 57.6 lb

### für Linksgewinde

- Typ FU5-1L
- Baumaß wie für Rechtsgewinde-Rollkopf

### for left-hand threads

- Type FU5-1L
- Dimensions like right-hand thread rolling head

a = Schalthub

Opening movement

b = Rollkopf öffnet

Rolling Head/opening direction

c = Rollkopf schließt

(Bei Rollköpfen für Linksgewinde

ist die Schaltrichtung entgegengesetzt)

Rolling Head/closing direction

(For Rolling Heads for left-hand threads,

the direction of operation is reversed)

d = L<sub>8</sub> (Rollkopf geschlossen)

L<sub>8</sub> (Rolling Head closed)

e = L<sub>9</sub> (Rollkopf geöffnet)

L<sub>9</sub> (Rolling Head opened)

f = 4 Löcher

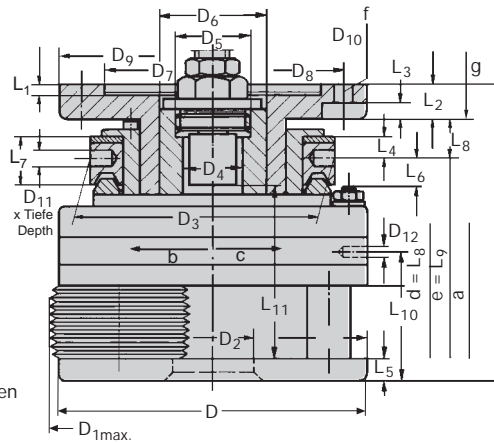
4 Holes

g = Maximale Länge der Befestigungsschrauben

Maximum length of the fastening screws

α = Schließwinkel

Closing angle



### Baumaße in mm

### Dimension in inches

|                 |                                 |                |                |                |                              |                |                              |                |                |                 |                     |                               | FU5-1     | FU5-1L <sup>5)</sup> |
|-----------------|---------------------------------|----------------|----------------|----------------|------------------------------|----------------|------------------------------|----------------|----------------|-----------------|---------------------|-------------------------------|-----------|----------------------|
| D               | D <sub>1max</sub> <sup>1)</sup> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | D <sub>5</sub> <sup>2)</sup> | D <sub>6</sub> | D <sub>7</sub> <sup>3)</sup> | D <sub>8</sub> | D <sub>9</sub> | D <sub>10</sub> | D <sub>11</sub> x T | Ident No.                     | Ident No. |                      |
| 200             | 204                             | 55             | 159            | 40             | M 48 x 1.5                   | 70             | 140                          | 170            | 200            | 13              | 8 x 12              | 1521402                       | 1521411   |                      |
| 7.874"          | 8.031"                          | 2.165"         | 6.260"         | 1.575"         | links   L.H.                 | 2.756"         | 5.512"                       | 6.693"         | 7.874"         | 0.512"          | 0.315 x 0.472"      |                               |           |                      |
| D <sub>12</sub> | L                               | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub>               | L <sub>5</sub> | L <sub>6</sub>               | L <sub>7</sub> | L <sub>8</sub> | L <sub>9</sub>  | L <sub>10</sub>     | L <sub>11</sub> <sup>4)</sup> | a         | α                    |
| M10             | 188,5                           | 8,5            | 23             | 9              | 10,5                         | 14             | 11,2                         | 22             | 22,5           | 17              | 88,9                | 79                            | 5         | 30°                  |
|                 | 7.421"                          | 0.335"         | 0.906"         | 0.354"         | 0.413"                       | 0.551"         | 0.441"                       | 0.866"         | 0.886"         | 0.669"          | 3.500"              | 3.110"                        | 0.197"    |                      |

<sup>1)</sup> Größter Außen-Ø des Rollkopfes bei Rollenstellung im geöffneten Zustand.

<sup>1)</sup> Largest outside diameter of rolling head when rolls in open position.

<sup>2)</sup> Bei Linksgewinde-Rollköpfen Rechtsgewinde.

<sup>2)</sup> For L. H. thread rolling heads: R. H. thread.

<sup>3)</sup> Toleranz für das Maß D<sub>7</sub> = +0,040 mm, +0,015 mm.

<sup>3)</sup> Tolerance for the dimension D<sub>7</sub> = +0.0016", +0.0006".

<sup>4)</sup> Max. Rolllänge einschließlich Kupplungsweg (a) bei Verwendung von drehbaren Anschlägen.

<sup>4)</sup> Max. rolling length, including clutch travel (a) when using rotating end stops.

<sup>5)</sup> L = für Linksgewinde

<sup>5)</sup> L = for Left-hand threads

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Gewinde <b>M</b> |           |           |
|---------------------------------|-----------|-----------|
| Metric ISO Threads              |           |           |
| Nennmaß x Steigung<br>mm        | Anlauf 1k | Anlauf 2K |
|                                 | Lead 1k   | Lead 2k   |
| Nominal Size x Pitch            | Ident No. |           |
| M 18 ... 20 x 2,5               | 1521590   | 1521607   |
| M 20 ... 22 x 2,5               | 1521625   | 1521634   |
| M 24 ... 27 x 3                 | 1521643   | 1521652   |
| M 30 ... 33 x 3,5               | 1521689   | 1521698   |
| M 36 ... 39 x 4                 | 1521705   | 1521723   |

| Metrisches ISO-Feingewinde <b>M</b> |           |           |
|-------------------------------------|-----------|-----------|
| Metric ISO Fine Pitch Threads       |           |           |
| Nennmaß x Steigung<br>mm            | Anlauf 1k | Anlauf 2K |
|                                     | Lead 1k   | Lead 2k   |
| Nominal Size x Pitch                | Ident No. |           |
| M 18 x 1,5                          | 1521509   | 1521518   |
| M 18 ... 20 x 2                     | 2243938   | 2168955   |
| M 20 ... 22 x 2                     | 2249598   | 2249599   |
| M 22 ... 24 x 2                     | 1521536   | 1521545   |
| M 30 ... 33 x 3                     | 2243939   | 2168736   |
| M 33 ... 36 x 3                     | 2243940   | 1521670   |

| Unified-Gewinde, fein <b>UNF</b> |           |           |
|----------------------------------|-----------|-----------|
| Unified Threads, Fine Pitch      |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 3/4 - 16 UNF                     | 1522027   | 1522036   |
| 7/8 - 14 UNF                     | 2240106   | 2243957   |
| 1 - 12 UNF                       | 2243958   | 2243959   |

| Unified-Gewinde, grob <b>UNC</b> |           |           |
|----------------------------------|-----------|-----------|
| Unified Threads, Coarse Pitch    |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 3/4- 10 UNC                      | 1521910   | 1521929   |
| 7/8- 9 UNC                       | 1521938   | 1521947   |
| 1 - 8 UNC                        | 1521956   | 1521965   |
| 1 1/8 ... 1 1/4- 7 UNC           | 1521983   | 1521992   |
| 1 3/8 ... 1 1/2- 6 UNC           | 1522009   | 1522018   |

| Whitworth-Rohrgewinde <b>G</b>   |           |           |
|----------------------------------|-----------|-----------|
| Whitworth Pipe Threads           |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| G 1/2 ... 5/8 - 14               | 2243947   | 2243948   |

| Rändel<br>Knurls                           |                             |           |         |
|--|-----------------------------|-----------|---------|
| Nennmaß x Steigung<br>Nominal Size x Pitch |                             | RAA       | RGE     |
| mm   inch                                  |                             | Ident No. |         |
| Ø 18 ... Ø 21 x 0,5                        | Ø 0.709 ... Ø 0.827 x 0.02  | 2243963   | 2243991 |
| Ø 21 ... Ø 24 x 0,5                        | Ø 0.827 ... Ø 0.945 x 0.02  | 2245344   | 2243992 |
| Ø 24 ... Ø 27 x 0,5                        | Ø 0.945 ... Ø 1.063 x 0.02  | 2243965   | 2243993 |
| Ø 27 ... Ø 30 x 0,5                        | Ø 1.063 ... Ø 1.181 x 0.02  | 2243966   | 2243994 |
| Ø 30 ... Ø 33 x 0,5                        | Ø 1.181 ... Ø 1.299 x 0.02  | 2243967   | 2243995 |
| Ø 33 ... Ø 36 x 0,5                        | Ø 1.299 ... Ø 1.417 x 0.02  | 2243968   | 2243996 |
| Ø 36 ... Ø 39 x 0,5                        | Ø 1.417 ... Ø 1.535 x 0.02  | 2243969   | 2243997 |
| Ø 18 ... Ø 21 x 0,6                        | Ø 0.709 ... Ø 0.827 x 0.024 | 2243970   | 2243998 |
| Ø 21 ... Ø 24 x 0,6                        | Ø 0.827 ... Ø 0.945 x 0.024 | 2243971   | 2243999 |
| Ø 24 ... Ø 27 x 0,6                        | Ø 0.945 ... Ø 1.063 x 0.024 | 2243972   | 2244000 |
| Ø 27 ... Ø 30 x 0,6                        | Ø 1.063 ... Ø 1.181 x 0.024 | 2243973   | 2244001 |
| Ø 30 ... Ø 33 x 0,6                        | Ø 1.181 ... Ø 1.299 x 0.024 | 2243974   | 2244002 |
| Ø 33 ... Ø 36 x 0,6                        | Ø 1.299 ... Ø 1.417 x 0.024 | 2243975   | 2244003 |
| Ø 36 ... Ø 39 x 0,6                        | Ø 1.417 ... Ø 1.535 x 0.024 | 2245344   | 2244004 |
| Ø 18 ... Ø 21 x 0,8                        | Ø 0.709 ... Ø 0.827 x 0.031 | 2243976   | 2244005 |
| Ø 21 ... Ø 24 x 0,8                        | Ø 0.827 ... Ø 0.945 x 0.031 | 2243977   | 2244006 |
| Ø 24 ... Ø 27 x 0,8                        | Ø 0.945 ... Ø 1.063 x 0.031 | 2168282   | 2244007 |
| Ø 27 ... Ø 30 x 0,8                        | Ø 1.063 ... Ø 1.181 x 0.031 | 2243978   | 2244008 |
| Ø 30 ... Ø 33 x 0,8                        | Ø 1.181 ... Ø 1.299 x 0.031 | 2243979   | 2244009 |
| Ø 33 ... Ø 36 x 0,8                        | Ø 1.299 ... Ø 1.417 x 0.031 | 2243980   | 2244010 |
| Ø 36 ... Ø 39 x 0,8                        | Ø 1.417 ... Ø 1.535 x 0.031 | 2243981   | 2244011 |
| Ø 18 ... Ø 21 x 1,0                        | Ø 0.709 ... Ø 0.827 x 0.039 | 2243982   | 2244012 |
| Ø 21 ... Ø 24 x 1,0                        | Ø 0.827 ... Ø 0.945 x 0.039 | 2243983   | 2244013 |
| Ø 24 ... Ø 27 x 1,0                        | Ø 0.945 ... Ø 1.063 x 0.039 | 2243984   | 2244014 |
| Ø 27 ... Ø 30 x 1,0                        | Ø 1.063 ... Ø 1.181 x 0.039 | 2243985   | 2244015 |
| Ø 30 ... Ø 33 x 1,0                        | Ø 1.181 ... Ø 1.299 x 0.039 | 2169008   | 2244016 |
| Ø 33 ... Ø 36 x 1,0                        | Ø 1.299 ... Ø 1.417 x 0.039 | 2242055   | 2242056 |
| Ø 36 ... Ø 39 x 1,0                        | Ø 1.417 ... Ø 1.535 x 0.039 | 2243986   | 2244017 |
| Ø 18 ... Ø 21 x 1,2                        | Ø 0.709 ... Ø 0.827 x 0.047 | 2168991   | 2244018 |
| Ø 21 ... Ø 24 x 1,2                        | Ø 0.827 ... Ø 0.945 x 0.047 | 2243987   | 2244019 |
| Ø 24 ... Ø 27 x 1,2                        | Ø 0.945 ... Ø 1.063 x 0.047 | 1522303   | 2244020 |
| Ø 27 ... Ø 30 x 1,2                        | Ø 1.063 ... Ø 1.181 x 0.047 | 2243988   | 2244021 |
| Ø 30 ... Ø 33 x 1,2                        | Ø 1.181 ... Ø 1.299 x 0.047 | 2241166   | 2244022 |
| Ø 33 ... Ø 36 x 1,2                        | Ø 1.299 ... Ø 1.417 x 0.047 | 2241167   | 2244023 |
| Ø 36 ... Ø 39 x 1,2                        | Ø 1.417 ... Ø 1.535 x 0.047 | 1522321   | 2244024 |
| Ø 18 ... Ø 21 x 1,5                        | Ø 0.709 ... Ø 0.827 x 0.059 | 2169668   | 2244025 |
| Ø 21 ... Ø 24 x 1,5                        | Ø 0.827 ... Ø 0.945 x 0.059 | 2243989   | 2244026 |
| Ø 24 ... Ø 27 x 1,5                        | Ø 0.945 ... Ø 1.063 x 0.059 | 1522330   | 2244027 |
| Ø 27 ... Ø 30 x 1,5                        | Ø 1.063 ... Ø 1.181 x 0.059 | 2243990   | 2244028 |
| Ø 30 ... Ø 33 x 1,5                        | Ø 1.181 ... Ø 1.299 x 0.059 | 1522349   | 2244029 |
| Ø 33 ... Ø 36 x 1,5                        | Ø 1.299 ... Ø 1.417 x 0.059 | 2241520   | 2244044 |
| Ø 36 ... Ø 39 x 1,5                        | Ø 1.417 ... Ø 1.535 x 0.059 | 1522358   | 2244045 |
| Ø 18 ... Ø 21 x 1,6                        | Ø 0.709 ... Ø 0.827 x 0.063 | 2244030   | 2244046 |
| Ø 21 ... Ø 24 x 1,6                        | Ø 0.827 ... Ø 0.945 x 0.063 | 2244031   | 2244047 |
| Ø 24 ... Ø 27 x 1,6                        | Ø 0.945 ... Ø 1.063 x 0.063 | 2244032   | 2244048 |
| Ø 27 ... Ø 30 x 1,6                        | Ø 1.063 ... Ø 1.181 x 0.063 | 2244033   | 2244049 |
| Ø 30 ... Ø 33 x 1,6                        | Ø 1.181 ... Ø 1.299 x 0.063 | 2244034   | 2244050 |
| Ø 33 ... Ø 36 x 1,6                        | Ø 1.299 ... Ø 1.417 x 0.063 | 2244035   | 2242051 |
| Ø 36 ... Ø 39 x 1,6                        | Ø 1.417 ... Ø 1.535 x 0.063 | 2244036   | 2244052 |
| Ø 18 ... Ø 21 x 2,0                        | Ø 0.709 ... Ø 0.827 x 0.079 | 2244037   | 2244053 |
| Ø 21 ... Ø 24 x 2,0                        | Ø 0.827 ... Ø 0.945 x 0.079 | 2244038   | 2244054 |
| Ø 24 ... Ø 27 x 2,0                        | Ø 0.945 ... Ø 1.063 x 0.079 | 2244039   | 2244055 |
| Ø 27 ... Ø 30 x 2,0                        | Ø 1.063 ... Ø 1.181 x 0.079 | 2244040   | 2244056 |
| Ø 30 ... Ø 33 x 2,0                        | Ø 1.181 ... Ø 1.299 x 0.079 | 2244041   | 2244057 |
| Ø 33 ... Ø 36 x 2,0                        | Ø 1.299 ... Ø 1.417 x 0.079 | 2244042   | 2244058 |
| Ø 36 ... Ø 39 x 2,0                        | Ø 1.417 ... Ø 1.535 x 0.079 | 2244043   | 2244059 |

| Glätten<br>Burnishing                |                   |  | Ident No. |
|--------------------------------------|-------------------|--|-----------|
| Nennmaß<br>Nominal Size<br>mm   inch |                   |  |           |
| Ø 18 – Ø 21                          | Ø 0.709 – Ø 0.827 |  | 2244060   |
| Ø 21 – Ø 24                          | Ø 0.827 – Ø 0.945 |  | 2244061   |
| Ø 24 – Ø 27                          | Ø 0.945 – Ø 1.063 |  | 2244062   |
| Ø 27 – Ø 30                          | Ø 1.063 – Ø 1.181 |  | 2244063   |
| Ø 30 – Ø 33                          | Ø 1.181 – Ø 1.299 |  | 2244064   |
| Ø 33 – Ø 36                          | Ø 1.299 – Ø 1.417 |  | 2244065   |
| Ø 36 – Ø 39                          | Ø 1.417 – Ø 1.535 |  | 2244066   |

| Rundgewinde<br>Knuckle Form Threads                    |                      |                      | Rd |
|--|----------------------|----------------------|----|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |    |
|  | Ident No.            |                      |    |
| Rd 20 ... 22 x 1/8                                     | 2243949              | 2243950              |    |
| Rd 24 ... 26 x 1/8                                     | 2243951              | 2243952              |    |
| Rd 28 ... 30 x 1/8                                     | 2243953              | 2167971              |    |
| Rd 30 ... 32 x 1/8                                     | 2243955              | 2243956              |    |

| Whitworth-Feingewinde<br>Whitworth Fine Pitch Threads  |                      |                      | BSF |
|--|----------------------|----------------------|-----|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |     |
|  | Ident No.            |                      |     |
| 3/4 ... 13/16 – 12 BSF                                 | 2243942              | 2243943              |     |
| 7/8 ... 15/16 – 11 BSF                                 | 2243944              | 2243945              |     |
| 1 – 10 BSF   | 1521803              | 1521812              |     |
| 1 1/8 ... 1 1/4 – 9 BSF                                | 1521821              | 2241152              |     |
| 1 3/8 ... 1 1/2 – 8 BSF                                | 2243946              | 1521830              |     |

| Whitworth-Gewinde<br>Whitworth Threads                 |                      |                      | BSW |
|--|----------------------|----------------------|-----|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |     |
|  | Ident No.            |                      |     |
| 3/4 ... 13/16 – 10 BSW                                 | 1521849              | 1521858              |     |
| 7/8 ... 15/16 – 9 BSW                                  | 2242073              | 2242954              |     |
| 1 – 8 BSW  | 1521867              | 1521876              |     |
| 1 1/8 ... 1 1/4 – 7 BSW                                | 1521885              | 1521894              |     |
| 1 3/8 ... 1 1/2 – 6 BSW                                | 2243941              | 1521901              |     |

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 2,0 bis 4,2 kg.

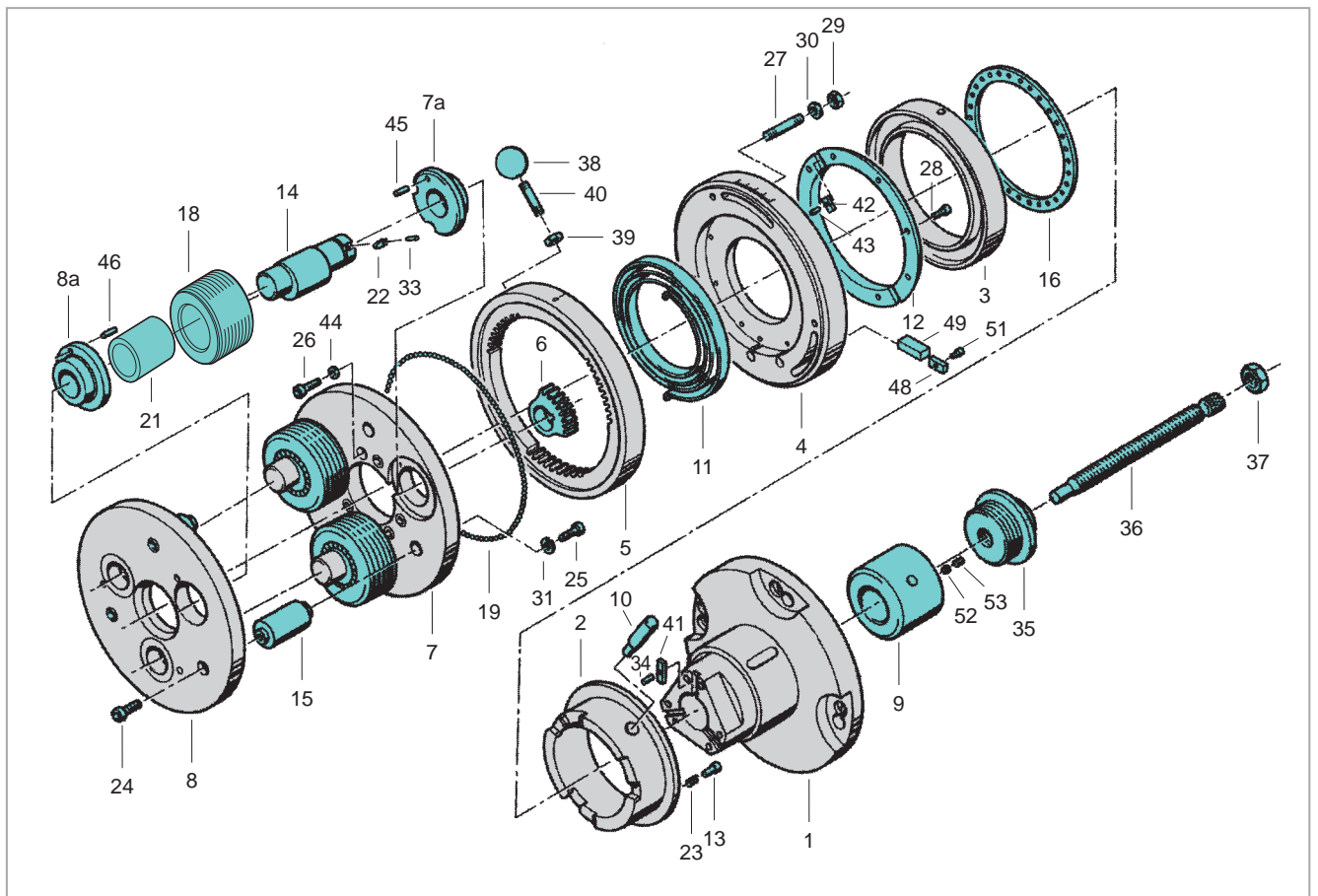
Thread dimensions combined in one block can be rolled with **one** set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 4.4 to 9.3 lb.

### Ersatzteile für Rollkopf FU5-1 Spare Parts for Rolling Head FU5-1

| Rollkopf<br>Rolling Head |               |   | FU5-1     | FU5-1L    | Rollkopf<br>Rolling Head |               |  | FU5-1                           | FU5-1L    |
|--------------------------|---------------|---|-----------|-----------|--------------------------|---------------|--|---------------------------------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                     | Ident No. | Ident No. | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Ident No. |
|                          |               |   |           |           |                          |               |  |                                 |           |
| 1                        | 1             | Mitnehmer<br>Flange                               | 2165665   | 2165693   | 13                       | 4             | Federbolzen<br>Spring pin                | 2165679                         |           |
| 2                        | 1             | Kupplung<br>Clutch                                | 2165666   | 2165694   | 14                       | 3             | Exzenterbolzen<br>Eccentric spindles     | 2165680                         | 2165702   |
| 3                        | 1             | Schaltring<br>Operating ring                      | 2165667   |           | 15                       | 3             | Distanzbolzen<br>Spacer studs            | 2165681                         |           |
| 4                        | 1             | Federgehäuse<br>Spring housing                    | 2165668   |           | 16                       | 1             | Kugelkäfig<br>Bearing cage               | 2165682                         |           |
| 5                        | 1             | Zahnkranz<br>Gear ring                            | 2165669   | 2165695   | 18                       | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual |           |
| 6                        | 3             | Zahnbogen<br>Gear sectors                         | 2165670   | 2165696   | 19                       | 145           | Stahlkugel<br>Steel ball                 | 2148807                         |           |
| 7                        | 1             | Zwischenplatte<br>Centre plate                    | 2165671   | 2165697   | 21                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2173803                         |           |
| 7a                       | 3             | Buchse für Zwischenplatte<br>Centre plate bushing | 2165673   | 2165698   | 22                       | 3             | Passfeder<br>Fitting key                 | 2165683                         |           |
| 8                        | 1             | Frontplatte<br>Front plate                        | 2165672   | 2165699   | 23                       | 3             | Druckfeder<br>Pressure spring            | 2165684                         |           |
| 8a                       | 3             | Buchse für Frontplatte<br>Front plate bushing     | 2165674   | 2165700   | 24                       | 3             | Zylinderschraube<br>Front plate screw    | 2143017                         |           |
| 9                        | 1             | Hülse<br>Sleeve                                   | 2165675   | 2165701   | 25                       | 3             | Zylinderschraube<br>Cap screw            | 2143029                         |           |
| 10                       | 3             | Bolzen<br>Pin                                     | 2165676   |           | 26                       | 6             | Zylinderschraube<br>Cap screw            | 2128712                         |           |
| 11                       | 1             | Spiralfeder<br>Coil spring                        | 2165677   |           | 27                       | 6             | Stiftschraube<br>Stud                    | 2148827                         |           |
| 12                       | 1             | Bremsbelag<br>Brake ring                          | 2165678   |           | 28                       | 8             | Zylinderschraube<br>Cap screw            | 2141883                         |           |



| Rollkopf<br>Rolling Head |               |                                   | FU5-1     | FU5-1L<br>Linksgewinde<br>Left hand thread | Rollkopf<br>Rolling Head |               |                                   | FU5-1     | FU5-1L<br>Linksgewinde<br>Left hand thread |
|--------------------------|---------------|-----------------------------------|-----------|--|--------------------------|---------------|-----------------------------------|-----------|--|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description     | Ident No. | Ident No.                                  | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description     | Ident No. | Ident No.                                  |
| 29                       | 6             | Sechskantmutter<br>Hexagon nut    | 2148399   |  | 41                       | 3             | Passfeder<br>Fitting key          | 2173743   |  |
| 30                       | 6             | Scheibe<br>Washer                 | 2141466   |  | 42                       | 2             | Passfeder<br>Fitting key          | 2165096   |  |
| 31                       | 3             | Federring<br>Lock washer          | 2141718   |  | 43                       | 2             | Spannhülse<br>Roll pin            | 2142566   |  |
| 33                       | 3             | Zylinderstift<br>Shear pins       | 2141244   |  | 44                       | 6             | Schnorr-Sicherungsring<br>Circlip | 2149015   |  |
| 34                       | 3             | Spannhülse<br>Roll pins           | 2142576   |  | 45                       | 3             | Spannhülse<br>Set screw           | 2148850   |  |
| 35                       | 1             | Schraubstutzen<br>Stop screw body | 2165685   | 2165703                                    | 46                       | 3             | Spannhülse<br>Set screw           | 2148850   |  |
| 36                       | 1             | Anschlagschraube<br>Stop screw    | 2165686   | 2165704                                    | 48                       | 3             | Abdeckscheibe<br>Cover plate      | 2165687   |  |
| 37                       | 1             | Sechskantmutter<br>Hexagon nut    | 2148391   | 2148702                                    | 49                       | 3             | Kupplungskeil<br>Clutch wedge     | 2165688   |  |
| 38                       | 1             | Kugelknopf<br>Ball                | 2141702   |  | 51                       | 3             | Zylinderschraube<br>Cap screw     | 2143009   |  |
| 39                       | 1             | Sechskantmutter<br>Hexagon nut    | 2148399   |  | 52                       | 3             | Gewindestift<br>Set screw         | 2142165   |  |
| 40                       | 1             | Griff<br>Handle                   | 2148828   |  | 53                       | 3             | Gewindestift<br>Set screw         | 2142075   |  |



Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!

**für Rechtsgewinde**

- feststehend und umlaufend verwendbar
- mit Flansch
- speziell für Feingewinde
- Rollen-Schrägstellung = 1°
- Gewicht ohne Rollen = ca. 26,2 kg

**for right-hand threads**

- used stationary or rotating
- flange type design
- especially for rolling of fine pitch threads
- inclined position of rolls = 1°
- weight without rolls = approx. 57.6 lb

a = Schalthub

Opening movement

b = Rollkopf öffnet

Rolling Head/opening direction

c = Rollkopf schließt

(Bei Rollköpfen für Linksgewinde

ist die Schalrichtung entgegengesetzt)

Rolling Head/closing direction

(For Rolling Heads for left-hand threads,

the direction of operation is reversed)

d = L<sub>8</sub> (Rollkopf geschlossen)

L<sub>8</sub> (Rolling Head closed)

e = L<sub>9</sub> (Rollkopf geöffnet)

L<sub>9</sub> (Rolling Head opened)

f = 4 Löcher

4 Holes

g = Maximale Länge der Befestigungsschrauben

Maximum length of the fastening screws

α = Schließwinkel

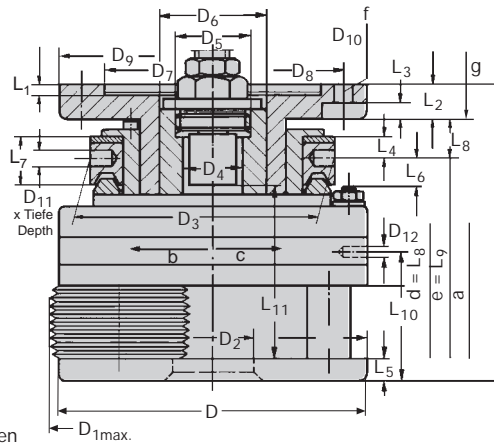
Closing angle

**für Linksgewinde**

- Typ FU56-1L
- Baumaß wie für Rechtsgewinde-Rollkopf

**for left-hand threads**

- Type FU56-1L
- Dimensions like right-hand thread rolling head



**Baumaße in mm**

**Dimension in inches**

|                 |                                 |                |                |                |                              |                |                              |                |                |                 |                     |                               | FU56-1    | FU56-1L <sup>5)</sup> |
|-----------------|---------------------------------|----------------|----------------|----------------|------------------------------|----------------|------------------------------|----------------|----------------|-----------------|---------------------|-------------------------------|-----------|-----------------------|
| D               | D <sub>1max</sub> <sup>1)</sup> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | D <sub>5</sub> <sup>2)</sup> | D <sub>6</sub> | D <sub>7</sub> <sup>3)</sup> | D <sub>8</sub> | D <sub>9</sub> | D <sub>10</sub> | D <sub>11</sub> x T | Ident No.                     | Ident No. |                       |
| 200             | 204                             | 58             | 159            | 46             | M 48 x 1.5                   | 70             | 140                          | 170            | 200            | 13              | 8 x 12              | 1522606                       | 1522615   |                       |
| 7.874"          | 8.031"                          | 2.283"         | 6.260"         | 1.811"         | links   L.H.                 | 2.756"         | 5.512"                       | 6.693"         | 7.874"         | 0.512"          | 0.315 x 0.472"      |                               |           |                       |
| D <sub>12</sub> | L                               | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub>               | L <sub>5</sub> | L <sub>6</sub>               | L <sub>7</sub> | L <sub>8</sub> | L <sub>9</sub>  | L <sub>10</sub>     | L <sub>11</sub> <sup>4)</sup> | a         | α                     |
| M10             | 185,5                           | 8,5            | 23             | 9              | 10,5                         | 14,6           | 11,2                         | 22             | 22,5           | 17              | 85,7                | 78                            | 5         | 30°                   |
|                 | 7.303"                          | 0.335"         | 0.906"         | 0.354"         | 0.413"                       | 0.575"         | 0.441"                       | 0.866"         | 0.886"         | 0.669"          | 3.374"              | 3.071"                        | 0.197"    |                       |

<sup>1)</sup> Größter Außen-Ø des Rollkopfes bei Rollenstellung im geöffneten Zustand.

<sup>1)</sup> Largest outside diameter of rolling head when rolls in open position.

<sup>2)</sup> Bei Linksgewinde-Rollköpfen Rechtsgewinde.

<sup>2)</sup> For L. H. thread rolling heads: R. H. thread.

<sup>3)</sup> Toleranz für das Maß D<sub>7</sub> = +0,04 mm, +0,015 mm.

<sup>3)</sup> Tolerance for the dimension D<sub>7</sub> = +0.0016", +0.0006".

<sup>4)</sup> Max. Rolllänge einschließlich Kupplungsweg (a) bei Verwendung von drehbaren Anschlägen.

<sup>4)</sup> Max. rolling length, including clutch travel (a) when using rotating end stops.

<sup>5)</sup> L = für Linksgewinde

<sup>5)</sup> L = for Left-hand threads

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Feingewinde<br>Metric ISO Fine Pitch Threads |                      |                      | M         |
|---|----------------------|----------------------|-----------|
| Nennmaß x Steigung<br>mm                                    | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k | Ident No. |
| Nominal Size x Pitch  |                      |                      |           |
| M 22 ... 24 x 1,5   | 2244068              | 1522740              |           |
| M 24 ... 27 x 1,5   | 1522759              | 1522768              |           |
| M 27 ... 30 x 1,5   | 1522777              | 1522786              |           |
| M 30 ... 33 x 1,5   | 1522795              | 1522802              |           |
| M 33 ... 36 x 1,5   | 1522820              | 1522839              |           |
| M 36 ... 39 x 1,5   | 1522848              | 1522866              |           |
| M 39 ... 42 x 1,5   | 1522884              | 1522893              |           |
| M 42 ... 45 x 1,5   | 1522919              | 1522928              |           |
| M 45 ... 48 <sup>1)</sup> x 1,5                             | 1522937              | 1522946              |           |
| M 27 ... 30 x 2   | 2240550              | 1522973              |           |
| M 30 ... 33 x 2   | 1522982              | 1522991              |           |
| M 33 ... 36 x 2   | 2166778              | 1523008              |           |
| M 36 ... 39 x 2   | 1523017              | 1523026              |           |
| M 39 ... 42 x 2   | 2241545              | 1523035              |           |
| M 42 ... 45 x 2   | 1523044              | 1523053              |           |
| M 45 ... 48 <sup>1)</sup> x 2                               | 1523062              | 1523071              |           |
| M 48 <sup>1)</sup> ... 50 <sup>1)</sup> x 2                 | 2244069              | 2244070              |           |
| M 50 <sup>1)</sup> ... 52 <sup>1)</sup> x 2                 | 1523080              | 1523099              |           |
| M 42 ... 45 x 3   | 1523124              | 1523133              |           |
| M 45 ... 48 <sup>1)</sup> x 3                               | 2244071              | 1523142              |           |
| M 48 <sup>1)</sup> ... 50 <sup>1)</sup> x 3                 | 2244072              | 1523151              |           |
| M 50 <sup>1)</sup> ... 52 <sup>1)</sup> x 3                 | 2167076              | 2244073              |           |

| Whitworth-Feingewinde<br>Whitworth Fine Pitch Threads                                 |                      |                      | BSFS      |
|---|----------------------|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll  | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k | Ident No. |
| Nominal Size x TPI  |                      |                      |           |
| <sup>7</sup> / <sub>8</sub> ... 1 - 20 BSFS   | 2244165              | 2244166              |           |
| 1 ... <sup>11</sup> / <sub>8</sub> - 20 BSFS  | 2244167              | 2244168              |           |
| <sup>11</sup> / <sub>8</sub> ... <sup>11</sup> / <sub>4</sub> - 20 BSFS               | 2244169              | 2244170              |           |
| <sup>11</sup> / <sub>4</sub> ... <sup>13</sup> / <sub>8</sub> - 20 BSFS               | 2244171              | 2244172              |           |
| <sup>13</sup> / <sub>8</sub> ... <sup>11</sup> / <sub>2</sub> - 20 BSFS               | 2244173              | 2244174              |           |
| <sup>15</sup> / <sub>8</sub> ... <sup>13</sup> / <sub>4</sub> - 16 BSFS               | 2244175              | 2244176              |           |
| <sup>13</sup> / <sub>4</sub> ... <sup>17</sup> / <sub>8</sub> <sup>1)</sup> - 16 BSFS | 2244177              | 2244178              |           |
| <sup>17</sup> / <sub>8</sub> <sup>1)</sup> ... 2 <sup>1)</sup> - 16 BSFS              | 2244179              | 2244180              |           |
| <sup>11</sup> / <sub>8</sub> ... <sup>11</sup> / <sub>4</sub> - 12 BSFS               | 2244181              | 2244182              |           |
| <sup>11</sup> / <sub>4</sub> ... <sup>13</sup> / <sub>8</sub> - 12 BSFS               | 2244183              | 2244184              |           |
| <sup>13</sup> / <sub>8</sub> ... <sup>11</sup> / <sub>2</sub> - 12 BSFS               | 2244185              | 1523204              |           |
| <sup>11</sup> / <sub>2</sub> ... <sup>15</sup> / <sub>8</sub> - 12 BSFS               | 2244186              | 2244187              |           |
| <sup>15</sup> / <sub>8</sub> ... <sup>13</sup> / <sub>4</sub> - 12 BSFS               | 2244188              | 2244189              |           |
| <sup>13</sup> / <sub>4</sub> ... <sup>17</sup> / <sub>8</sub> <sup>1)</sup> - 12 BSFS | 2244190              | 2244191              |           |
| <sup>17</sup> / <sub>8</sub> <sup>1)</sup> ... 2 <sup>1)</sup> - 12 BSFS              | 2244192              | 2244193              |           |
| 2 <sup>1)</sup> ... 2 <sup>1</sup> / <sub>8</sub> <sup>2)</sup> - 12 BSFS             | 2244194              | 2244195              |           |
| 2 <sup>1</sup> / <sub>8</sub> <sup>2)</sup> - 8 BSFS                                  | 2244196              | 2244197              |           |

| Unified-Gewinde<br>Unified Threads  |                      |                      | UN/UNF/UNEF |  |
|---|----------------------|----------------------|-------------|--|
| Nennmaß x Gangzahl<br>auf 1 Zoll  | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k | Ident No.   |  |
| Nominal Size x TPI  |                      |                      |             |  |
| <sup>7</sup> / <sub>8</sub> ... 1 - 32 UN   | 2244204              | 2244205              |             |  |
| <sup>7</sup> / <sub>8</sub> ... 1 - 28 UN   | 2244206              | 2244207              |             |  |
| 1 ... <sup>11</sup> / <sub>8</sub> - 28 UN  | 2244208              | 2244209              |             |  |
| <sup>11</sup> / <sub>8</sub> ... <sup>11</sup> / <sub>4</sub> - 28 UN               | 2244210              | 2244211              |             |  |
| <sup>11</sup> / <sub>4</sub> ... <sup>15</sup> / <sub>16</sub> - 28 UN              | 2244212              | 2244213              |             |  |
| <sup>7</sup> / <sub>8</sub> ... 1 - 20 UNEF   | 2244214              | 2244215              |             |  |
| 1 ... <sup>11</sup> / <sub>8</sub> - 20 UNEF  | 2244216              | 2244217              |             |  |
| <sup>11</sup> / <sub>8</sub> ... <sup>11</sup> / <sub>4</sub> - 20 UN               | 2244218              | 2244219              |             |  |
| <sup>11</sup> / <sub>4</sub> ... <sup>13</sup> / <sub>8</sub> - 20 UN               | 2244220              | 2244221              |             |  |
| <sup>13</sup> / <sub>8</sub> ... <sup>11</sup> / <sub>2</sub> - 20 UN               | 2244222              | 2244223              |             |  |
| <sup>11</sup> / <sub>16</sub> ... <sup>13</sup> / <sub>16</sub> - 18 UNEF           | 2244224              | 2244225              |             |  |
| <sup>13</sup> / <sub>16</sub> ... <sup>15</sup> / <sub>16</sub> - 18 UNEF           | 2244226              | 2244227              |             |  |
| <sup>15</sup> / <sub>16</sub> ... <sup>17</sup> / <sub>16</sub> - 18 UNEF           | 2244228              | 2244229              |             |  |
| <sup>17</sup> / <sub>16</sub> ... <sup>19</sup> / <sub>16</sub> - 18 UNEF           | 2244230              | 2244231              |             |  |
| <sup>19</sup> / <sub>16</sub> ... <sup>11</sup> / <sub>16</sub> - 18 UNEF           | 2244232              | 2244233              |             |  |
| <sup>7</sup> / <sub>8</sub> ... 1 - 16 UN   | 2244234              | 2244235              |             |  |
| 1 ... <sup>11</sup> / <sub>8</sub> - 16 UN  | 2244236              | 2244237              |             |  |
| <sup>11</sup> / <sub>8</sub> ... <sup>11</sup> / <sub>4</sub> - 16 UN               | 2241610              | 2244238              |             |  |
| <sup>11</sup> / <sub>4</sub> ... <sup>13</sup> / <sub>8</sub> - 16 UN               | 2244239              | 2244240              |             |  |
| <sup>13</sup> / <sub>8</sub> ... <sup>11</sup> / <sub>2</sub> - 16 UN               | 2241611              | 2244241              |             |  |
| <sup>11</sup> / <sub>2</sub> ... <sup>15</sup> / <sub>8</sub> - 16 UN               | 2244242              | 2244243              |             |  |
| <sup>15</sup> / <sub>8</sub> ... <sup>13</sup> / <sub>4</sub> - 16 UN               | 2241612              | 2244244              |             |  |
| <sup>13</sup> / <sub>4</sub> ... <sup>17</sup> / <sub>8</sub> <sup>1)</sup> - 16 UN | 2244245              | 2244246              |             |  |
| <sup>17</sup> / <sub>8</sub> <sup>1)</sup> ... 2 <sup>1)</sup> - 16 UN              | 2167459              | 2166948              |             |  |
| <sup>11</sup> / <sub>8</sub> ... <sup>11</sup> / <sub>4</sub> - 12 UNF              | 2244247              | 2169807              |             |  |
| <sup>11</sup> / <sub>4</sub> ... <sup>13</sup> / <sub>8</sub> - 12 UNF              | 2243016              | 1523311              |             |  |
| <sup>13</sup> / <sub>8</sub> ... <sup>11</sup> / <sub>2</sub> - 12 UNF              | 1523339              | 1523357              |             |  |
| <sup>11</sup> / <sub>2</sub> ... <sup>15</sup> / <sub>8</sub> - 12 UNF              | 2244248              | 1523348              |             |  |
| <sup>15</sup> / <sub>8</sub> ... <sup>13</sup> / <sub>4</sub> - 12 UNF              | 2167963              | 1523366              |             |  |
| <sup>13</sup> / <sub>4</sub> ... <sup>17</sup> / <sub>8</sub> <sup>1)</sup> - 12 UN | 1523384              | 2244249              |             |  |
| <sup>17</sup> / <sub>8</sub> <sup>1)</sup> ... 2 <sup>1)</sup> - 12 UN              | 2244250              | 1523393              |             |  |
| 2 <sup>1)</sup> ... 2 <sup>1</sup> / <sub>8</sub> <sup>2)</sup> - 12 UN             | 2244251              | 2166193              |             |  |
| <sup>13</sup> / <sub>4</sub> ... <sup>17</sup> / <sub>8</sub> <sup>1)</sup> - 8 UN  | 2244252              | 2241453              |             |  |
| <sup>17</sup> / <sub>8</sub> <sup>1)</sup> ... 2 <sup>1)</sup> - 8 UN               | 2244253              | 2167964              |             |  |
| 2 <sup>1)</sup> ... 2 <sup>1</sup> / <sub>8</sub> <sup>2)</sup> - 8 UN              | 2242633              | 2244254              |             |  |

| Whitworth-Rohrgewinde<br>Whitworth Pipe Threads                      |                      |                      | G         |
|--|----------------------|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll                                     | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k | Ident No. |
| Nominal Size x TPI   |                      |                      |           |
| G <sup>3</sup> / <sub>4</sub> - 14                                   | 2169005              | 2166905              |           |
| G <sup>7</sup> / <sub>8</sub> - 14                                   | 2244198              | 2169902              |           |
| G 1 - 11   | 1523222              | 1523231              |           |
| G <sup>11</sup> / <sub>8</sub> - 11                                  | 2244199              | 2244200              |           |
| G <sup>11</sup> / <sub>4</sub> ... <sup>13</sup> / <sub>8</sub> - 11 | 1523240              | 1523268              |           |
| G <sup>11</sup> / <sub>2</sub> <sup>1)</sup> - 11                    | 1523277              | 1523286              |           |
| G <sup>15</sup> / <sub>8</sub> <sup>1)</sup> - 11                    | 2244201              | 2244202              |           |
| G <sup>13</sup> / <sub>4</sub> <sup>1)</sup> - 11                    | 1523295              | 2244203              |           |

| Amerikanisches Rohrgewinde<br>American Pipe Threads |                      | NPT       |
|---|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll                    | Anlauf 1k<br>Lead 1k | Ident No. |
| Nominal Size x TPI                                  |                      |           |
| <sup>3</sup> / <sub>4</sub> - 14 NPT                | 2167489              |           |
| 1 - 11,5 NPT  | 1523507              |           |
| 1 <sup>1</sup> / <sub>4</sub> - 11,5 NPT            | 1523516              |           |
| 1 <sup>1</sup> / <sub>2</sub> - 11,5 NPT            | 1523525              |           |

| Amerikanisches Rohrgewinde<br>American Dryseal Pipe Threads |                      | NPTF      |
|---|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll                            | Anlauf 1k<br>Lead 1k | Ident No. |
| Nominal Size x TPI  |                      |           |
| <sup>3</sup> / <sub>4</sub> - 14 NPTF                       | 2245180              |           |
| 1 - 11,5 NPTF   | 2245181              |           |
| 1 <sup>1</sup> / <sub>4</sub> - 11,5 NPTF                   | 2248851              |           |
| 1 <sup>1</sup> / <sub>2</sub> - 11,5 NPTF                   | 2248852              |           |

<sup>1)</sup> Für Kurzgewinde bis 95 mm Länge einschließlich Auslauf.

<sup>1)</sup> For short threads up to 95 mm/3.74" including runout.

<sup>2)</sup> Für Kurzgewinde bis 38 mm Länge einschließlich Auslauf.

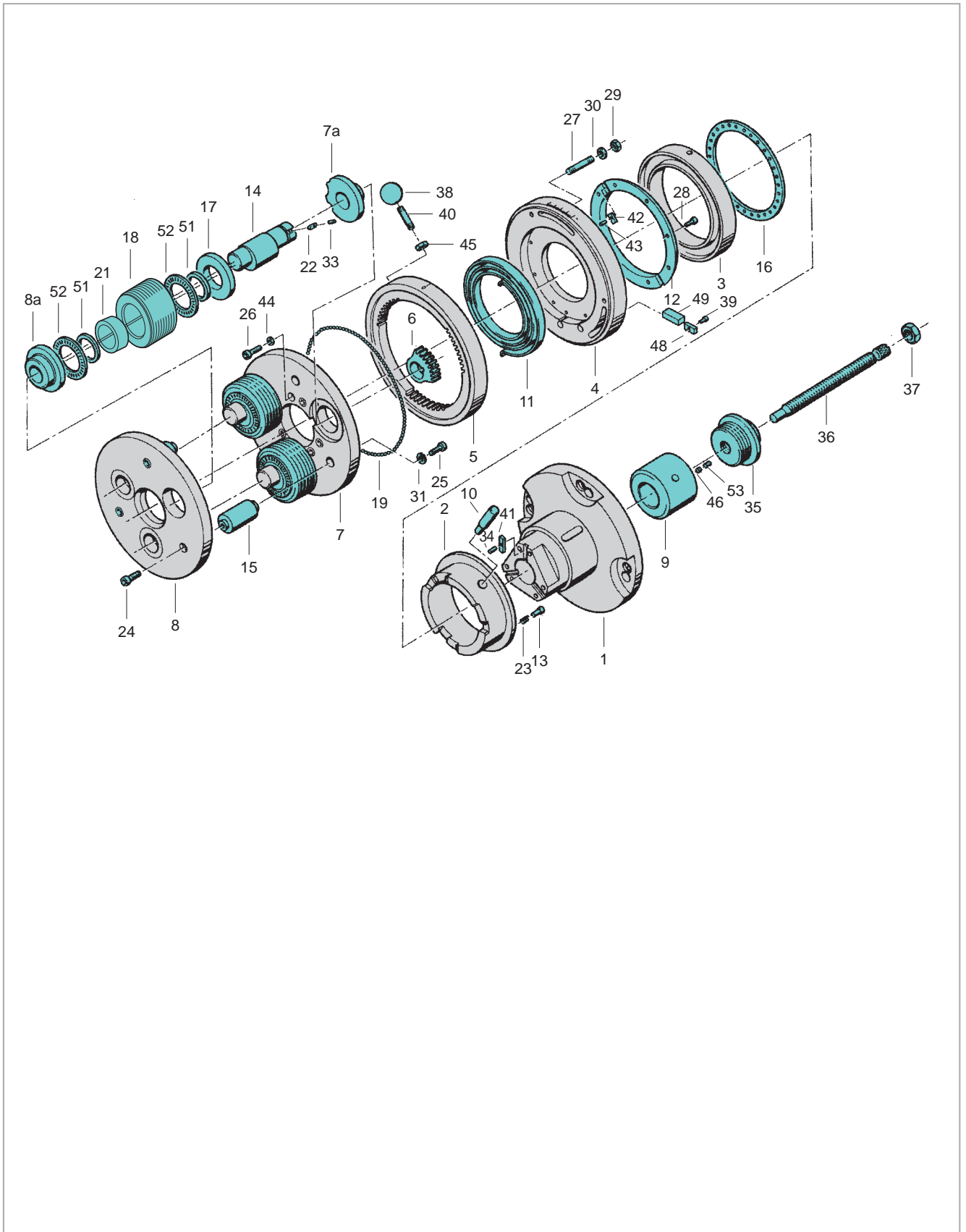
<sup>2)</sup> For short threads up to 38 mm/1.496" including runout.

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 1,1 bis 2,7 kg.

Thread dimensions combined in one block can be rolled with **one** set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 2.4 to 6 lb.

| Rollkopf<br>Rolling Head |               |   | FU56-1                          | FU56-1L<br>Linksgewinde<br>Left hand thread | Rollkopf<br>Rolling Head |               |                                    | FU56-1    | FU56-1L<br>Linksgewinde<br>Left hand thread |
|--------------------------|---------------|---|---------------------------------|---|--------------------------|---------------|------------------------------------|-----------|---|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                     | Ident No.                       | Ident No.                                   | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description      | Ident No. | Ident No.                                   |
| 1                        | 1             | Mitnehmer<br>Flange                               | 2165665                         | 2165693                                     | 26                       | 6             | Zylinderschraube<br>Cap screw      | 2128712   |   |
| 2                        | 1             | Kupplung<br>Clutch                                | 2165666                         | 2165694                                     | 27                       | 6             | Stiftschraube<br>Stud              | 2148827   |   |
| 3                        | 1             | Schaltring<br>Operating ring                      | 2165667                         |   | 28                       | 8             | Zylinderschraube<br>Cap screw      | 2141883   |   |
| 4                        | 1             | Federgehäuse<br>Spring housing                    | 2165668                         |   | 29                       | 6             | Sechskantmutter<br>Hexagon nut     | 2148399   |   |
| 5                        | 1             | Zahnkranz<br>Gear ring                            | 2165669                         | 2165695                                     | 30                       | 6             | Scheibe<br>Washer                  | 2141466   |   |
| 6                        | 3             | Zahnbogen<br>Gear sectors                         | 2165729                         | 2165739                                     | 31                       | 3             | Federring<br>Lock washer           | 2141718   |   |
| 7                        | 1             | Zwischenplatte<br>Centre plate                    | 2165730                         | 2165740                                     | 33                       | 3             | Zylinderstift<br>Shear pins        | 2141237   |   |
| 7a                       | 3             | Buchse für Zwischenplatte<br>Centre plate bushing | 2165731                         | 2165741                                     | 34                       | 3             | Spannhülse<br>Roll pins            | 2142576   |   |
| 8                        | 1             | Frontplatte<br>Front plate                        | 2165732                         | 2165742                                     | 35                       | 1             | Schraubstutzen<br>Stop screw body  | 2165685   | 2165703                                     |
| 8a                       | 3             | Buchse für Frontplatte<br>Front plate bushing     | 2165733                         |   | 36                       | 1             | Anschlagschraube<br>Stop screw     | 2165686   | 2165704                                     |
| 9                        | 1             | Hülse<br>Sleeve                                   | 2165734                         | 2165744                                     | 37                       | 1             | Sechskantmutter<br>Hexagon nut     | 2148391   | 2148702                                     |
| 10                       | 3             | Bolzen<br>Pin                                     | 2165735                         |   | 38                       | 1             | Kugelknopf<br>Ball                 | 2141702   |   |
| 11                       | 1             | Spiralfeder<br>Coil spring                        | 2165677                         |   | 39                       | 3             | Zylinderschraube<br>Cap screw      | 2143009   |   |
| 12                       | 1             | Bremsbelag<br>Brake ring                          | 2165678                         |   | 40                       | 1             | Griff<br>Handle                    | 2148828   |   |
| 13                       | 4             | Federbolzen<br>Spring pin                         | 2165679                         |   | 41                       | 3             | Passfeder<br>Fitting key           | 2173743   |   |
| 14                       | 3             | Exzenterbolzen<br>Eccentric spindles              | 2165736                         | 2165745                                     | 42                       | 2             | Passfeder<br>Fitting key           | 2165096   |   |
| 15                       | 3             | Distanzbolzen<br>Spacer studs                     | 2165737                         |   | 43                       | 2             | Spannhülse<br>Shear pins           | 2142566   |   |
| 16                       | 1             | Kugelkäfig<br>Bearing cage                        | 2165682                         |   | 44                       | 6             | Schnorr-Sicherungsring<br>Circlip  | 2149015   |   |
| 17                       | 3             | Scheibe<br>Washer                                 | 2165738                         |   | 45                       | 1             | Sechskantmutter<br>Hexagon nut     | 2148399   |   |
| 18                       | 3             | Gewinderolle<br>Thread roll                       | siehe Einsatzfall<br>individual |   | 46                       | 3             | Gewindestift<br>Set screw          | 2142165   |   |
| 19                       | 145           | Stahlkugel<br>Steel ball                          | 2148807                         |   | 48                       | 3             | Abdeckscheibe<br>Cover plate       | 2165687   |   |
| 21                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing          | 2167324                         |   | 49                       | 3             | Kupplungskeil<br>Clutch wedge      | 2165688   |   |
| 22                       | 3             | Passfeder<br>Fitting key                          | 2165595                         |   | 51                       | 6             | Zentrierscheibe<br>Centering ring  | 2165630   |   |
| 23                       | 3             | Druckfeder<br>Pressure spring                     | 2165684                         |   | 52                       | 6             | Axialnadellager<br>Thrust bearings | 2147347   |   |
| 24                       | 3             | Zylinderschraube<br>Front plate screw             | 2143017                         |   | 53                       | 3             | Gewindestift<br>Set screw          | 2142075   |   |
| 25                       | 3             | Zylinderschraube<br>Cap screw                     | 2143029                         |   |                          |               |                                    |           |   |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!



### für Rechtsgewinde

- feststehend und umlaufend verwendbar
- mit Flansch
- Rollen-Schrägstellung = 2°
- Gewicht ohne Rollen = ca. 57 kg

### for right-hand threads

- used stationary or rotating
- flange type design
- inclined position of rolls = 2°
- weight without rolls = approx. 125.4 lb

### für Linksgewinde

- Typ FU6a-1L
- Baumaß wie für Rechtsgewinde-Rollkopf

### for left-hand threads

- Type FU6a-1L
- Dimensions like right-hand thread rolling head

a = Schalhub

Opening movement

b = Rollkopf öffnet

Rolling Head/opening direction

c = Rollkopf schließt

(Bei Rollköpfen für Linksgewinde

ist die Schalrichtung entgegengesetzt)

Rolling Head/closing direction

(For Rolling Heads for left-hand threads,

the direction of operation is reversed)

d = L<sub>8</sub> (Rollkopf geschlossen)

L<sub>8</sub> (Rolling Head closed)

e = L<sub>9</sub> (Rollkopf geöffnet)

L<sub>9</sub> (Rolling Head opened)

f = 4 Löcher

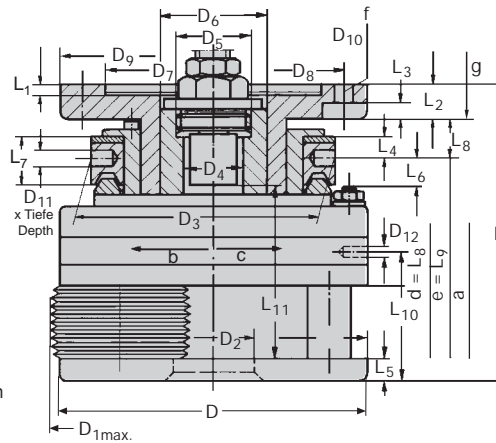
4 Holes

g = Maximale Länge der Befestigungsschrauben

Maximum length of the fastening screws

α = Schließwinkel

Closing angle



### Baumaße in mm

### Dimension in inches

|                 |                                 |                              |                |                |                              |                |                              |                |                |                 |                     |                               | FU6a-1    | FU6a-1L <sup>5)</sup> |
|-----------------|---------------------------------|------------------------------|----------------|----------------|------------------------------|----------------|------------------------------|----------------|----------------|-----------------|---------------------|-------------------------------|-----------|-----------------------|
| D               | D <sub>1max</sub> <sup>1)</sup> | D <sub>2</sub> <sup>6)</sup> | D <sub>3</sub> | D <sub>4</sub> | D <sub>5</sub> <sup>2)</sup> | D <sub>6</sub> | D <sub>7</sub> <sup>3)</sup> | D <sub>8</sub> | D <sub>9</sub> | D <sub>10</sub> | D <sub>11</sub> x T | Ident No.                     | Ident No. |                       |
| 255             | 225                             | 70                           | 195            | 58             | M 70 x 2                     | 82             | 140                          | 170            | 200            | 13              | 12 x 20             | 1524007                       | 2242972   |                       |
| 10.039"         | 8.858"                          | 2.756"                       | 7.677"         | 2.283"         | links   L.H.                 | 3.228"         | 5.512"                       | 6.693"         | 7.874"         | 0.512"          | 0.472 x 0.787"      |                               |           |                       |
| D <sub>12</sub> | L                               | L <sub>1</sub>               | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub>               | L <sub>5</sub> | L <sub>6</sub>               | L <sub>7</sub> | L <sub>8</sub> | L <sub>9</sub>  | L <sub>10</sub>     | L <sub>11</sub> <sup>4)</sup> | a         | α                     |
| M10             | 272                             | 8,5                          | 34             | 20             | 20                           | 22             | 19                           | 45             | 35,6           | 29,6            | 118                 | 147                           | 6         | 28°                   |
|                 | 10.709"                         | 0.335"                       | 1.339"         | 0.787"         | 0.787"                       | 0.866"         | 0.748"                       | 1.772"         | 1.402"         | 1.165"          | 4.646"              | 5.787"                        | 0.236"    |                       |

<sup>1)</sup> Größter Außen-Ø des Rollkopfes bei Rollenstellung im geöffneten Zustand.

<sup>1)</sup> Largest outside diameter of rolling head when rolls in open position.

<sup>2)</sup> Bei Linksgewinde-Rollköpfen Rechtsgewinde.

<sup>2)</sup> For L. H. thread rolling heads: R. H. thread.

<sup>3)</sup> Toleranz für das Maß D<sub>7</sub> = +0,040 mm, +0,015 mm.

<sup>3)</sup> Tolerance for the dimension D<sub>7</sub> = 0.002", 0.0006".

<sup>4)</sup> Max. Rolllänge einschließlich Kupplungsweg (a) bei Verwendung von drehbaren Anschlägen. Bei Verwendung von drehbaren Endansschlägen max. Rolllänge 147 mm.

<sup>4)</sup> Max. rolling length, including clutch travel (a) when using rotating end stops. Max. rolling length when using rotating end stops = 5.787".

<sup>5)</sup> L = für Linksgewinde

<sup>5)</sup> L = for Left-hand threads

<sup>6)</sup> Für Bund-Ø > 59 mm bis 69 mm ist ein Gewindeauslauf von 8 mm plus Rollenauslauf vorzusehen.

<sup>6)</sup> For shoulder diameters greater than 2.323" to 2.717" the undercut must be 0.315" longer to compensate for the bearings and thrust washer between the rolls and the front plate.

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Gewinde   |           | M         |         |
|--------------------------|-----------|-----------|---------|
| Metric ISO Threads       |           |           |         |
| Nennmaß x Steigung<br>mm | Anlauf 1k | Anlauf 2K |         |
|                          | Lead 1k   | Lead 1k   | Lead 2k |
| Nominal Size x Pitch     | Ident No. |           |         |
| M 30 ... 33 x 3,5        | 2244112   | 1524132   |         |
| M 36 ... 39 x 4          | 2244113   | 1524141   |         |
| M 42 x 4,5               | 2244114   | 1524150   |         |

| Metrisches ISO-Feingewinde    |           | M         |         |
|-------------------------------|-----------|-----------|---------|
| Metric ISO Fine Pitch Threads |           |           |         |
| Nennmaß x Steigung<br>mm      | Anlauf 1k | Anlauf 2K |         |
|                               | Lead 1k   | Lead 1k   | Lead 2k |
| Nominal Size x Pitch          | Ident No. |           |         |
| M 30 ... 33 x 2               | 2245475   | 2245476   |         |
| M 33 ... 36 x 2               | 2245477   | 2245478   |         |
| M 30 ... 33 x 3               | 2241114   | 2244116   |         |
| M 33 ... 36 x 3               | 2244117   | 2244118   |         |
| M 36 ... 39 x 3               | 2244119   | 1524114   |         |
| M 39 ... 42 x 3               | 2244120   | 2167256   |         |
| M 40 ... 42 x 4               | 2245479   | 2245480   |         |

| Unified-Gewinde   |           | UN/UNF/UNEF |         |
|---|-----------|-------------|---------|
| Unified Threads   |           |             |         |
| Nennmaß x Gangzahl<br>auf 1 Zoll  | Anlauf 1k | Anlauf 2K   |         |
|   | Lead 1k   | Lead 1k     | Lead 2k |
| Nominal Size x TPI  | Ident No. |             |         |
| 1 <sup>1</sup> / <sub>4</sub> ... 1 <sup>3</sup> / <sub>8</sub> x 18 UNEF | 2245481   | 2245482     |         |
| 1 <sup>1</sup> / <sub>4</sub> ... 1 <sup>3</sup> / <sub>8</sub> x 16 UN   | 2245483   | 2245484     |         |
| 1 <sup>3</sup> / <sub>8</sub> ... 1 <sup>7</sup> / <sub>16</sub> x 16 UN  | 2245485   | 2245486     |         |
| 1 <sup>1</sup> / <sub>4</sub> ... 1 <sup>3</sup> / <sub>8</sub> x 12 UN   | 2167933   | 2167923     |         |
| 1 <sup>3</sup> / <sub>8</sub> ... 1 <sup>1</sup> / <sub>2</sub> x 12 UNF  | 1524258   | 1524267     |         |
| 1 <sup>1</sup> / <sub>4</sub> ... 1 <sup>3</sup> / <sub>8</sub> x 8 UN    | 2245487   | 2245488     |         |
| 1 <sup>3</sup> / <sub>8</sub> ... 1 <sup>1</sup> / <sub>2</sub> x 8 UN    | 2245489   | 2245490     |         |
| 1 <sup>1</sup> / <sub>2</sub> ... 1 <sup>5</sup> / <sub>8</sub> x 8 UN    | 2245491   | 2245492     |         |
| 1 <sup>9</sup> / <sub>16</sub> ... 1 <sup>5</sup> / <sub>8</sub> x 6 UN   | 2245493   | 2245494     |         |

| Unified-Gewinde, grob   |           | UNC       |         |
|---|-----------|-----------|---------|
| Unified Threads, Coarse Pitch   |           |           |         |
| Nennmaß x Gangzahl<br>auf 1 Zoll  | Anlauf 1k | Anlauf 2K |         |
|   | Lead 1k   | Lead 1k   | Lead 2k |
| Nominal Size x TPI  | Ident No. |           |         |
| 1 <sup>1</sup> / <sub>4</sub> - 7 UNC                                   | 2244136   | 1524203   |         |
| 1 <sup>3</sup> / <sub>8</sub> ... 1 <sup>1</sup> / <sub>2</sub> - 6 UNC | 2244137   | 1524212   |         |

| Whitworth-Rohrgewinde                      |           | G         |         |
|--|-----------|-----------|---------|
| Whitworth Pipe Threads                     |           |           |         |
| Nennmaß x Gangzahl<br>auf 1 Zoll           | Anlauf 1k | Anlauf 2k |         |
|  | Lead 1k   | Lead 1k   | Lead 2k |
| Nominal Size x TPI                         | Ident No. |           |         |
| G 7/8 - 14                                 | 2244131   | 2244132   |         |
| G 1 ... 1 <sup>1</sup> / <sub>8</sub> - 11 | 2244133   | 2244134   |         |
| G 1 <sup>1</sup> / <sub>4</sub> - 11       | 2244135   | 1524301   |         |

| Whitworth-Gewinde   |           | BSW       |         |
|---|-----------|-----------|---------|
| Whitworth Threads   |           |           |         |
| Nennmaß x Gangzahl<br>auf 1 Zoll  | Anlauf 1k | Anlauf 2K |         |
|   | Lead 1k   | Lead 1k   | Lead 2k |
| Nominal Size x TPI  | Ident No. |           |         |
| 1 <sup>1</sup> / <sub>4</sub> - 7 BSW                                   | 2244121   | 1524187   |         |
| 1 <sup>3</sup> / <sub>8</sub> ... 1 <sup>1</sup> / <sub>2</sub> - 6 BSW | 2244122   | 1524196   |         |
| 1 <sup>5</sup> / <sub>8</sub> - 5 BSW                                   | 2244123   | 2244124   |         |

| Whitworth-Feingewinde   |           | BSF       |         |
|---|-----------|-----------|---------|
| Whitworth Fine Pitch Threads  |           |           |         |
| Nennmaß x Gangzahl<br>auf 1 Zoll  | Anlauf 1k | Anlauf 2K |         |
|   | Lead 1k   | Lead 1k   | Lead 2k |
| Nominal Size x TPI  | Ident No. |           |         |
| 1 <sup>1</sup> / <sub>4</sub> - 9 BSF                                   | 2244125   | 2244126   |         |
| 1 <sup>3</sup> / <sub>8</sub> ... 1 <sup>1</sup> / <sub>2</sub> - 8 BSF | 2244127   | 2244128   |         |
| 1 <sup>1</sup> / <sub>2</sub> ... 1 <sup>5</sup> / <sub>8</sub> - 8 BSF | 2244129   | 2244130   |         |

| Rundgewinde                      |           | Rd        |         |
|----------------------------------|-----------|-----------|---------|
| Knuckle Form Threads             |           |           |         |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |         |
|                                  | Lead 1k   | Lead 1k   | Lead 2k |
| Nominal Size x TPI               | Ident No. |           |         |
| Rd 30 x 1/8                      | 2244138   | 2244139   |         |
| Rd 32 ... 34 x 1/8               | 2244140   | 2244141   |         |
| Rd 36 ... 38 x 1/8               | 2244142   | 2244143   |         |
| Rd 40 ... 42 x 1/6               | 2244144   | 2244145   |         |

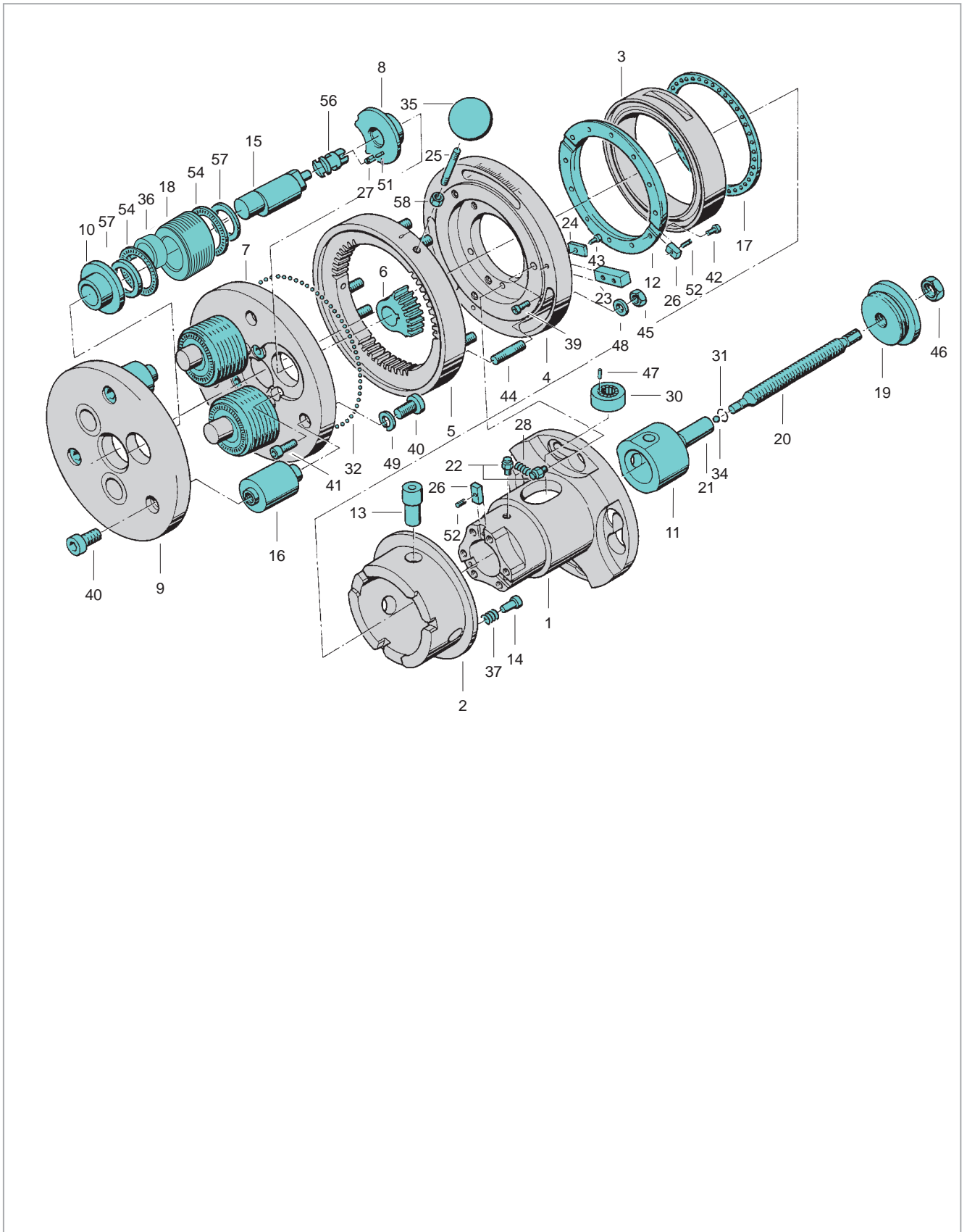
Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 2,6 bis 3,8 kg.

Thread dimensions combined in one block can be rolled with **one** set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 5.7 to 8.4 lb.

| Rollkopf<br>Rolling Head |               |   | FU6a-1                          | FU6a-1L<br>Linksgewinde<br>Left hand thread | Rollkopf<br>Rolling Head |               |  | FU6a-1    | FU6a-1L<br>Linksgewinde<br>Left hand thread |
|--------------------------|---------------|---|---------------------------------|---|--------------------------|---------------|--|-----------|---|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                     | Ident No.                       | Ident No.                                   | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No. | Ident No.                                   |
| 1                        | 1             | Mitnehmer<br>Flange                               | 2165821                         | 2168978                                     | 27                       | 3             | Passfeder<br>Fitting key                 | 2165840   |   |
| 2                        | 1             | Kupplung<br>Clutch                                | 2165822                         | 2165852                                     | 28                       | 2             | Zugfeder<br>Tension spring               | 2165841   |   |
| 3                        | 1             | Schaltring<br>Operating ring                      | 2165823                         |   | 30                       | 3             | Laufbuchse<br>Bushing                    | 2165842   |   |
| 4                        | 1             | Federgehäuse<br>Spring housing                    | 2165824                         |   | 31                       | 1             | Sprengring<br>Circlip                    | 2165008   |   |
| 5                        | 1             | Zahnkranz<br>Gear ring                            | 2165825                         |   | 32                       | 186           | Stahlkugel<br>Steel ball                 | 2148807   |   |
| 6                        | 3             | Zahnbogen<br>Gear sectors                         | 2165826                         | 2165853                                     | 34                       | 1             | Stahlkugel<br>Steel ball                 | 2148795   |   |
| 7                        | 1             | Zwischenplatte<br>Centre plate                    | 2165827                         | 2165854                                     | 35                       | 1             | Kugelknopf<br>Ball                       | 2141702   |   |
| 8                        | 3             | Buchse für Zwischenplatte<br>Center plate bushing | 2165828                         | 2242971                                     | 36                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2169115   |   |
| 9                        | 1             | Frontplatte<br>Front plate                        | 2165829                         | 2165856                                     | 37                       | 4             | Druckfeder<br>Pressure spring            | 2165769   |   |
| 10                       | 3             | Buchse für Frontplatte<br>Front plate bushing     | 2165830                         |   | 39                       | 6             | Zylinderschraube<br>Cap screw            | 2148740   |   |
| 11                       | 1             | Hülse<br>Sleeve                                   | 2165831                         | 2165876                                     | 40                       | 6             | Zylinderschraube<br>Front plate screw    | 2143053   |   |
| 12                       | 1             | Bremsbelag<br>Brake ring                          | 2165832                         |   | 41                       | 6             | Zylinderschraube<br>Cap screw            | 2148748   |   |
| 13                       | 3             | Bolzen<br>Pin                                     | 2165833                         |   | 42                       | 12            | Zylinderschraube<br>Cap screw            | 2142999   |   |
| 14                       | 4             | Federbolzen<br>Spring pin                         | 2165759                         |   | 43                       | 3             | Zylinderschraube<br>Cap screw            | 2143006   |   |
| 15                       | 3             | Exzenterbolzen<br>Eccentric spindles              | 2165834                         |   | 44                       | 6             | Stiftschraube<br>Stud                    | 2148833   |   |
| 16                       | 3             | Distanzbolzen<br>Spacer studs                     | 2165835                         |   | 45                       | 6             | Sechskantmutter<br>Hexagon nut           | 2148701   |   |
| 17                       | 1             | Kugelkäfig<br>Bearing cage                        | 2165836                         |   | 46                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148392   | 2148703                                     |
| 18                       | 3             | Gewinderolle<br>Thread roll                       | siehe Einsatzfall<br>individual |   | 47                       | 93            | Lagernadel<br>Needle roller bearings     | 2148820   |   |
| 19                       | 1             | Schraubstutzen<br>Stop screw body                 | 2165837                         | 2165860                                     | 48                       | 6             | Scheibe<br>Washer                        | 2141468   |   |
| 20                       | 1             | Anschlagschraube<br>Stop screw                    | 2165919                         | 2165791                                     | 49                       | 3             | Federring<br>Lock washer                 | 2141720   |   |
| 21                       | 1             | Drehbarer Anschlag<br>Rotating end stop           | 2167300                         |   | 51                       | 3             | Zylinderstift<br>Shear pins              | 2141241   |   |
| 22                       | 4             | Federbefestigung<br>Spring holder                 | 2165764                         |   | 52                       | 5             | Spannhülse<br>Roll pins                  | 2142576   |   |
| 23                       | 3             | Kupplungskeil<br>Clutch wedge                     | 2165838                         |   | 54                       | 6             | Axialnadellager<br>Thrust bearings       | 2167311   |   |
| 24                       | 3             | Abdeckscheibe<br>Cover plate                      | 2165839                         |   | 56                       | 3             | Führungsbuchse<br>Spindle drive          | 2165651   | 2165877                                     |
| 25                       | 1             | Griff<br>Handle                                   | 2148828                         |   | 57                       | 6             | Zentrierscheibe<br>Centering ring        | 2165843   |   |
| 26                       | 5             | Passfeder<br>Fitting key                          | 2173743                         |   | 58                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148399   |   |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!





**für Rechtsgewinde**

- feststehend und umlaufend verwendbar
- mit Flansch
- Rollen-Schrägstellung = 2°
- Gewicht ohne Rollen = ca. 57 kg

**for right-hand threads**

- used stationary or rotating
- flange type design
- inclined position of rolls = 2°
- weight without rolls = approx. 125.4 lb

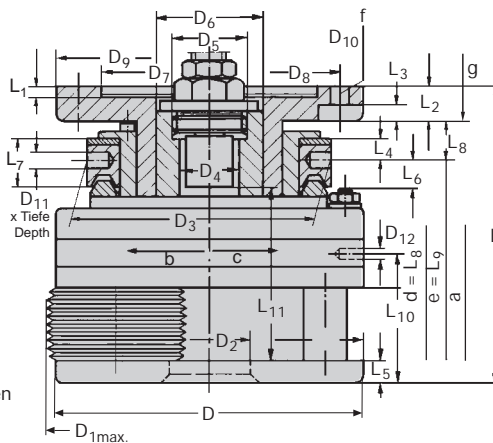
**für Linksgewinde**

- Typ FU6b-1L
- Baumaß wie für Rechtsgewinde-Rollkopf

**for left-hand threads**

- Type FU6b-1L
- Dimensions like right-hand thread rolling head

- a = Schalhub  
Opening movement
- b = Rollkopf öffnet  
Rolling Head/opening direction
- c = Rollkopf schließt  
(Bei Rollköpfen für Linksgewinde ist die Schalrichtung entgegengesetzt)  
Rolling Head/closing direction  
(For Rolling Heads for left-hand threads, the direction of operation is reversed)
- d = L<sub>8</sub> (Rollkopf geschlossen)  
L<sub>8</sub> (Rolling Head closed)
- e = L<sub>9</sub> (Rollkopf geöffnet)  
L<sub>9</sub> (Rolling Head opened)
- f = 4 Löcher  
4 Holes
- g = Maximale Länge der Befestigungsschrauben  
Maximum length of the fastening screws
- α = Schließwinkel  
Closing angle



| Baumaße in mm<br>Dimension in inches |                                 |                              |                |                |                              |                |                              |                |                |                 |                     |                               | FU6b-1    | FU6b-1L <sup>5)</sup> |
|--------------------------------------|---------------------------------|------------------------------|----------------|----------------|------------------------------|----------------|------------------------------|----------------|----------------|-----------------|---------------------|-------------------------------|-----------|-----------------------|
| D                                    | D <sub>1max</sub> <sup>1)</sup> | D <sub>2</sub> <sup>6)</sup> | D <sub>3</sub> | D <sub>4</sub> | D <sub>5</sub> <sup>2)</sup> | D <sub>6</sub> | D <sub>7</sub> <sup>3)</sup> | D <sub>8</sub> | D <sub>9</sub> | D <sub>10</sub> | D <sub>11</sub> x T | Ident No.                     | Ident No. |                       |
| 255                                  | 246                             | 70                           | 195            | 58             | M 70 x 2                     | 82             | 140                          | 170            | 200            | 13              | 12 x 20             | 2164895                       | 2242973   |                       |
| 10.039"                              | 9.685"                          | 2.756"                       | 7.677"         | 2.283"         | links   L.H.                 | 3.228"         | 5.512"                       | 6.693"         | 7.874"         | 0.512"          | 0.472 x 0.787"      |                               |           |                       |
| D <sub>12</sub>                      | L                               | L <sub>1</sub>               | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub>               | L <sub>5</sub> | L <sub>6</sub>               | L <sub>7</sub> | L <sub>8</sub> | L <sub>9</sub>  | L <sub>10</sub>     | L <sub>11</sub> <sup>4)</sup> | a         | α                     |
| M10                                  | 272                             | 8,5                          | 34             | 20             | 20                           | 22             | 19                           | 45             | 35,6           | 29,6            | 118                 | 147                           | 6         | 28°                   |
|                                      | 10.709"                         | 0.335"                       | 1.339"         | 0.787"         | 0.787"                       | 0.866"         | 0.748"                       | 1.772"         | 1.402"         | 1.165"          | 4.646"              | 5.787"                        | 0.236"    |                       |

<sup>1)</sup> Größter Außen-Ø des Rollkopfes bei Rollenstellung im geöffneten Zustand.

<sup>1)</sup> Largest outside diameter of rolling head when rolls in open position.

<sup>2)</sup> Bei Linksgewinde-Rollköpfen Rechtsgewinde.

<sup>2)</sup> For L. H. thread rolling heads: R. H. thread.

<sup>3)</sup> Toleranz für das Maß D<sub>7</sub> = +0,040 mm, +0,015 mm.

<sup>3)</sup> Tolerance for the dimension D<sub>7</sub> = 0.002", 0.0006".

<sup>4)</sup> Max. Rolllänge einschließlich Kupplungsweg (a) bei Verwendung von drehbaren Anschlägen. Bei Verwendung von drehbaren Endansschlägen max. Rolllänge 147 mm.

<sup>4)</sup> Max. rolling length, including clutch travel (a) when using rotating end stops. Max. rolling length when using rotating end stops = 5.787".

<sup>5)</sup> L = für Linksgewinde

<sup>5)</sup> L = for Left-hand threads

<sup>6)</sup> Für Bund-Ø > 59 mm bis 69 mm ist ein Gewindeauslauf von 3 mm plus Rollenauslauf vorzusehen.

<sup>6)</sup> For shoulder diameters greater than 2.323" to 2.717" the undercut must be 0.118" longer to compensate for the bearings and thrust washer between the rolls and the front plate.

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Gewinde   |                      | M                    |  |
|--------------------------|----------------------|----------------------|--|
| Metric ISO Threads       |                      |                      |  |
| Nennmaß x Steigung<br>mm | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |  |
|                          |                      | Ident No.            |  |
| M 36 ... 39 x 4          | 1524631              | 1524640              |  |
| M 42 ... 45 x 4,5        | 1524668              | 1524677              |  |
| M 48 ... 52 x 5          | 1524686              | 1524695              |  |
| M 56 x 5,5               | 2244146              | 1524702              |  |

| Metrisches ISO-Feingewinde    |                      | M                    |  |
|-------------------------------|----------------------|----------------------|--|
| Metric ISO Fine Pitch Threads |                      |                      |  |
| Nennmaß x Steigung<br>mm      | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |  |
|                               |                      | Ident No.            |  |
| M 36 x 2                      | 2245495              | 2245496              |  |
| M 36 ... 39 x 3               | 2245497              | 1524551              |  |
| M 39 ... 42 x 3               | 2245498              | 2241986              |  |
| M 42 ... 45 x 3               | 2244147              | 1524579              |  |
| M 45 ... 48 x 3               | 2245499              | 2245500              |  |
| M 40 ... 42 x 4               | 2245501              | 2245502              |  |
| M 42 ... 45 x 4               | 2245503              | 2167931              |  |
| M 45 ... 48 x 4               | 2245504              | 2245505              |  |
| M 48 ... 52 x 4               | 2245506              | 2240029              |  |
| M 52 ... 56 x 4               | 2245507              | 2245508              |  |

| Unified-Gewinde, fein            |                      | UN/UNF               |  |
|----------------------------------|----------------------|----------------------|--|
| Unified Threads, Fine Pitch      |                      |                      |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |  |
|                                  |                      | Ident No.            |  |
| 1 1/2 - 12 UNF                   | 2245515              | 2245516              |  |
| 1 1/2 ... 1 5/8 - 8 UN           | 2245517              | 2245518              |  |
| 1 5/8 ... 1 3/4 - 8 UN           | 2245519              | 2164892              |  |
| 1 3/4 ... 1 7/8 - 8 UN           | 2245520              | 2245521              |  |
| 1 7/8 ... 2 - 8 UN               | 2245522              | 2164893              |  |
| 2 ... 2 1/8 - 8 UN               | 2245523              | 2245524              |  |
| 1 1/2 ... 1 5/8 - 6 UN           | 2245525              | 2245526              |  |
| 1 5/8 ... 1 3/4 - 6 UN           | 2245527              | 2245528              |  |
| 1 3/4 ... 1 7/8 - 6 UN           | 2245529              | 2245530              |  |
| 1 7/8 ... 2 - 6 UN               | 2245531              | 2245532              |  |
| 2 ... 2 1/8 - 6 UN               | 2245533              | 2245534              |  |

| Unified-Gewinde, grob            |                      | UNC                  |  |
|----------------------------------|----------------------|----------------------|--|
| Unified Threads, Coarse Pitch    |                      |                      |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |  |
|                                  |                      | Ident No.            |  |
| 1 1/2 x 6 UNC                    | 2245513              | 2245514              |  |
| 1 3/4 x 5 UNC                    | 2244156              | 2167657              |  |
| 2 x 4 1/2 UNC                    | 2244157              | 2241883              |  |

| Whitworth-Gewinde                |                      | BSW                  |  |
|----------------------------------|----------------------|----------------------|--|
| Whitworth Threads                |                      |                      |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |  |
|                                  |                      | Ident No.            |  |
| 1 1/2 x 6 BSW                    | 2245509              | 2245510              |  |
| 1 5/8 ... 1 3/4 - 5 BSW          | 2244148              | 2242057              |  |
| 1 7/8 ... 2 - 4 1/2 BSW          | 2244149              | 2241508              |  |

| Whitworth-Feingewinde            |                      | BSF/BSFS             |  |
|----------------------------------|----------------------|----------------------|--|
| Whitworth Fine Pitch Threads     |                      |                      |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |  |
|                                  |                      | Ident No.            |  |
| 1 1/2 ... 1 5/8 - 8 BSF          | 2244150              | 2244151              |  |
| 2 ... 2 1/8 - 8 BSFS             | 2245511              | 2245512              |  |
| 1 3/4 ... 1 7/8 - 7 BSF          | 2244152              | 2244153              |  |
| 1 7/8 ... 2 - 7 BSF              | 2244154              | 2244155              |  |

| Rundgewinde                      |                      | Rd                   |  |
|----------------------------------|----------------------|----------------------|--|
| Knuckle Form Threads             |                      |                      |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |  |
|                                  |                      | Ident No.            |  |
| Rd 36 ... 38 x 1/8               | 2245535              | 2245536              |  |
| Rd 40 ... 42 x 1/6               | 2244158              | 2244159              |  |
| Rd 42 ... 44 x 1/6               | 2244160              | 2244161              |  |
| Rd 46 ... 48 x 1/6               | 1524828              | 2244162              |  |
| Rd 50 ... 52 x 1/6               | 2244163              | 2244164              |  |

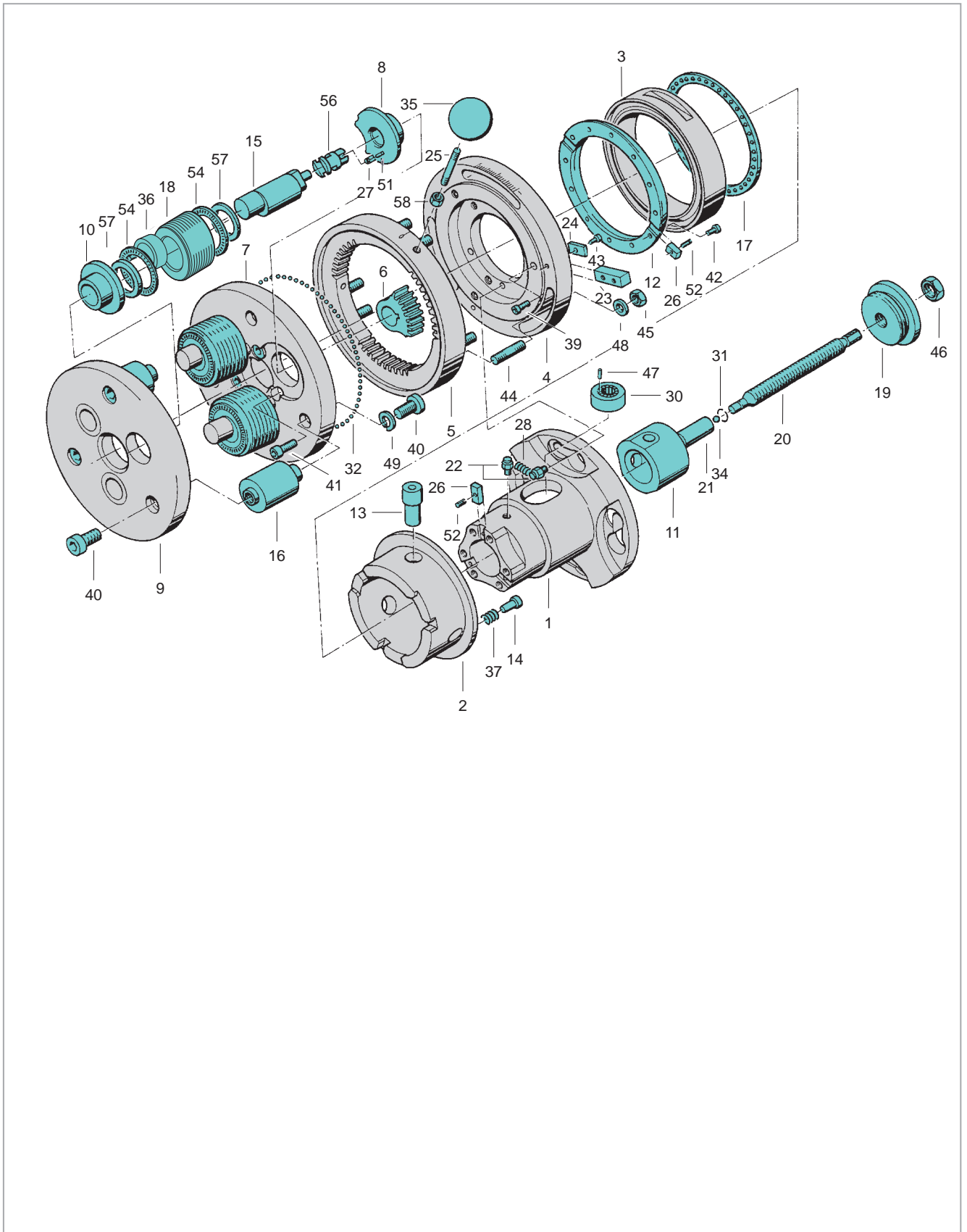
Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 2,4 bis 4,5 kg.

Zusätzlich zu dem aufgeführten Arbeitsbereich kann mit dem Gewinderollkopf Größe 6b-1 auch der gesamte Arbeitsbereich vom Gewinderollkopf 6a-1 gerollt werden. Die Rollen von Gewinderollkopf 6a-1 sind nicht groß genug für den entsprechenden Durchmesser im Gewinderollkopf 6b-1.

Thread dimensions combined in one block can be rolled with **one** set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 5.3 to 9.9 lb. In addition to the capacity range shown, it is also possible to cover the entire capacity range of Thread Rolling Head size 6a by using the Thread Rolling Head size 6b. The rolls from Thread Rolling Head size 6a are not big enough to cover the diameter range from Thread Rolling Head size 6b.

| Rollkopf<br>Rolling Head |               |   | FU6b-1                          | FU6b-1L   | Rollkopf<br>Rolling Head |               |  | FU6b-1    | FU6b-1L   |
|--------------------------|---------------|---|---------------------------------|-----------|--------------------------|---------------|--|-----------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                     | Ident No.                       | Ident No. | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No. | Ident No. |
|                          |               |   |                                 |           |                          |               |  |           |           |
| 1                        | 1             | Mitnehmer<br>Flange                               | 2165821                         | 2168978   | 27                       | 3             | Passfeder<br>Fitting key                 | 2165840   |           |
| 2                        | 1             | Kupplung<br>Clutch                                | 2165822                         | 2165852   | 28                       | 2             | Zugfeder<br>Tension spring               | 2165841   |           |
| 3                        | 1             | Schaltring<br>Operating ring                      | 2165823                         |           | 30                       | 3             | Laufbuchse<br>Bushing                    | 2165842   |           |
| 4                        | 1             | Federgehäuse<br>Spring housing                    | 2165824                         |           | 31                       | 1             | Sprengring<br>Circlip                    | 2165008   |           |
| 5                        | 1             | Zahnkranz<br>Gear ring                            | 2165880                         |           | 32                       | 186           | Stahlkugel<br>Steel ball                 | 2148807   |           |
| 6                        | 3             | Zahnbogen<br>Gear sectors                         | 2165826                         | 2165853   | 34                       | 1             | Stahlkugel<br>Steel ball                 | 2148795   |           |
| 7                        | 1             | Zwischenplatte<br>Centre plate                    | 2165881                         | 2240913   | 35                       | 1             | Kugelknopf<br>Ball                       | 2141702   |           |
| 8                        | 3             | Buchse für Zwischenplatte<br>Center plate bushing | 2165882                         | 2240907   | 36                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2169115   |           |
| 9                        | 1             | Frontplatte<br>Front plate                        | 2165883                         | 2240914   | 37                       | 4             | Druckfeder<br>Pressure spring            | 2165769   |           |
| 10                       | 3             | Buchse für Frontplatte<br>Front plate bushing     | 2165830                         |           | 39                       | 6             | Zylinderschraube<br>Cap screw            | 2148740   |           |
| 11                       | 1             | Hülse<br>Sleeve                                   | 2165831                         | 2165876   | 40                       | 6             | Zylinderschraube<br>Front plate screw    | 2143053   |           |
| 12                       | 1             | Bremsbelag<br>Brake ring                          | 2165832                         |           | 41                       | 6             | Zylinderschraube<br>Cap screw            | 2148748   |           |
| 13                       | 3             | Bolzen<br>Pin                                     | 2165833                         |           | 42                       | 12            | Zylinderschraube<br>Cap screw            | 2142999   |           |
| 14                       | 4             | Federbolzen<br>Spring pin                         | 2165759                         |           | 43                       | 3             | Zylinderschraube<br>Cap screw            | 2143006   |           |
| 15                       | 3             | Exzenterbolzen<br>Eccentric spindles              | 2165834                         |           | 44                       | 6             | Stiftschraube<br>Stud                    | 2148833   |           |
| 16                       | 3             | Distanzbolzen<br>Spacer studs                     | 2165835                         |           | 45                       | 6             | Sechskantmutter<br>Hexagon nut           | 2148701   |           |
| 17                       | 1             | Kugelhäufig<br>Bearing cage                       | 2165836                         |           | 46                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148392   | 2148703   |
| 18                       | 3             | Gewinderolle<br>Thread roll                       | siehe Einsatzfall<br>individual |           | 47                       | 93            | Lagernadel<br>Needle roller bearings     | 2148820   |           |
| 19                       | 1             | Schraubstutzen<br>Stop screw body                 | 2165837                         | 2165860   | 48                       | 6             | Scheibe<br>Washer                        | 2141468   |           |
| 20                       | 1             | Anschlagschraube<br>Stop screw                    | 2165919                         | 2165791   | 49                       | 3             | Federring<br>Lock washer                 | 2141720   |           |
| 21                       | 1             | Drehbarer Anschlag<br>Rotating end stop           | 2167300                         |           | 51                       | 3             | Zylinderstift<br>Shear pins              | 2141241   |           |
| 22                       | 4             | Federbefestigung<br>Spring holder                 | 2165764                         |           | 52                       | 5             | Spannhülse<br>Roll pins                  | 2142576   |           |
| 23                       | 3             | Kupplungskeil<br>Clutch wedge                     | 2165838                         |           | 54                       | 6             | Axialnadellager<br>Thrust bearings       | 2167311   |           |
| 24                       | 3             | Abdeckscheibe<br>Cover plate                      | 2165839                         |           | 56                       | 3             | Führungsbuchse<br>Spindle drive          | 2165651   | 2165877   |
| 25                       | 1             | Griff<br>Handle                                   | 2148828                         |           | 57                       | 6             | Zentrierscheibe<br>Centering ring        | 2165843   |           |
| 26                       | 5             | Passfeder<br>Fitting key                          | 2173743                         |           | 58                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148399   |           |
|                          |               |   |                                 |           |                          |               |  |           |           |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
 When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!



### für Rechtsgewinde

- feststehend und umlaufend verwendbar
- mit Flansch
- speziell für Feingewinde
- Rollen-Schrägstellung = 0° 40'
- Gewicht ohne Rollen = ca. 51 kg

### for right-hand threads

- used stationary or rotating
- flange type design
- especially for rolling of fine pitch threads
- inclined position of rolls = 0° 40'
- weight without rolls = approx. 112.2 lb

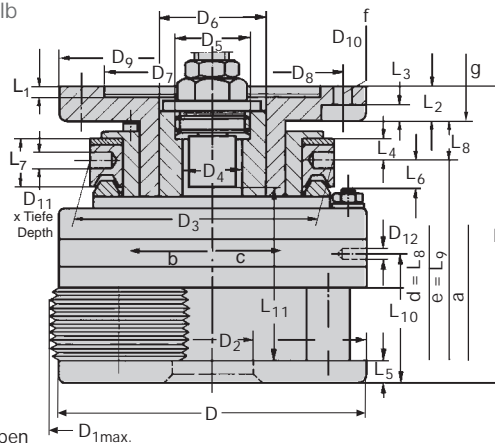
### für Linksgewinde

- Typ FU6700L
- Baumaß wie für Rechtsgewinde-Rollkopf

### for left-hand threads

- Type FU6700L
- Dimensions like right-hand thread rolling head

- a = Schalhub  
Opening movement
- b = Rollkopf öffnet  
Rolling Head/opening direction
- c = Rollkopf schließt  
(Bei Rollköpfen für Linksgewinde ist die Schalrichtung entgegengesetzt)  
Rolling Head/closing direction  
(For Rolling Heads for left-hand threads, the direction of operation is reversed)
- d = L<sub>8</sub> (Rollkopf geschlossen)  
L<sub>8</sub> (Rolling Head closed)
- e = L<sub>9</sub> (Rollkopf geöffnet)  
L<sub>9</sub> (Rolling Head opened)
- f = 4 Löcher  
4 Holes
- g = Maximale Länge der Befestigungsschrauben  
Maximum length of the fastening screws
- α = Schließwinkel  
Closing angle



| Baumaße in mm<br>Dimension in inches |                                 |                |                |                |                              |                |                              |                |                |                 |                     |                               | FU6700    | FU6700L <sup>5)</sup> |
|--------------------------------------|---------------------------------|----------------|----------------|----------------|------------------------------|----------------|------------------------------|----------------|----------------|-----------------|---------------------|-------------------------------|-----------|-----------------------|
| D                                    | D <sub>1max</sub> <sup>1)</sup> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | D <sub>5</sub> <sup>2)</sup> | D <sub>6</sub> | D <sub>7</sub> <sup>3)</sup> | D <sub>8</sub> | D <sub>9</sub> | D <sub>10</sub> | D <sub>11</sub> x T | Ident No.                     | Ident No. |                       |
| 275                                  | 289                             | 102            | 219            | 89,5           | M 95 x 2                     | 110            | 140                          | 170            | 200            | 13              | 12 x 9              | 1525202                       | 1525211   |                       |
| 10.827"                              | 11.378"                         | 4.016"         | 8.622"         | 3.524"         | links   L.H.                 | 4.331"         | 5.512"                       | 6.693"         | 7.874"         | 0.512"          | 0.472 x 0.354"      |                               |           |                       |
| D <sub>12</sub>                      | L                               | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub>               | L <sub>5</sub> | L <sub>6</sub>               | L <sub>7</sub> | L <sub>8</sub> | L <sub>9</sub>  | L <sub>10</sub>     | L <sub>11</sub> <sup>4)</sup> | a         | α                     |
| M10                                  | 240,5                           | 8,5            | 25             | 11             | 15                           | 14             | 29                           | 40             | 35,6           | 29,6            | 100,2               | 130                           | 6         | 21°                   |
|                                      | 9.468"                          | 0.335"         | 0.984"         | 0.433"         | 0.591"                       | 0.551"         | 1.142"                       | 1.575"         | 1.402"         | 1.165"          | 3.945"              | 5.118"                        | 0.236"    |                       |

<sup>1)</sup> Größter Außen-Ø des Rollkopfes bei Rollenstellung im geöffneten Zustand.

<sup>1)</sup> Largest outside diameter of rolling head when rolls in open position.

<sup>2)</sup> Bei Linksgewinde-Rollköpfen Rechtsgewinde.

<sup>2)</sup> For L. H. thread rolling heads: R. H. thread.

<sup>3)</sup> Toleranz für das Maß D<sub>7</sub> = +0,040 mm, +0,015 mm.

<sup>3)</sup> Tolerance for the dimension D<sub>7</sub> = 0.002", 0.0006".

<sup>4)</sup> Max. Rolllänge einschließlich Kupplungsweg (a) bei Verwendung von drehbaren Anschlägen. Bei Verwendung von drehbaren Endanschlägen max. Rolllänge 130 mm.

<sup>4)</sup> Max. rolling length, including clutch travel (a) when using rotating end stops. Max. rolling length when using rotating end stops = 5.118".

<sup>5)</sup> L = für Linksgewinde

<sup>5)</sup> L = for Left-hand threads

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Feingewinde                  |           |           | M |  |
|---|-----------|-----------|---|--|
| Metric ISO Fine Pitch Threads               |           |           |   |  |
| Nennmaß x Steigung<br>mm                    | Anlauf 1k | Anlauf 2K |   |  |
|   | Lead 1k   | Lead 2k   |   |  |
| Nominal Size x Pitch                        | Ident No. |           |   |  |
| M 45 ... 48 x 1,5                           | 2245053   | 1525300   |   |  |
| M 48 ... 50 x 1,5                           | 2244255   | 2244256   |   |  |
| M 50 ... 52 x 1,5                           | 2244257   | 1525319   |   |  |
| M 52 ... 54 x 1,5                           | 2244258   | 2244259   |   |  |
| M 54 ... 56 x 1,5                           | 2244260   | 2244261   |   |  |
| M 56 ... 58 x 1,5                           | 2244262   | 2244263   |   |  |
| M 58 ... 60 x 1,5                           | 2244264   | 2244265   |   |  |
| M 60 ... 62 x 1,5                           | 2244266   | 1525328   |   |  |
| M 62 ... 64 x 1,5                           | 2244267   | 2244268   |   |  |
| M 64 ... 66 x 1,5                           | 2244269   | 2244270   |   |  |
| M 66 ... 68 x 1,5                           | 2244271   | 2244272   |   |  |
| M 68 ... 70 x 1,5                           | 2244273   | 2244274   |   |  |
| M 70 ... 72 x 1,5                           | 2244275   | 2244276   |   |  |
| M 72 ... 74 x 1,5                           | 2244277   | 2244278   |   |  |
| M 74 ... 76 x 1,5                           | 2167946   | 2244279   |   |  |
| M 76 ... 78 x 1,5                           | 2244280   | 2244281   |   |  |
| M 78 ... 80 x 1,5                           | 2244282   | 2244283   |   |  |
| M 80 ... 82 x 1,5                           | 2244284   | 2244285   |   |  |
| M 82 ... 84 x 1,5                           | 2244286   | 2244287   |   |  |
| M 84 ... 86 x 1,5                           | 2244288   | 2244289   |   |  |
| M 86 ... 88 x 1,5                           | 2244290   | 2244291   |   |  |
| M 45 ... 48 x 2                             | 2244292   | 1525417   |   |  |
| M 48 ... 50 x 2                             | 2244293   | 2244294   |   |  |
| M 50 ... 52 x 2                             | 2244295   | 1525426   |   |  |
| M 52 ... 54 x 2                             | 2244296   | 2244297   |   |  |
| M 54 ... 56 x 2                             | 2244298   | 2242350   |   |  |
| M 56 ... 58 x 2                             | 2244299   | 2168132   |   |  |
| M 58 ... 60 x 2                             | 2244300   | 1525435   |   |  |
| M 60 ... 62 x 2                             | 2244301   | 2241123   |   |  |
| M 62 ... 64 x 2                             | 2244302   | 2169229   |   |  |
| M 64 ... 66 x 2                             | 2244303   | 2168133   |   |  |
| M 66 ... 68 x 2                             | 2244304   | 2244305   |   |  |
| M 68 ... 70 x 2                             | 2244306   | 2242289   |   |  |
| M 70 ... 72 x 2                             | 2244307   | 1525453   |   |  |
| M 72 ... 74 x 2                             | 2244308   | 2244309   |   |  |
| M 74 ... 76 x 2                             | 2244310   | 2244311   |   |  |
| M 76 ... 78 x 2                             | 2244312   | 2244313   |   |  |
| M 78 ... 80 x 2                             | 2244314   | 2244315   |   |  |
| M 80 ... 82 x 2                             | 2244316   | 1525462   |   |  |
| M 82 ... 84 x 2                             | 2244317   | 2244318   |   |  |
| M 84 ... 86 x 2                             | 2244319   | 2244320   |   |  |
| M 86 ... 88 x 2                             | 2244321   | 2244322   |   |  |
| M 88 ... 90 <sup>1)</sup> x 2               | 2244323   | 2244324   |   |  |
| M 90 <sup>1)</sup> ... 92 <sup>1)</sup> x 2 | 2244325   | 2244326   |   |  |
| M 92 <sup>1)</sup> ... 95 <sup>1)</sup> x 2 | 2244327   | 2244328   |   |  |
| M 64 ... 66 x 3                             | 2244329   | 2168406   |   |  |
| M 66 ... 68 x 3                             | 2244330   | 2244331   |   |  |
| M 68 ... 70 x 3                             | 2244332   | 1525596   |   |  |
| M 70 ... 72 x 3                             | 2244333   | 2244334   |   |  |
| M 72 ... 74 x 3                             | 2244335   | 1525612   |   |  |
| M 74 ... 76 x 3                             | 2244336   | 2241409   |   |  |
| M 76 ... 78 x 3                             | 2244337   | 2244338   |   |  |
| M 78 ... 80 x 3                             | 2244339   | 1525630   |   |  |
| M 80 ... 82 x 3                             | 2244340   | 2244341   |   |  |
| M 82 ... 84 x 3                             | 2244342   | 2244343   |   |  |
| M 84 ... 86 x 3                             | 2244344   | 2244345   |   |  |
| M 86 ... 88 x 3                             | 2244346   | 2244347   |   |  |
| M 88 ... 90 <sup>1)</sup> x 3               | 2244348   | 2244349   |   |  |

| Metrisches ISO-Feingewinde                  |           |           | M |  |
|---|-----------|-----------|---|--|
| Metric ISO Fine Pitch Threads               |           |           |   |  |
| Nennmaß x Steigung<br>mm                    | Anlauf 1k | Anlauf 2K |   |  |
|   | Lead 1k   | Lead 2k   |   |  |
| Nominal Size x Pitch                        | Ident No. |           |   |  |
| M 90 <sup>1)</sup> ... 92 <sup>1)</sup> x 3 | 2244350   | 2244351   |   |  |
| M 92 <sup>1)</sup> ... 94 <sup>1)</sup> x 3 | 2244352   | 2244353   |   |  |
| M 94 <sup>1)</sup> ... 96 <sup>1)</sup> x 3 | 2244354   | 2244355   |   |  |
| M 85 ... 88 x 4                             | 2244356   | 2244357   |   |  |
| M 88 ... 90 <sup>1)</sup> x 4               | 2244358   | 2244359   |   |  |
| M 90 <sup>1)</sup> ... 92 <sup>1)</sup> x 4 | 2244360   | 2244361   |   |  |
| M 92 <sup>1)</sup> ... 95 <sup>1)</sup> x 4 | 2244362   | 2244363   |   |  |

| Unified-Gewinde, fein   |           |           | UN |  |
|---|-----------|-----------|----|--|
| Unified Threads, Fine Pitch   |           |           |    |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll  | Anlauf 1k | Anlauf 2K |    |  |
|   | Lead 1k   | Lead 2k   |    |  |
| Nominal Size x TPI  | Ident No. |           |    |  |
| 1 <sup>3</sup> / <sub>4</sub> ... 1 <sup>13</sup> / <sub>16</sub> - 20 UN | 2244549   | 2244550   |    |  |
| 1 <sup>13</sup> / <sub>16</sub> ... 1 <sup>7</sup> / <sub>8</sub> - 20 UN | 2244551   | 2244552   |    |  |
| 1 <sup>7</sup> / <sub>8</sub> ... 1 <sup>15</sup> / <sub>16</sub> - 20 UN | 2244553   | 2244554   |    |  |
| 1 <sup>15</sup> / <sub>16</sub> ... 2 - 20 UN                             | 2244555   | 2244556   |    |  |
| 2 ... 2 <sup>1</sup> / <sub>16</sub> - 20 UN                              | 2244557   | 2244558   |    |  |
| 2 <sup>1</sup> / <sub>16</sub> ... 2 <sup>1</sup> / <sub>8</sub> - 20 UN  | 2244559   | 2244560   |    |  |
| 2 <sup>1</sup> / <sub>8</sub> ... 2 <sup>3</sup> / <sub>16</sub> - 20 UN  | 2244561   | 2244562   |    |  |
| 2 <sup>3</sup> / <sub>16</sub> ... 2 <sup>1</sup> / <sub>4</sub> - 20 UN  | 2244563   | 2244564   |    |  |
| 2 <sup>1</sup> / <sub>4</sub> ... 2 <sup>5</sup> / <sub>16</sub> - 20 UN  | 2244565   | 2244566   |    |  |
| 2 <sup>5</sup> / <sub>16</sub> ... 2 <sup>3</sup> / <sub>8</sub> - 20 UN  | 2244567   | 2244568   |    |  |
| 2 <sup>3</sup> / <sub>8</sub> ... 2 <sup>7</sup> / <sub>16</sub> - 20 UN  | 2244569   | 2244570   |    |  |
| 2 <sup>7</sup> / <sub>16</sub> ... 2 <sup>1</sup> / <sub>2</sub> - 20 UN  | 2244571   | 2244572   |    |  |
| 2 <sup>1</sup> / <sub>2</sub> ... 2 <sup>9</sup> / <sub>16</sub> - 20 UN  | 2244573   | 2244574   |    |  |
| 2 <sup>9</sup> / <sub>16</sub> ... 2 <sup>5</sup> / <sub>8</sub> - 20 UN  | 2244575   | 2244576   |    |  |
| 2 <sup>5</sup> / <sub>8</sub> ... 2 <sup>11</sup> / <sub>16</sub> - 20 UN | 2244577   | 2244578   |    |  |
| 2 <sup>11</sup> / <sub>16</sub> ... 2 <sup>3</sup> / <sub>4</sub> - 20 UN | 2244579   | 2244580   |    |  |
| 2 <sup>3</sup> / <sub>4</sub> ... 2 <sup>13</sup> / <sub>16</sub> - 20 UN | 2244581   | 2244582   |    |  |
| 2 <sup>13</sup> / <sub>16</sub> ... 2 <sup>7</sup> / <sub>8</sub> - 20 UN | 2244583   | 2244584   |    |  |
| 1 <sup>3</sup> / <sub>4</sub> ... 1 <sup>13</sup> / <sub>16</sub> - 16 UN | 2244585   | 2244586   |    |  |
| 1 <sup>13</sup> / <sub>16</sub> ... 1 <sup>7</sup> / <sub>8</sub> - 16 UN | 2244587   | 2244588   |    |  |
| 1 <sup>7</sup> / <sub>8</sub> ... 1 <sup>15</sup> / <sub>16</sub> - 16 UN | 2244589   | 2244590   |    |  |
| 1 <sup>15</sup> / <sub>16</sub> ... 2 - 16 UN                             | 2167280   | 2244591   |    |  |
| 2 ... 2 <sup>1</sup> / <sub>16</sub> - 16 UN                              | 2244592   | 2244593   |    |  |
| 2 <sup>1</sup> / <sub>16</sub> ... 2 <sup>1</sup> / <sub>8</sub> - 16 UN  | 2244594   | 2244595   |    |  |
| 2 <sup>1</sup> / <sub>8</sub> ... 2 <sup>3</sup> / <sub>16</sub> - 16 UN  | 2244596   | 2244597   |    |  |
| 2 <sup>3</sup> / <sub>16</sub> ... 2 <sup>1</sup> / <sub>4</sub> - 16 UN  | 2244598   | 2244599   |    |  |
| 2 <sup>1</sup> / <sub>4</sub> ... 2 <sup>5</sup> / <sub>16</sub> - 16 UN  | 2244600   | 2244601   |    |  |
| 2 <sup>5</sup> / <sub>16</sub> ... 2 <sup>3</sup> / <sub>8</sub> - 16 UN  | 2244602   | 2244603   |    |  |
| 2 <sup>3</sup> / <sub>8</sub> ... 2 <sup>7</sup> / <sub>16</sub> - 16 UN  | 2244604   | 2244605   |    |  |
| 2 <sup>7</sup> / <sub>16</sub> ... 2 <sup>1</sup> / <sub>2</sub> - 16 UN  | 2165815   | 2244606   |    |  |
| 2 <sup>1</sup> / <sub>2</sub> ... 2 <sup>9</sup> / <sub>16</sub> - 16 UN  | 2244607   | 2244608   |    |  |
| 2 <sup>9</sup> / <sub>16</sub> ... 2 <sup>5</sup> / <sub>8</sub> - 16 UN  | 2244609   | 2243032   |    |  |
| 2 <sup>5</sup> / <sub>8</sub> ... 2 <sup>11</sup> / <sub>16</sub> - 16 UN | 2244610   | 2244611   |    |  |
| 2 <sup>11</sup> / <sub>16</sub> ... 2 <sup>3</sup> / <sub>4</sub> - 16 UN | 2244612   | 2244613   |    |  |
| 2 <sup>3</sup> / <sub>4</sub> ... 2 <sup>13</sup> / <sub>16</sub> - 16 UN | 2244614   | 2244615   |    |  |
| 2 <sup>13</sup> / <sub>16</sub> ... 2 <sup>7</sup> / <sub>8</sub> - 16 UN | 2168690   | 2244616   |    |  |
| 2 <sup>7</sup> / <sub>8</sub> ... 2 <sup>15</sup> / <sub>16</sub> - 16 UN | 2244617   | 2244618   |    |  |
| 2 <sup>15</sup> / <sub>16</sub> ... 3 - 16 UN                             | 2244619   | 2244620   |    |  |
| 3 ... 3 <sup>1</sup> / <sub>16</sub> - 16 UN                              | 2244621   | 2244622   |    |  |
| 3 <sup>1</sup> / <sub>16</sub> ... 3 <sup>1</sup> / <sub>8</sub> - 16 UN  | 2244623   | 2244624   |    |  |
| 3 <sup>1</sup> / <sub>8</sub> ... 3 <sup>3</sup> / <sub>16</sub> - 16 UN  | 2244625   | 2244626   |    |  |

<sup>1)</sup> Für Kurzgewinde bis 50 mm Länge einschließlich Auslauf.

<sup>1)</sup> For short threads up to 50 mm/1.968" including runout.

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Unified-Gewinde, fein<br>Unified Threads, Fine Pitch  |  | UN                   |                      |
|---|--|----------------------|----------------------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI  |  | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |
|   |  | Ident No.            |                      |
| 3 <sup>3</sup> / <sub>16</sub> ... 3 <sup>1</sup> / <sub>4</sub> - 16 UN                              |  | 2244627              | 2244628              |
| 3 <sup>1</sup> / <sub>4</sub> ... 3 <sup>5</sup> / <sub>16</sub> - 16 UN                              |  | 2244629              | 2244630              |
| 3 <sup>5</sup> / <sub>16</sub> ... 3 <sup>3</sup> / <sub>8</sub> - 16 UN                              |  | 2244631              | 2244632              |
| 3 <sup>3</sup> / <sub>8</sub> ... 3 <sup>7</sup> / <sub>16</sub> - 16 UN                              |  | 2244633              | 2244634              |
| 3 <sup>7</sup> / <sub>16</sub> ... 3 <sup>1</sup> / <sub>2</sub> - 16 UN                              |  | 2244635              | 2244636              |
| 1 <sup>3</sup> / <sub>4</sub> ... 1 <sup>13</sup> / <sub>16</sub> - 12 UN                             |  | 2244637              | 2241472              |
| 1 <sup>13</sup> / <sub>16</sub> ... 1 <sup>7</sup> / <sub>8</sub> - 12 UN                             |  | 2244638              | 2244639              |
| 1 <sup>7</sup> / <sub>8</sub> ... 1 <sup>15</sup> / <sub>16</sub> - 12 UN                             |  | 2244640              | 2240709              |
| 1 <sup>15</sup> / <sub>16</sub> ... 2 - 12 UN   |  | 2167950              | 1525809              |
| 2 ... 2 <sup>1</sup> / <sub>16</sub> - 12 UN  |  | 2244641              | 2244642              |
| 2 <sup>1</sup> / <sub>16</sub> ... 2 <sup>1</sup> / <sub>8</sub> - 12 UN                              |  | 2244643              | 2169617              |
| 2 <sup>1</sup> / <sub>8</sub> ... 2 <sup>3</sup> / <sub>16</sub> - 12 UN                              |  | 2244644              | 2244645              |
| 2 <sup>3</sup> / <sub>16</sub> ... 2 <sup>1</sup> / <sub>4</sub> - 12 UN                              |  | 2244646              | 1525845              |
| 2 <sup>1</sup> / <sub>4</sub> ... 2 <sup>5</sup> / <sub>16</sub> - 12 UN                              |  | 2244647              | 2244648              |
| 2 <sup>5</sup> / <sub>16</sub> ... 2 <sup>3</sup> / <sub>8</sub> - 12 UN                              |  | 2244649              | 2240708              |
| 2 <sup>3</sup> / <sub>8</sub> ... 2 <sup>7</sup> / <sub>16</sub> - 12 UN                              |  | 2244650              | 2244651              |
| 2 <sup>7</sup> / <sub>16</sub> ... 2 <sup>1</sup> / <sub>2</sub> - 12 UN                              |  | 2167953              | 1525854              |
| 2 <sup>1</sup> / <sub>2</sub> ... 2 <sup>9</sup> / <sub>16</sub> - 12 UN                              |  | 2244652              | 2244653              |
| 2 <sup>9</sup> / <sub>16</sub> ... 2 <sup>5</sup> / <sub>8</sub> - 12 UN                              |  | 2244654              | 2240707              |
| 2 <sup>5</sup> / <sub>8</sub> ... 2 <sup>11</sup> / <sub>16</sub> - 12 UN                             |  | 2244655              | 2244656              |
| 2 <sup>11</sup> / <sub>16</sub> ... 2 <sup>3</sup> / <sub>4</sub> - 12 UN                             |  | 1525881              | 1525890              |
| 2 <sup>3</sup> / <sub>4</sub> ... 2 <sup>13</sup> / <sub>16</sub> - 12 UN                             |  | 2244657              | 2244658              |
| 2 <sup>13</sup> / <sub>16</sub> ... 2 <sup>7</sup> / <sub>8</sub> - 12 UN                             |  | 2244659              | 2240706              |
| 2 <sup>7</sup> / <sub>8</sub> ... 2 <sup>15</sup> / <sub>16</sub> - 12 UN                             |  | 2244660              | 2244661              |
| 2 <sup>15</sup> / <sub>16</sub> ... 3 - 12 UN   |  | 2169935              | 2244662              |
| 3 ... 3 <sup>1</sup> / <sub>16</sub> - 12 UN  |  | 2244663              | 2244664              |
| 3 <sup>1</sup> / <sub>16</sub> ... 3 <sup>1</sup> / <sub>8</sub> - 12 UN                              |  | 2244665              | 2240705              |
| 3 <sup>1</sup> / <sub>8</sub> ... 3 <sup>3</sup> / <sub>16</sub> - 12 UN                              |  | 2244666              | 2244667              |
| 3 <sup>3</sup> / <sub>16</sub> ... 3 <sup>1</sup> / <sub>4</sub> - 12 UN                              |  | 2167359              | 1525934              |
| 3 <sup>1</sup> / <sub>4</sub> ... 3 <sup>5</sup> / <sub>16</sub> - 12 UN                              |  | 2244668              | 2244669              |
| 3 <sup>5</sup> / <sub>16</sub> ... 3 <sup>3</sup> / <sub>8</sub> - 12 UN                              |  | 2244670              | 2240704              |
| 3 <sup>3</sup> / <sub>8</sub> ... 3 <sup>7</sup> / <sub>16</sub> - 12 UN                              |  | 2244671              | 2244672              |
| 3 <sup>7</sup> / <sub>16</sub> ... 3 <sup>1</sup> / <sub>2</sub> - 12 UN                              |  | 2244673              | 2243033              |
| 3 <sup>1</sup> / <sub>2</sub> ... 3 <sup>9</sup> / <sub>16</sub> - 12 UN                              |  | 2244674              | 2244675              |
| 3 <sup>9</sup> / <sub>16</sub> ... 3 <sup>5</sup> / <sub>8</sub> <sup>1)</sup> - 12 UN                |  | 2244676              | 2244677              |
| 3 <sup>5</sup> / <sub>8</sub> <sup>1)</sup> ... 3 <sup>11</sup> / <sub>16</sub> <sup>1)</sup> - 12 UN |  | 2244678              | 2244679              |
| 3 <sup>11</sup> / <sub>16</sub> <sup>1)</sup> ... 3 <sup>3</sup> / <sub>4</sub> <sup>1)</sup> - 12 UN |  | 2244680              | 2244681              |
| 2 <sup>1</sup> / <sub>2</sub> ... 2 <sup>9</sup> / <sub>16</sub> - 8 UN                               |  | 2244682              | 2244683              |
| 2 <sup>9</sup> / <sub>16</sub> ... 2 <sup>5</sup> / <sub>8</sub> - 8 UN                               |  | 2167952              | 1525872              |
| 2 <sup>5</sup> / <sub>8</sub> ... 2 <sup>11</sup> / <sub>16</sub> - 8 UN                              |  | 2244684              | 2244685              |
| 2 <sup>11</sup> / <sub>16</sub> ... 2 <sup>3</sup> / <sub>4</sub> - 8 UN                              |  | 2244686              | 2240408              |
| 2 <sup>3</sup> / <sub>4</sub> ... 2 <sup>13</sup> / <sub>16</sub> - 8 UN                              |  | 2244687              | 2244688              |
| 2 <sup>13</sup> / <sub>16</sub> ... 2 <sup>7</sup> / <sub>8</sub> - 8 UN                              |  | 2244689              | 2244690              |
| 2 <sup>7</sup> / <sub>8</sub> ... 2 <sup>15</sup> / <sub>16</sub> - 8 UN                              |  | 2244691              | 2244692              |
| 2 <sup>15</sup> / <sub>16</sub> ... 3 - 8 UN  |  | 2244693              | 1525916              |
| 3 ... 3 <sup>1</sup> / <sub>16</sub> - 8 UN   |  | 2244694              | 2244695              |
| 3 <sup>1</sup> / <sub>16</sub> ... 3 <sup>1</sup> / <sub>8</sub> - 8 UN                               |  | 2167954              | 2244696              |
| 3 <sup>1</sup> / <sub>8</sub> ... 3 <sup>3</sup> / <sub>16</sub> - 8 UN                               |  | 2244697              | 2244698              |

| Unified-Gewinde, fein<br>Unified Threads, Fine Pitch   |  | UN                   |                      |
|--|--|----------------------|----------------------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI   |  | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |
|  |  | Ident No.            |                      |
| 3 <sup>3</sup> / <sub>16</sub> ... 3 <sup>1</sup> / <sub>4</sub> - 8 UN                              |  | 2167017              | 2168516              |
| 3 <sup>1</sup> / <sub>4</sub> ... 3 <sup>5</sup> / <sub>16</sub> - 8 UN                              |  | 2244699              | 2244700              |
| 3 <sup>5</sup> / <sub>16</sub> ... 3 <sup>3</sup> / <sub>8</sub> - 8 UN                              |  | 2244701              | 2244702              |
| 3 <sup>3</sup> / <sub>8</sub> ... 3 <sup>7</sup> / <sub>16</sub> - 8 UN                              |  | 2244703              | 2244704              |
| 3 <sup>7</sup> / <sub>16</sub> ... 3 <sup>1</sup> / <sub>2</sub> - 8 UN                              |  | 2167955              | 2244705              |
| 3 <sup>1</sup> / <sub>2</sub> ... 3 <sup>9</sup> / <sub>16</sub> - 8 UN                              |  | 2244706              | 2244707              |
| 3 <sup>9</sup> / <sub>16</sub> ... 3 <sup>5</sup> / <sub>8</sub> <sup>1)</sup> - 8 UN                |  | 2244708              | 2244709              |
| 3 <sup>5</sup> / <sub>8</sub> <sup>1)</sup> ... 3 <sup>11</sup> / <sub>16</sub> <sup>1)</sup> - 8 UN |  | 2244710              | 2244711              |
| 3 <sup>11</sup> / <sub>16</sub> <sup>1)</sup> ... 3 <sup>3</sup> / <sub>4</sub> <sup>1)</sup> - 8 UN |  | 2244712              | 2244713              |
| 3 <sup>1</sup> / <sub>2</sub> ... 3 <sup>9</sup> / <sub>16</sub> - 6 UN                              |  | 2244714              | 2243030              |
| 3 <sup>9</sup> / <sub>16</sub> ... 3 <sup>5</sup> / <sub>8</sub> <sup>1)</sup> - 6 UN                |  | 2244716              | 2244717              |
| 3 <sup>5</sup> / <sub>8</sub> <sup>1)</sup> ... 3 <sup>11</sup> / <sub>16</sub> <sup>1)</sup> - 6 UN |  | 2244718              | 2244719              |
| 3 <sup>11</sup> / <sub>16</sub> <sup>1)</sup> ... 3 <sup>3</sup> / <sub>4</sub> <sup>1)</sup> - 6 UN |  | 2244720              | 2244721              |

| Whitworth-Rohrgewinde<br>Whitworth Pipe Threads        |  | G                    |                      |
|--|--|----------------------|----------------------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI |  | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |
|  |  | Ident No.            |                      |
| G 1 <sup>1</sup> / <sub>2</sub> - 11                   |  | 2244537              | 1525701              |
| G 1 <sup>3</sup> / <sub>4</sub> - 11                   |  | 2244538              | 1525729              |
| G 2 - 11   |  | 2244539              | 1525738              |
| G 2 <sup>1</sup> / <sub>4</sub> - 11                   |  | 2244540              | 1525747              |
| G 2 <sup>3</sup> / <sub>8</sub> - 11                   |  | 2244541              | 2244399              |
| G 2 <sup>1</sup> / <sub>2</sub> - 11                   |  | 2244542              | 1525756              |
| G 2 <sup>3</sup> / <sub>4</sub> - 11                   |  | 2244543              | 2244544              |
| G 3 - 11   |  | 2244545              | 2244546              |
| G 3 <sup>1</sup> / <sub>4</sub> <sup>1)</sup> - 11     |  | 2244547              | 2244548              |

| Amerikanisches Rohrgewinde<br>American Pipe Threads    |  | NPT                  |           |
|--|--|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI |  | Anlauf 1k<br>Lead 1k | Ident No. |
|  |  | 1 1/2 - 11 1/2 NPT   |           |
| 2 - 11 1/2 NPT   |  | 1526096              |           |

| Amerikanisches Rohrgewinde<br>American Dryseal Pipe Threads |  | NPTF                 |           |
|---|--|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI      |  | Anlauf 1k<br>Lead 1k | Ident No. |
|   |  | 1 1/2 - 11 1/2 NPTF  |           |
| 2 - 11 1/2 NPTF   |  | 2248855              |           |

<sup>1)</sup> Für Kurzgewinde bis 50 mm Länge einschließlich Auslauf.  
<sup>1)</sup> For short threads up to 50 mm/1.968" including runout.



für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Whitworth-Feingewinde<br>Whitworth Fine Pitch Threads  |                      | BSFS                 |  |
|--|----------------------|----------------------|--|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |  |
|  | Ident No.            |                      |  |
| 13/4 ... 1 <sup>13</sup> /16 – 20 BSFS                 | 2244409              | 2244410              |  |
| 1 <sup>13</sup> /16 ... 1 <sup>7</sup> /8 – 20 BSFS    | 2244411              | 2244412              |  |
| 1 <sup>7</sup> /8 ... 1 <sup>15</sup> /16 – 20 BSFS    | 2244413              | 2244414              |  |
| 1 <sup>15</sup> /16 ... 2 – 20 BSFS                    | 2244415              | 2244416              |  |
| 1 <sup>3</sup> /4 ... 1 <sup>13</sup> /16 – 16 BSFS    | 2244417              | 2244418              |  |
| 1 <sup>13</sup> /16 ... 1 <sup>7</sup> /8 – 16 BSFS    | 2244419              | 2244420              |  |
| 1 <sup>7</sup> /8 ... 1 <sup>15</sup> /16 – 16 BSFS    | 2244421              | 2244422              |  |
| 1 <sup>15</sup> /16 ... 2 – 16 BSFS                    | 2244423              | 2244424              |  |
| 2 ... 2 <sup>1</sup> /16 – 16 BSFS                     | 2244425              | 2244426              |  |
| 2 <sup>1</sup> /16 ... 2 <sup>1</sup> /8 – 16 BSFS     | 2244427              | 2244428              |  |
| 2 <sup>1</sup> /8 ... 2 <sup>3</sup> /16 – 16 BSFS     | 2244429              | 2244430              |  |
| 2 <sup>3</sup> /16 ... 2 <sup>1</sup> /4 – 16 BSFS     | 2244431              | 2244432              |  |
| 2 <sup>1</sup> /4 ... 2 <sup>5</sup> /16 – 16 BSFS     | 2244433              | 2244434              |  |
| 2 <sup>5</sup> /16 ... 2 <sup>3</sup> /8 – 16 BSFS     | 2244435              | 2244436              |  |
| 2 <sup>3</sup> /8 ... 2 <sup>7</sup> /16 – 16 BSFS     | 2244437              | 2244438              |  |
| 2 <sup>7</sup> /16 ... 2 <sup>1</sup> /2 – 16 BSFS     | 2244439              | 2244440              |  |
| 2 <sup>1</sup> /2 ... 2 <sup>9</sup> /16 – 16 BSFS     | 2244441              | 2244442              |  |
| 2 <sup>9</sup> /16 ... 2 <sup>5</sup> /8 – 16 BSFS     | 2244443              | 2244444              |  |
| 2 <sup>5</sup> /8 ... 2 <sup>11</sup> /16 – 16 BSFS    | 2244445              | 2244446              |  |
| 2 <sup>11</sup> /16 ... 2 <sup>3</sup> /4 – 16 BSFS    | 2244447              | 2244448              |  |
| 2 <sup>3</sup> /4 ... 2 <sup>13</sup> /16 – 16 BSFS    | 2244449              | 2244450              |  |
| 2 <sup>13</sup> /16 ... 2 <sup>7</sup> /8 – 16 BSFS    | 2244451              | 2244452              |  |
| 2 <sup>7</sup> /8 ... 2 <sup>15</sup> /16 – 16 BSFS    | 2244453              | 2244454              |  |
| 2 <sup>15</sup> /16 ... 3 – 16 BSFS                    | 2244455              | 2244456              |  |
| 3 ... 3 <sup>1</sup> /16 – 16 BSFS                     | 2244457              | 2244458              |  |
| 3 <sup>1</sup> /16 ... 3 <sup>1</sup> /8 – 16 BSFS     | 2244459              | 2244460              |  |
| 3 <sup>1</sup> /8 ... 3 <sup>3</sup> /16 – 16 BSFS     | 2244461              | 2244462              |  |
| 3 <sup>3</sup> /16 ... 3 <sup>1</sup> /4 – 16 BSFS     | 2244463              | 2244464              |  |
| 3 <sup>1</sup> /4 ... 3 <sup>5</sup> /16 – 16 BSFS     | 2244465              | 2244466              |  |
| 3 <sup>5</sup> /16 ... 3 <sup>3</sup> /8 – 16 BSFS     | 2244467              | 2244468              |  |
| 1 <sup>3</sup> /4 ... 1 <sup>13</sup> /16 – 12 BSFS    | 2244469              | 2244470              |  |
| 1 <sup>13</sup> /16 ... 1 <sup>7</sup> /8 – 12 BSFS    | 2244471              | 2244472              |  |
| 1 <sup>7</sup> /8 ... 1 <sup>15</sup> /16 – 12 BSFS    | 2244473              | 2244474              |  |
| 1 <sup>15</sup> /16 ... 2 – 12 BSFS                    | 2244475              | 2244476              |  |
| 2 ... 2 <sup>1</sup> /16 – 12 BSFS                     | 2244477              | 2244478              |  |
| 2 <sup>1</sup> /16 ... 2 <sup>1</sup> /8 – 12 BSFS     | 2244479              | 2244480              |  |
| 2 <sup>1</sup> /8 ... 2 <sup>3</sup> /16 – 12 BSFS     | 2244481              | 2244482              |  |
| 2 <sup>3</sup> /16 ... 2 <sup>1</sup> /4 – 12 BSFS     | 2244483              | 2244484              |  |
| 2 <sup>1</sup> /4 ... 2 <sup>5</sup> /16 – 12 BSFS     | 2244485              | 2244486              |  |
| 2 <sup>5</sup> /16 ... 2 <sup>3</sup> /8 – 12 BSFS     | 2244487              | 2244488              |  |
| 2 <sup>3</sup> /8 ... 2 <sup>7</sup> /16 – 12 BSFS     | 2244489              | 2244490              |  |
| 2 <sup>7</sup> /16 ... 2 <sup>1</sup> /2 – 12 BSFS     | 2244491              | 2244492              |  |
| 2 <sup>1</sup> /2 ... 2 <sup>9</sup> /16 – 12 BSFS     | 2244493              | 2244494              |  |
| 2 <sup>9</sup> /16 ... 2 <sup>5</sup> /8 – 12 BSFS     | 2244495              | 2244496              |  |
| 2 <sup>5</sup> /8 ... 2 <sup>11</sup> /16 – 12 BSFS    | 2244497              | 2244498              |  |
| 2 <sup>11</sup> /16 ... 2 <sup>3</sup> /4 – 12 BSFS    | 2244499              | 2244500              |  |
| 2 <sup>3</sup> /4 ... 2 <sup>13</sup> /16 – 12 BSFS    | 2244501              | 2244502              |  |
| 2 <sup>13</sup> /16 ... 2 <sup>7</sup> /8 – 12 BSFS    | 2244503              | 2244504              |  |

| Whitworth-Feingewinde<br>Whitworth Fine Pitch Threads  |                      | BSFS                 |  |
|--|----------------------|----------------------|--|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |  |
|  | Ident No.            |                      |  |
| 2 <sup>7</sup> /8 ... 2 <sup>15</sup> /16 – 12 BSFS    | 2244505              | 2244506              |  |
| 2 <sup>15</sup> /16 ... 3 – 8 BSFS                     | 2244507              | 2244508              |  |
| 2 <sup>1</sup> /2 ... 2 <sup>9</sup> /16 – 8 BSFS      | 2244509              | 2244510              |  |
| 2 <sup>9</sup> /16 ... 2 <sup>5</sup> /8 – 8 BSFS      | 2244511              | 2244512              |  |
| 2 <sup>5</sup> /8 ... 2 <sup>11</sup> /16 – 8 BSFS     | 2244513              | 2244514              |  |
| 2 <sup>11</sup> /16 ... 2 <sup>3</sup> /4 – 8 BSFS     | 2244515              | 2244516              |  |
| 2 <sup>3</sup> /4 ... 2 <sup>13</sup> /16 – 8 BSFS     | 2244517              | 2244518              |  |
| 2 <sup>13</sup> /16 ... 2 <sup>7</sup> /8 – 8 BSFS     | 2244519              | 2244520              |  |
| 2 <sup>7</sup> /8 ... 2 <sup>15</sup> /16 – 8 BSFS     | 2244521              | 2244522              |  |
| 2 <sup>15</sup> /16 ... 3 – 8 BSFS                     | 2244523              | 2244524              |  |
| 3 ... 3 <sup>1</sup> /16 – 8 BSFS                      | 2244525              | 2244526              |  |
| 3 <sup>1</sup> /16 ... 3 <sup>1</sup> /8 – 8 BSFS      | 2244527              | 2244528              |  |
| 3 <sup>1</sup> /8 ... 3 <sup>3</sup> /16 – 8 BSFS      | 2244529              | 2244530              |  |
| 3 <sup>3</sup> /16 ... 3 <sup>1</sup> /4 – 8 BSFS      | 2244531              | 2244532              |  |
| 3 <sup>1</sup> /4 ... 3 <sup>5</sup> /16 – 8 BSFS      | 2244533              | 2244534              |  |
| 3 <sup>5</sup> /16 ... 3 <sup>3</sup> /8 – 8 BSFS      | 2244535              | 2244536              |  |

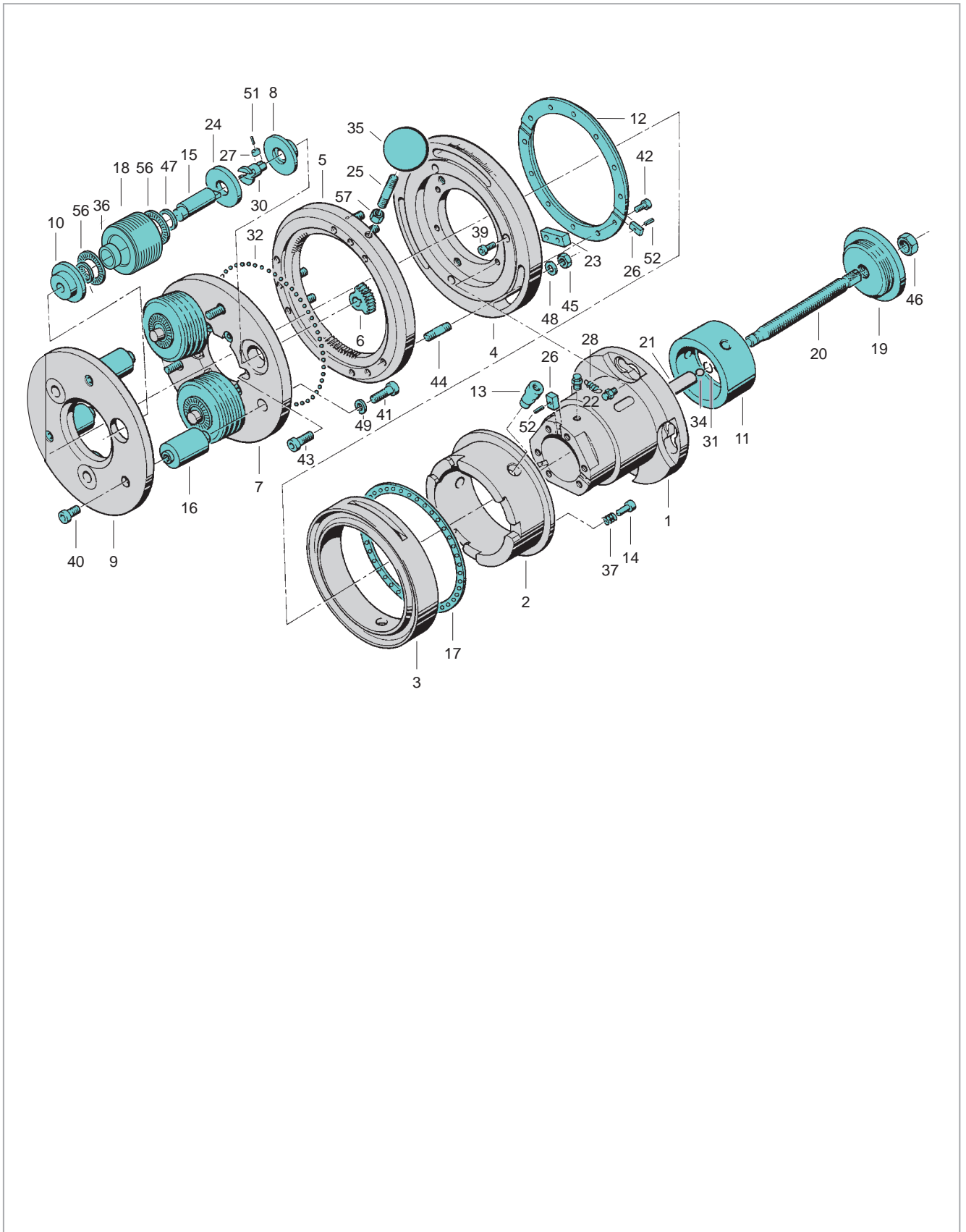
1) Für Kurzgewinde bis 50 mm Länge einschließlich Auslauf.  
1) For short threads up to 50 mm/1.968" including runout.

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 1,7 bis 7,7 kg.

Thread dimensions combined in one block can be rolled with **one** set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 3.7 to 16.9 lb.

| Rollkopf<br>Rolling Head |               |   | FU6700                          | FU6700L   | Rollkopf<br>Rolling Head |               |  | FU6700    | FU6700L   |
|--------------------------|---------------|---|---------------------------------|-----------|--------------------------|---------------|--|-----------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                     | Ident No.                       | Ident No. | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No. | Ident No. |
| 1                        | 1             | Mitnehmer<br>Flange                               | 2165903                         | 2165925   | 26                       | 5             | Passfeder<br>Fitting key                 | 2173743   |           |
| 2                        | 1             | Kupplung<br>Clutch                                | 2165904                         | 2165926   | 27                       | 3             | Passfeder<br>Fitting key                 | 2165922   |           |
| 3                        | 1             | Schaltring<br>Operating ring                      | 2165905                         |           | 28                       | 2             | Zugfeder<br>Tension spring               | 2165923   |           |
| 4                        | 1             | Federgehäuse<br>Spring housing                    | 2165906                         |           | 30                       | 3             | Führungsbuchse<br>Spindle drive          | 2165924   | 2165933   |
| 5                        | 1             | Zahnkranz<br>Gear ring                            | 2165907                         |           | 31                       | 1             | Sprengring<br>Circlip                    | 2165008   |           |
| 6                        | 3             | Zahnbogen<br>Gear sectors                         | 2165908                         | 2165927   | 32                       | 174           | Stahlkugel<br>Steel ball                 | 2148807   |           |
| 7                        | 1             | Zwischenplatte<br>Centre plate                    | 2165909                         | 2165928   | 34                       | 1             | Stahlkugel<br>Steel ball                 | 2148795   |           |
| 8                        | 3             | Buchse für Zwischenplatte<br>Centre plate bushing | 2165910                         |           | 35                       | 1             | Kugelknopf<br>Ball                       | 2141702   |           |
| 9                        | 1             | Frontplatte<br>Front plate                        | 2165911                         | 2165929   | 36                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2242693   |           |
| 10                       | 3             | Buchse für Frontplatte<br>Front plate bushing     | 2165912                         |           | 37                       | 4             | Druckfeder<br>Pressure spring            | 2165769   |           |
| 11                       | 1             | Hülse<br>Sleeve                                   | 2165913                         | 2165931   | 39                       | 6             | Zylinderschraube<br>Cap screw            | 2148740   |           |
| 12                       | 1             | Bremsbelag<br>Brake ring                          | 2165914                         |           | 40                       | 3             | Zylinderschraube<br>Front plate screw    | 2143028   |           |
| 13                       | 3             | Bolzen<br>Pin                                     | 2165915                         |           | 41                       | 3             | Zylinderschraube<br>Cap screw            | 2143040   |           |
| 14                       | 4             | Federbolzen<br>Spring pin                         | 2165759                         |           | 42                       | 12            | Zylinderschraube<br>Cap screw            | 2142999   |           |
| 15                       | 3             | Exzenterbolzen<br>Eccentric spindles              | 2165916                         |           | 43                       | 6             | Zylinderschraube<br>Cap screw            | 2148748   |           |
| 16                       | 3             | Distanzbolzen<br>Spacer studs                     | 2165650                         |           | 44                       | 6             | Stiftschraube<br>Stud                    | 2148831   |           |
| 17                       | 1             | Kugelhäufig<br>Bearing cage                       | 2165917                         |           | 45                       | 6             | Sechskantmutter<br>Hexagon nut           | 2148700   |           |
| 18                       | 3             | Gewinderolle<br>Thread roll                       | siehe Einsatzfall<br>individual |           | 46                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148392   | 2148703   |
| 19                       | 1             | Schraubstutzen<br>Stop screw body                 | 2165918                         | 2165932   | 47                       | 6             | Zentrierscheibe<br>Centering ring        | 2165630   |           |
| 20                       | 1             | Anschlagschraube<br>Stop screw                    | 2165919                         | 2165791   | 48                       | 6             | Scheibe<br>Washer                        | 2141467   |           |
| 21                       | 1             | Drehbarer Anschlag<br>Rotating end stop           | 2167300                         |           | 49                       | 3             | Federring<br>Lock washer                 | 2141719   |           |
| 22                       | 4             | Federbefestigung<br>Spring holder                 | 2165764                         |           | 51                       | 3             | Zylinderstift<br>Shear pins              | 2141237   |           |
| 23                       | 3             | Kupplungskeil<br>Clutch wedge                     | 2165920                         |           | 52                       | 5             | Spannhülse<br>Roll pins                  | 2142576   |           |
| 24                       | 3             | Scheibe<br>Washer                                 | 2165921                         |           | 56                       | 6             | Axialnadellager<br>Thrust bearings       | 2147347   |           |
| 25                       | 1             | Griff<br>Handle                                   | 2148828                         |           | 57                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148399   |           |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!



### für Rechtsgewinde

- feststehend und umlaufend verwendbar
- mit Flansch
- Rollen-Schrägstellung = 1° 40'
- Gewicht ohne Rollen = ca. 110 kg

### for right-hand threads

- used stationary or rotating
- flange type design
- inclined position of rolls = 1° 40'
- weight without rolls = approx. 242 lb

### für Linksgewinde

- Typ FU700L
- Baumaß wie für Rechtsgewinde-Rollkopf

### for left-hand threads

- Type FU700L
- Dimensions like right-hand thread rolling head

a = Schalhub

Opening movement

b = Rollkopf öffnet

Rolling Head/opening direction

c = Rollkopf schließt

(Bei Rollköpfen für Linksgewinde ist die Schalrichtung entgegengesetzt)  
Rolling Head/closing direction

(For Rolling Heads for left-hand threads, the direction of operation is reversed)

d = L<sub>8</sub> (Rollkopf geschlossen)

L<sub>8</sub> (Rolling Head closed)

e = L<sub>9</sub> (Rollkopf geöffnet)

L<sub>9</sub> (Rolling Head opened)

f = 4 Löcher

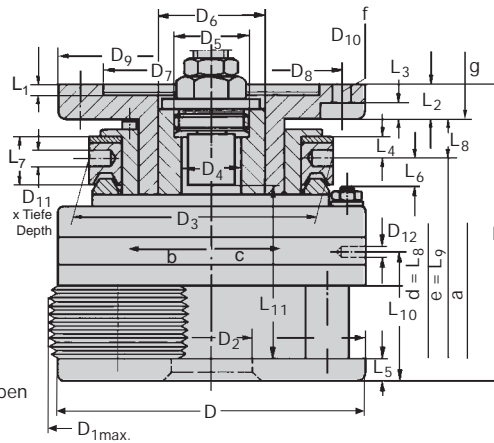
4 Holes

g = Maximale Länge der Befestigungsschrauben

Maximum length of the fastening screws

α = Schließwinkel

Closing angle



### Baumaße in mm

### Dimension in inches

|                 |                                 |                |                |                |                              |                |                              |                |                |                 |                     |                               | FU700     | FU700L <sup>5)</sup> |
|-----------------|---------------------------------|----------------|----------------|----------------|------------------------------|----------------|------------------------------|----------------|----------------|-----------------|---------------------|-------------------------------|-----------|----------------------|
| D               | D <sub>1max</sub> <sup>1)</sup> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | D <sub>5</sub> <sup>2)</sup> | D <sub>6</sub> | D <sub>7</sub> <sup>3)</sup> | D <sub>8</sub> | D <sub>9</sub> | D <sub>10</sub> | D <sub>11</sub> x T | Ident No.                     | Ident No. |                      |
| 330             | 302                             | 101            | 264            | 80             | M 95 x 3                     | 120            | 160                          | 224            | 264            | 17              | 15 x 23             | 1526390                       | 1526416   |                      |
| 12.992"         | 11.89"                          | 3.976"         | 10.394"        | 3.150"         | links   L.H.                 | 4.724"         | 6.299"                       | 8.819"         | 10.394"        | 0.669"          | 0.591 x 0.906"      |                               |           |                      |
| D <sub>12</sub> | L                               | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub>               | L <sub>5</sub> | L <sub>6</sub>               | L <sub>7</sub> | L <sub>8</sub> | L <sub>9</sub>  | L <sub>10</sub>     | L <sub>11</sub> <sup>4)</sup> | a         | α                    |
| M10             | 316                             | 10             | 40             | 20             | 26                           | 24             | 31,3                         | 51             | 43,4           | 37,4            | 135                 | 219                           | 6         | 28°                  |
|                 | 12.441"                         | 0.394"         | 1.575"         | 0.787"         | 1.024"                       | 0.945"         | 1.232"                       | 2.008"         | 1.709"         | 1.472"          | 5.315"              | 8.622"                        | 0.236"    |                      |

<sup>1)</sup> Größter Außen-Ø des Rollkopfes bei Rollenstellung im geöffneten Zustand.

<sup>1)</sup> Largest outside diameter of rolling head when rolls in open position.

<sup>2)</sup> Bei Linksgewinde-Rollköpfen Rechtsgewinde.

<sup>2)</sup> For L. H. thread rolling heads: R. H. thread.

<sup>3)</sup> Toleranz für das Maß D<sub>7</sub> = +0,040 mm, +0,015 mm.

<sup>3)</sup> Tolerance for the dimension D<sub>7</sub> = 0.002", 0.0006".

<sup>4)</sup> Max. Rolllänge einschließlich Kupplungsweg (a) bei Verwendung von drehbaren Anschlägen. Bei Verwendung von drehbaren Endanschlägen max. Rolllänge 219 mm.

<sup>4)</sup> Max. rolling length, including clutch travel (a) when using rotating end stops.

Max. rolling length when using rotating end stops = 8.622".

<sup>5)</sup> L = für Linksgewinde

<sup>5)</sup> L = for Left-hand threads

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



### Metrisches ISO-Gewinde M Metric ISO Threads

| Nennmaß x Steigung<br>mm<br>Nominal Size x Pitch |
|--|
| M 42 ... 45 x 4,5                                |
| M 48 ... 52 x 5                                  |
| M 56 ... 60 x 5,5                                |
| M 64 ... 68 x 6                                  |

### Metrisches ISO-Feingewinde M Metric ISO Fine Pitch Threads

| Nennmaß x Steigung<br>mm<br>Nominal Size x Pitch |
|--|
| M 42 ... 45 x 3                                  |
| M 45 ... 48 x 3                                  |
| M 48 ... 52 x 3                                  |
| M 52 ... 56 x 3                                  |
| M 56 ... 58 x 3                                  |
| M 42 ... 45 x 4                                  |
| M 45 ... 48 x 4                                  |
| M 48 ... 52 x 4                                  |
| M 52 ... 56 x 4                                  |
| M 56 ... 60 x 4                                  |
| M 60 ... 64 x 4                                  |
| M 64 ... 68 x 4                                  |
| M 68 ... 72 x 4                                  |
| M 72 ... 76 x 4                                  |
| M 70 ... 72 x 6                                  |
| M 72 ... 76 x 6                                  |

### Unified-Gewinde, grob UNC Unified Threads, Coarse Pitch

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI |
|--|
| 1 <sup>3</sup> / <sub>4</sub> ... 5 UNC                |
| 2 ... 4,5 UNC  |
| 2 <sup>1</sup> / <sub>4</sub> ... 4,5 UNC              |
| 2 <sup>1</sup> / <sub>2</sub> ... 4 UNC                |
| 2 <sup>3</sup> / <sub>4</sub> ... 4 UNC                |
| 3 ... 4 UNC  |

### Unified-Gewinde, fein UN Unified Threads, Fine Pitch

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI                     |
|--|
| 1 <sup>11</sup> / <sub>16</sub> ... 1 <sup>13</sup> / <sub>16</sub> - 8 UN |
| 1 <sup>13</sup> / <sub>16</sub> ... 1 <sup>15</sup> / <sub>16</sub> - 8 UN |
| 1 <sup>15</sup> / <sub>16</sub> ... 2 - 8 UN                               |
| 2 ... 2 <sup>1</sup> / <sub>8</sub> - 8 UN                                 |
| 2 <sup>1</sup> / <sub>8</sub> ... 2 <sup>1</sup> / <sub>4</sub> - 8 UN     |
| 2 <sup>1</sup> / <sub>4</sub> ... 2 <sup>3</sup> / <sub>8</sub> - 8 UN     |
| 1 <sup>11</sup> / <sub>16</sub> ... 1 <sup>13</sup> / <sub>16</sub> - 6 UN |
| 1 <sup>13</sup> / <sub>16</sub> ... 1 <sup>15</sup> / <sub>16</sub> - 6 UN |
| 1 <sup>15</sup> / <sub>16</sub> ... 2 - 6 UN                               |
| 2 ... 2 <sup>1</sup> / <sub>8</sub> - 6 UN                                 |
| 2 <sup>1</sup> / <sub>8</sub> ... 2 <sup>1</sup> / <sub>4</sub> - 6 UN     |
| 2 <sup>1</sup> / <sub>4</sub> ... 2 <sup>3</sup> / <sub>8</sub> - 6 UN     |
| 2 <sup>3</sup> / <sub>8</sub> ... 2 <sup>1</sup> / <sub>2</sub> - 6 UN     |
| 2 <sup>1</sup> / <sub>2</sub> ... 2 <sup>5</sup> / <sub>8</sub> - 6 UN     |
| 2 <sup>5</sup> / <sub>8</sub> ... 2 <sup>3</sup> / <sub>4</sub> - 6 UN     |
| 2 <sup>3</sup> / <sub>4</sub> ... 2 <sup>7</sup> / <sub>8</sub> - 6 UN     |
| 2 <sup>7</sup> / <sub>8</sub> ... 3 - 6 UN                                 |

### Whitworth-Gewinde BSW Whitworth Threads

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI  |
|---|
| 1 <sup>3</sup> / <sub>4</sub> ... - 5 BSW   |
| 1 <sup>7</sup> / <sub>8</sub> ... 2 - 4 <sup>1</sup> / <sub>2</sub> BSW                             |
| 2 <sup>1</sup> / <sub>4</sub> ... 2 <sup>3</sup> / <sub>8</sub> - 4 BSW                             |
| 2 <sup>3</sup> / <sub>8</sub> ... 2 <sup>1</sup> / <sub>2</sub> - 4 BSW                             |
| 2 <sup>3</sup> / <sub>4</sub> ... 2 <sup>7</sup> / <sub>8</sub> - 3 <sup>1</sup> / <sub>2</sub> BSW |
| 2 <sup>7</sup> / <sub>8</sub> ... 3 - 3 <sup>1</sup> / <sub>2</sub> BSW                             |

### Whitworth-Feingewinde BSF/BSFS Whitworth Fine Pitch Threads

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI                   |
|--|
| 2 <sup>1</sup> / <sub>8</sub> ... 2 <sup>1</sup> / <sub>4</sub> - 8 BSFS |
| 2 <sup>1</sup> / <sub>4</sub> ... 2 <sup>3</sup> / <sub>8</sub> - 8 BSFS |
| 1 <sup>3</sup> / <sub>4</sub> ... - 7 BSF                                |
| 1 <sup>7</sup> / <sub>8</sub> ... 2 - 7 BSF                              |
| 2 <sup>1</sup> / <sub>4</sub> ... - 6 BSF                                |
| 2 <sup>1</sup> / <sub>2</sub> ... - 6 BSF                                |
| 2 <sup>3</sup> / <sub>4</sub> ... - 6 BSF                                |
| 3 ... - 5 BSF  |

### Rundgewind Rd Knuckle Form Threads

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI |
|--|
| Rd 50 ... 52 x 1/6                                     |
| Rd 52 ... 55 x 1/6                                     |
| Rd 55 ... 58 x 1/6                                     |
| Rd 58 ... 60 x 1/6                                     |
| Rd 60 ... 62 x 1/6                                     |
| Rd 62 ... 65 x 1/6                                     |
| Rd 65 ... 68 x 1/6                                     |
| Rd 68 ... 70 x 1/6                                     |
| Rd 70 ... 72 x 1/6                                     |
| Rd 72 ... 75 x 1/6                                     |

### Rändeln oder Glätten RAA<sup>1)</sup> /RGE<sup>1)</sup> Knurls or Burnishing

| Nennmaß<br>Nominal Size<br>mm   inch |
|--------------------------------------|
| Ø 48 - Ø 52   Ø 1.89 - Ø 2.047       |
| Ø 52 - Ø 56   Ø 2.047 - Ø 2.205      |
| Ø 56 - Ø 60   Ø 2.205 - Ø 2.362      |
| Ø 60 - Ø 64   Ø 2.362 - Ø 2.52       |
| Ø 64 - Ø 68   Ø 2.52 - Ø 2.677       |
| Ø 68 - Ø 72   Ø 2.677 - Ø 2.835      |
| Ø 72 - Ø 76   Ø 2.835 - Ø 2.992      |

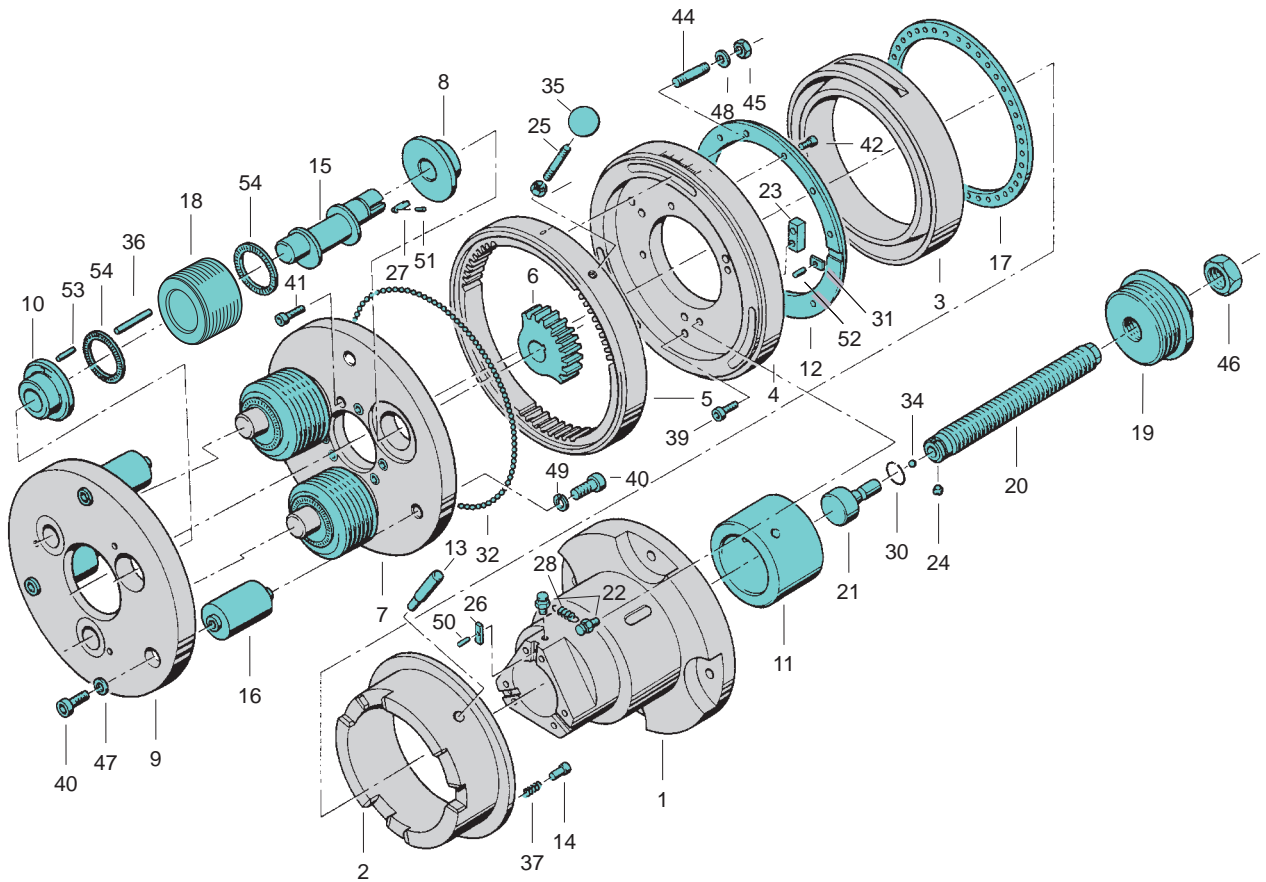
<sup>1)</sup> Teilungen siehe Seite 209  
<sup>1)</sup> For Pitches see page 209

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 5 bis 11 kg.

Thread dimensions combined in one block can be rolled with **one** set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 11 to 24.2 lb.

| Rollkopf<br>Rolling Head |               |   | FU700                           | FU700L                           | Rollkopf<br>Rolling Head |                      |               | FU700                                 | FU700L    |                                  |           |
|--------------------------|---------------|---|---------------------------------|----------------------------------|--------------------------|----------------------|---------------|---------------------------------------|-----------|----------------------------------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                     | Ident No.                       | Linksgewinde<br>Left hand thread |                          | Teil Nr.<br>Part No. | Stück<br>Qty. | Benennung<br>Part description         | Ident No. | Linksgewinde<br>Left hand thread |           |
|                          |               |   |                                 | Ident No.                        | Ident No.                |                      |               |                                       |           | Ident No.                        | Ident No. |
| 1                        | 1             | Mitnehmer<br>Flange                               | 2165957                         |                                  |                          | 26                   | 3             | Passfeder<br>Fitting key              | 2165978   |                                  |           |
| 2                        | 1             | Kupplung<br>Clutch                                | 2165958                         | 2165982                          |                          | 27                   | 3             | Passfeder<br>Fitting key              | 2165979   |                                  |           |
| 3                        | 1             | Schaltring<br>Operating ring                      | 2165959                         |                                  |                          | 28                   | 2             | Zugfeder<br>Tension spring            | 2165980   |                                  |           |
| 4                        | 1             | Federgehäuse<br>Spring housing                    | 2165960                         |                                  |                          | 30                   | 1             | Sicherungsring<br>Circlip             | 2165981   |                                  |           |
| 5                        | 1             | Zahnkranz<br>Gear ring                            | 2165961                         |                                  |                          | 31                   | 2             | Passfeder<br>Fitting key              | 2173743   |                                  |           |
| 6                        | 3             | Zahnbogen<br>Gear sectors                         | 2165962                         | 2165983                          |                          | 32                   | 186           | Stahlkugel<br>Steel ball              | 2148180   |                                  |           |
| 7                        | 1             | Zwischenplatte<br>Centre plate                    | 2165963                         | 2243026                          |                          | 34                   | 1             | Stahlkugel<br>Steel ball              | 2148191   |                                  |           |
| 8                        | 3             | Buchse für Zwischenplatte<br>Centre plate bushing | 2165964                         |                                  |                          | 35                   | 1             | Kugelknopf<br>Ball                    | 2141702   |                                  |           |
| 9                        | 1             | Frontplatte<br>Front plate                        | 2165965                         | 2243027                          |                          | 36                   | 69            | Lagernadel<br>Needle roller bearings  | 2148797   |                                  |           |
| 10                       | 3             | Buchse für Frontplatte<br>Front plate bushing     | 2165966                         | 2165984                          |                          | 37                   | 4             | Druckfeder<br>Pressure spring         | 2165769   |                                  |           |
| 11                       | 1             | Hülse<br>Sleeve                                   | 2165967                         | 2165985                          |                          | 39                   | 6             | Zylinderschraube<br>Cap screw         | 2148740   |                                  |           |
| 12                       | 1             | Bremsbelag<br>Brake ring                          | 2165968                         |                                  |                          | 40                   | 6             | Zylinderschraube<br>Front plate screw | 2143055   |                                  |           |
| 13                       | 3             | Bolzen<br>Pin                                     | 2165969                         |                                  |                          | 41                   | 6             | Zylinderschraube<br>Cap screw         | 2234242   |                                  |           |
| 14                       | 4             | Federbolzen<br>Spring pin                         | 2165759                         |                                  |                          | 42                   | 12            | Zylinderschraube<br>Cap screw         | 2143011   |                                  |           |
| 15                       | 3             | Exzenterbolzen<br>Eccentric spindles              | 2165970                         | 2165986                          |                          | 43                   | 1             | Sechskantmutter<br>Hexagon nut        | 2148399   |                                  |           |
| 16                       | 3             | Distanzbolzen<br>Spacer studs                     | 2165971                         |                                  |                          | 44                   | 6             | Stiftschraube<br>Stud                 | 2148833   |                                  |           |
| 17                       | 1             | Kugelhäufig<br>Bearing cage                       | 2165972                         |                                  |                          | 45                   | 6             | Sechskantmutter<br>Hexagon nut        | 2148701   |                                  |           |
| 18                       | 3             | Gewinderolle<br>Thread roll                       | siehe Einsatzfall<br>individual |                                  |                          | 46                   | 1             | Sechskantmutter<br>Hexagon nut        | 2148396   | 2142410                          |           |
| 19                       | 1             | Schraubstutzen<br>Stop screw body                 | 2165973                         | 2165987                          |                          | 47                   | 3             | Scheibe<br>Washer                     | 2141469   |                                  |           |
| 20                       | 1             | Anschlagschraube<br>Stop screw                    | 2165974                         | 2165988                          |                          | 48                   | 6             | Scheibe<br>Washer                     | 2141468   |                                  |           |
| 21                       | 1             | Drehbarer Anschlag<br>Rotating end stop           | 2165975                         |                                  |                          | 49                   | 3             | Federring<br>Lock washer              | 2141720   |                                  |           |
| 22                       | 4             | Federbefestigung<br>Spring holder                 | 2165764                         |                                  |                          | 50                   | 3             | Zylinderstift<br>Shear pins           | 2141300   |                                  |           |
| 23                       | 3             | Kupplungskeil<br>Clutch wedge                     | 2165976                         |                                  |                          | 51                   | 3             | Zylinderstift<br>Shear pins           | 2141254   |                                  |           |
| 24                       | 1             | Sicherungsbolzen<br>Safety bolt                   | 2165977                         |                                  |                          | 52                   | 2             | Zylinderstift<br>Shear pins           | 2141254   |                                  |           |
| 25                       | 1             | Griff<br>Handle                                   | 2148828                         |                                  |                          | 54                   | 6             | Axialnadellager<br>Thrust bearings    | 2147349   |                                  |           |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!



**Nur Lagernadel verwendbar!**  
Only needle roller bearings can be used!

### für Rechtsgewinde

- feststehend und umlaufend verwendbar
- mit Flansch
- Rollen-Schrägstellung = 0° 35'
- Gewicht ohne Rollen = ca. 86 kg

### for right-hand threads

- used stationary or rotating
- flange type design
- inclined position of rolls = 0° 35'
- weight without rolls = approx. 189 lb

### für Linksgewinde

- Typ FU7800L
- Baumaß wie für Rechtsgewinde-Rollkopf

### for left-hand threads

- Type FU7800L
- Dimensions like right-hand thread rolling head

a = Schalhub

Opening movement

b = Rollkopf öffnet

Rolling Head/opening direction

c = Rollkopf schließt

(Bei Rollköpfen für Linksgewinde

ist die Schalrichtung entgegengesetzt)

Rolling Head/closing direction

(For Rolling Heads for left-hand threads, the direction of operation is reversed)

d = L<sub>8</sub> (Rollkopf geschlossen)

L<sub>8</sub> (Rolling Head closed)

e = L<sub>9</sub> (Rollkopf geöffnet)

L<sub>9</sub> (Rolling Head opened)

f = 4 Löcher

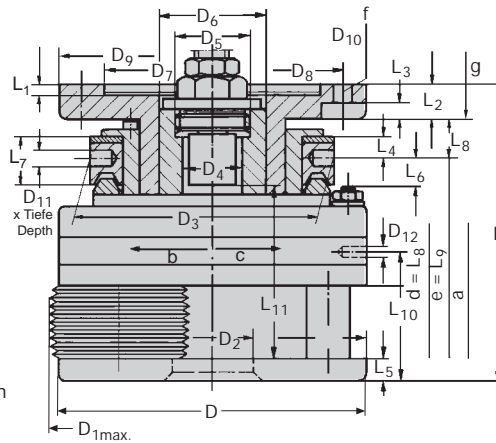
4 Holes

g = Maximale Länge der Befestigungsschrauben

Maximum length of the fastening screws

α = Schließwinkel

Closing angle



### Baumaße in mm

### Dimension in inches

|                 |                                 |                |                |                |                              |                |                              |                |                |                 |                     |                               | FU7800 |     |
|-----------------|---------------------------------|----------------|----------------|----------------|------------------------------|----------------|------------------------------|----------------|----------------|-----------------|---------------------|-------------------------------|--------|-----|
| D               | D <sub>1max</sub> <sup>1)</sup> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | D <sub>5</sub> <sup>2)</sup> | D <sub>6</sub> | D <sub>7</sub> <sup>3)</sup> | D <sub>8</sub> | D <sub>9</sub> | D <sub>10</sub> | D <sub>11</sub> x T | Ident No.                     |        |     |
| 330             | 342                             | 128            | 264            | 104            | M 120 x 3                    | 134            | 160                          | 224            | 264            | 17              | 15 x 23             | 1526504                       |        |     |
| 12.992"         | 13.465"                         | 5.039"         | 10.394"        | 4.094"         | links   L.H.                 | 5.276"         | 6.299"                       | 8.819"         | 10.394"        | 0.669"          | 0.591 x 0.906"      |                               |        |     |
| D <sub>12</sub> | L                               | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub>               | L <sub>5</sub> | L <sub>6</sub>               | L <sub>7</sub> | L <sub>8</sub> | L <sub>9</sub>  | L <sub>10</sub>     | L <sub>11</sub> <sup>4)</sup> | a      | α   |
| M10             | 276                             | 10             | 40             | 20             | 26                           | 14             | 30                           | 51             | 43             | 37              | 100,7               | 188                           | 6      | 19° |
|                 | 10.866"                         | 0.394"         | 1.575"         | 0.787"         | 1.024"                       | 0.551"         | 1.181"                       | 2.008"         | 1.693"         | 1.457"          | 3.965"              | 7.402"                        | 0.236" |     |

<sup>1)</sup> Größter Außen-Ø des Rollkopfes bei Rollenstellung im geöffneten Zustand.

<sup>1)</sup> Largest outside diameter of rolling head when rolls in open position.

<sup>2)</sup> Bei Linksgewinde-Rollköpfen Rechtsgewinde.

<sup>2)</sup> For L. H. thread rolling heads: R. H. thread.

<sup>3)</sup> Toleranz für das Maß D<sub>7</sub> = +0,040 mm, +0,015 mm.

<sup>3)</sup> Tolerance for the dimension D<sub>7</sub> = 0.002", 0.0006".

<sup>4)</sup> Max. Rolllänge einschließlich Kupplungsweg (a) bei Verwendung von drehbaren Anschlägen. Bei Verwendung von drehbaren Endanschlägen max. Rolllänge 188 mm.

<sup>4)</sup> Max. rolling length, including clutch travel (a) when using rotating end stops.

Max. rolling length when using rotating end stops = 7.402".



für Rechts- und Linksgewinde  
for right-hand and left-hand threads



**Metrisches ISO-Feingewinde** **M**  
**Metric ISO Fine Pitch Threads**

| Nennmaß x Steigung<br>mm<br>Nominal Size x Pitch |     |                   |     |
|--|-----|-------------------|-----|
| M 80   | ... | 83                | x 2 |
| M 83   | ... | 86                | x 2 |
| M 86   | ... | 89                | x 2 |
| M 89   | ... | 92                | x 2 |
| M 92   | ... | 95                | x 2 |
| M 95   | ... | 98                | x 2 |
| M 98   | ... | 101               | x 2 |
| M 101  | ... | 104 <sup>1)</sup> | x 2 |
| M 104 <sup>1)</sup>                              | ... | 107 <sup>1)</sup> | x 2 |
| M 107 <sup>1)</sup>                              | ... | 110 <sup>1)</sup> | x 2 |
| M 80   | ... | 83                | x 3 |
| M 83   | ... | 86                | x 3 |
| M 86   | ... | 89                | x 3 |
| M 89   | ... | 92                | x 3 |
| M 92   | ... | 95                | x 3 |
| M 95   | ... | 98                | x 3 |
| M 98   | ... | 101               | x 3 |
| M 101  | ... | 104 <sup>1)</sup> | x 3 |
| M 104 <sup>1)</sup>                              | ... | 107 <sup>1)</sup> | x 3 |
| M 107 <sup>1)</sup>                              | ... | 110 <sup>1)</sup> | x 3 |
| M 90   | ... | 93                | x 4 |
| M 93   | ... | 96                | x 4 |
| M 96   | ... | 99                | x 4 |
| M 99   | ... | 102               | x 4 |
| M 102  | ... | 105 <sup>1)</sup> | x 4 |
| M 105 <sup>1)</sup>                              | ... | 108 <sup>1)</sup> | x 4 |
| M 108 <sup>1)</sup>                              | ... | 110 <sup>1)</sup> | x 4 |

**Unified-Gewinde, fein** **UNF**  
**Unified Threads, Fine Pitch**

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI |  |
|--|--|
| 3 <sup>1</sup> / <sub>8</sub>                          | ... 3 <sup>1</sup> / <sub>4</sub> - 12               |
| 3 <sup>1</sup> / <sub>4</sub>                          | ... 3 <sup>3</sup> / <sub>8</sub> - 12               |
| 3 <sup>3</sup> / <sub>8</sub>                          | ... 3 <sup>1</sup> / <sub>2</sub> - 12               |
| 3 <sup>1</sup> / <sub>2</sub>                          | ... 3 <sup>5</sup> / <sub>8</sub> - 12               |
| 3 <sup>5</sup> / <sub>8</sub>                          | ... 3 <sup>3</sup> / <sub>4</sub> - 12               |
| 3 <sup>3</sup> / <sub>4</sub>                          | ... 3 <sup>7</sup> / <sub>8</sub> - 12               |
| 3 <sup>7</sup> / <sub>8</sub>                          | ... 4 - 12   |
| 4  | ... 4 <sup>1</sup> / <sub>8</sub> <sup>1)</sup> - 12 |
| 4 <sup>1</sup> / <sub>8</sub> <sup>1)</sup>            | ... 4 <sup>1</sup> / <sub>4</sub> <sup>1)</sup> - 12 |
| 4 <sup>1</sup> / <sub>4</sub> <sup>1)</sup>            | ... 4 <sup>3</sup> / <sub>8</sub> <sup>1)</sup> - 12 |
| 3 <sup>1</sup> / <sub>8</sub>                          | ... 3 <sup>1</sup> / <sub>4</sub> - 8                |
| 3 <sup>1</sup> / <sub>4</sub>                          | ... 3 <sup>3</sup> / <sub>8</sub> - 8                |
| 3 <sup>3</sup> / <sub>8</sub>                          | ... 3 <sup>1</sup> / <sub>2</sub> - 8                |
| 3 <sup>1</sup> / <sub>2</sub>                          | ... 3 <sup>5</sup> / <sub>8</sub> - 8                |
| 3 <sup>5</sup> / <sub>8</sub>                          | ... 3 <sup>3</sup> / <sub>4</sub> - 8                |
| 3 <sup>3</sup> / <sub>4</sub>                          | ... 3 <sup>7</sup> / <sub>8</sub> - 8                |
| 3 <sup>7</sup> / <sub>8</sub>                          | ... 4 - 8  |
| 4  | ... 4 <sup>1</sup> / <sub>8</sub> <sup>1)</sup> - 8  |
| 4 <sup>1</sup> / <sub>8</sub> <sup>1)</sup>            | ... 4 <sup>1</sup> / <sub>4</sub> <sup>1)</sup> - 8  |
| 4 <sup>1</sup> / <sub>4</sub> <sup>1)</sup>            | ... 4 <sup>3</sup> / <sub>8</sub> <sup>1)</sup> - 8  |
| 3 <sup>3</sup> / <sub>8</sub>                          | ... 3 <sup>1</sup> / <sub>2</sub> - 6                |
| 3 <sup>1</sup> / <sub>2</sub>                          | ... 3 <sup>5</sup> / <sub>8</sub> - 6                |
| 3 <sup>5</sup> / <sub>8</sub>                          | ... 3 <sup>3</sup> / <sub>4</sub> - 6                |
| 3 <sup>3</sup> / <sub>4</sub>                          | ... 3 <sup>7</sup> / <sub>8</sub> - 6                |
| 3 <sup>7</sup> / <sub>8</sub>                          | ... 4 - 6  |
| 4  | ... 4 <sup>1</sup> / <sub>8</sub> <sup>1)</sup> - 6  |
| 4 <sup>1</sup> / <sub>8</sub> <sup>1)</sup>            | ... 4 <sup>1</sup> / <sub>4</sub> <sup>1)</sup> - 6  |
| 4 <sup>1</sup> / <sub>4</sub> <sup>1)</sup>            | ... 4 <sup>3</sup> / <sub>8</sub> <sup>1)</sup> - 6  |

**Whitworth-Rohrgewinde** **G**  
**Whitworth Pipe Threads**

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI |      |
|--|------|
| G 3  | x 11 |
| G 3 <sup>1</sup> / <sub>4</sub>                        | x 11 |
| G 3 <sup>1</sup> / <sub>2</sub>                        | x 11 |
| G 3 <sup>3</sup> / <sub>4</sub> <sup>1)</sup>          | x 11 |
| G 4 <sup>1)</sup>                                      | x 11 |

**Whitworth-Feingewinde** **BSF**  
**Whitworth Fine Pitch Threads**

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI |  |
|--|--|
| 3 <sup>1</sup> / <sub>8</sub>                          | ... 3 <sup>1</sup> / <sub>4</sub> - 12               |
| 3 <sup>1</sup> / <sub>4</sub>                          | ... 3 <sup>3</sup> / <sub>8</sub> - 12               |
| 3 <sup>3</sup> / <sub>8</sub>                          | ... 3 <sup>1</sup> / <sub>2</sub> - 12               |
| 3 <sup>1</sup> / <sub>2</sub>                          | ... 3 <sup>5</sup> / <sub>8</sub> - 12               |
| 3 <sup>5</sup> / <sub>8</sub>                          | ... 3 <sup>3</sup> / <sub>4</sub> - 12               |
| 3 <sup>3</sup> / <sub>4</sub>                          | ... 3 <sup>7</sup> / <sub>8</sub> - 12               |
| 3 <sup>7</sup> / <sub>8</sub>                          | ... 4 - 12   |
| 4  | ... 4 <sup>1</sup> / <sub>8</sub> <sup>1)</sup> - 12 |
| 4 <sup>1</sup> / <sub>8</sub> <sup>1)</sup>            | ... 4 <sup>1</sup> / <sub>4</sub> <sup>1)</sup> - 12 |
| 4 <sup>1</sup> / <sub>4</sub> <sup>1)</sup>            | ... 4 <sup>3</sup> / <sub>8</sub> <sup>1)</sup> - 12 |
| 3 <sup>1</sup> / <sub>8</sub>                          | ... 3 <sup>1</sup> / <sub>4</sub> - 8                |
| 3 <sup>1</sup> / <sub>4</sub>                          | ... 3 <sup>3</sup> / <sub>8</sub> - 8                |
| 3 <sup>3</sup> / <sub>8</sub>                          | ... 3 <sup>1</sup> / <sub>2</sub> - 8                |
| 3 <sup>1</sup> / <sub>2</sub>                          | ... 3 <sup>5</sup> / <sub>8</sub> - 8                |
| 3 <sup>5</sup> / <sub>8</sub>                          | ... 3 <sup>3</sup> / <sub>4</sub> - 8                |
| 3 <sup>3</sup> / <sub>4</sub>                          | ... 3 <sup>7</sup> / <sub>8</sub> - 8                |
| 3 <sup>7</sup> / <sub>8</sub>                          | ... 4 - 8  |
| 4  | ... 4 <sup>1</sup> / <sub>8</sub> <sup>1)</sup> - 8  |
| 4 <sup>1</sup> / <sub>8</sub> <sup>1)</sup>            | ... 4 <sup>1</sup> / <sub>4</sub> <sup>1)</sup> - 8  |
| 4 <sup>1</sup> / <sub>4</sub> <sup>1)</sup>            | ... 4 <sup>3</sup> / <sub>8</sub> <sup>1)</sup> - 8  |
| 3 <sup>3</sup> / <sub>8</sub>                          | ... 3 <sup>1</sup> / <sub>2</sub> - 6                |
| 3 <sup>1</sup> / <sub>2</sub>                          | ... 3 <sup>5</sup> / <sub>8</sub> - 6                |
| 3 <sup>5</sup> / <sub>8</sub>                          | ... 3 <sup>3</sup> / <sub>4</sub> - 6                |
| 3 <sup>3</sup> / <sub>4</sub>                          | ... 3 <sup>7</sup> / <sub>8</sub> - 6                |
| 3 <sup>7</sup> / <sub>8</sub>                          | ... 4 - 6  |
| 4  | ... 4 <sup>1</sup> / <sub>8</sub> <sup>1)</sup> - 6  |
| 4 <sup>1</sup> / <sub>8</sub> <sup>1)</sup>            | ... 4 <sup>1</sup> / <sub>4</sub> <sup>1)</sup> - 6  |
| 4 <sup>1</sup> / <sub>4</sub> <sup>1)</sup>            | ... 4 <sup>3</sup> / <sub>8</sub> <sup>1)</sup> - 6  |

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 2,76 bis 6,93 kg.

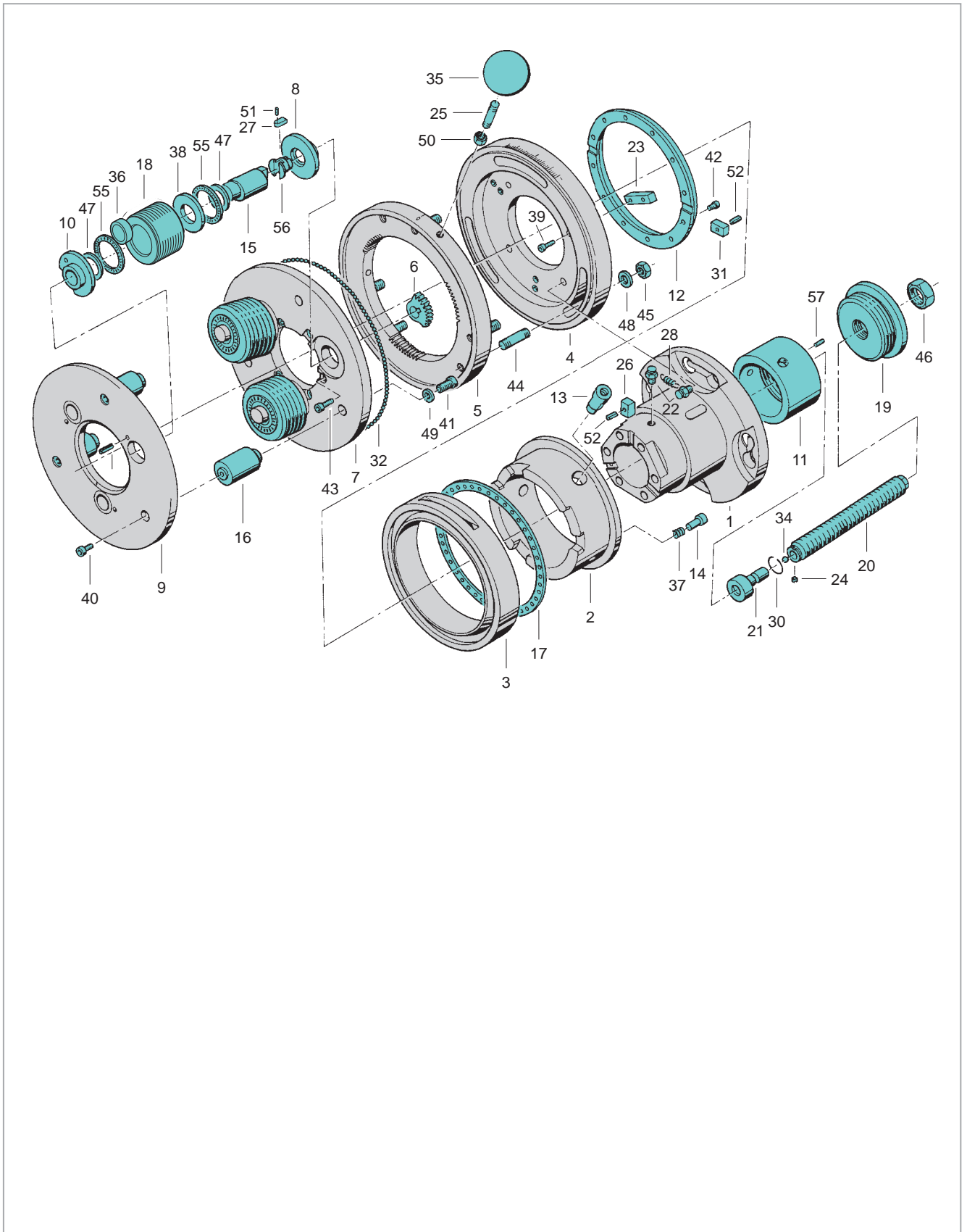
Thread dimensions combined in one block can be rolled with **one** set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 1.6 to 15.3 lb.

<sup>1)</sup> Max. Rolllänge 160 mm einschließlich Kupplungsweg (a).

<sup>1)</sup> Max. rolling length 6.299", including thread runout (a).

| Rollkopf<br>Rolling Head |               |   | FU7800                          | Rollkopf<br>Rolling Head |               |  | FU7800    |
|--------------------------|---------------|---|---------------------------------|--------------------------|---------------|--|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                     | Ident No.                       | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No. |
| 1                        | 1             | Mitnehmer<br>Flange                               | 2165998                         | 28                       | 2             | Zugfeder<br>Tension spring               | 2165980   |
| 2                        | 1             | Kupplung<br>Clutch                                | 2165999                         | 30                       | 1             | Schnorr-Sicherungsring<br>Circlip        | 2165981   |
| 3                        | 1             | Schaltring<br>Operating ring                      | 2166000                         | 31                       | 2             | Passfeder<br>Fitting key                 | 2173743   |
| 4                        | 1             | Federgehäuse<br>Spring housing                    | 2166001                         | 32                       | 196           | Stahlkugel<br>Steel ball                 | 2148180   |
| 5                        | 1             | Zahnkranz<br>Gear ring                            | 2166002                         | 34                       | 1             | Stahlkugel<br>Steel ball                 | 2148191   |
| 6                        | 3             | Zahnbogen<br>Gear sectors                         | 2166003                         | 35                       | 1             | Kugelnopf<br>Ball                        | 2141702   |
| 7                        | 1             | Zwischenplatte<br>Centre plate                    | 2166004                         | 36                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2242693   |
| 8                        | 3             | Buchse für Zwischenplatte<br>Centre plate bushing | 2165910                         | 37                       | 4             | Druckfeder<br>Pressure spring            | 2165769   |
| 9                        | 1             | Frontplatte<br>Front plate                        | 2166005                         | 38                       | 3             | Scheibe<br>Washer                        | 2165921   |
| 10                       | 3             | Buchse für Frontplatte<br>Front plate bushing     | 2165912                         | 39                       | 6             | Zylinderschraube<br>Cap screw            | 2148740   |
| 11                       | 1             | Hülse<br>Sleeve                                   | 2166006                         | 40                       | 3             | Zylinderschraube<br>Front plate screw    | 2143028   |
| 12                       | 1             | Bremsbelag<br>Brake ring                          | 2166007                         | 41                       | 3             | Zylinderschraube<br>Cap screw            | 2143040   |
| 13                       | 3             | Bolzen<br>Pin                                     | 2166008                         | 42                       | 12            | Zylinderschraube<br>Cap screw            | 2143011   |
| 14                       | 4             | Federbolzen<br>Spring pin                         | 2165759                         | 43                       | 6             | Zylinderschraube<br>Cap screw            | 2148748   |
| 15                       | 3             | Exzenterbolzen<br>Eccentric spindles              | 2165916                         | 44                       | 6             | Stiftschraube<br>Stud                    | 2148833   |
| 16                       | 3             | Distanzbolzen<br>Spacer studs                     | 2165650                         | 45                       | 6             | Sechskantmutter<br>Hexagon nut           | 2148701   |
| 17                       | 1             | Kugelkäfig<br>Bearing cage                        | 2165972                         | 46                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148396   |
| 18                       | 3             | Gewinderolle<br>Thread roll                       | siehe Einsatzfall<br>individual | 47                       | 6             | Zentrierscheibe<br>Centering ring        | 2165630   |
| 19                       | 1             | Schraubstutzen<br>Stop screw body                 | 2166009                         | 48                       | 6             | Scheibe<br>Washer                        | 2141468   |
| 20                       | 1             | Anschlagschraube<br>Stop screw                    | 2165974                         | 49                       | 3             | Federring<br>Lock washer                 | 2141719   |
| 21                       | 1             | Drehbarer Anschlag<br>Rotating end stop           | 2165975                         | 50                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148399   |
| 22                       | 4             | Federbefestigung<br>Spring holder                 | 2165764                         | 51                       | 3             | Zylinderstift<br>Shear pins              | 2141237   |
| 23                       | 3             | Kupplungskeil<br>Clutch wedge                     | 2165976                         | 52                       | 5             | Spannhülse<br>Roll pins                  | 2142576   |
| 24                       | 1             | Sicherungsbolzen<br>Safety bolt                   | 2165977                         | 55                       | 6             | Axialnadellager<br>Thrust bearings       | 2147347   |
| 25                       | 1             | Griff<br>Handle                                   | 2148828                         | 56                       | 3             | Führungsbuchse<br>Spindle drive          | 2165924   |
| 26                       | 3             | Passfeder<br>Fitting key                          | 2173743                         | 57                       | 3             | Gewindestift<br>Set screw                | 2142158   |
| 27                       | 3             | Passfeder<br>Fitting key                          | 2165922                         |                          |               |  |           |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
 When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!



### für Rechtsgewinde

- feststehend und umlaufend verwendbar
- mit Flansch
- Rollen-Schrägstellung = 1° 20'
- Gewicht ohne Rollen = ca. 140,5 kg

### for right-hand threads

- used stationary or rotating
- flange type design
- inclined position of rolls = 1° 20'
- weight without rolls = approx. 309 lb

### für Linksgewinde

- Typ FU8-1L
- Baumaß wie für Rechtsgewinde-Rollkopf

### for left-hand threads

- Type FU8-1L
- Dimensions like right-hand thread rolling head

a = Schalhub

Opening movement

b = Rollkopf öffnet

Rolling Head/opening direction

c = Rollkopf schließt

(Bei Rollköpfen für Linksgewinde

ist die Schalrichtung entgegengesetzt)

Rolling Head/closing direction

(For Rolling Heads for left-hand threads,

the direction of operation is reversed)

d = L<sub>8</sub> (Rollkopf geschlossen)

L<sub>8</sub> (Rolling Head closed)

e = L<sub>9</sub> (Rollkopf geöffnet)

L<sub>9</sub> (Rolling Head opened)

f = 4 Löcher

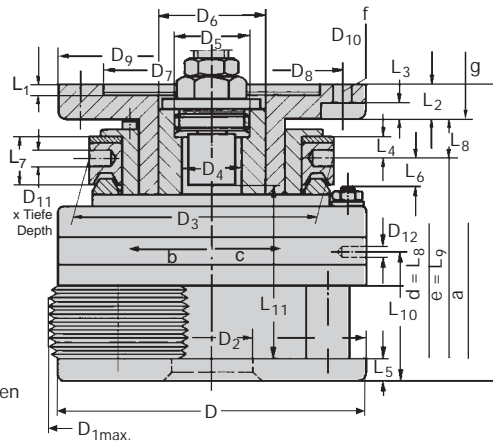
4 Holes

g = Maximale Länge der Befestigungsschrauben

Maximum length of the fastening screws

α = Schließwinkel

Closing angle



### Baumaße in mm

### Dimension in inches

|                 |                                 |                |                |                |                              |                |                              |                |                |                 |                     |                               | FU8-1     | FU8-1L <sup>5)</sup> |
|-----------------|---------------------------------|----------------|----------------|----------------|------------------------------|----------------|------------------------------|----------------|----------------|-----------------|---------------------|-------------------------------|-----------|----------------------|
| D               | D <sub>1max</sub> <sup>1)</sup> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | D <sub>5</sub> <sup>2)</sup> | D <sub>6</sub> | D <sub>7</sub> <sup>3)</sup> | D <sub>8</sub> | D <sub>9</sub> | D <sub>10</sub> | D <sub>11</sub> x T | Ident No.                     | Ident No. |                      |
| 365             | 370                             | 115            | 292            | 104            | M 120 x 3                    | 145            | 180                          | 250            | 290            | 17              | 16 x 24             | 1526700                       | 2241739   |                      |
| 14.37"          | 14.567"                         | 4.528"         | 11.496"        | 4.094"         | links   L.H.                 | 5.709"         | 7.087"                       | 9.843"         | 11.417"        | 0.669"          | 0.63 x 0.945"       |                               |           |                      |
| D <sub>12</sub> | L                               | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub>               | L <sub>5</sub> | L <sub>6</sub>               | L <sub>7</sub> | L <sub>8</sub> | L <sub>9</sub>  | L <sub>10</sub>     | L <sub>11</sub> <sup>4)</sup> | a         | α                    |
| M12             | 325                             | 10             | 40             | 20             | 29                           | 26,2           | 31,3                         | 56             | 44,4           | 38,4            | 138                 | 222                           | 6         | 27°                  |
|                 | 12.795"                         | 0.394"         | 1.575"         | 0.787"         | 1.142"                       | 1.031"         | 1.232"                       | 2.205"         | 1.748"         | 1.512"          | 5.433"              | 8.74"                         | 0.236"    |                      |

<sup>1)</sup> Größter Außen-Ø des Rollkopfes bei Rollenstellung im geöffneten Zustand.

<sup>1)</sup> Largest outside diameter of rolling head when rolls in open position.

<sup>2)</sup> Bei Linksgewinde-Rollköpfen Rechtsgewinde.

<sup>2)</sup> For L. H. thread rolling heads: R. H. thread.

<sup>3)</sup> Toleranz für das Maß D<sub>7</sub> = +0,040 mm, +0,015 mm.

<sup>3)</sup> Tolerance for the dimension D<sub>7</sub> = 0.002", 0.0006".

<sup>4)</sup> Max. Rolllänge einschließlich Kupplungsweg (a) bei Verwendung von drehbaren Anschlägen. Bei Verwendung von drehbaren Endanschlägen max. Rolllänge 222 mm.

<sup>4)</sup> Max. rolling length, including clutch travel (a) when using rotating end stops.

Max. rolling length when using rotating end stops = 8.74".

<sup>5)</sup> L = für Linksgewinde

<sup>5)</sup> L = for Left-hand threads

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Feingewinde <b>M</b><br>Metric ISO Fine Pitch Threads |         |
|--|---------|
| Nennmaß x Steigung<br>mm<br>Nominal Size x Pitch                     |         |
| M 72 ...   | 76 x 3  |
| M 76 ...   | 78 x 3  |
| M 72 ...   | 76 x 4  |
| M 76 ...   | 80 x 4  |
| M 80 ...   | 84 x 4  |
| M 84 ...   | 88 x 4  |
| M 88 ...   | 92 x 4  |
| M 92 ...   | 96 x 4  |
| M 96 ...   | 100 x 4 |
| M 72 ...   | 76 x 6  |
| M 76 ...   | 80 x 6  |
| M 80 ...   | 84 x 6  |
| M 84 ...   | 88 x 6  |
| M 88 ...   | 92 x 6  |
| M 92 ...   | 96 x 6  |
| M 96 ...   | 100 x 6 |

| Unified-Gewinde <b>UNF</b><br>Unified Threads          |           |
|--|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI |           |
| 27/8 ...   | 3 - 8     |
| 3 ...  | 3 1/8 - 8 |
| 27/8 ...   | 3 - 6     |
| 3 ...  | 3 1/8 - 6 |
| 3 1/8 ...  | 3 1/4 - 6 |
| 3 1/4 ...  | 3 3/8 - 6 |
| 3 3/8 ...  | 3 1/2 - 6 |
| 3 1/2 ...  | 3 5/8 - 6 |
| 3 5/8 ...  | 3 3/4 - 6 |
| 3 3/4 ...  | 3 7/8 - 6 |
| 3 7/8 ...  | 4 - 6     |
| 27/8 ...   | 3 - 4     |
| 3 ...  | 3 1/8 - 4 |
| 3 1/8 ...  | 3 1/4 - 4 |
| 3 1/4 ...  | 3 3/8 - 4 |
| 3 3/8 ...  | 3 1/2 - 4 |
| 3 1/2 ...  | 3 5/8 - 4 |
| 3 5/8 ...  | 3 3/4 - 4 |
| 3 3/4 ...  | 3 7/8 - 4 |
| 3 7/8 ...  | 4 - 4     |

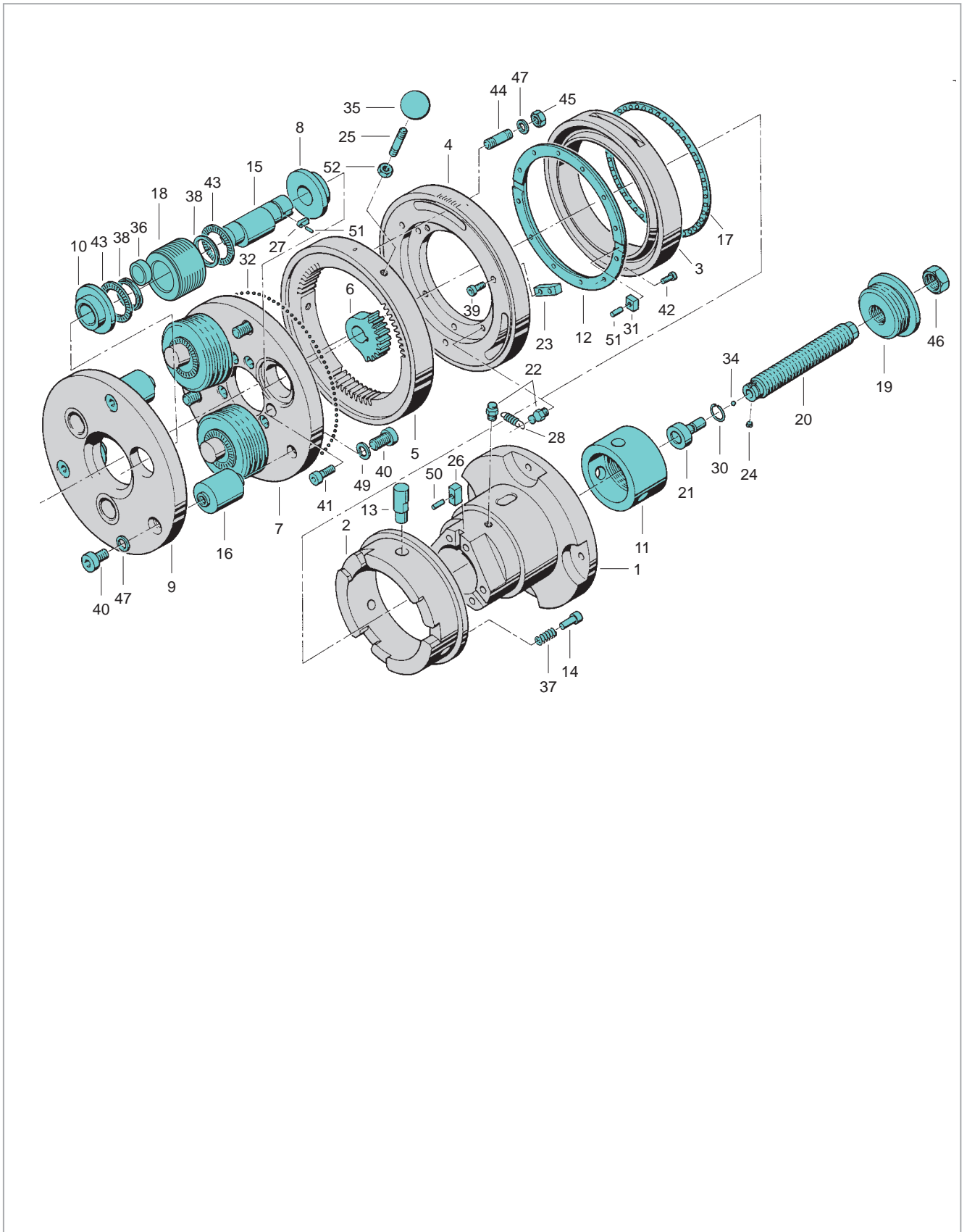
| Whitworth-Feingewinde <b>BSF</b><br>Whitworth Fine Pitch Threads |           |
|--|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI           |           |
| 27/8 ...   | 3 - 8     |
| 3 ...  | 3 1/8 - 8 |
| 27/8 ...   | 3 - 6     |
| 3 ...  | 3 1/8 - 6 |
| 3 1/8 ...  | 3 1/4 - 6 |
| 3 1/4 ...  | 3 3/8 - 6 |
| 3 3/8 ...  | 3 1/2 - 6 |
| 3 1/2 ...  | 3 5/8 - 6 |
| 3 5/8 ...  | 3 3/4 - 6 |
| 3 3/4 ...  | 3 7/8 - 6 |
| 3 7/8 ...  | 4 - 6     |
| 27/8 ...   | 3 - 4     |
| 3 ...  | 3 1/8 - 4 |
| 3 1/8 ...  | 3 1/4 - 4 |
| 3 1/4 ...  | 3 3/8 - 4 |
| 3 3/8 ...  | 3 1/2 - 4 |
| 3 1/2 ...  | 3 5/8 - 4 |
| 3 5/8 ...  | 3 3/4 - 4 |
| 3 3/4 ...  | 3 7/8 - 4 |
| 3 7/8 ...  | 4 - 4     |

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 4,62 bis 11,61 kg.

Thread dimensions combined in one block can be rolled with **one** set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 10.2 to 125.6 lb.

| Rollkopf<br>Rolling Head |               |   | FU8-1                            | FU8-1L    | Rollkopf<br>Rolling Head |               |  | FU8-1                            | FU8-1L    |
|--------------------------|---------------|---|----------------------------------|-----------|--------------------------|---------------|--|----------------------------------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                     | Ident No.                        | Ident No. | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                        | Ident No. |
|                          |               |   | Linksgewinde<br>Left hand thread |           |                          |               |  | Linksgewinde<br>Left hand thread |           |
| 1                        | 1             | Mitnehmer<br>Flange                               | 2166010                          |           | 26                       | 3             | Passfeder<br>Fitting key                 | 2165978                          |           |
| 2                        | 1             | Kupplung<br>Clutch                                | 2166011                          | 2240958   | 27                       | 3             | Passfeder<br>Fitting key                 | 2166029                          |           |
| 3                        | 1             | Schaltring<br>Operating ring                      | 2166012                          |           | 28                       | 2             | Zugfeder<br>Tension spring               | 2166030                          |           |
| 4                        | 1             | Federgehäuse<br>Spring housing                    | 2166013                          |           | 30                       | 1             | Schnorr-Sicherungsring<br>Circlip        | 2165981                          |           |
| 5                        | 1             | Zahnkranz<br>Gear ring                            | 2166014                          |           | 31                       | 2             | Passfeder<br>Fitting key                 | 2166031                          |           |
| 6                        | 3             | Zahnbogen<br>Gear sectors                         | 2166015                          | 2240957   | 32                       | 72            | Stahlkugel<br>Steel ball                 | 2148181                          |           |
| 7                        | 1             | Zwischenplatte<br>Centre plate                    | 2166016                          | 2240955   | 34                       | 1             | Stahlkugel<br>Steel ball                 | 2148191                          |           |
| 8                        | 3             | Buchse für Zwischenplatte<br>Centre plate bushing | 2166017                          |           | 35                       | 1             | Kugelknopf<br>Ball                       | 2141703                          |           |
| 9                        | 1             | Frontplatte<br>Front plate                        | 2166018                          | 2240956   | 36                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2242558                          |           |
| 10                       | 3             | Buchse für Frontplatte<br>Front plate bushing     | 2166019                          | 2240951   | 37                       | 4             | Druckfeder<br>Pressure spring            | 2165769                          |           |
| 11                       | 1             | Hülse<br>Sleeve                                   | 2166020                          | 2240954   | 38                       | 6             | Zenrierscheiben<br>Centering ring        | 2166032                          |           |
| 12                       | 1             | Bremsbelag<br>Brake ring                          | 2166021                          |           | 39                       | 6             | Zylinderschraube<br>Cap screw            | 2148740                          |           |
| 13                       | 3             | Bolzen<br>Pin                                     | 2166022                          |           | 40                       | 6             | Zylinderschraube<br>Front plate screw    | 2143055                          |           |
| 14                       | 4             | Federbolzen<br>Spring pin                         | 2165759                          |           | 41                       | 6             | Zylinderschraube<br>Cap screw            | 2234242                          |           |
| 15                       | 3             | Exzenterbolzen<br>Eccentric spindles              | 2166023                          | 2240952   | 42                       | 12            | Zylinderschraube<br>Cap screw            | 2143009                          |           |
| 16                       | 3             | Distanzbolzen<br>Spacer studs                     | 2166024                          |           | 43                       | 6             | Axialnadellager<br>Thrust bearings       | 2147419                          |           |
| 17                       | 1             | Kugelhäufig<br>Bearing cage                       | 2166025                          |           | 44                       | 6             | Stiftschraube<br>Stud                    | 2148834                          |           |
| 18                       | 3             | Gewinderolle<br>Thread roll                       | siehe Einsatzfall<br>individual  |           | 45                       | 6             | Sechskantmutter<br>Hexagon nut           | 2148702                          |           |
| 19                       | 1             | Schraubstutzen<br>Stop screw body                 | 2166026                          | 2240953   | 46                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148396                          | 2142410   |
| 20                       | 1             | Anschlagschraube<br>Stop screw                    | 2165974                          | 2165988   | 47                       | 9             | Scheibe<br>Washer                        | 2141469                          |           |
| 21                       | 1             | Drehbarer Anschlag<br>Rotating end stop           | 2165975                          |           | 49                       | 3             | Federring<br>Lock washer                 | 2141720                          |           |
| 22                       | 4             | Federbefestigung<br>Spring holder                 | 2166027                          |           | 50                       | 3             | Zylinderstift<br>Shear pins              | 2141300                          |           |
| 23                       | 3             | Kupplungskeil<br>Clutch wedge                     | 2166028                          |           | 51                       | 5             | Zylinderstift<br>Shear pins              | 2141254                          |           |
| 24                       | 1             | Abdeckscheibe<br>Cover plate                      | 2165977                          |           | 52                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148700                          |           |
| 25                       | 1             | Griff<br>Handle                                   | 2148831                          |           |                          |               |  |                                  |           |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
 When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!



**für Rechtsgewinde**

- feststehend und umlaufend verwendbar
- mit Flansch
- Rollen-Schrägstellung = 0° 30'
- Gewicht ohne Rollen = ca. 145 kg

**for right-hand threads**

- used stationary or rotating
- flange type design
- inclined position of rolls = 0° 30'
- weight without rolls = approx. 319 lb

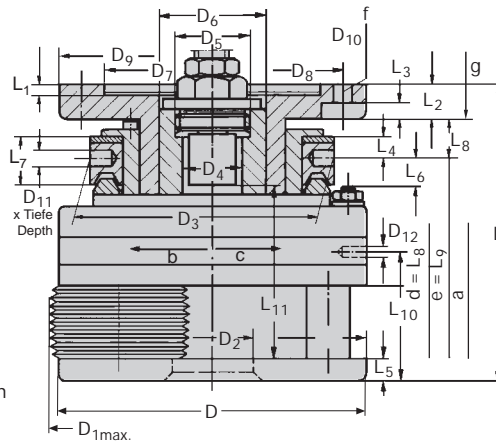
**für Linksgewinde**

- Typ FU96-1S-0° 30'L
- Baumaß wie für Rechtsgewinde-Rollkopf

**for left-hand threads**

- Type FU96-1S-0° 30'L
- Dimensions like right-hand thread rolling head

- a = Schalhub  
Opening movement
- b = Rollkopf öffnet  
Rolling Head/opening direction
- c = Rollkopf schließt  
(Bei Rollköpfen für Linksgewinde ist die Schalrichtung entgegengesetzt)  
Rolling Head/closing direction  
(For Rolling Heads for left-hand threads, the direction of operation is reversed)
- d = L<sub>8</sub> (Rollkopf geschlossen)  
L<sub>8</sub> (Rolling Head closed)
- e = L<sub>9</sub> (Rollkopf geöffnet)  
L<sub>9</sub> (Rolling Head opened)
- f = 4 Löcher  
4 Holes
- g = Maximale Länge der Befestigungsschrauben  
Maximum length of the fastening screws
- α = Schließwinkel  
Closing angle



| Baumaße in mm<br>Dimension in inches |                                 |                |                |                |                              |                |                              |                |                |                 |                     | FU96-1S-0° 30'                |        |     |
|--------------------------------------|---------------------------------|----------------|----------------|----------------|------------------------------|----------------|------------------------------|----------------|----------------|-----------------|---------------------|-------------------------------|--------|-----|
| D                                    | D <sub>1max</sub> <sup>1)</sup> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | D <sub>5</sub> <sup>2)</sup> | D <sub>6</sub> | D <sub>7</sub> <sup>3)</sup> | D <sub>8</sub> | D <sub>9</sub> | D <sub>10</sub> | D <sub>11</sub> x T | Ident No.                     |        |     |
| 390                                  | 333                             | 135            | 320            | 135            | M 148 x 3                    | 170            | 200                          | 270            | 310            | 17              | 18 x 25             | 1527102                       |        |     |
| 15.354"                              | 13.11"                          | 5.315"         | 12.598"        | 5.315"         | links   L.H.                 | 6.693"         | 7.874"                       | 10.630"        | 12.205"        | 0.669"          | 0.709 x 0.984"      |                               |        |     |
| D <sub>12</sub>                      | L                               | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub>               | L <sub>5</sub> | L <sub>6</sub>               | L <sub>7</sub> | L <sub>8</sub> | L <sub>9</sub>  | L <sub>10</sub>     | L <sub>11</sub> <sup>4)</sup> | a      | α   |
| M12                                  | 352,5                           | 10             | 40             | 20             | 32                           | 24             | 38                           | 62             | 57             | 49              | 129,2               | 262                           | 7,5    | 27° |
|                                      | 13.878"                         | 0.394"         | 1.575"         | 0.787"         | 1.260"                       | 0.945"         | 1.496"                       | 2.441"         | 2.244"         | 1.929"          | 5.087"              | 10.315"                       | 0.295" |     |

<sup>1)</sup> Größter Außen-Ø des Rollkopfes bei Rollenstellung im geöffneten Zustand.  
<sup>1)</sup> Largest outside diameter of rolling head when rolls in open position.  
<sup>2)</sup> Bei Linksgewinde-Rollköpfen Rechtsgewinde.  
<sup>2)</sup> For L. H. thread rolling heads: R. H. thread.  
<sup>3)</sup> Toleranz für das Maß D<sub>7</sub> = +0,040 mm, +0,015 mm.  
<sup>3)</sup> Tolerance for the dimension D<sub>7</sub> = 0.002", 0.0006".

<sup>4)</sup> Max. Rolllänge einschließlich Kupplungsweg (a) bei Verwendung von drehbaren Anschlägen. Bei Verwendung von drehbaren Endanschlägen max. Rolllänge 262 mm.  
<sup>4)</sup> Max. rolling length, including clutch travel (a) when using rotating end stops.  
 Max. rolling length when using rotating end stops = 10.315".  
<sup>5)</sup> L = für Linksgewinde  
<sup>5)</sup> L = for Left-hand threads



für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Feingewinde<br>Metric ISO Fine Pitch Threads | M |
|---|---|
| Nennmaß x Steigung<br>mm<br>Nominal Size x Pitch            |   |
| M 88 x 3 <sup>1)</sup>                                      |   |
| M 88 x 2 <sup>1)</sup>                                      |   |
| M 90 x 3 <sup>1)</sup>                                      |   |
| M 90 x 2 <sup>1)</sup>                                      |   |
| M 92 x 3 <sup>1)</sup>                                      |   |
| M 92 x 2 <sup>1)</sup>                                      |   |
| M 95 x 4 <sup>1)</sup>                                      |   |
| M 95 x 3 <sup>1)</sup>                                      |   |
| M 95 x 2 <sup>1)</sup>                                      |   |
| M 98 x 3 <sup>1)</sup>                                      |   |
| M 98 x 2 <sup>1)</sup>                                      |   |
| M 100 x 2 <sup>1)</sup>                                     |   |
| M 102 x 2 <sup>1)</sup>                                     |   |
| M 105 x 3 <sup>1)</sup>                                     |   |
| M 105 x 2 <sup>1)</sup>                                     |   |
| M 108 x 3 <sup>1)</sup>                                     |   |
| M 108 x 2 <sup>1)</sup>                                     |   |
| M 110 x 3 <sup>1)</sup>                                     |   |
| M 112 x 4 <sup>1)</sup>                                     |   |
| M 112 x 3   |   |
| M 112 x 2   |   |
| M 115 x 4   |   |
| M 115 x 3   |   |
| M 115 x 2   |   |
| M 118 x 4   |   |
| M 118 x 3   |   |
| M 118 x 2   |   |
| M 120 x 4   |   |
| M 120 x 3   |   |
| M 120 x 2   |   |
| M 122 x 4   |   |
| M 122 x 3   |   |
| M 122 x 2   |   |
| M 125 x 4   |   |
| M 125 x 3   |   |
| M 125 x 2   |   |

| Unified-Gewinde, fein<br>Unified Threads, Fine Pitch   | UN |
|--|----|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI |    |
| 3 <sup>1</sup> / <sub>2</sub> – 8 UN                   |    |
| 3 <sup>1</sup> / <sub>2</sub> – 12 UN                  |    |
| 3 <sup>5</sup> / <sub>8</sub> – 8 <sup>1)</sup> UN     |    |
| 3 <sup>5</sup> / <sub>8</sub> – 12 <sup>1)</sup> UN    |    |
| 3 <sup>5</sup> / <sub>8</sub> – 16 <sup>1)</sup> UN    |    |
| 3 <sup>3</sup> / <sub>4</sub> – 8 <sup>1)</sup> UN     |    |
| 3 <sup>3</sup> / <sub>4</sub> – 12 <sup>1)</sup> UN    |    |
| 3 <sup>3</sup> / <sub>4</sub> – 16 <sup>1)</sup> UN    |    |
| 3 <sup>7</sup> / <sub>8</sub> – 6 <sup>1)</sup> UN     |    |
| 3 <sup>7</sup> / <sub>8</sub> – 8 <sup>1)</sup> UN     |    |
| 3 <sup>7</sup> / <sub>8</sub> – 12 <sup>1)</sup> UN    |    |
| 3 <sup>7</sup> / <sub>8</sub> – 16 <sup>1)</sup> UN    |    |
| 4 – 8 <sup>1)</sup> UN                                 |    |
| 4 – 12 <sup>1)</sup> UN                                |    |
| 4 <sup>1</sup> / <sub>8</sub> – 6 <sup>1)</sup> UN     |    |
| 4 <sup>1</sup> / <sub>8</sub> – 12 <sup>1)</sup> UN    |    |
| 4 <sup>1</sup> / <sub>4</sub> – 6 <sup>1)</sup> UN     |    |
| 4 <sup>1</sup> / <sub>4</sub> – 12 <sup>1)</sup> UN    |    |
| 4 <sup>3</sup> / <sub>8</sub> – 6 <sup>1)</sup> UN     |    |
| 4 <sup>3</sup> / <sub>8</sub> – 12 UN                  |    |
| 4 <sup>1</sup> / <sub>2</sub> – 6 UN                   |    |
| 4 <sup>1</sup> / <sub>2</sub> – 8 UN                   |    |
| 4 <sup>5</sup> / <sub>8</sub> – 6 UN                   |    |
| 4 <sup>7</sup> / <sub>8</sub> – 6 UN                   |    |

| Whitworth-Feingewinde<br>Whitworth Fine Pitch Threads  | BSFS |
|--|------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI |      |
| 3 <sup>1</sup> / <sub>2</sub> – 8 <sup>1)</sup> BSFS   |      |
| 3 <sup>5</sup> / <sub>8</sub> – 8 <sup>1)</sup> BSFS   |      |
| 3 <sup>5</sup> / <sub>8</sub> – 16 <sup>1)</sup> BSFS  |      |
| 3 <sup>3</sup> / <sub>4</sub> – 8 <sup>1)</sup> BSFS   |      |
| 3 <sup>3</sup> / <sub>4</sub> – 16 <sup>1)</sup> BSFS  |      |
| 3 <sup>7</sup> / <sub>8</sub> – 8 <sup>1)</sup> BSFS   |      |
| 3 <sup>7</sup> / <sub>8</sub> – 16 <sup>1)</sup> BSFS  |      |
| 4 <sup>1</sup> / <sub>4</sub> – 8 <sup>1)</sup> BSFS   |      |

<sup>1)</sup> Bei diesen Gewindeabmessungen besteht ein Satz Gewinderollen aus 3 Rollen, sonst aus 6 Rollen.

<sup>1)</sup> For these thread sizes, three rolls per set, otherwise six rolls per set.

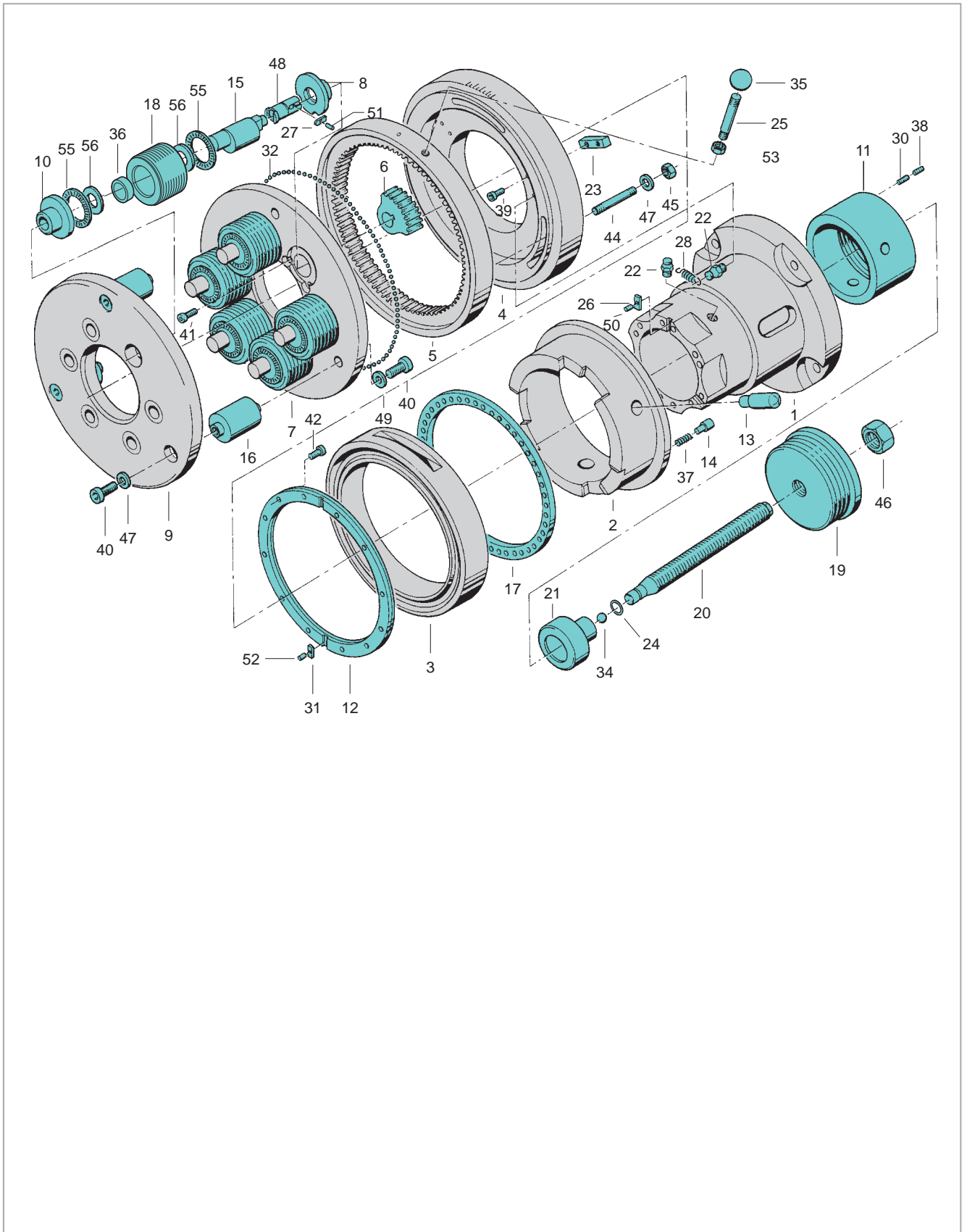
Gewicht für 1 Satz = **3 Stück** Rollen je nach Gewinde-Nennmaß etwa 8,16 bis 12,69 kg.

Gewicht für 1 Satz = **6 Stück** Rollen je nach Gewinde-Nennmaß etwa 10,8 bis 14,94 kg.

Weight of 1 set of **3 Rolls** according to Nominal Thread size approx 18 to 28 lb.  
Weight of 1 set of **6 Rolls** according to Nominal Thread size approx 23.8 to 33 lb.

| Rollkopf<br>Rolling Head |               |   | FU96-1S-0° 30'                  | Rollkopf<br>Rolling Head |               |  | FU96-1S-0° 30' |
|--------------------------|---------------|---|---------------------------------|--------------------------|---------------|--|----------------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                     | Ident No.                       | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No.      |
| 1                        | 1             | Mitnehmer<br>Flange                               | 2166045                         | 26                       | 3             | Passfeder<br>Fitting key                 | 2165978        |
| 2                        | 1             | Kupplung<br>Clutch                                | 2166046                         | 27                       | 6             | Passfeder<br>Fitting key                 | 2166067        |
| 3                        | 1             | Schaltring<br>Operating ring                      | 2166047                         | 28                       | 2             | Zugfeder<br>Tension spring               | 2166068        |
| 4                        | 1             | Federgehäuse<br>Spring housing                    | 2166048                         | 31                       | 2             | Passfeder<br>Fitting key                 | 2166031        |
| 5                        | 1             | Zahnkranz<br>Gear ring                            | 2166049                         | 32                       | 190           | Stahlkugel<br>Steel ball                 | 2148181        |
| 6                        | 6             | Zahnbogen<br>Gear sectors                         | 2166050                         | 34                       | 1             | Stahlkugel<br>Steel ball                 | 2148191        |
| 7                        | 1             | Zwischenplatte<br>Centre plate                    | 2166051                         | 35                       | 1             | Kugelknopf<br>Ball                       | 2141703        |
| 8                        | 6             | Buchse für Zwischenplatte<br>Centre plate bushing | 2166052                         | 36                       | 3/6           | Hartmetall-Laufbuchse<br>Carbide bushing | 2168896        |
| 9                        | 1             | Frontplatte<br>Front plate                        | 2166053                         | 37                       | 4             | Druckfeder<br>Pressure spring            | 2166069        |
| 10                       | 6             | Buchse für Frontplatte<br>Front plate bushing     | 2166054                         | 39                       | 6             | Zylinderschraube<br>Cap screw            | 2148742        |
| 11                       | 1             | Hülse<br>Sleeve                                   | 2166055                         | 40                       | 6             | Zylinderschraube<br>Front plate screw    | 2143055        |
| 12                       | 1             | Bremsbelag<br>Brake ring                          | 2166056                         | 41                       | 12            | Zylinderschraube<br>Cap screw            | 2234242        |
| 13                       | 3             | Bolzen<br>Pin                                     | 2166057                         | 42                       | 12            | Zylinderschraube<br>Cap screw            | 2143011        |
| 14                       | 4             | Federbolzen<br>Spring pin                         | 2166058                         | 44                       | 6             | Stiftschraube<br>Stud                    | 2148835        |
| 15                       | 6             | Exzenterbolzen<br>Eccentric spindles              | 2166059                         | 45                       | 6             | Sechskantmutter<br>Hexagon nut           | 2148702        |
| 16                       | 3             | Distanzbolzen<br>Spacer studs                     | 2166060                         | 46                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148396        |
| 17                       | 1             | Kugelkäfig<br>Bearing cage                        | 2166061                         | 47                       | 9             | Scheibe<br>Washer                        | 2141469        |
| 18                       | 3/6           | Gewinderolle<br>Thread roll                       | siehe Einsatzfall<br>individual | 48                       | 6             | Führungsbuchse<br>Spindle drive          | 2166070        |
| 19                       | 1             | Schraubstutzen<br>Stop screw body                 | 2166062                         | 49                       | 3             | Federring<br>Lock washer                 | 2141720        |
| 20                       | 1             | Anschlagschraube<br>Stop screw                    | 2166063                         | 50                       | 3             | Spannhülse<br>Roll pins                  | 2148849        |
| 21                       | 1             | Drehbarer Anschlag<br>Rotating end stop           | 2166064                         | 51                       | 6             | Zylinderstift<br>Shear pins              | 2141244        |
| 22                       | 4             | Federbefestigung<br>Spring holder                 | 2166065                         | 52                       | 2             | Spannhülse<br>Roll pins                  | 2142576        |
| 23                       | 3             | Kupplungskeil<br>Clutch wedge                     | 2166066                         | 53                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148700        |
| 24                       | 1             | Sprengring<br>Circlip                             | 2218737                         | 55                       | 12            | Axialnadellager<br>Thrust bearings       | 2147349        |
| 25                       | 1             | Griff<br>Handle                                   | 2234241                         | 56                       | 12            | Zentrierscheibe<br>Centering ring        | 2166071        |
|                          |               |   |                                 |                          |               |  |                |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
 When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!



**für Rechtsgewinde**

- feststehend und umlaufend verwendbar
- mit Flansch
- Rollen-Schrägstellung = 0° 25'
- Gewicht ohne Rollen = ca. 195 kg

**for right-hand threads**

- used stationary or rotating
- flange type design
- inclined position of rolls = 0° 25'
- weight without rolls = approx. 330 lb

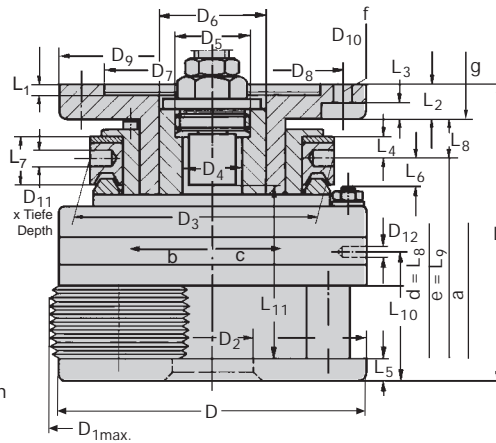
**für Linksgewinde**

- Typ FU11600L
- Baumaß wie für Rechtsgewinde-Rollkopf

**for left-hand threads**

- Type FU11600L
- Dimensions like right-hand thread rolling head

- a = Schalhub  
Opening movement
- b = Rollkopf öffnet  
Rolling Head/opening direction
- c = Rollkopf schließt  
(Bei Rollköpfen für Linksgewinde ist die Schalrichtung entgegengesetzt)  
Rolling Head/closing direction  
(For Rolling Heads for left-hand threads, the direction of operation is reversed)
- d = L<sub>8</sub> (Rollkopf geschlossen)  
L<sub>8</sub> (Rolling Head closed)
- e = L<sub>9</sub> (Rollkopf geöffnet)  
L<sub>9</sub> (Rolling Head opened)
- f = 4 Löcher  
4 Holes
- g = Maximale Länge der Befestigungsschrauben  
Maximum length of the fastening screws
- α = Schließwinkel  
Closing angle



| Baumaße in mm<br>Dimension in inches |                                 |                |                |                |                              |                |                |                              |                |                |                 |                               | FU11600   |     |
|--------------------------------------|---------------------------------|----------------|----------------|----------------|------------------------------|----------------|----------------|------------------------------|----------------|----------------|-----------------|-------------------------------|-----------|-----|
| D                                    | D <sub>1max</sub> <sup>1)</sup> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | D <sub>5</sub> <sup>2)</sup> |                | D <sub>6</sub> | D <sub>7</sub> <sup>3)</sup> | D <sub>8</sub> | D <sub>9</sub> | D <sub>10</sub> | D <sub>11</sub> x T           | Ident No. |     |
| 410                                  | 349                             | 166            | 336            | 166            | M 170 x 2                    |                | 196            | 225                          | 290            | 330            | 17              | 18 x 13                       | 1527406   |     |
| 16.142"                              | 13.74"                          | 6.535"         | 13.228"        | 6.535"         | links   L.H.                 |                | 7.717"         | 8.858"                       | 11.417"        | 12.992"        | 0.669"          | 0.709 x 0.512"                |           |     |
| D <sub>12</sub>                      | L                               | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub>               | L <sub>5</sub> | L <sub>6</sub> | L <sub>7</sub>               | L <sub>8</sub> | L <sub>9</sub> | L <sub>10</sub> | L <sub>11</sub> <sup>4)</sup> | a         | α   |
| M12                                  | 298,5                           | 10             | 40             | 20             | 25                           | 18,3           | 38             | 57                           | 47             | 39             | 96,7            | 159,5                         | 7,5       | 14° |
|                                      | 11.752"                         | 0.394"         | 1.575"         | 0.787"         | 0.984"                       | 0.72"          | 1.496"         | 2.244"                       | 1.85"          | 1.535"         | 3.807"          | 6.28"                         | 0.295"    |     |

<sup>1)</sup> Größter Außen-Ø des Rollkopfes bei Rollenstellung im geöffneten Zustand.

<sup>1)</sup> Largest outside diameter of rolling head when rolls in open position.

<sup>2)</sup> Bei Linksgewinde-Rollköpfen Rechtsgewinde.

<sup>2)</sup> For L. H. thread rolling heads: R. H. thread.

<sup>3)</sup> Toleranz für das Maß D<sub>7</sub> = +0,040 mm, +0,015 mm.

<sup>3)</sup> Tolerance for the dimension D<sub>7</sub> = 0.002", 0.0006".

<sup>4)</sup> Max. Rolllänge einschließlich Kupplungsweg (a) bei Verwendung von drehbaren Anschlägen. Bei Verwendung von drehbaren Endanschlägen max. Rolllänge 159,5 mm.

<sup>4)</sup> Max. rolling length, including clutch travel (a) when using rotating end stops. Max. rolling length when using rotating end stops = 6.28".

<sup>5)</sup> L = für Linksgewinde

<sup>5)</sup> L = for Left-hand threads

für Rechts- und Linksgewinde  
 for right-hand and left-hand threads



**Metrisches ISO-Feingewinde M**  
**Metric ISO Fine Pitch Threads**

| Nennmaß x Steigung<br>mm<br>Nominal Size x Pitch |                                 |
|--|---------------------------------|
| M 98 ... 100 x 1,5 <sup>1)</sup>                 | M 130 ... 132 x 3               |
| M 100 ... 102 x 1,5 <sup>1)</sup>                | M 132 ... 134 x 3               |
| M 102 ... 104 x 1,5 <sup>1)</sup>                | M 134 ... 136 x 3               |
| M 104 ... 106 x 1,5 <sup>1)</sup>                | M 136 ... 138 x 3               |
| M 106 ... 108 x 1,5 <sup>1)</sup>                | M 138 ... 140 x 3               |
| M 108 ... 110 x 1,5 <sup>1)</sup>                | M 140 ... 142 x 3               |
| M 98 ... 100 x 2 <sup>1)</sup>                   | M 142 ... 144 x 3               |
| M 100 ... 102 x 2 <sup>1)</sup>                  | M 144 ... 146 x 3               |
| M 102 ... 104 x 2 <sup>1)</sup>                  | M 146 ... 148 x 3               |
| M 104 ... 106 x 2 <sup>1)</sup>                  | M 148 ... 150 x 3               |
| M 106 ... 108 x 2 <sup>1)</sup>                  | M 150 ... 152 x 3               |
| M 108 ... 110 x 2 <sup>1)</sup>                  | M 152 ... 154 x 3               |
| M 110 ... 112 x 2 <sup>1)</sup>                  | M 154 ... 156 x 3               |
| M 112 ... 114 x 2 <sup>1)</sup>                  | M 156 ... 158 x 3               |
| M 114 ... 116 x 2 <sup>1)</sup>                  | M 158 ... 160 x 3               |
| M 116 ... 118 x 2                                | M 160 ... 162 x 3               |
| M 118 ... 120 x 2                                | M 162 ... 164 x 3               |
| M 120 ... 122 x 2                                | M 110 ... 112 x 4 <sup>1)</sup> |
| M 122 ... 124 x 2                                | M 112 ... 114 x 4 <sup>1)</sup> |
| M 124 ... 126 x 2                                | M 114 ... 116 x 4 <sup>1)</sup> |
| M 126 ... 128 x 2                                | M 116 ... 118 x 4 <sup>1)</sup> |
| M 128 ... 130 x 2                                | M 118 ... 120 x 4 <sup>1)</sup> |
| M 130 ... 132 x 2                                | M 120 ... 122 x 4               |
| M 132 ... 134 x 2                                | M 122 ... 124 x 4               |
| M 134 ... 136 x 2                                | M 124 ... 126 x 4               |
| M 136 ... 138 x 2                                | M 126 ... 128 x 4               |
| M 138 ... 140 x 2                                | M 128 ... 130 x 4               |
| M 140 ... 142 x 2                                | M 130 ... 132 x 4               |
| M 142 ... 144 x 2                                | M 132 ... 134 x 4               |
| M 144 ... 146 x 2                                | M 134 ... 136 x 4               |
| M 100 ... 102 x 3 <sup>1)</sup>                  | M 136 ... 138 x 4               |
| M 102 ... 104 x 3 <sup>1)</sup>                  | M 138 ... 140 x 4               |
| M 104 ... 106 x 3 <sup>1)</sup>                  | M 140 ... 142 x 4               |
| M 106 ... 108 x 3 <sup>1)</sup>                  | M 142 ... 144 x 4               |
| M 108 ... 110 x 3 <sup>1)</sup>                  | M 144 ... 146 x 4               |
| M 110 ... 112 x 3 <sup>1)</sup>                  | M 146 ... 148 x 4               |
| M 112 ... 114 x 3 <sup>1)</sup>                  | M 148 ... 150 x 4               |
| M 114 ... 116 x 3 <sup>1)</sup>                  | M 150 ... 152 x 4               |
| M 116 ... 118 x 3 <sup>1)</sup>                  | M 152 ... 154 x 4               |
| M 118 ... 120 x 3                                | M 154 ... 156 x 4               |
| M 120 ... 122 x 3                                | M 156 ... 158 x 4               |
| M 122 ... 124 x 3                                | M 158 ... 160 x 4               |
| M 124 ... 126 x 3                                | M 160 ... 162 x 4               |
| M 126 ... 128 x 3                                | M 162 ... 164 x 4               |
| M 128 ... 130 x 3                                |                                 |

**Unified-Gewinde, fein UNF**  
**Unified Threads, Fine Pitch**

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI                              |  |
|---|--|
| 37/8 ... 3 <sup>15</sup> / <sub>16</sub> - 16 <sup>1)</sup>                         | 5 ... 5 <sup>1</sup> / <sub>16</sub> - 8   |
| 3 <sup>15</sup> / <sub>16</sub> ... 4 - 16 <sup>1)</sup>                            | 5 <sup>1</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>8</sub> - 8               |
| 4 ... 4 <sup>1</sup> / <sub>16</sub> - 16 <sup>1)</sup>                             | 5 <sup>1</sup> / <sub>8</sub> ... 5 <sup>3</sup> / <sub>16</sub> - 8               |
| 4 <sup>1</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>8</sub> - 16 <sup>1)</sup> | 5 <sup>3</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>4</sub> - 8               |
| 4 <sup>1</sup> / <sub>8</sub> ... 4 <sup>3</sup> / <sub>16</sub> - 16 <sup>1)</sup> | 5 <sup>1</sup> / <sub>4</sub> ... 5 <sup>5</sup> / <sub>16</sub> - 8               |
| 4 <sup>3</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>4</sub> - 16 <sup>1)</sup> | 5 <sup>5</sup> / <sub>16</sub> ... 5 <sup>3</sup> / <sub>8</sub> - 8               |
| 4 <sup>1</sup> / <sub>4</sub> ... 4 <sup>5</sup> / <sub>16</sub> - 16 <sup>1)</sup> | 5 <sup>3</sup> / <sub>8</sub> ... 5 <sup>7</sup> / <sub>16</sub> - 8               |
| 4 <sup>5</sup> / <sub>16</sub> ... 4 <sup>3</sup> / <sub>8</sub> - 16 <sup>1)</sup> | 5 <sup>7</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>2</sub> - 8               |
| 37/8 ... 3 <sup>15</sup> / <sub>16</sub> - 12 <sup>1)</sup>                         | 5 <sup>1</sup> / <sub>2</sub> ... 5 <sup>9</sup> / <sub>16</sub> - 8               |
| 3 <sup>15</sup> / <sub>16</sub> ... 4 - 12 <sup>1)</sup>                            | 5 <sup>9</sup> / <sub>16</sub> ... 5 <sup>5</sup> / <sub>8</sub> - 8               |
| 4 ... 4 <sup>1</sup> / <sub>16</sub> - 12 <sup>1)</sup>                             | 5 <sup>5</sup> / <sub>8</sub> ... 5 <sup>11</sup> / <sub>16</sub> - 8              |
| 4 <sup>1</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>8</sub> - 12 <sup>1)</sup> | 5 <sup>11</sup> / <sub>16</sub> ... 5 <sup>3</sup> / <sub>4</sub> - 8              |
| 4 <sup>1</sup> / <sub>8</sub> ... 4 <sup>3</sup> / <sub>16</sub> - 12 <sup>1)</sup> | 5 <sup>3</sup> / <sub>4</sub> ... 5 <sup>13</sup> / <sub>16</sub> - 8              |
| 4 <sup>3</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>4</sub> - 12 <sup>1)</sup> | 5 <sup>13</sup> / <sub>16</sub> ... 5 <sup>7</sup> / <sub>8</sub> - 8              |
| 4 <sup>1</sup> / <sub>4</sub> ... 4 <sup>5</sup> / <sub>16</sub> - 12 <sup>1)</sup> | 5 <sup>7</sup> / <sub>8</sub> ... 5 <sup>15</sup> / <sub>16</sub> - 8              |
| 4 <sup>5</sup> / <sub>16</sub> ... 4 <sup>3</sup> / <sub>8</sub> - 12 <sup>1)</sup> | 5 <sup>15</sup> / <sub>16</sub> ... 6 - 8  |
| 4 <sup>3</sup> / <sub>8</sub> ... 4 <sup>7</sup> / <sub>16</sub> - 12 <sup>1)</sup> | 6 ... 6 <sup>1</sup> / <sub>16</sub> - 8   |
| 4 <sup>7</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>2</sub> - 12 <sup>1)</sup> | 6 <sup>1</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>8</sub> - 8               |
| 4 <sup>1</sup> / <sub>2</sub> ... 4 <sup>9</sup> / <sub>16</sub> - 12 <sup>1)</sup> | 6 <sup>1</sup> / <sub>8</sub> ... 6 <sup>3</sup> / <sub>16</sub> - 8               |
| 4 <sup>9</sup> / <sub>16</sub> ... 4 <sup>5</sup> / <sub>8</sub> - 12 <sup>1)</sup> | 6 <sup>3</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>4</sub> - 8               |
| 4 <sup>5</sup> / <sub>8</sub> ... 4 <sup>11</sup> / <sub>16</sub> - 12              | 6 <sup>1</sup> / <sub>4</sub> ... 6 <sup>5</sup> / <sub>16</sub> - 8               |
| 4 <sup>11</sup> / <sub>16</sub> ... 4 <sup>3</sup> / <sub>4</sub> - 12              | 6 <sup>5</sup> / <sub>16</sub> ... 6 <sup>3</sup> / <sub>8</sub> - 8               |
| 4 <sup>3</sup> / <sub>4</sub> ... 4 <sup>13</sup> / <sub>16</sub> - 12              | 6 <sup>3</sup> / <sub>8</sub> ... 6 <sup>7</sup> / <sub>16</sub> - 8               |
| 4 <sup>13</sup> / <sub>16</sub> ... 4 <sup>7</sup> / <sub>8</sub> - 12              | 6 <sup>7</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>2</sub> - 8               |
| 4 <sup>7</sup> / <sub>8</sub> ... 4 <sup>15</sup> / <sub>16</sub> - 12              | 4 ... 4 <sup>1</sup> / <sub>16</sub> - 6 <sup>1)</sup>                             |
| 4 <sup>15</sup> / <sub>16</sub> ... 5 - 12  | 4 <sup>1</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>8</sub> - 6 <sup>1)</sup> |
| 5 ... 5 <sup>1</sup> / <sub>16</sub> - 12   | 4 <sup>1</sup> / <sub>8</sub> ... 4 <sup>3</sup> / <sub>16</sub> - 6 <sup>1)</sup> |
| 5 <sup>1</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>8</sub> - 12               | 4 <sup>3</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>4</sub> - 6 <sup>1)</sup> |
| 5 <sup>1</sup> / <sub>8</sub> ... 5 <sup>3</sup> / <sub>16</sub> - 12               | 4 <sup>1</sup> / <sub>4</sub> ... 4 <sup>5</sup> / <sub>16</sub> - 6 <sup>1)</sup> |
| 5 <sup>3</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>4</sub> - 12               | 4 <sup>5</sup> / <sub>16</sub> ... 4 <sup>3</sup> / <sub>8</sub> - 6 <sup>1)</sup> |
| 5 <sup>1</sup> / <sub>4</sub> ... 5 <sup>5</sup> / <sub>16</sub> - 12               | 4 <sup>3</sup> / <sub>8</sub> ... 4 <sup>7</sup> / <sub>16</sub> - 6 <sup>1)</sup> |
| 5 <sup>5</sup> / <sub>16</sub> ... 5 <sup>3</sup> / <sub>8</sub> - 12               | 4 <sup>7</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>2</sub> - 6 <sup>1)</sup> |
| 5 <sup>3</sup> / <sub>8</sub> ... 5 <sup>7</sup> / <sub>16</sub> - 12               | 4 <sup>1</sup> / <sub>2</sub> ... 4 <sup>9</sup> / <sub>16</sub> - 6 <sup>1)</sup> |
| 5 <sup>7</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>2</sub> - 12               | 4 <sup>9</sup> / <sub>16</sub> ... 4 <sup>5</sup> / <sub>8</sub> - 6 <sup>1)</sup> |
| 5 <sup>1</sup> / <sub>2</sub> ... 5 <sup>9</sup> / <sub>16</sub> - 12               | 4 <sup>5</sup> / <sub>8</sub> ... 4 <sup>11</sup> / <sub>16</sub> - 6              |
| 5 <sup>9</sup> / <sub>16</sub> ... 5 <sup>5</sup> / <sub>8</sub> - 12               | 4 <sup>11</sup> / <sub>16</sub> ... 4 <sup>3</sup> / <sub>4</sub> - 6              |
| 5 <sup>5</sup> / <sub>8</sub> ... 5 <sup>11</sup> / <sub>16</sub> - 12              | 4 <sup>3</sup> / <sub>4</sub> ... 4 <sup>13</sup> / <sub>16</sub> - 6              |
| 5 <sup>11</sup> / <sub>16</sub> ... 5 <sup>3</sup> / <sub>4</sub> - 12              | 4 <sup>13</sup> / <sub>16</sub> ... 4 <sup>7</sup> / <sub>8</sub> - 6              |
| 4 ... 4 <sup>1</sup> / <sub>16</sub> - 8 <sup>1)</sup>                              | 4 <sup>7</sup> / <sub>8</sub> ... 4 <sup>15</sup> / <sub>16</sub> - 6              |
| 4 <sup>1</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>8</sub> - 8 <sup>1)</sup>  | 4 <sup>15</sup> / <sub>16</sub> ... 5 - 6  |
| 4 <sup>1</sup> / <sub>8</sub> ... 4 <sup>3</sup> / <sub>16</sub> - 8 <sup>1)</sup>  | 5 ... 5 <sup>1</sup> / <sub>16</sub> - 6   |
| 4 <sup>3</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>4</sub> - 8 <sup>1)</sup>  | 5 <sup>1</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>8</sub> - 6               |
| 4 <sup>1</sup> / <sub>4</sub> ... 4 <sup>5</sup> / <sub>16</sub> - 8 <sup>1)</sup>  | 5 <sup>1</sup> / <sub>8</sub> ... 5 <sup>3</sup> / <sub>16</sub> - 6               |
| 4 <sup>5</sup> / <sub>16</sub> ... 4 <sup>3</sup> / <sub>8</sub> - 8 <sup>1)</sup>  | 5 <sup>3</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>4</sub> - 6               |
| 4 <sup>3</sup> / <sub>8</sub> ... 4 <sup>7</sup> / <sub>16</sub> - 8 <sup>1)</sup>  | 5 <sup>1</sup> / <sub>4</sub> ... 5 <sup>5</sup> / <sub>16</sub> - 6               |
| 4 <sup>7</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>2</sub> - 8 <sup>1)</sup>  | 5 <sup>5</sup> / <sub>16</sub> ... 5 <sup>3</sup> / <sub>8</sub> - 6               |
| 4 <sup>1</sup> / <sub>2</sub> ... 4 <sup>9</sup> / <sub>16</sub> - 8 <sup>1)</sup>  | 5 <sup>3</sup> / <sub>8</sub> ... 5 <sup>7</sup> / <sub>16</sub> - 6               |
| 4 <sup>9</sup> / <sub>16</sub> ... 4 <sup>5</sup> / <sub>8</sub> - 8 <sup>1)</sup>  | 5 <sup>7</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>2</sub> - 6               |
| 4 <sup>5</sup> / <sub>8</sub> ... 4 <sup>11</sup> / <sub>16</sub> - 8               | 5 <sup>1</sup> / <sub>2</sub> ... 5 <sup>9</sup> / <sub>16</sub> - 6               |
| 4 <sup>11</sup> / <sub>16</sub> ... 4 <sup>3</sup> / <sub>4</sub> - 8               | 5 <sup>9</sup> / <sub>16</sub> ... 5 <sup>5</sup> / <sub>8</sub> - 6               |
| 4 <sup>3</sup> / <sub>4</sub> ... 4 <sup>13</sup> / <sub>16</sub> - 8               | 5 <sup>5</sup> / <sub>8</sub> ... 5 <sup>11</sup> / <sub>16</sub> - 6              |
| 4 <sup>13</sup> / <sub>16</sub> ... 4 <sup>7</sup> / <sub>8</sub> - 8               | 5 <sup>11</sup> / <sub>16</sub> ... 5 <sup>3</sup> / <sub>4</sub> - 6              |
| 4 <sup>7</sup> / <sub>8</sub> ... 4 <sup>15</sup> / <sub>16</sub> - 8               | 5 <sup>3</sup> / <sub>4</sub> ... 5 <sup>13</sup> / <sub>16</sub> - 6              |
| 4 <sup>15</sup> / <sub>16</sub> ... 5 - 8   | 5 <sup>13</sup> / <sub>16</sub> ... 5 <sup>7</sup> / <sub>8</sub> - 6              |

**Unified-Gewinde, fein UNF**  
**Unified Threads, Fine Pitch**

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI               |  |
|--|--|
| 57/8 ... 5 <sup>15</sup> / <sub>16</sub> - 6                         | 6 <sup>3</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>4</sub> - 6 |
| 5 <sup>15</sup> / <sub>16</sub> ... 6 - 6                            | 6 <sup>1</sup> / <sub>4</sub> ... 6 <sup>5</sup> / <sub>16</sub> - 6 |
| 6 ... 6 <sup>1</sup> / <sub>16</sub> - 6                             | 6 <sup>5</sup> / <sub>16</sub> ... 6 <sup>3</sup> / <sub>8</sub> - 6 |
| 6 <sup>1</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>8</sub> - 6 | 6 <sup>3</sup> / <sub>8</sub> ... 6 <sup>7</sup> / <sub>16</sub> - 6 |
| 6 <sup>1</sup> / <sub>8</sub> ... 6 <sup>3</sup> / <sub>16</sub> - 6 | 6 <sup>7</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>2</sub> - 6 |

**Whitworth-Feingewinde BSF**  
**Whitworth Fine Pitch Threads**

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI                              |   |
|---|---|
| 37/8 ... 3 <sup>15</sup> / <sub>16</sub> - 16 <sup>1)</sup>                         | 4 <sup>5</sup> / <sub>16</sub> ... 4 <sup>3</sup> / <sub>8</sub> - 8 <sup>1)</sup>  |
| 3 <sup>15</sup> / <sub>16</sub> ... 4 - 16 <sup>1)</sup>                            | 4 <sup>3</sup> / <sub>8</sub> ... 4 <sup>7</sup> / <sub>16</sub> - 8 <sup>1)</sup>  |
| 4 ... 4 <sup>1</sup> / <sub>16</sub> - 16 <sup>1)</sup>                             | 4 <sup>7</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>2</sub> - 8 <sup>1)</sup>  |
| 4 <sup>1</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>8</sub> - 16 <sup>1)</sup> | 4 <sup>1</sup> / <sub>2</sub> ... 4 <sup>9</sup> / <sub>16</sub> - 8 <sup>1)</sup>  |
| 4 <sup>1</sup> / <sub>8</sub> ... 4 <sup>3</sup> / <sub>16</sub> - 16 <sup>1)</sup> | 4 <sup>9</sup> / <sub>16</sub> ... 4 <sup>5</sup> / <sub>8</sub> - 8 <sup>1)</sup>  |
| 4 <sup>3</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>4</sub> - 16 <sup>1)</sup> | 4 <sup>5</sup> / <sub>8</sub> ... 4 <sup>11</sup> / <sub>16</sub> - 8               |
| 4 <sup>1</sup> / <sub>4</sub> ... 4 <sup>5</sup> / <sub>16</sub> - 16 <sup>1)</sup> | 4 <sup>11</sup> / <sub>16</sub> ... 4 <sup>3</sup> / <sub>4</sub> - 8               |
| 4 <sup>5</sup> / <sub>16</sub> ... 4 <sup>3</sup> / <sub>8</sub> - 16 <sup>1)</sup> | 4 <sup>3</sup> / <sub>4</sub> ... 4 <sup>13</sup> / <sub>16</sub> - 8               |
| 37/8 ... 3 <sup>15</sup> / <sub>16</sub> - 12 <sup>1)</sup>                         | 4 <sup>13</sup> / <sub>16</sub> ... 4 <sup>7</sup> / <sub>8</sub> - 8               |
| 3 <sup>15</sup> / <sub>16</sub> ... 4 - 12 <sup>1)</sup>                            | 4 <sup>7</sup> / <sub>8</sub> ... 4 <sup>15</sup> / <sub>16</sub> - 8               |
| 4 ... 4 <sup>1</sup> / <sub>16</sub> - 12 <sup>1)</sup>                             | 4 <sup>15</sup> / <sub>16</sub> ... 5 - 8   |
| 4 <sup>1</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>8</sub> - 12 <sup>1)</sup> | 5 ... 5 <sup>1</sup> / <sub>16</sub> - 8  |
| 4 <sup>1</sup> / <sub>8</sub> ... 4 <sup>3</sup> / <sub>16</sub> - 12 <sup>1)</sup> | 5 <sup>1</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>8</sub> - 8                |
| 4 <sup>3</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>4</sub> - 12 <sup>1)</sup> | 5 <sup>1</sup> / <sub>8</sub> ... 5 <sup>3</sup> / <sub>16</sub> - 8                |
| 4 <sup>1</sup> / <sub>4</sub> ... 4 <sup>5</sup> / <sub>16</sub> - 12 <sup>1)</sup> | 5 <sup>3</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>4</sub> - 8                |
| 4 <sup>5</sup> / <sub>16</sub> ... 4 <sup>3</sup> / <sub>8</sub> - 12 <sup>1)</sup> | 5 <sup>1</sup> / <sub>4</sub> ... 5 <sup>5</sup> / <sub>16</sub> - 8                |
| 37/8 ... 3 <sup>15</sup> / <sub>16</sub> - 12 <sup>1)</sup>                         | 5 <sup>5</sup> / <sub>16</sub> ... 5 <sup>3</sup> / <sub>8</sub> - 8                |
| 3 <sup>15</sup> / <sub>16</sub> ... 4 - 12 <sup>1)</sup>                            | 5 <sup>3</sup> / <sub>8</sub> ... 5 <sup>7</sup> / <sub>16</sub> - 8                |
| 4 ... 4 <sup>1</sup> / <sub>16</sub> - 12 <sup>1)</sup>                             | 5 <sup>7</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>2</sub> - 8                |
| 4 <sup>1</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>8</sub> - 12 <sup>1)</sup> | 5 <sup>1</sup> / <sub>2</sub> ... 5 <sup>9</sup> / <sub>16</sub> - 8                |
| 4 <sup>1</sup> / <sub>8</sub> ... 4 <sup>3</sup> / <sub>16</sub> - 12 <sup>1)</sup> | 5 <sup>9</sup> / <sub>16</sub> ... 5 <sup>5</sup> / <sub>8</sub> - 8                |
| 4 <sup>3</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>4</sub> - 12 <sup>1)</sup> | 5 <sup>5</sup> / <sub>8</sub> ... 5 <sup>11</sup> / <sub>16</sub> - 8               |
| 4 <sup>1</sup> / <sub>4</sub> ... 4 <sup>5</sup> / <sub>16</sub> - 12 <sup>1)</sup> | 5 <sup>11</sup> / <sub>16</sub> ... 5 <sup>3</sup> / <sub>4</sub> - 8               |
| 4 <sup>5</sup> / <sub>16</sub> ... 4 <sup>3</sup> / <sub>8</sub> - 12 <sup>1)</sup> | 5 <sup>3</sup> / <sub>4</sub> ... 5 <sup>13</sup> / <sub>16</sub> - 8               |
| 4 <sup>3</sup> / <sub>8</sub> ... 4 <sup>7</sup> / <sub>16</sub> - 12 <sup>1)</sup> | 5 <sup>13</sup> / <sub>16</sub> ... 5 <sup>7</sup> / <sub>8</sub> - 8               |
| 4 <sup>7</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>2</sub> - 12 <sup>1)</sup> | 5 <sup>7</sup> / <sub>8</sub> ... 5 <sup>15</sup> / <sub>16</sub> - 8               |
| 4 <sup>1</sup> / <sub>2</sub> ... 4 <sup>9</sup> / <sub>16</sub> - 12 <sup>1)</sup> | 5 <sup>15</sup> / <sub>16</sub> ... 6 - 8   |
| 4 <sup>9</sup> / <sub>16</sub> ... 4 <sup>5</sup> / <sub>8</sub> - 12 <sup>1)</sup> | 6 ... 6 <sup>1</sup> / <sub>16</sub> - 8  |
| 4 <sup>5</sup> / <sub>8</sub> ... 4 <sup>11</sup> / <sub>16</sub> - 12              | 6 <sup>1</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>8</sub> - 8                |
| 4 <sup>11</sup> / <sub>16</sub> ... 4 <sup>3</sup> / <sub>4</sub> - 12              | 6 <sup>1</sup> / <sub>8</sub> ... 6 <sup>3</sup> / <sub>16</sub> - 8                |
| 4 <sup>3</sup> / <sub>4</sub> ... 4 <sup>13</sup> / <sub>16</sub> - 12              | 6 <sup>3</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>4</sub> - 8                |
| 4 <sup>13</sup> / <sub>16</sub> ... 4 <sup>7</sup> / <sub>8</sub> - 12              | 6 <sup>1</sup> / <sub>4</sub> ... 6 <sup>5</sup> / <sub>16</sub> - 8                |
| 4 <sup>7</sup> / <sub>8</sub> ... 4 <sup>15</sup> / <sub>16</sub> - 12              | 6 <sup>5</sup> / <sub>16</sub> ... 6 <sup>3</sup> / <sub>8</sub> - 8                |
| 4 <sup>15</sup> / <sub>16</sub> ... 5 - 12  | 6 <sup>3</sup> / <sub>8</sub> ... 6 <sup>7</sup> / <sub>16</sub> - 8                |
| 5 ... 5 <sup>1</sup> / <sub>16</sub> - 12   | 6 <sup>7</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>2</sub> - 8                |
| 5 <sup>1</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>8</sub> - 12               | 4 ... 4 <sup>1</sup> / <sub>16</sub> - 6 <sup>1)</sup>                              |
| 5 <sup>1</sup> / <sub>8</sub> ... 5 <sup>3</sup> / <sub>16</sub> - 12               | 5 <sup>9</sup> / <sub>16</sub> ... 5 <sup>5</sup> / <sub>8</sub> - 12               |
| 5 <sup>3</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>4</sub> - 12               | 4 <sup>1</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>8</sub> - 6 <sup>1)</sup>  |
| 5 <sup>1</sup> / <sub>4</sub> ... 5 <sup>5</sup> / <sub>16</sub> - 12               | 5 <sup>11</sup> / <sub>16</sub> ... 5 <sup>3</sup> / <sub>4</sub> - 12              |
| 5 <sup>5</sup> / <sub>16</sub> ... 5 <sup>3</sup> / <sub>8</sub> - 12               | 4 <sup>1</sup> / <sub>8</sub> ... 4 <sup>3</sup> / <sub>16</sub> - 6 <sup>1)</sup>  |
| 5 <sup>3</sup> / <sub>8</sub> ... 5 <sup>7</sup> / <sub>16</sub> - 12               | 4 <sup>3</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>4</sub> - 6 <sup>1)</sup>  |
| 5 <sup>7</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>2</sub> - 12               | 4 <sup>1</sup> / <sub>4</sub> ... 4 <sup>5</sup> / <sub>16</sub> - 6 <sup>1)</sup>  |
| 5 <sup>1</sup> / <sub>2</sub> ... 5 <sup>9</sup> / <sub>16</sub> - 12               | 4 <sup>5</sup> / <sub>16</sub> ... 4 <sup>3</sup> / <sub>8</sub> - 6 <sup>1)</sup>  |
| 5 <sup>9</sup> / <sub>16</sub> ... 5 <sup>5</sup> / <sub>8</sub> - 12               | 4 <sup>3</sup> / <sub>8</sub> ... 4 <sup>7</sup> / <sub>16</sub> - 6 <sup>1)</sup>  |
| 5 <sup>5</sup> / <sub>8</sub> ... 5 <sup>11</sup> / <sub>16</sub> - 12              | 4 <sup>7</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>2</sub> - 6 <sup>1)</sup>  |
| 5 <sup>11</sup> / <sub>16</sub> ... 5 <sup>3</sup> / <sub>4</sub> - 12              | 4 <sup>1</sup> / <sub>2</sub> ... 4 <sup>9</sup> / <sub>16</sub> - 6 <sup>1)</sup>  |
| 4 ... 4 <sup>1</sup> / <sub>16</sub> - 8 <sup>1)</sup>                              | 4 <sup>9</sup> / <sub>16</sub> ... 4 <sup>5</sup> / <sub>8</sub> - 8 <sup>1)</sup>  |
| 4 <sup>1</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>8</sub> - 8 <sup>1)</sup>  | 4 <sup>5</sup> / <sub>8</sub> ... 4 <sup>11</sup> / <sub>16</sub> - 6 <sup>1)</sup> |
| 4 <sup>1</sup> / <sub>8</sub> ... 4 <sup>3</sup> / <sub>16</sub> - 8 <sup>1)</sup>  | 4 <sup>11</sup> / <sub>16</sub> ... 4 <sup>3</sup> / <sub>4</sub> - 6 <sup>1)</sup> |
| 4 <sup>3</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>4</sub> - 8 <sup>1)</sup>  | 4 <sup>3</sup> / <sub>4</sub> ... 4 <sup>13</sup> / <sub>16</sub> - 6 <sup>1)</sup> |
| 4 <sup>1</sup> / <sub>4</sub> ... 4 <sup>5</sup> / <sub>16</sub> - 8 <sup>1)</sup>  | 4 <sup>13</sup> / <sub>16</sub> ... 4 <sup>7</sup> / <sub>8</sub> - 6 <sup>1)</sup> |
| 4 <sup>5</sup> / <sub>16</sub> ... 4 <sup>3</sup> / <sub>8</sub> - 8 <sup>1)</sup>  | 4 <sup>7</sup> / <sub>8</sub> ... 4 <sup>15</sup> / <sub>16</sub> - 6 <sup>1)</sup> |
| 4 <sup>3</sup> / <sub>8</sub> ... 4 <sup>7</sup> / <sub>16</sub> - 8 <sup>1)</sup>  | 4 <sup>15</sup> / <sub>16</sub> ... 4 <sup>1</sup> / <sub>2</sub> - 6 <sup>1)</sup> |

<sup>1)</sup> Bei diesen Gewindeabmessungen besteht ein Satz Gewinderollen aus 3 Rollen

| Whitworth-Feingewinde<br>Whitworth Fine Pitch Threads                              |   | BSF |
|--|---|-----|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI                             |   |     |
| 4 <sup>1</sup> / <sub>2</sub> ... 4 <sup>9</sup> / <sub>16</sub> - 6 <sup>1)</sup> | 5 <sup>1</sup> / <sub>2</sub> ... 5 <sup>9</sup> / <sub>16</sub> - 6  |     |
| 4 <sup>9</sup> / <sub>16</sub> ... 4 <sup>5</sup> / <sub>8</sub> - 6 <sup>1)</sup> | 5 <sup>9</sup> / <sub>16</sub> ... 5 <sup>5</sup> / <sub>8</sub> - 6  |     |
| 4 <sup>5</sup> / <sub>8</sub> ... 4 <sup>11</sup> / <sub>16</sub> - 6              | 5 <sup>5</sup> / <sub>8</sub> ... 5 <sup>11</sup> / <sub>16</sub> - 6 |     |
| 4 <sup>11</sup> / <sub>16</sub> ... 4 <sup>3</sup> / <sub>4</sub> - 6              | 5 <sup>11</sup> / <sub>16</sub> ... 5 <sup>3</sup> / <sub>4</sub> - 6 |     |
| 4 <sup>3</sup> / <sub>4</sub> ... 4 <sup>13</sup> / <sub>16</sub> - 6              | 5 <sup>3</sup> / <sub>4</sub> ... 5 <sup>13</sup> / <sub>16</sub> - 6 |     |
| 4 <sup>13</sup> / <sub>16</sub> ... 4 <sup>7</sup> / <sub>8</sub> - 6              | 5 <sup>3</sup> / <sub>4</sub> ... 5 <sup>7</sup> / <sub>8</sub> - 6   |     |
| 4 <sup>7</sup> / <sub>8</sub> ... 4 <sup>15</sup> / <sub>16</sub> - 6              | 5 <sup>7</sup> / <sub>8</sub> ... 5 <sup>15</sup> / <sub>16</sub> - 6 |     |
| 4 <sup>15</sup> / <sub>16</sub> ... 5 - 6  | 5 <sup>15</sup> / <sub>16</sub> ... 6 - 6                             |     |
| 5 ... 5 <sup>1</sup> / <sub>16</sub> - 6   | 6 ... 6 <sup>1</sup> / <sub>16</sub> - 6                              |     |
| 5 <sup>1</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>8</sub> - 6               | 6 <sup>1</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>8</sub> - 6  |     |
| 5 <sup>1</sup> / <sub>8</sub> ... 5 <sup>3</sup> / <sub>16</sub> - 6               | 6 <sup>1</sup> / <sub>8</sub> ... 6 <sup>3</sup> / <sub>16</sub> - 6  |     |
| 5 <sup>3</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>4</sub> - 6               | 6 <sup>3</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>4</sub> - 6  |     |
| 5 <sup>1</sup> / <sub>4</sub> ... 5 <sup>5</sup> / <sub>16</sub> - 6               | 6 <sup>1</sup> / <sub>4</sub> ... 6 <sup>5</sup> / <sub>16</sub> - 6  |     |
| 5 <sup>5</sup> / <sub>16</sub> ... 5 <sup>3</sup> / <sub>8</sub> - 6               | 6 <sup>5</sup> / <sub>16</sub> ... 6 <sup>3</sup> / <sub>8</sub> - 6  |     |
| 5 <sup>3</sup> / <sub>8</sub> ... 5 <sup>7</sup> / <sub>16</sub> - 6               | 6 <sup>3</sup> / <sub>8</sub> ... 6 <sup>7</sup> / <sub>16</sub> - 6  |     |
| 5 <sup>7</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>2</sub> - 6               | 6 <sup>7</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>2</sub> - 6  |     |

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = **3 Stück** Rollen je nach Gewinde-Nennmaß etwa 8,07 bis 11,55 kg.  
Gewicht für 1 Satz = **6 Stück** Rollen je nach Gewinde-Nennmaß etwa 4,14 bis 17,64 kg.

Thread dimensions combined in one block can be rolled with **one** set of Rolls. Weight of 1 set of **3 Rolls** according to Nominal Thread size approx 17.8 to 25.6 lb.  
Weight of 1 set of **6 Rolls** according to Nominal Thread size approx 9.1 to 38.9 lb.

<sup>1)</sup> Bei diesen Gewindeabmessungen besteht ein Satz Gewinderollen aus 3 Rollen, sonst aus 6 Rollen.

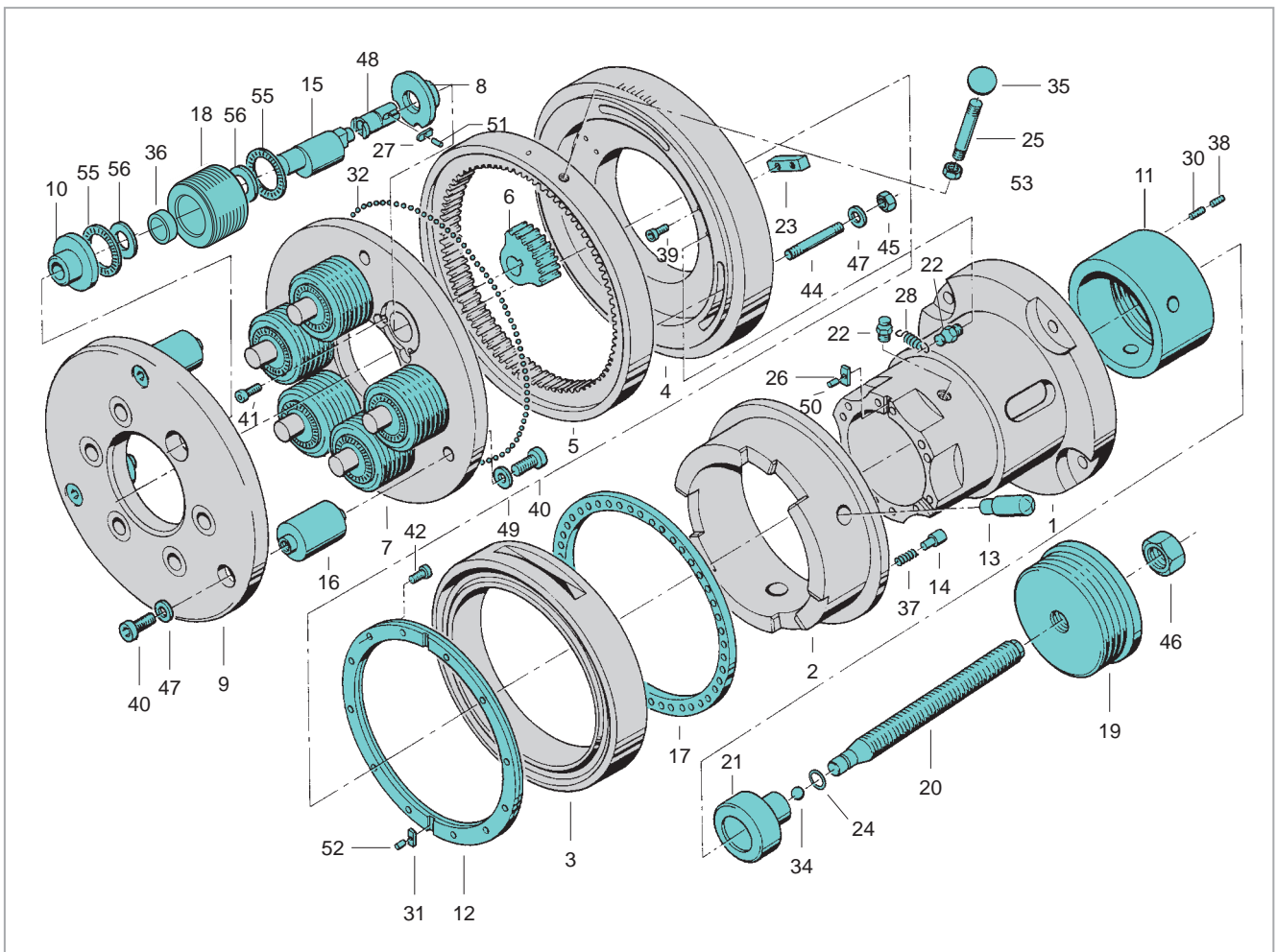
<sup>1)</sup> For these thread sizes, three rolls per set, otherwise six rolls per set.

### Ersatzteile für Rollkopf FU11600 Spare Parts for Rolling Head FU11600

| Rollkopf<br>Rolling Head |               |   | FU11600   | Rollkopf<br>Rolling Head |               |   | FU11600                         |
|--------------------------|---------------|---|-----------|--------------------------|---------------|---|---------------------------------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                     | Ident No. | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description           | Ident No.                       |
| 1                        | 1             | Mitnehmer<br>Flange                               | 2166072   | 16                       | 3             | Distanzbolzen<br>Spacer studs           | 2166085                         |
| 2                        | 1             | Kupplung<br>Clutch                                | 2166073   | 17                       | 1             | Kugelkäfig<br>Bearing cage              | 2166086                         |
| 3                        | 1             | Schaltring<br>Operating ring                      | 2166074   | 18                       | 3/6           | Gewinderolle<br>Thread roll             | siehe Einsatzfall<br>individual |
| 4                        | 1             | Federgehäuse<br>Spring housing                    | 2166075   | 19                       | 1             | Schraubstutzen<br>Stop screw body       | 2166087                         |
| 5                        | 1             | Zahnkranz<br>Gear ring                            | 2166076   | 20                       | 1             | Anschlagschraube<br>Stop screw          | 2166063                         |
| 6                        | 6             | Zahnbogen<br>Gear sectors                         | 2166077   | 21                       | 1             | Drehbarer Anschlag<br>Rotating end stop | 2166064                         |
| 7                        | 1             | Zwischenplatte<br>Centre plate                    | 2166078   | 22                       | 4             | Federbefestigung<br>Spring holder       | 2166065                         |
| 8                        | 6             | Buchse für Zwischenplatte<br>Centre plate bushing | 2165910   | 23                       | 3             | Kupplungskeil<br>Clutch wedge           | 2166066                         |
| 9                        | 1             | Frontplatte<br>Front plate                        | 2166079   | 24                       | 1             | Sprengring<br>Circlip                   | 2218737                         |
| 10                       | 6             | Buchse für Frontplatte<br>Front plate bushing     | 2166080   | 25                       | 1             | Griff<br>Handle                         | 2148831                         |
| 11                       | 1             | Hülse<br>Sleeve                                   | 2166081   | 26                       | 3             | Passfeder<br>Fitting key                | 2173775                         |
| 12                       | 1             | Bremsbelag<br>Brake ring                          | 2166082   | 27                       | 6             | Passfeder<br>Fitting key                | 2166088                         |
| 13                       | 3             | Bolzen<br>Pin                                     | 2166083   | 28                       | 2             | Zugfeder<br>Tension spring              | 2166089                         |
| 14                       | 4             | Federbolzen<br>Spring pin                         | 2166058   | 30                       | 3             | Gewindestift<br>Set screw               | 2142161                         |
| 15                       | 6             | Exzenterbolzen<br>Eccentric spindles              | 2166084   | 31                       | 2             | Passfeder<br>Fitting key                | 2166031                         |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!

| Rollkopf<br>Rolling Head |               |  | FU11600   | Rollkopf<br>Rolling Head |               |                                    | FU11600   |
|--------------------------|---------------|--|-----------|--------------------------|---------------|------------------------------------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No. | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description      | Ident No. |
| 32                       | 205           | Stahlkugel<br>Steel ball                 | 2148181   | 45                       | 6             | Sechskantmutter<br>Hexagon nut     | 2148702   |
| 34                       | 1             | Stahlkugel<br>Steel ball                 | 2148192   | 46                       | 1             | Sechskantmutter<br>Hexagon nut     | 2148396   |
| 35                       | 1             | Kugelknopf<br>Ball                       | 2141703   | 47                       | 9             | Scheibe<br>Washer                  | 2141469   |
| 36                       | 3/6           | Hartmetall-Laufbuchse<br>Carbide bushing | 2242693   | 48                       | 6             | Führungsbuchse<br>Spindle drive    | 2166090   |
| 37                       | 4             | Druckfeder<br>Pressure spring            | 2166069   | 49                       | 3             | Federring<br>Lock washer           | 2141720   |
| 38                       | 3             | Gewindestift<br>Set screw                | 2142070   | 50                       | 3             | Spannhülse<br>Roll pins            | 2148874   |
| 39                       | 6             | Zylinderschraube<br>Cap screw            | 2148741   | 51                       | 6             | Zylinderstift<br>Shear pins        | 2141237   |
| 40                       | 6             | Zylinderschraube<br>Front plate screw    | 2143053   | 52                       | 2             | Spannhülse<br>Roll pins            | 2148874   |
| 41                       | 6             | Zylinderschraube<br>Cap screw            | 2148747   | 53                       | 1             | Sechskantmutter<br>Hexagon nut     | 2148700   |
| 42                       | 12            | Zylinderschraube<br>Cap screw            | 2143011   | 55                       | 12            | Axialnadellager<br>Thrust bearings | 2147347   |
| 44                       | 6             | Stiftschraube<br>Stud                    | 2148837   | 56                       | 12            | Zentrierscheibe<br>Centering ring  | 2165630   |



**für Rechtsgewinde**

- feststehend und umlaufend verwendbar
- mit Flansch
- Rollen-Schrägstellung = 0° 30'
- Gewicht ohne Rollen = ca. 330 kg

**for right-hand threads**

- used stationary or rotating
- flange type design
- inclined position of rolls = 0° 30'
- weight without rolls = approx. 727 lb

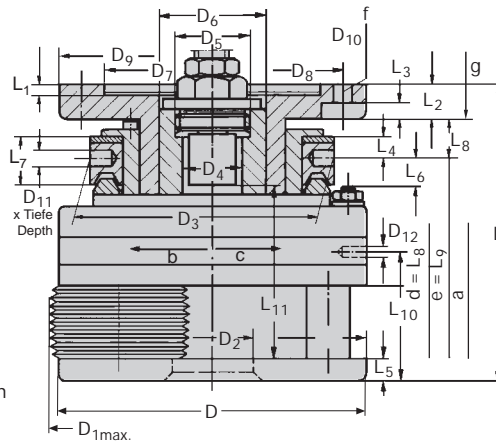
**für Linksgewinde**

- Typ FU12600L
- Baumaß wie für Rechtsgewinde-Rollkopf

**for left-hand threads**

- Type FU12600L
- Dimensions like right-hand thread rolling head

- a = Schalthub  
Opening movement
- b = Rollkopf öffnet  
Rolling Head/opening direction
- c = Rollkopf schließt  
(Bei Rollköpfen für Linksgewinde ist die Schaltrichtung entgegengesetzt)  
Rolling Head/closing direction  
(For Rolling Heads for left-hand threads, the direction of operation is reversed)
- d = L<sub>8</sub> (Rollkopf geschlossen)  
L<sub>8</sub> (Rolling Head closed)
- e = L<sub>9</sub> (Rollkopf geöffnet)  
L<sub>9</sub> (Rolling Head opened)
- f = 4 Löcher  
4 Holes
- g = Maximale Länge der Befestigungsschrauben  
Maximum length of the fastening screws
- α = Schließwinkel  
Closing angle



| Baumaße in mm<br>Dimension in inches |                                 |                |                |                |                              |                |                              |                |                |                 |                     |                               | FU12600 |     |
|--------------------------------------|---------------------------------|----------------|----------------|----------------|------------------------------|----------------|------------------------------|----------------|----------------|-----------------|---------------------|-------------------------------|---------|-----|
| D                                    | D <sub>1max</sub> <sup>1)</sup> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | D <sub>5</sub> <sup>2)</sup> | D <sub>6</sub> | D <sub>7</sub> <sup>3)</sup> | D <sub>8</sub> | D <sub>9</sub> | D <sub>10</sub> | D <sub>11</sub> x T | Ident No.                     |         |     |
| 514                                  | 473                             | 232            | 435            | 232            | M 240 x 6                    | 274            | 300                          | 375            | 435            | 25              | 18 x 13             | 1527601                       |         |     |
| 20.236"                              | 18.622"                         | 9.134"         | 17.126"        | 9.134"         | links   L.H.                 | 10.787"        | 11.811"                      | 14.764"        | 17.126"        | 0.984"          | 0.709 x 0.512"      |                               |         |     |
| D <sub>12</sub>                      | L                               | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub>               | L <sub>5</sub> | L <sub>6</sub>               | L <sub>7</sub> | L <sub>8</sub> | L <sub>9</sub>  | L <sub>10</sub>     | L <sub>11</sub> <sup>4)</sup> | a       | α   |
| M12                                  | 392,5                           | 10,5           | 70             | 45             | 20                           | 30             | 43                           | 51             | 45             | 35              | 150                 | 212                           | 10      | 17° |
|                                      | 15.453"                         | 0.413"         | 2.756"         | 1.772"         | 0.787"                       | 1.181"         | 1.693"                       | 2.008"         | 1.772"         | 1.378"          | 5.906"              | 8.346"                        | 0.394"  |     |

<sup>1)</sup> Größter Außen-Ø des Rollkopfes bei Rollenstellung im geöffneten Zustand.

<sup>1)</sup> Largest outside diameter of rolling head when rolls in open position.

<sup>2)</sup> Bei Linksgewinde-Rollköpfen Rechtsgewinde.

<sup>2)</sup> For L. H. thread rolling heads: R. H. thread.

<sup>3)</sup> Toleranz für das Maß D<sub>7</sub> = +0,052 mm, +0,015 mm.

<sup>3)</sup> Tolerance for the dimension D<sub>7</sub> = 0.002", 0.0006".

<sup>4)</sup> Max. Rolllänge einschließlich Kupplungsweg (a) bei Verwendung von drehbaren Anschlägen. Bei Verwendung von drehbaren Endanschlägen max. Rolllänge 212 mm.

<sup>4)</sup> Max. rolling length, including clutch travel (a) when using rotating end stops.

Max. rolling length when using rotating end stops = 8.346".

<sup>5)</sup> L = für Linksgewinde

<sup>5)</sup> L = for Left-hand threads



für Rechts- und Linksgewinde  
 for right-hand and left-hand threads



**Metrisches ISO-Feingewinde M**  
**Metric ISO Fine Pitch Threads**

| Nennmaß x Steigung<br>mm<br>Nominal Size x Pitch |                                 |
|--|---------------------------------|
| M 128 ... 130 x 3 <sup>1)</sup>                  | M 158 ... 160 x 4 <sup>1)</sup> |
| M 130 ... 132 x 3 <sup>1)</sup>                  | M 160 ... 162 x 4               |
| M 132 ... 134 x 3 <sup>1)</sup>                  | M 162 ... 164 x 4               |
| M 134 ... 136 x 3 <sup>1)</sup>                  | M 164 ... 166 x 4               |
| M 136 ... 138 x 3 <sup>1)</sup>                  | M 166 ... 168 x 4               |
| M 138 ... 140 x 3 <sup>1)</sup>                  | M 168 ... 170 x 4               |
| M 140 ... 142 x 3 <sup>1)</sup>                  | M 170 ... 172 x 4               |
| M 142 ... 144 x 3 <sup>1)</sup>                  | M 172 ... 174 x 4               |
| M 144 ... 146 x 3 <sup>1)</sup>                  | M 174 ... 176 x 4               |
| M 146 ... 148 x 3 <sup>1)</sup>                  | M 176 ... 178 x 4               |
| M 148 ... 150 x 3 <sup>1)</sup>                  | M 182 ... 184 x 4               |
| M 150 ... 152 x 3 <sup>1)</sup>                  | M 184 ... 186 x 4               |
| M 152 ... 154 x 3 <sup>1)</sup>                  | M 186 ... 188 x 4               |
| M 154 ... 156 x 3 <sup>1)</sup>                  | M 188 ... 190 x 4               |
| M 156 ... 158 x 3 <sup>1)</sup>                  | M 190 ... 192 x 4               |
| M 158 ... 160 x 3                                | M 192 ... 194 x 4               |
| M 160 ... 162 x 3                                | M 194 ... 196 x 4               |
| M 162 ... 164 x 3                                | M 196 ... 198 x 4               |
| M 164 ... 166 x 3                                | M 198 ... 200 x 4               |
| M 166 ... 168 x 3                                | M 200 ... 202 x 4               |
| M 168 ... 170 x 3                                | M 202 ... 204 x 4               |
| M 128 ... 130 x 4 <sup>1)</sup>                  | M 178 ... 180 x 4               |
| M 130 ... 132 x 4 <sup>1)</sup>                  | M 180 ... 182 x 4               |
| M 132 ... 134 x 4 <sup>1)</sup>                  | M 204 ... 206 x 4               |
| M 134 ... 136 x 4 <sup>1)</sup>                  | M 206 ... 208 x 4               |
| M 136 ... 138 x 4 <sup>1)</sup>                  | M 208 ... 210 x 4               |
| M 138 ... 140 x 4 <sup>1)</sup>                  | M 210 ... 212 x 4               |
| M 140 ... 142 x 4 <sup>1)</sup>                  | M 212 ... 214 x 4               |
| M 142 ... 144 x 4 <sup>1)</sup>                  | M 214 ... 216 x 4               |
| M 144 ... 146 x 4 <sup>1)</sup>                  | M 216 ... 218 x 4               |
| M 146 ... 148 x 4 <sup>1)</sup>                  | M 218 ... 220 x 4               |
| M 148 ... 150 x 4 <sup>1)</sup>                  | M 220 ... 222 x 4               |
| M 150 ... 152 x 4 <sup>1)</sup>                  | M 222 ... 224 x 4               |
| M 152 ... 154 x 4 <sup>1)</sup>                  | M 224 ... 226 x 4               |
| M 154 ... 156 x 4 <sup>1)</sup>                  | M 226 ... 228 x 4               |
| M 156 ... 158 x 4 <sup>1)</sup>                  | M 228 ... 230 x 4               |

**Unified-Gewinde, fein UNF**  
**Unified Threads, Fine Pitch**

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI                              |   |
|---|---|
| 5 ... 5 <sup>1</sup> / <sub>16</sub> - 8 <sup>1)</sup>                              | 6 <sup>1</sup> / <sub>4</sub> ... 6 <sup>5</sup> / <sub>16</sub> - 6  |
| 5 <sup>1</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>8</sub> - 8 <sup>1)</sup>  | 6 <sup>5</sup> / <sub>16</sub> ... 6 <sup>3</sup> / <sub>8</sub> - 6  |
| 5 <sup>1</sup> / <sub>8</sub> ... 5 <sup>3</sup> / <sub>16</sub> - 8 <sup>1)</sup>  | 6 <sup>3</sup> / <sub>8</sub> ... 6 <sup>7</sup> / <sub>16</sub> - 6  |
| 5 <sup>3</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>4</sub> - 8 <sup>1)</sup>  | 6 <sup>7</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>2</sub> - 6  |
| 5 <sup>1</sup> / <sub>4</sub> ... 5 <sup>5</sup> / <sub>16</sub> - 8 <sup>1)</sup>  | 6 <sup>1</sup> / <sub>2</sub> ... 6 <sup>9</sup> / <sub>16</sub> - 6  |
| 5 <sup>5</sup> / <sub>16</sub> ... 5 <sup>3</sup> / <sub>8</sub> - 8 <sup>1)</sup>  | 6 <sup>9</sup> / <sub>16</sub> ... 6 <sup>5</sup> / <sub>8</sub> - 6  |
| 5 <sup>3</sup> / <sub>8</sub> ... 5 <sup>7</sup> / <sub>16</sub> - 8 <sup>1)</sup>  | 6 <sup>5</sup> / <sub>8</sub> ... 6 <sup>11</sup> / <sub>16</sub> - 6 |
| 5 <sup>7</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>2</sub> - 8 <sup>1)</sup>  | 6 <sup>1</sup> / <sub>16</sub> ... 6 <sup>3</sup> / <sub>4</sub> - 6  |
| 5 <sup>1</sup> / <sub>2</sub> ... 5 <sup>9</sup> / <sub>16</sub> - 8 <sup>1)</sup>  | 6 <sup>3</sup> / <sub>4</sub> ... 6 <sup>13</sup> / <sub>16</sub> - 6 |
| 5 <sup>9</sup> / <sub>16</sub> ... 5 <sup>5</sup> / <sub>8</sub> - 8 <sup>1)</sup>  | 6 <sup>13</sup> / <sub>16</sub> ... 6 <sup>7</sup> / <sub>8</sub> - 6 |
| 5 <sup>5</sup> / <sub>8</sub> ... 5 <sup>11</sup> / <sub>16</sub> - 8 <sup>1)</sup> | 6 <sup>7</sup> / <sub>8</sub> ... 6 <sup>15</sup> / <sub>16</sub> - 6 |
| 5 <sup>11</sup> / <sub>16</sub> ... 5 <sup>3</sup> / <sub>4</sub> - 8 <sup>1)</sup> | 6 <sup>15</sup> / <sub>16</sub> ... 7 - 6                             |
| 5 <sup>3</sup> / <sub>4</sub> ... 5 <sup>13</sup> / <sub>16</sub> - 8 <sup>1)</sup> | 7 ... 7 <sup>1</sup> / <sub>16</sub> - 6                              |
| 5 <sup>13</sup> / <sub>16</sub> ... 5 <sup>7</sup> / <sub>8</sub> - 8 <sup>1)</sup> | 7 <sup>1</sup> / <sub>16</sub> ... 7 <sup>1</sup> / <sub>8</sub> - 6  |
| 5 <sup>7</sup> / <sub>8</sub> ... 5 <sup>15</sup> / <sub>16</sub> - 8 <sup>1)</sup> | 7 <sup>1</sup> / <sub>8</sub> ... 7 <sup>3</sup> / <sub>16</sub> - 6  |
| 5 <sup>15</sup> / <sub>16</sub> ... 6 - 8 <sup>1)</sup>                             | 7 <sup>3</sup> / <sub>16</sub> ... 7 <sup>1</sup> / <sub>4</sub> - 6  |
| 6 ... 6 <sup>1</sup> / <sub>16</sub> - 8 <sup>1)</sup>                              | 7 <sup>1</sup> / <sub>4</sub> ... 7 <sup>5</sup> / <sub>16</sub> - 6  |
| 6 <sup>1</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>8</sub> - 8 <sup>1)</sup>  | 7 <sup>5</sup> / <sub>16</sub> ... 7 <sup>3</sup> / <sub>8</sub> - 6  |
| 6 <sup>1</sup> / <sub>8</sub> ... 6 <sup>3</sup> / <sub>16</sub> - 8                | 7 <sup>3</sup> / <sub>8</sub> ... 7 <sup>7</sup> / <sub>16</sub> - 6  |
| 6 <sup>3</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>4</sub> - 8                | 7 <sup>7</sup> / <sub>16</sub> ... 7 <sup>1</sup> / <sub>2</sub> - 6  |
| 6 <sup>1</sup> / <sub>4</sub> ... 6 <sup>5</sup> / <sub>16</sub> - 8                | 7 <sup>1</sup> / <sub>2</sub> ... 7 <sup>9</sup> / <sub>16</sub> - 6  |
| 6 <sup>5</sup> / <sub>16</sub> ... 6 <sup>3</sup> / <sub>8</sub> - 8                | 7 <sup>9</sup> / <sub>16</sub> ... 7 <sup>5</sup> / <sub>8</sub> - 6  |
| 6 <sup>3</sup> / <sub>8</sub> ... 6 <sup>7</sup> / <sub>16</sub> - 8                | 7 <sup>5</sup> / <sub>8</sub> ... 7 <sup>11</sup> / <sub>16</sub> - 6 |
| 6 <sup>7</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>2</sub> - 8                | 7 <sup>11</sup> / <sub>16</sub> ... 7 <sup>3</sup> / <sub>4</sub> - 6 |
| 5 ... 5 <sup>1</sup> / <sub>16</sub> - 6 <sup>1)</sup>                              | 7 <sup>3</sup> / <sub>4</sub> ... 7 <sup>13</sup> / <sub>16</sub> - 6 |
| 5 <sup>1</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>8</sub> - 6 <sup>1)</sup>  | 7 <sup>13</sup> / <sub>16</sub> ... 7 <sup>7</sup> / <sub>8</sub> - 6 |
| 5 <sup>1</sup> / <sub>8</sub> ... 5 <sup>3</sup> / <sub>16</sub> - 6 <sup>1)</sup>  | 7 <sup>7</sup> / <sub>8</sub> ... 7 <sup>15</sup> / <sub>16</sub> - 6 |
| 5 <sup>3</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>4</sub> - 6 <sup>1)</sup>  | 7 <sup>15</sup> / <sub>16</sub> ... 8 - 6                             |
| 5 <sup>1</sup> / <sub>4</sub> ... 5 <sup>5</sup> / <sub>16</sub> - 6 <sup>1)</sup>  | 8 ... 8 <sup>1</sup> / <sub>16</sub> - 6                              |
| 5 <sup>5</sup> / <sub>16</sub> ... 5 <sup>3</sup> / <sub>8</sub> - 6 <sup>1)</sup>  | 8 <sup>1</sup> / <sub>16</sub> ... 8 <sup>1</sup> / <sub>8</sub> - 6  |
| 5 <sup>3</sup> / <sub>8</sub> ... 5 <sup>7</sup> / <sub>16</sub> - 6 <sup>1)</sup>  | 8 <sup>1</sup> / <sub>8</sub> ... 8 <sup>3</sup> / <sub>16</sub> - 6  |
| 5 <sup>7</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>2</sub> - 6 <sup>1)</sup>  | 8 <sup>3</sup> / <sub>16</sub> ... 8 <sup>1</sup> / <sub>4</sub> - 6  |
| 5 <sup>1</sup> / <sub>2</sub> ... 5 <sup>9</sup> / <sub>16</sub> - 6 <sup>1)</sup>  | 8 <sup>1</sup> / <sub>4</sub> ... 8 <sup>5</sup> / <sub>16</sub> - 6  |
| 5 <sup>9</sup> / <sub>16</sub> ... 5 <sup>5</sup> / <sub>8</sub> - 6 <sup>1)</sup>  | 8 <sup>5</sup> / <sub>16</sub> ... 8 <sup>3</sup> / <sub>8</sub> - 6  |
| 5 <sup>5</sup> / <sub>8</sub> ... 5 <sup>11</sup> / <sub>16</sub> - 6 <sup>1)</sup> | 8 <sup>3</sup> / <sub>8</sub> ... 8 <sup>7</sup> / <sub>16</sub> - 6  |
| 5 <sup>11</sup> / <sub>16</sub> ... 5 <sup>3</sup> / <sub>4</sub> - 6 <sup>1)</sup> | 8 <sup>7</sup> / <sub>16</sub> ... 8 <sup>1</sup> / <sub>2</sub> - 6  |
| 5 <sup>3</sup> / <sub>4</sub> ... 5 <sup>13</sup> / <sub>16</sub> - 6 <sup>1)</sup> | 8 <sup>1</sup> / <sub>2</sub> ... 8 <sup>9</sup> / <sub>16</sub> - 6  |
| 5 <sup>13</sup> / <sub>16</sub> ... 5 <sup>7</sup> / <sub>8</sub> - 6 <sup>1)</sup> | 8 <sup>9</sup> / <sub>16</sub> ... 8 <sup>5</sup> / <sub>8</sub> - 6  |
| 5 <sup>7</sup> / <sub>8</sub> ... 5 <sup>15</sup> / <sub>16</sub> - 6 <sup>1)</sup> | 8 <sup>5</sup> / <sub>8</sub> ... 8 <sup>11</sup> / <sub>16</sub> - 6 |
| 5 <sup>15</sup> / <sub>16</sub> ... 6 - 6 <sup>1)</sup>                             | 8 <sup>11</sup> / <sub>16</sub> ... 8 <sup>3</sup> / <sub>4</sub> - 6 |
| 6 ... 6 <sup>1</sup> / <sub>16</sub> - 6 <sup>1)</sup>                              | 8 <sup>3</sup> / <sub>4</sub> ... 8 <sup>13</sup> / <sub>16</sub> - 6 |
| 6 <sup>1</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>8</sub> - 6 <sup>1)</sup>  | 8 <sup>13</sup> / <sub>16</sub> ... 8 <sup>7</sup> / <sub>8</sub> - 6 |
| 6 <sup>1</sup> / <sub>8</sub> ... 6 <sup>3</sup> / <sub>16</sub> - 6 <sup>1)</sup>  | 8 <sup>7</sup> / <sub>8</sub> ... 8 <sup>15</sup> / <sub>16</sub> - 6 |
| 6 <sup>3</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>4</sub> - 6 <sup>1)</sup>  | 8 <sup>15</sup> / <sub>16</sub> ... 9 - 6                             |

**Whitworth-Feingewinde BSF**  
**Whitworth Fine Pitch Threads**

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI                              |   |
|---|---|
| 5 ... 5 <sup>1</sup> / <sub>16</sub> - 8 <sup>1)</sup>                              | 6 <sup>1</sup> / <sub>4</sub> ... 6 <sup>5</sup> / <sub>16</sub> - 6  |
| 5 <sup>1</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>8</sub> - 8 <sup>1)</sup>  | 6 <sup>5</sup> / <sub>16</sub> ... 6 <sup>3</sup> / <sub>8</sub> - 6  |
| 5 <sup>1</sup> / <sub>8</sub> ... 5 <sup>3</sup> / <sub>16</sub> - 8 <sup>1)</sup>  | 6 <sup>3</sup> / <sub>8</sub> ... 6 <sup>7</sup> / <sub>16</sub> - 6  |
| 5 <sup>3</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>4</sub> - 8 <sup>1)</sup>  | 6 <sup>7</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>2</sub> - 6  |
| 5 <sup>1</sup> / <sub>4</sub> ... 5 <sup>5</sup> / <sub>16</sub> - 8 <sup>1)</sup>  | 6 <sup>1</sup> / <sub>2</sub> ... 6 <sup>9</sup> / <sub>16</sub> - 6  |
| 5 <sup>5</sup> / <sub>16</sub> ... 5 <sup>3</sup> / <sub>8</sub> - 8 <sup>1)</sup>  | 6 <sup>9</sup> / <sub>16</sub> ... 6 <sup>5</sup> / <sub>8</sub> - 6  |
| 5 <sup>3</sup> / <sub>8</sub> ... 5 <sup>7</sup> / <sub>16</sub> - 8 <sup>1)</sup>  | 6 <sup>5</sup> / <sub>8</sub> ... 6 <sup>11</sup> / <sub>16</sub> - 6 |
| 5 <sup>7</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>2</sub> - 8 <sup>1)</sup>  | 6 <sup>1</sup> / <sub>16</sub> ... 6 <sup>3</sup> / <sub>4</sub> - 6  |
| 5 <sup>1</sup> / <sub>2</sub> ... 5 <sup>9</sup> / <sub>16</sub> - 8 <sup>1)</sup>  | 6 <sup>3</sup> / <sub>4</sub> ... 6 <sup>13</sup> / <sub>16</sub> - 6 |
| 5 <sup>9</sup> / <sub>16</sub> ... 5 <sup>5</sup> / <sub>8</sub> - 8 <sup>1)</sup>  | 6 <sup>13</sup> / <sub>16</sub> ... 6 <sup>7</sup> / <sub>8</sub> - 6 |
| 5 <sup>5</sup> / <sub>8</sub> ... 5 <sup>11</sup> / <sub>16</sub> - 8 <sup>1)</sup> | 6 <sup>7</sup> / <sub>8</sub> ... 6 <sup>15</sup> / <sub>16</sub> - 6 |
| 5 <sup>11</sup> / <sub>16</sub> ... 5 <sup>3</sup> / <sub>4</sub> - 8 <sup>1)</sup> | 6 <sup>15</sup> / <sub>16</sub> ... 7 - 6                             |
| 5 <sup>3</sup> / <sub>4</sub> ... 5 <sup>13</sup> / <sub>16</sub> - 8 <sup>1)</sup> | 7 ... 7 <sup>1</sup> / <sub>16</sub> - 6                              |
| 5 <sup>13</sup> / <sub>16</sub> ... 5 <sup>7</sup> / <sub>8</sub> - 8 <sup>1)</sup> | 7 <sup>1</sup> / <sub>16</sub> ... 7 <sup>1</sup> / <sub>8</sub> - 6  |
| 5 <sup>7</sup> / <sub>8</sub> ... 5 <sup>15</sup> / <sub>16</sub> - 8 <sup>1)</sup> | 7 <sup>1</sup> / <sub>8</sub> ... 7 <sup>3</sup> / <sub>16</sub> - 6  |
| 5 <sup>15</sup> / <sub>16</sub> ... 6 - 8 <sup>1)</sup>                             | 7 <sup>3</sup> / <sub>16</sub> ... 7 <sup>1</sup> / <sub>4</sub> - 6  |
| 6 ... 6 <sup>1</sup> / <sub>16</sub> - 8 <sup>1)</sup>                              | 7 <sup>1</sup> / <sub>4</sub> ... 7 <sup>5</sup> / <sub>16</sub> - 6  |
| 6 <sup>1</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>8</sub> - 8 <sup>1)</sup>  | 7 <sup>5</sup> / <sub>16</sub> ... 7 <sup>3</sup> / <sub>8</sub> - 6  |
| 6 <sup>1</sup> / <sub>8</sub> ... 6 <sup>3</sup> / <sub>16</sub> - 8                | 7 <sup>3</sup> / <sub>8</sub> ... 7 <sup>7</sup> / <sub>16</sub> - 6  |
| 6 <sup>3</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>4</sub> - 8                | 7 <sup>7</sup> / <sub>16</sub> ... 7 <sup>1</sup> / <sub>2</sub> - 6  |
| 6 <sup>1</sup> / <sub>4</sub> ... 6 <sup>5</sup> / <sub>16</sub> - 8                | 7 <sup>1</sup> / <sub>2</sub> ... 7 <sup>9</sup> / <sub>16</sub> - 6  |
| 6 <sup>5</sup> / <sub>16</sub> ... 6 <sup>3</sup> / <sub>8</sub> - 8                | 7 <sup>9</sup> / <sub>16</sub> ... 7 <sup>5</sup> / <sub>8</sub> - 6  |
| 6 <sup>3</sup> / <sub>8</sub> ... 6 <sup>7</sup> / <sub>16</sub> - 8                | 7 <sup>5</sup> / <sub>8</sub> ... 7 <sup>11</sup> / <sub>16</sub> - 6 |
| 6 <sup>7</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>2</sub> - 8                | 7 <sup>11</sup> / <sub>16</sub> ... 7 <sup>3</sup> / <sub>4</sub> - 6 |
| 5 ... 5 <sup>1</sup> / <sub>16</sub> - 6 <sup>1)</sup>                              | 7 <sup>3</sup> / <sub>4</sub> ... 7 <sup>13</sup> / <sub>16</sub> - 6 |
| 5 <sup>1</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>8</sub> - 6 <sup>1)</sup>  | 7 <sup>13</sup> / <sub>16</sub> ... 7 <sup>7</sup> / <sub>8</sub> - 6 |
| 5 <sup>1</sup> / <sub>8</sub> ... 5 <sup>3</sup> / <sub>16</sub> - 6 <sup>1)</sup>  | 7 <sup>7</sup> / <sub>8</sub> ... 7 <sup>15</sup> / <sub>16</sub> - 6 |
| 5 <sup>3</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>4</sub> - 6 <sup>1)</sup>  | 7 <sup>15</sup> / <sub>16</sub> ... 8 - 6                             |
| 5 <sup>1</sup> / <sub>4</sub> ... 5 <sup>5</sup> / <sub>16</sub> - 6 <sup>1)</sup>  | 8 ... 8 <sup>1</sup> / <sub>16</sub> - 6                              |
| 5 <sup>5</sup> / <sub>16</sub> ... 5 <sup>3</sup> / <sub>8</sub> - 6 <sup>1)</sup>  | 8 <sup>1</sup> / <sub>16</sub> ... 8 <sup>1</sup> / <sub>8</sub> - 6  |
| 5 <sup>3</sup> / <sub>8</sub> ... 5 <sup>7</sup> / <sub>16</sub> - 6 <sup>1)</sup>  | 8 <sup>1</sup> / <sub>8</sub> ... 8 <sup>3</sup> / <sub>16</sub> - 6  |
| 5 <sup>7</sup> / <sub>16</sub> ... 5 <sup>1</sup> / <sub>2</sub> - 6 <sup>1)</sup>  | 8 <sup>3</sup> / <sub>16</sub> ... 8 <sup>1</sup> / <sub>4</sub> - 6  |
| 5 <sup>1</sup> / <sub>2</sub> ... 5 <sup>9</sup> / <sub>16</sub> - 6 <sup>1)</sup>  | 8 <sup>1</sup> / <sub>4</sub> ... 8 <sup>5</sup> / <sub>16</sub> - 6  |
| 5 <sup>9</sup> / <sub>16</sub> ... 5 <sup>5</sup> / <sub>8</sub> - 6 <sup>1)</sup>  | 8 <sup>5</sup> / <sub>16</sub> ... 8 <sup>3</sup> / <sub>8</sub> - 6  |
| 5 <sup>5</sup> / <sub>8</sub> ... 5 <sup>11</sup> / <sub>16</sub> - 6 <sup>1)</sup> | 8 <sup>3</sup> / <sub>8</sub> ... 8 <sup>7</sup> / <sub>16</sub> - 6  |
| 5 <sup>11</sup> / <sub>16</sub> ... 5 <sup>3</sup> / <sub>4</sub> - 6 <sup>1)</sup> | 8 <sup>7</sup> / <sub>16</sub> ... 8 <sup>1</sup> / <sub>2</sub> - 6  |
| 5 <sup>3</sup> / <sub>4</sub> ... 5 <sup>13</sup> / <sub>16</sub> - 6 <sup>1)</sup> | 8 <sup>1</sup> / <sub>2</sub> ... 8 <sup>9</sup> / <sub>16</sub> - 6  |
| 5 <sup>13</sup> / <sub>16</sub> ... 5 <sup>7</sup> / <sub>8</sub> - 6 <sup>1)</sup> | 8 <sup>9</sup> / <sub>16</sub> ... 8 <sup>5</sup> / <sub>8</sub> - 6  |
| 5 <sup>7</sup> / <sub>8</sub> ... 5 <sup>15</sup> / <sub>16</sub> - 6 <sup>1)</sup> | 8 <sup>5</sup> / <sub>8</sub> ... 8 <sup>11</sup> / <sub>16</sub> - 6 |
| 5 <sup>15</sup> / <sub>16</sub> ... 6 - 6 <sup>1)</sup>                             | 8 <sup>11</sup> / <sub>16</sub> ... 8 <sup>3</sup> / <sub>4</sub> - 6 |
| 6 ... 6 <sup>1</sup> / <sub>16</sub> - 6 <sup>1)</sup>                              | 8 <sup>3</sup> / <sub>4</sub> ... 8 <sup>13</sup> / <sub>16</sub> - 6 |
| 6 <sup>1</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>8</sub> - 6 <sup>1)</sup>  | 8 <sup>13</sup> / <sub>16</sub> ... 8 <sup>7</sup> / <sub>8</sub> - 6 |
| 6 <sup>1</sup> / <sub>8</sub> ... 6 <sup>3</sup> / <sub>16</sub> - 6 <sup>1)</sup>  | 8 <sup>7</sup> / <sub>8</sub> ... 8 <sup>15</sup> / <sub>16</sub> - 6 |
| 6 <sup>3</sup> / <sub>16</sub> ... 6 <sup>1</sup> / <sub>4</sub> - 6 <sup>1)</sup>  | 8 <sup>15</sup> / <sub>16</sub> ... 9 - 6                             |

<sup>1)</sup> Bei diesen Gewindeabmessungen besteht ein Satz Gewinderollen aus 3 Rollen, sonst aus 6 Rollen.

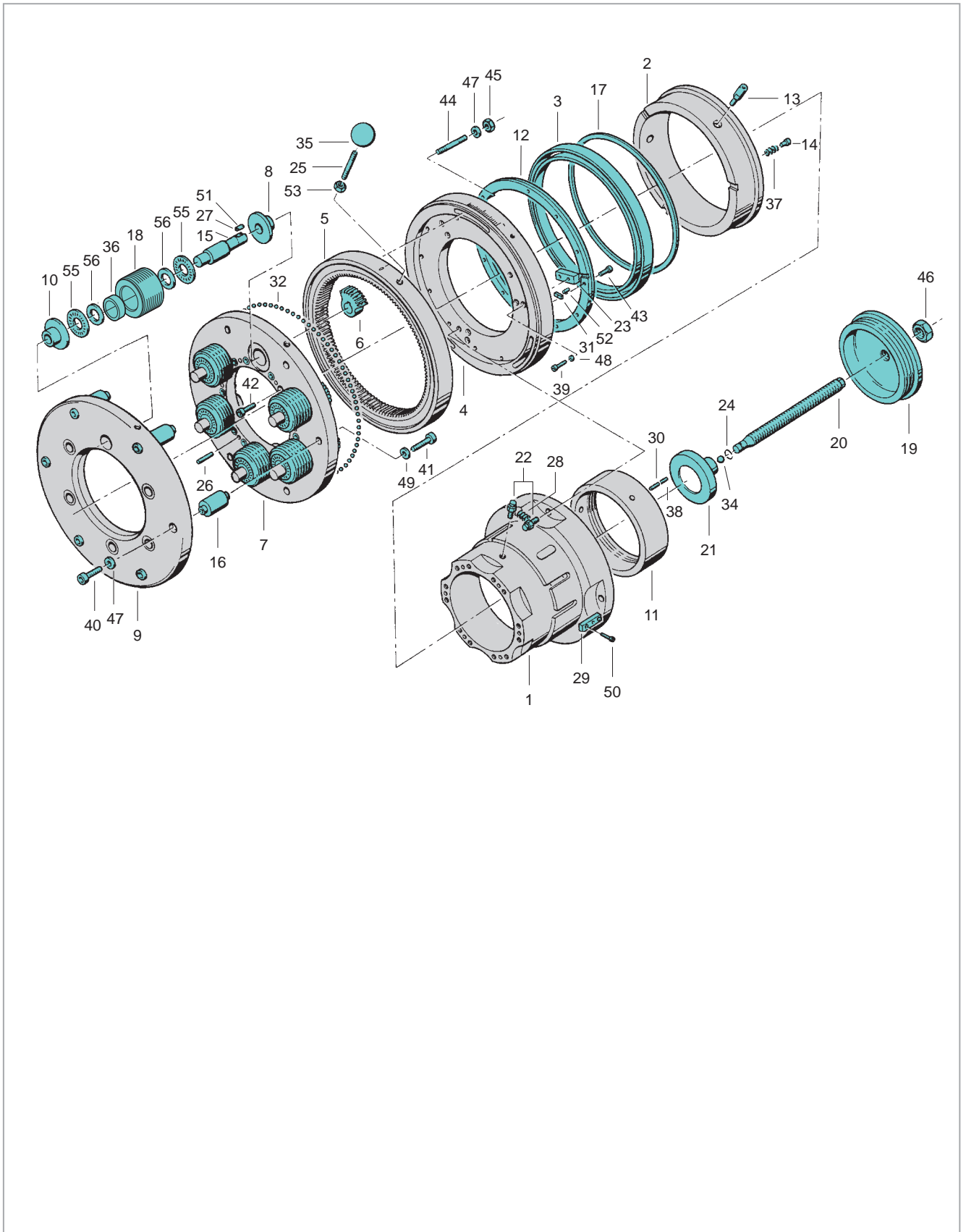
<sup>1)</sup> For these thread sizes, three rolls per set, otherwise six rolls per set.

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden.  
 Gewicht für 1 Satz = **3 Stück** Rollen je nach Gewinde-Nennmaß etwa 19,23 bis 29,19 kg.  
 Gewicht für 1 Satz = **6 Stück** Rollen je nach Gewinde-Nennmaß etwa 8,04 bis 40,44 kg.

Thread dimensions combined in one block can be rolled with **one** set of Rolls.  
 Weight of 1 set of **3 Rolls** according to Nominal Thread size approx 42.4 to 64.4 lb.  
 Weight of 1 set of **6 Rolls** according to Nominal Thread size approx 17.7 to 89.2 lb.

| Rollkopf<br>Rolling Head |               |   | FU12600                         | Rollkopf<br>Rolling Head |               |  | FU12600   |
|--------------------------|---------------|---|---------------------------------|--------------------------|---------------|--|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                     | Ident No.                       | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No. |
| 1                        | 1             | Mitnehmer<br>Flange                               | 2166091                         | 28                       | 2             | Zugfeder<br>Tension spring               | 2166089   |
| 2                        | 1             | Kupplung<br>Clutch                                | 2166092                         | 29                       | 6             | Kupplungsstück<br>Clutch key             | 2166110   |
| 3                        | 1             | Schaltring<br>Operating ring                      | 2166093                         | 30                       | 3             | Gewindestift<br>Set screw                | 2142161   |
| 4                        | 1             | Federgehäuse<br>Spring housing                    | 2166094                         | 31                       | 2             | Passfeder<br>Fitting key                 | 2173775   |
| 5                        | 1             | Zahnkranz<br>Gear ring                            | 2166095                         | 32                       | 192           | Stahlkugel<br>Steel ball                 | 2148184   |
| 6                        | 6             | Zahnbogen<br>Gear sectors                         | 2166096                         | 34                       | 1             | Stahlkugel<br>Steel ball                 | 2148192   |
| 7                        | 1             | Zwischenplatte<br>Centre plate                    | 2166097                         | 35                       | 1             | Kugelknopf<br>Ball                       | 2141703   |
| 8                        | 6             | Buchse für Zwischenplatte<br>Centre plate bushing | 2166098                         | 36                       | 3/6           | Hartmetall-Laufbuchse<br>Carbide bushing | 2168783   |
| 9                        | 1             | Frontplatte<br>Front plate                        | 2166099                         | 37                       | 8             | Druckfeder<br>Pressure spring            | 2166069   |
| 10                       | 6             | Buchse für Frontplatte<br>Front plate bushing     | 2166100                         | 38                       | 3             | Gewindestift<br>Set screw                | 2142071   |
| 11                       | 1             | Hülse<br>Sleeve                                   | 2166101                         | 39                       | 6             | Zylinderschraube<br>Cap screw            | 2141914   |
| 12                       | 1             | Bremsbelag<br>Brake ring                          | 2166102                         | 40                       | 6             | Zylinderschraube<br>Front plate screw    | 2143055   |
| 13                       | 3             | Bolzen<br>Pin                                     | 2166103                         | 41                       | 6             | Zylinderschraube<br>Cap screw            | 2143057   |
| 14                       | 8             | Federbolzen<br>Spring pin                         | 2166058                         | 42                       | 12            | Zylinderschraube<br>Cap screw            | 2141992   |
| 15                       | 6             | Exzenterbolzen<br>Eccentric spindles              | 2166104                         | 43                       | 12            | Zylinderschraube<br>Cap screw            | 2141929   |
| 16                       | 6             | Distanzbolzen<br>Spacer studs                     | 2166105                         | 44                       | 6             | Stiftschraube<br>Stud                    | 2142439   |
| 17                       | 1             | Ring<br>Ring                                      | 2166106                         | 45                       | 6             | Sechskantmutter<br>Hexagon nut           | 2142404   |
| 18                       | 3/6           | Gewinderolle<br>Thread roll                       | siehe Einsatzfall<br>individual | 46                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148396   |
| 19                       | 1             | Schraubstutzen<br>Stop screw body                 | 2166107                         | 47                       | 12            | Scheibe<br>Washer                        | 2141471   |
| 20                       | 1             | Anschlagschraube<br>Stop screw                    | 2166108                         | 48                       | 6             | Federring<br>Lock washer                 | 2141716   |
| 21                       | 1             | Drehbarer Anschlag<br>Rotating end stop           | 2166109                         | 49                       | 6             | Federring<br>Lock washer                 | 2141720   |
| 22                       | 4             | Federbefestigung<br>Spring holder                 | 2166065                         | 50                       | 12            | Zylinderschraube<br>Cap screw            | 2141910   |
| 23                       | 3             | Kupplungskeil<br>Clutch wedge                     | 2166120                         | 51                       | 6             | Zylinderstift<br>Shear pins              | 2141244   |
| 24                       | 1             | Sprengring<br>Circlip                             | 2218737                         | 52                       | 2             | Spannhülse<br>Roll pins                  | 2142576   |
| 25                       | 1             | Griff<br>Handle                                   | 2148831                         | 53                       | 1             | Sechskantmutter<br>Hexagon nut           | 2148700   |
| 26                       | 6             | Spannhülse<br>Roll pins                           | 2236950                         | 55                       | 12            | Axialnadellager<br>Thrust bearings       | 2147348   |
| 27                       | 6             | Passfeder<br>Fitting key                          | 2165840                         | 56                       | 12            | Zentrierscheibe<br>Centering ring        | 2166111   |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
 When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!



Zum Rollen von Trapezgewinden sind in der Regel Gewinde-Rollköpfe in Sonderausführung – mit einem dem zu rollenden Trapezgewinde speziell angepaßten Steigungswinkel – erforderlich. Das Symbol „T“ in der Typenbezeichnung in Verbindung mit der Gradzahl weist auf diese Sonderausführung hin. Die Baumaße und Anschlußmaße dieser Rollköpfe, mit Ausnahme der Gesamtlänge, entsprechen den normalen Grundtypen.

Thread Rolling Heads of Special Design – with helix angle corresponding to the Trapezoidal or Acme Thread to be rolled – are generally required for rolling of Trapezoidal or Acme Threads. The letter “T” shown in connection with the designation of the Head Type and its helix angle indicates that this is a Special Design. General Overall Dimensions and Flange Dimensions for mounting of these Heads are the same as for Standard Type Heads except for length.



**Auswahl der Rollkopfgrößen für Trapez- und Acme-Gewinde**  
Selection of Thread Rolling Head Sizes for Trapezoidal and Acme Threads

| Rollkopf<br>Thread Rolling Head          | Gewindeabmessungen<br>Thread Dimension  |  |  |  |
|--|---|--|--|--|
|  | Nennmaß x Steigung in mm<br>Nominal Size x Pitch in mm                                  |  | Nennmaß – Gangzahl auf 1" Zoll<br>Nominal Size – TPI in inches |  |
|  | Trapezgewinde<br>Trapezoidal Thread   | Trapezgewinde<br>Trapezoidal Thread<br>mit gekürzter Gewindetiefe<br>Fette-Werknorm<br>reduced depth to Fette Standard | Acme-Gewinde<br>Acme Threads                                   | Stub-Acme-Gewinde<br>Stub Acme Threads                     |
|  | DIN 103   |  | ANSI B 1.5 – 1988 (R 1994)                                     | ANSI B 1.8 – 1988 (R 1994)                                 |
| F 1                                      | Tr 8 x 1,5  |  |  |  |
| F 1 T – 4° 40'                           |   |  | 5/16 – 14  | 1/4 – 16<br>5/16 – 14                                      |
| F 2 T – 4°                               | Tr 9 – 10 x 2   | FN-Tr 9 – 11 x 2   | 3/8 – 12<br>7/16 – 12<br>1/2 – 10                              | 5/16 – 14<br>3/8 ÷ 7/16 – 12<br>1/2 – 10                   |
| F 2 T – 5° 30'                           | Tr 12 x 3   | FN-Tr 10 – 12 x 3  |  |  |
| F 3 T – 4°<br>or FU 3 – 1 T – 4°         | Tr 14 x 3   | FN-Tr 14 x 3   | 1/2 – 10<br>5/8 – 8  | 1/2 – 10<br>5/8 – 8  |
| F 3 T – 5° 30' or<br>FU 3 – 1 T – 5° 30' | Tr 16 x 4   | FN-Tr 14 – 16 x 4  |  |  |
| FU 4 – 1 T – 4° 30'                      | Tr 18 x 4<br>Tr 20 x 4<br>Tr 22 x 5<br>Tr 24 x 5  | FN-Tr 18 – 20 x 4<br>FN-Tr 22 – 24 x 5   | 5/8 – 8<br>3/4 – 6<br>7/8 – 6                                  | 5/8 – 8<br>3/4 – 6<br>7/8 – 6                              |
| FU 5 – 1 T – 4°                          | Tr 20 x 4<br>Tr 22 x 5<br>Tr 24 x 5<br>Tr 26 x 5<br>Tr 28 x 5<br>Tr 30 x 6<br>Tr 32 x 6 | FN-Tr 20 – 22 x 4<br>FN-Tr 22 – 24 x 5<br>FN-Tr 24 – 26 x 5<br>FN-Tr 26 – 28 x 5<br>FN-Tr 30 – 32 x 6                  | 7/8 – 6<br>1 – 5<br>1 1/8 – 5<br>1 1/4 – 5<br>1 3/8 – 4        | 7/8 – 6<br>1 ÷ 1 1/8 – 5<br>1 1/8 ÷ 1 1/4 – 5<br>1 3/8 – 4 |
| FU 6a – 1 T – 3° 30'                     | Tr 32 x 6<br>Tr 34 x 6<br>Tr 36 x 6<br>Tr 38 x 7  | FN-Tr 32 – 34 x 6<br>FN-Tr 34 – 36 x 6<br>FN-Tr 36 – 38 x 6<br>FN-Tr 38 – 40 x 7                                       | 1 1/4 – 5<br>1 3/8 – 4<br>1 1/2 – 4                            | 1 1/4 – 5<br>1 3/8 ÷ 1 1/2 – 4                             |
| FU 6b – 1 T – 3° 20'                     | Tr 40 x 7<br>Tr 42 x 7<br>Tr 44 x 7   | FN-Tr 40 – 42 x 6<br>FN-Tr 40 – 44 x 7   |  |  |
| FU 6 – 1 T – 3°                          |   |  | 1 1/2 – 4<br>1 3/4 – 4<br>2 – 4<br>2 1/4 – 3                   | 1 1/2 – 4<br>1 3/4 – 4<br>2 – 4<br>2 1/4 – 3               |
| FU 6 – 1 T – 3° 20'                      | Tr 40 x 7<br>Tr 42 x 7<br>Tr 44 x 7<br>Tr 46 x 8<br>Tr 48 x 8<br>Tr 50 x 8<br>Tr 52 x 8 | FN-Tr 40 – 44 x 7<br>FN-Tr 44 – 48 x 8<br>FN-Tr 48 – 52 x 8<br>FN-Tr 52 – 56 x 8<br>FN-Tr 56 – 60 x 8                  |  |  |

**Bemerkung:**

- Gewinderollen für Trapezgewindesteigungen bis 5 mm (5 Gg./1) erhalten einen Gewindeanlauf von 2 Gängen (2 K). Ab 6 mm (4 Gg./1) Trapezgewindesteigung bis einschließlich 8 mm (3 Gg./1) Steigung einen Anlauf von 4 Gängen (4 K). Der Gewindeanlauf beträgt: ca. 3,3 · p bei Rollenlauf 2 K; ca. 5,3 · p bei Rollenlauf 4 K.
- Bei Rollenlauf 2 K sind die Gewinderollen doppelseitig verwendbar für Rechts- und Linksgewinde. Bei Rollenlauf 4 K sind die Gewinderollen einseitig verwendbar für Rechts- und Linksgewinde.
- Durch Änderung der Rollenbreite vergrößert sich die Länge der Trapez-Gewinderollen gegenüber den Standard-Gewinderollen. Bei F2T und K2T um 5 mm. Bei F3T bis FU6 – 1T um 10 mm.

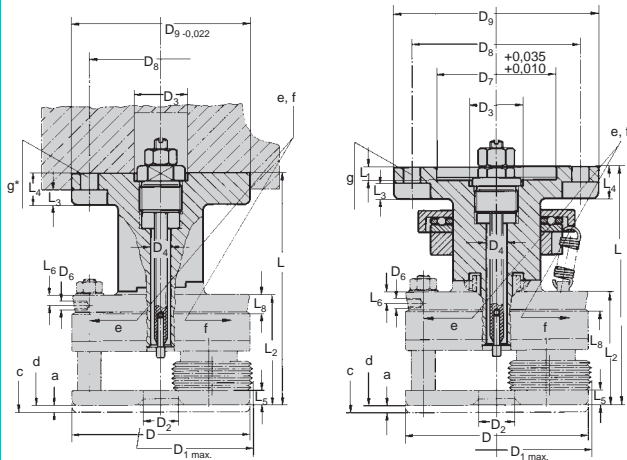
**Note:**

- Thread Rolls for Trapezoidal Type Threads up to 5 mm Pitch (5 TPI) have a 2 pitch lead (2 K). Trapezoidal Type Threads starting at 6 mm Pitch (4 TPI) up to and including 8 mm Pitch (3 TPI) have a Roll lead of 4 pitches (4 K). Thread Run-out: approx. 3 · pitch for Roll lead 2 K; approx. 5 · pitch for Roll lead 4 K.
- Rolls with 2 K lead are reversible and they can be used for r. h. threads as well as for l. h. threads. Rolls with 4 K lead are not reversible, but also can be used for r. h. threads as well as for l. h. threads.
- The width of Trapezoidal Type Thread Rolling Heads is different in comparison to Standard Type Heads. For Head Type F2T and K2T width of Rolls increased by 0.197". For Head Type F3T up to FU6-T width of Rolls increased by 0.394".



K1 x 108  
K12 x 104  
K1223 x 101  
K2 x 113  
K23 x 101

K233400 x 101



a = Schalhub Opening movement  
c = Rollkopf geöffnet Rolling Head opened  
d = Rollkopf geschlossen Rolling Head closed  
e = Rollkopf öffnet Rolling Head opened  
f = Rollkopf schließt  
Rolling Head closed  
(Bei Rollköpfen für Linksgewinde ist die Schalrichtung entgegengesetzt)  
(For Rolling Heads for left hand Threads directions are reversed)  
g = \* 3 Löcher Ø 9,5 mm 3 holes Ø 0.374"  
4 Löcher Ø 13 mm 4 holes Ø 0.512"

**Umlaufend verwendbare Gewinde-Rollköpfe in „K“-Ausführung mit Flansch**

Auf den vorangegangenen Seiten sind die Gewinde-Rollköpfe gezeigt und beschrieben worden, die in Standard-Ausführung serienmäßig gefertigt werden. Für besondere Arbeitsfälle sind Semi-Standard-Rollkopf-Ausführungen erforderlich und lieferbar. Die Standard-Gewinde-Rollkopftypen in Schaftausführung mit der Bezeichnung „K“ von Größe 1 bis Größe 34 können auf Wunsch mit Flanschaufnahme geliefert werden, falls dieses maschinenseitig erforderlich ist.

Speziell findet diese Ausführung bei umlaufendem Rollkopf-Einsatz auf Spezialmaschinen Verwendung, wenn nach jedem Arbeitstakt die Spindel der Maschine zum Stillstand kommt.

Beim Neuanlauf der Arbeitsspindel schließt sich der Rollkopf durch die Trägheit seines Gewichtes automatisch.

Das Öffnen des Rollkopfes erfolgt durch Maschinenanschlag oder durch eingebauten Innenanschlag. Ein Schaltgestänge zum Schließen des Rollkopfes ist hierbei nicht erforderlich. Voraussetzung zum Schließen des Rollkopfes ist ein schneller Anlauf der Spindel.

Eventuell ist es erforderlich, das Anlaufverhalten des Antriebsmotors durch geeignete Maßnahmen, wie z. B. Einbau eines Frequenzumrichters, zu verändern.

Das Anlaufverhalten des Antriebsmotors kann dann der eingesetzten Rollkopfgröße angepaßt werden.

**Rotating Heads in “K” Design with Flange**

The Fette-Thread Rolling Heads which have been illustrated and described on the previous pages are of Standard Design, manufactured in regular series. For special applications specially designed Heads are required and available.

Standard Type Heads in Shank Design designated by letter “K”. Sizes 1 to 233400 are available with Flange mounting, if required. This design is used for rotating application of the Thread Rolling Head on special machines, where the spindle is stopped after every operating cycle.

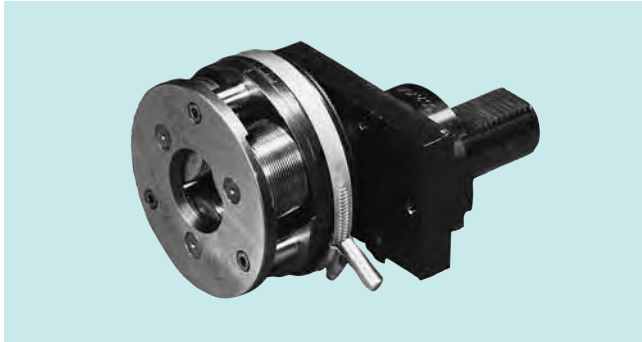
When the spindle is started up again, the Thread Rolling Head closes automatically.

Opening of the Thread Rolling Head accomplished by using stop or dwell in the machine or by using the Internal Stop in the Head.

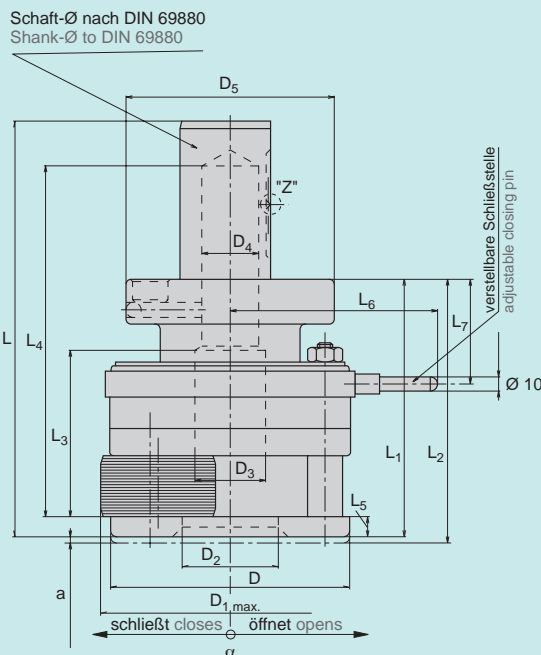
A Yoke and Stop Rod Arrangement for closing of the Head is not required in this case. One condition necessary for closing of the Head is the fact that the spindle must stop and start up very quickly.

**Bau- und Anschlußmaße für umlaufend verwendbare Rollköpfe in „K“-Ausführung mit Flansch in mm | inch**  
Dimensions and Mounting Details for rotating type Heads in “K” design with flange in mm | inch

| Rollkopf<br>Rolling Head | D            | D <sub>1</sub> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | D <sub>6</sub> | D <sub>7</sub> | D <sub>8</sub> | D <sub>9</sub> |     |
|--------------------------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----|
| K 1 X108                 | 64   2.520   | 70   2.756     | 17   0.669     | 40   1.575     | 11   0.433     | M 5            | -              | 70   2.756     | 88   3.465     |     |
| K 12 X104                | 64   2.520   | 70   2.756     | 20   0.787     | 40   1.575     | 11   0.433     | M 5            | -              | 70   2.756     | 88   3.465     |     |
| K 1223 X101              | 56   2.205   | 58   2.283     | 16   0.630     | 40   1.575     | 8,2   0.323    | M 5            | -              | 70   2.756     | 88   3.465     |     |
| K 2 X113                 | 88   3.465   | 93,5   3.681   | 24   0.945     | 40   1.575     | 17   0.669     | M 6            | -              | 70   2.756     | 88   3.465     |     |
| K 23 X101                | 88   3.465   | 93,5   3.681   | 28   1.102     | 40   1.575     | 17   0.669     | M 6            | -              | 70   2.756     | 88   3.465     |     |
| K 233400 X101            | 96   3.780   | 115   4.528    | 39   1.535     | 40   1.575     | 28   1.102     | M 6            | 92   3.622     | 110   4.331    | 140   5.512    |     |
| Rollkopf<br>Rolling Head | L            | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | L <sub>5</sub> | L <sub>6</sub> | L <sub>8</sub> | a              | α   |
| K 1 X108                 | 75,5   2.972 | -              | 36,5   1.437   | 9   0.354      | 16   0.630     | 6   0.236      | 3,5   0.138    | 9,5   0.374    | 2   0.079      | 60° |
| K 12 X104                | 75,5   2.972 | -              | 36,5   1.437   | 9   0.354      | 16   0.630     | 6   0.236      | 3,5   0.138    | 9,5   0.374    | 2   0.079      | 60° |
| K 1223 X101              | 75,5   2.972 | -              | 40   1.575     | 9   0.354      | 16   0.630     | 5   0.197      | 5,5   0.217    | 9,5   0.374    | 2   0.079      | 50° |
| K 2 X113                 | 94,5   3.72  | -              | 53,5   2.106   | 9   0.354      | 16   0.630     | 7,5   0.295    | 14,8   0.583   | 9   0.354      | 3   0.118      | 60° |
| K 23 X101                | 94,5   3.72  | -              | 53,5   2.106   | 9   0.354      | 16   0.630     | 7,5   0.295    | 14,8   0.583   | 9   0.354      | 3   0.118      | 60° |
| K 233400 X101            | 151   5.945  | 8,5   0.335    | 68   2.677     | 10,5   0.413   | 22   0.866     | 8   0.315      | 7   0.276      | 9,5   0.374    | 3   0.118      | 30° |



**Rollköpfe Typ F mit Schaft nach DIN 69880**  
Rolling Heads with shank to DIN 69880



- a = Schalthub  
Opening movement
- $D_{1max}$  = Rollkopf geöffnet  
Rolling Head opened
- $L_1$  = Rollkopf geschlossen  
Rolling Head closed
- $L_2$  = Rollkopf geöffnet  
Rolling Head opened

**Gewinde-Rollköpfe Typ F mit Schaftaufnahme nach DIN 69880 (VDI-Schaft)**

Zum Einsatz der Rollkopftypen F001 – F34 auf CNC-Drehmaschinen sind Rollköpfe mit Schäften nach DIN 69880 lieferbar.

Zentrale Kühlmittelzuführung ist vorgesehen.

Als Schaft-Ø sind die Durchmesser nach DIN 69880, 20 mm, 30 mm und 40 mm berücksichtigt.

Die Stellung des Schließstiftes wird durch eine verstellbare Schließschelle bestimmt. Diese Rollkopfausführung ist nur feststehend zu verwenden.

Das Öffnen des Rollkopfes geschieht durch Ausschalten des Vorschubes. Der Gewinde-Rollkopf wird dabei um das Maß  $a$  länger. Das Schließen des Rollkopfes muss mit einer Schließvorrichtung ähnlich Seite 205 vorgenommen werden.

Die Arbeitsbereiche entsprechen den Standard-Rollkopftypen.

Die Größe des Schaft-Ø bestimmt die max. Rolllänge.

Sonderausführungen auf Anfrage.

Entscheidend für den Einsatz der Rollkopftypen F, K, F-RN, E auf einer CNC-Drehmaschine ist die Art des Revolvers und die Aufnahmemöglichkeit.

Es ist zu überprüfen, ob der Rollkopf kollisionsfrei durchschaltbar eingesetzt werden kann.

**F-type Rolling Heads with Shank suitable to DIN 69880**

The Rolling Heads from F 001 to F 34 can be supplied with shanks to DIN 69880 for application on CNC turning centers and similar machines. An internal coolant supply can be used.

Shanks to DIN 69880 are available in diameters 0.787, 1.181 and 1.575 inch.

The thread rolling head opens automatically when the feed of the turret, or slide, has been stopped.

When the Rolling Head opens it becomes longer by an amount corresponding to dimension "a". The closing of the Rolling Head must be accomplished by a closing fixture or cam, such as on page 205.

The position of the closing pin is defined by an adjustable circlip.

This head type is only used stationary.

The capacity is the same as for the standard type heads. The diameter of the shank defines the max. rolling length  $L_4$  special designs on request.

Important for the application of heads type F, K, F-RN, E on CNC machines is the type of turret and the fitting possibilities.

It is necessary to check possible interference indexing the turret. Operation of F-RN style on CNC Machine Tools

It is suggested to program the feed rate for Axial Thread Rolling heads at less than the actual pitch of the thread being rolled. Use a feed rate of 0.0005" to 0.002" less than the pitch per revolution.

The smaller figure should be used for finer pitch, longer threads to prevent the die head from pulling open before the required thread length rolled.

**Bau- und Anschlußmaße für feststehend verwendbare Rollköpfe Typ F mit Schaftaufnahme nach DIN 69880, Ø 20 mm in mm | inch**  
Dimensions for stationary F-type Thread Rolling Head with shank DIN 69880, 0.787" diameter in mm | inch

| Rollkopf<br>Rolling Head | D             | D <sub>1</sub> |  | D <sub>2</sub> |              | D <sub>3</sub> |            | D <sub>4</sub> |             | D <sub>5</sub> |            |                |     |                |  |   |   |
|--------------------------|---------------|----------------|--|----------------|--------------|----------------|------------|----------------|-------------|----------------|------------|----------------|-----|----------------|--|---|---|
| F001 X122                | 40   1.575    |                |  | 7   0.276      | 7,5   0.295  | 7,5   0.295    | 50   1.968 |                |             |                |            |                |     |                |  |   |   |
| F01 X154                 | 40   1.575    |                |  | 12   0.472     | 7,5   0.295  | 7,5   0.295    | 50   1.968 |                |             |                |            |                |     |                |  |   |   |
| F1 X153                  | 64   2.520    | 70   2.756     |  | 17   0.669     | 11   0.433   | 8   0.315      | 50   1.968 |                |             |                |            |                |     |                |  |   |   |
| F12 X141                 | 64   2.520    | 70   2.756     |  | 20   0.787     | 11   0.433   | 8   0.315      | 50   1.968 |                |             |                |            |                |     |                |  |   |   |
| F1223 X128               | 56   2.205    | 58   2.283     |  | 16   0.630     | 8,2   0.323  | 8,2   0.323    | 50   1.968 |                |             |                |            |                |     |                |  |   |   |
| F2 X195                  | 88   3.465    | 93,5   3.681   |  | 24   0.945     | 17   0.669   | 9   0.354      | 50   1.968 |                |             |                |            |                |     |                |  |   |   |
| F23 X171                 | 88   3.465    | 93,5   3.681   |  | 28   1.102     | 17   0.669   | 9   0.354      | 50   1.968 |                |             |                |            |                |     |                |  |   |   |
| F233400 X165             | 96   3.780    | 115   4.528    |  | 39   1.535     | 28   1.102   | 18   0.709     | 50   1.968 |                |             |                |            |                |     |                |  |   |   |
| F3 X177                  | 117   4.606   | 131   5.157    |  | 38   1.496     | 22   0.866   |                | 50   1.968 |                |             |                |            |                |     |                |  |   |   |
| F34 X144                 | 117   4.606   | 128   5.039    |  | 44   1.732     | 22   0.866   |                | 50   1.968 |                |             |                |            |                |     |                |  |   |   |
| Rollkopf<br>Rolling Head | L             | L <sub>1</sub> |  | L <sub>2</sub> |              | L <sub>3</sub> |            | L <sub>4</sub> |             | L <sub>5</sub> |            | L <sub>6</sub> |     | L <sub>7</sub> |  | a | α |
| F001 X122                | 106,3   4.185 | 66,3   2.61    |  | 67,8   2.669   |              |                |            | 94   3.701     | 2,5   0.098 | 45   1.772     | 40   1.575 | 1,5   0.059    | 32° |                |  |   |   |
| F01 X154                 | 111,3   4.382 | 71,3   2.807   |  | 72,8   2.866   |              |                |            | 98   3.858     | 4,5   0.177 | 45   1.772     | 40   1.575 | 1,5   0.059    | 32° |                |  |   |   |
| F1 X153                  | 108,5   4.272 | 68,5   2.697   |  | 70,5   2.776   | 53,5   2.106 |                |            | 92,5   3.642   | 6   0.236   | 67   2.638     | 40   1.575 | 2   0.079      | 60° |                |  |   |   |
| F12 X141                 | 108,5   4.272 | 68,5   2.697   |  | 70,5   2.776   | 53,5   2.106 |                |            | 92,5   3.642   | 6   0.236   | 67   2.638     | 40   1.575 | 2   0.079      | 60° |                |  |   |   |
| F1223 X128               | 110,5   4.350 | 70,5   2.776   |  | 72,5   2.854   |              |                |            | 96,5   3.799   | 5   0.197   | 63   2.480     | 38   1.496 | 2   0.079      | 50° |                |  |   |   |
| F2 X195                  | 115,2   4.535 | 75,2   2.961   |  | 78,2   3.079   | 62,7   2.468 |                |            | 98,7   3.886   | 7,5   0.295 | 79   3.110     | 30   1.181 | 3   0.118      | 60° |                |  |   |   |
| F23 X171                 | 116,2   4.575 | 76,2   3.000   |  | 79,2   3.118   | 63,7   2.508 |                |            | 99,7   3.925   | 7,5   0.295 | 79   3.110     | 30   1.181 | 3   0.118      | 60° |                |  |   |   |
| F233400 X165             | 138   5.433   | 98   3.858     |  | 101   3.976    | 67   2.638   |                |            | 84   3.307     | 8   0.315   | 83   3.268     | 40   1.575 | 3   0.118      | 30° |                |  |   |   |
| F3 X177                  | 138   5.433   | 98   3.858     |  | 102   4.016    | 62   2.441   |                |            |                | 8   0.315   | 93,5   3.681   | 45   1.772 | 4   0.157      | 60° |                |  |   |   |
| F34 X144                 | 139,5   5.492 | 99,5   3.917   |  | 103,5   4.075  | 63,5   2.500 |                |            |                | 8   0.315   | 93,5   3.681   | 45   1.772 | 4   0.157      | 60° |                |  |   |   |

**Bau- und Anschlußmaße für feststehend verwendbare Rollköpfe Typ F mit Schaftaufnahme nach DIN 69880, Ø 30 mm in mm | inch**  
Dimensions for stationary F-type Thread Rolling Head with shank DIN 69880, 1.181" diameter in mm | inches

| Rollkopf<br>Rolling Head | D             | D <sub>1</sub> |  | D <sub>2</sub> |              | D <sub>3</sub> |            | D <sub>4</sub> |             | D <sub>5</sub> |            |                |     |                |  |   |   |
|--------------------------|---------------|----------------|--|----------------|--------------|----------------|------------|----------------|-------------|----------------|------------|----------------|-----|----------------|--|---|---|
| F001 X116                | 40   1.575    |                |  | 7   0.276      | 7,5   0.295  | 7,5   0.295    | 68   2.677 |                |             |                |            |                |     |                |  |   |   |
| F01 X148                 | 40   1.575    |                |  | 12   0.472     | 7,5   0.295  | 7,5   0.295    | 68   2.677 |                |             |                |            |                |     |                |  |   |   |
| F1 X163                  | 64   2.520    | 70   2.756     |  | 17   0.669     | 11   0.433   | 11   0.433     | 68   2.677 |                |             |                |            |                |     |                |  |   |   |
| F12 X149                 | 64   2.520    | 70   2.756     |  | 20   0.787     | 11   0.433   | 11   0.433     | 68   2.677 |                |             |                |            |                |     |                |  |   |   |
| F1223 X126               | 56   2.205    | 58   2.283     |  | 16   0.630     | 8,2   0.323  | 8,2   0.323    | 68   2.677 |                |             |                |            |                |     |                |  |   |   |
| F2 X200                  | 88   3.465    | 93,5   3.681   |  | 24   0.945     | 17   0.669   | 17   0.669     | 68   2.677 |                |             |                |            |                |     |                |  |   |   |
| F23 X163                 | 88   3.465    | 93,5   3.681   |  | 28   1.102     | 17   0.669   | 17   0.669     | 68   2.677 |                |             |                |            |                |     |                |  |   |   |
| F233400 X157             | 96   3.780    | 115   4.528    |  | 39   1.535     | 28   1.102   | 17   0.669     | 68   2.677 |                |             |                |            |                |     |                |  |   |   |
| F3 X167                  | 117   4.606   | 131   5.157    |  | 38   1.496     | 22   0.866   | 17   0.669     | 68   2.677 |                |             |                |            |                |     |                |  |   |   |
| F34 X137                 | 117   4.606   | 128   5.039    |  | 44   1.732     | 22   0.866   | 17   0.669     | 68   2.677 |                |             |                |            |                |     |                |  |   |   |
| Rollkopf<br>Rolling Head | L             | L <sub>1</sub> |  | L <sub>2</sub> |              | L <sub>3</sub> |            | L <sub>4</sub> |             | L <sub>5</sub> |            | L <sub>6</sub> |     | L <sub>7</sub> |  | a | α |
| F001 X116                | 121,3   4.776 | 66,3   2.610   |  | 67,8   2.669   |              |                |            | 109   4.291    | 2,5   0.098 | 45   1.772     | 40   1.575 | 1,5   0.059    | 32° |                |  |   |   |
| F01 X148                 | 126,3   4.972 | 71,3   2.807   |  | 72,8   2.866   |              |                |            | 113   4.449    | 4,5   0.177 | 45   1.772     | 40   1.575 | 1,5   0.059    | 32° |                |  |   |   |
| F1 X163                  | 123,5   4.862 | 68,5   2.697   |  | 70,5   2.776   |              |                |            | 107,5   4.232  | 6   0.236   | 67   2.638     | 40   1.575 | 2   0.079      | 60° |                |  |   |   |
| F12 X149                 | 123,5   4.862 | 68,5   2.697   |  | 70,5   2.776   |              |                |            | 107,5   4.232  | 6   0.236   | 67   2.638     | 40   1.575 | 2   0.079      | 60° |                |  |   |   |
| F1223 X126               | 125,5   4.941 | 70,5   2.776   |  | 72,5   2.854   |              |                |            | 111,5   4.390  | 5   0.197   | 63   2.480     | 38   1.496 | 2   0.079      | 50° |                |  |   |   |
| F2 X200                  | 140,5   5.531 | 85,5   3.366   |  | 88,5   3.484   |              |                |            | 123   4.843    | 7,5   0.295 | 79   3.110     | 40   1.575 | 3   0.118      | 60° |                |  |   |   |
| F23 X163                 | 141,5   5.571 | 86,5   3.406   |  | 89,5   3.524   |              |                |            | 124   4.882    | 7,5   0.295 | 79   3.110     | 40   1.575 | 3   0.118      | 60° |                |  |   |   |
| F233400 X157             | 158,5   6.240 | 103,5   4.075  |  | 106,5   4.193  | 87,5   3.445 |                |            | 139,5   5.492  | 8   0.315   | 83   3.268     | 45   1.772 | 3   0.118      | 30° |                |  |   |   |
| F3 X167                  | 155,5   6.122 | 100,5   3.957  |  | 104,5   4.114  | 84,5   3.327 |                |            | 136,5   5.374  | 8   0.315   | 93,5   3.681   | 50   1.968 | 4   0.157      | 60° |                |  |   |   |
| F34 X137                 | 157   6.181   | 102   4.016    |  | 106   4.173    | 86   3.386   |                |            | 138   5.433    | 8   0.315   | 93,5   3.681   | 50   1.968 | 4   0.157      | 60° |                |  |   |   |

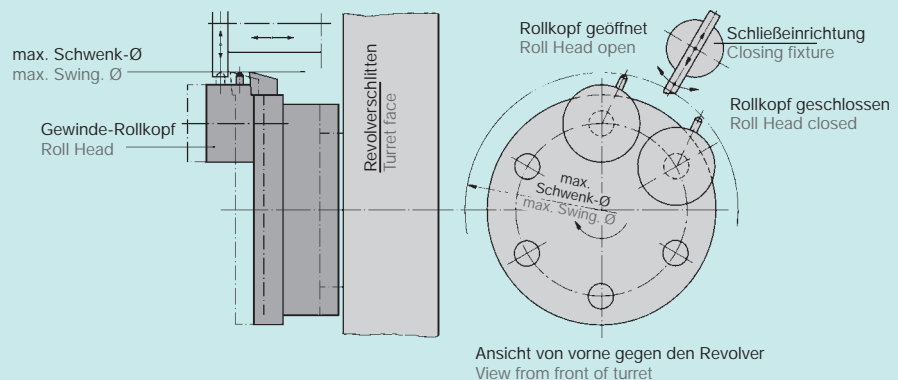
Bau- und Anschlußmaße für feststehend verwendbare Rollköpfe Typ F mit Schaftaufnahme nach DIN 69880, Ø 40 mm in mm | inch  
Dimensions for stationary F-type Thread Rolling Head with shank DIN 69880, 1.575" diameter in mm | inches

| Rollkopf<br>Rolling Head | D   |       | D <sub>1</sub> |       | D <sub>2</sub> |       | D <sub>3</sub> |       | D <sub>4</sub> |       | D <sub>5</sub> |       |  |  |  |  |  |
|--------------------------|-----|-------|----------------|-------|----------------|-------|----------------|-------|----------------|-------|----------------|-------|--|--|--|--|--|
| F001 X115                | 40  | 1.575 |                |       | 7              | 0.276 | 7,5            | 0.295 | 7,5            | 0.295 | 83             | 3.268 |  |  |  |  |  |
| F01 X145                 | 40  | 1.575 |                |       | 12             | 0.472 | 7,5            | 0.295 | 7,5            | 0.295 | 83             | 3.268 |  |  |  |  |  |
| F1 X159                  | 64  | 2.520 | 70             | 2.756 | 17             | 0.669 | 11             | 0.433 | 11             | 0.433 | 83             | 3.268 |  |  |  |  |  |
| F12 X148                 | 64  | 2.520 | 70             | 2.756 | 20             | 0.787 | 11             | 0.433 | 11             | 0.433 | 83             | 3.268 |  |  |  |  |  |
| F1223 X125               | 56  | 2.205 | 58             | 2.283 | 16             | 0.630 | 8,2            | 0.323 | 8,2            | 0.323 | 83             | 3.268 |  |  |  |  |  |
| F2 X202                  | 88  | 3.465 | 93,5           | 3.681 | 24             | 0.945 | 17             | 0.669 | 17             | 0.669 | 83             | 3.268 |  |  |  |  |  |
| F23 X161                 | 88  | 3.465 | 93,5           | 3.681 | 28             | 1.102 | 17             | 0.669 | 17             | 0.669 | 83             | 3.268 |  |  |  |  |  |
| F233400 X156             | 96  | 3.780 | 115            | 4.528 | 39             | 1.535 | 28             | 1.102 | 25             | 0.984 | 83             | 3.268 |  |  |  |  |  |
| F3 X166                  | 117 | 4.606 | 131            | 5.157 | 38             | 1.496 | 22             | 0.866 | 22             | 0.866 | 83             | 3.268 |  |  |  |  |  |
| F34 X136                 | 117 | 4.606 | 128            | 5.039 | 44             | 1.732 | 22             | 0.866 | 22             | 0.866 | 83             | 3.268 |  |  |  |  |  |

| Rollkopf<br>Rolling Head | L     |       | L <sub>1</sub> |       | L <sub>2</sub> |       | L <sub>3</sub> |       | L <sub>4</sub> |       | L <sub>5</sub> |       | L <sub>6</sub> |       | L <sub>7</sub> | a     | α   |       |     |
|--------------------------|-------|-------|----------------|-------|----------------|-------|----------------|-------|----------------|-------|----------------|-------|----------------|-------|----------------|-------|-----|-------|-----|
| F001 X115                | 129,3 | 5.091 | 66,3           | 2.610 | 67,8           | 2.669 |                |       | 116            | 4.567 | 2,5            | 0.098 | 45             | 1.772 | 40             | 1.575 | 1,5 | 0.059 | 32° |
| F01 X145                 | 134,3 | 5.287 | 71,3           | 2.807 | 72,8           | 2.866 |                |       | 119            | 4.685 | 4,5            | 0.177 | 45             | 1.772 | 40             | 1.575 | 1,5 | 0.059 | 32° |
| F1 X159                  | 131,5 | 5.177 | 68,5           | 2.697 | 70,5           | 2.776 |                |       | 114,5          | 4.508 | 6              | 0.236 | 67             | 2.638 | 40             | 1.575 | 2   | 0.079 | 60° |
| F12 X148                 | 131,5 | 5.177 | 68,5           | 2.697 | 70,5           | 2.776 |                |       | 114,5          | 4.508 | 6              | 0.236 | 67             | 2.638 | 40             | 1.575 | 2   | 0.079 | 60° |
| F1223 X125               | 133,5 | 5.256 | 70,5           | 2.776 | 72,5           | 2.854 |                |       | 117,5          | 4.626 | 5              | 0.197 | 63             | 2.480 | 38             | 1.496 | 2   | 0.079 | 50° |
| F2 X202                  | 148,5 | 5.846 | 85,5           | 3.366 | 88,5           | 3.484 |                |       | 130            | 5.118 | 7,5            | 0.295 | 79             | 3.110 | 40             | 1.575 | 3   | 0.118 | 60° |
| F23 X161                 | 149,5 | 5.886 | 86,5           | 3.406 | 89,5           | 3.524 |                |       | 131            | 5.157 | 7,5            | 0.295 | 79             | 3.110 | 40             | 1.575 | 3   | 0.118 | 60° |
| F233400 X156             | 166,5 | 6.555 | 103,5          | 4.075 | 106,5          | 4.193 | 87,5           | 3.445 | 147,6          | 5.811 | 8              | 0.315 | 83             | 3.268 | 45             | 1.772 | 3   | 0.118 | 30° |
| F3 X166                  | 163,5 | 6.437 | 100,5          | 3.957 | 104,5          | 4.114 |                |       | 144,5          | 5.689 | 8              | 0.315 | 93,5           | 3.681 | 50             | 1.968 | 4   | 0.157 | 60° |
| F34 X136                 | 165   | 6.496 | 102            | 4.016 | 106            | 4.173 |                |       | 146            | 5.748 | 8              | 0.315 | 93,5           | 3.681 | 50             | 1.968 | 4   | 0.157 | 60° |

### Beispiel für eine Schließeinrichtung Example of a closing fixture



1. Die Schließeinrichtung ist mittels eines Halters am Revolverschlitten zu befestigen.
2. Die Schließeinrichtung sollte federnd sein, um bei Überlastung durch den Schließstift am Gewinde-Rollkopf ausweichen zu können.
3. Die Schließeinrichtung muss verstellbar sein. Sie sollte verschiedene Positionen von Schließstiften bei verschiedenen Gewinde-Rollköpfen erreichen können.
4. Der Schließstift des Gewinderollkopfes muss bei geöffnetem Rollkopf eine bestimmte Position am Revolverteller einnehmen. Es muss gewährleistet sein, dass bei Neubestückung des Revolvertellers diese Position ohne großen Aufwand wieder erreicht wird. (Fläche am Schaft des Gewinde-Rollkopfes)
5. Die Drehrichtung des Revolvertellers muss beim Schließen des Gewinde-Rollkopfes rechts herum sein. (Ansicht von vorne gegen den Revolver)
6. Ist der Schließvorgang beendet und der Revolver muss links herum drehen, so muss die Schließeinrichtung die Möglichkeit haben, gegen eine weiche Feder ausweichen zu können. (Ansicht von vorne gegen den Revolver)

1. The closing fixture is fastened in the middle between the tool stations of the turret.
2. The closing fixture should be spring loaded, to prevent overloading the closing pin when the turret indexes.
3. The closing fixture should be adjustable, so that different positions of the closing pin on different Roll-Heads may be used.
4. The Roll-Head closing pin must be in a certain position when the Roll-Head is open. This position must be maintained throughout the cycling of the turret. (The flats on the shaft are provided for this purpose)
5. The rotation of the turret must be clockwise in order to close the F style Roll-Head (View is from the front of the turret). K style may be used for opposite rotation.
6. Upon closing, the spring loaded fixture permits the closing pin to clear. In case of the turret has to move counterclockwise! (View is from the front of the turret)





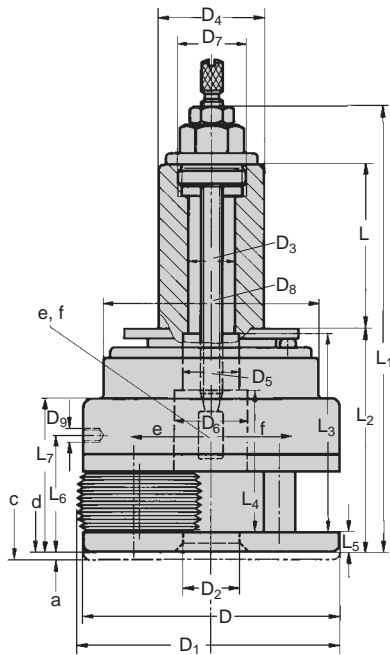
Zum Einsatz der Gewinde-Rollköpfe Größen FU 32 bis FU 56-1 auf Revolver-Drehmaschinen und ähnlichen Werkzeugaufnahmen sind Rollköpfe mit Einspannschaft lieferbar. Diese Ausführung ist nur feststehend zu verwenden. Das Öffnen des Rollkopfes geschieht durch Innenanschlag oder durch Abstoppen des Maschinenschlittens mittels Anschlag.

Das Schließen wird von Hand oder mit einer Schließeinrichtung vorgenommen. Diese Rollköpfe werden beim Öffnen um das Maß „a“ länger. Die Typenbezeichnung für diese Gewinde-Rollköpfe bekommt den Zusatz „RN“. Z. B. lautet die Typenbezeichnung für einen Rollkopf dieser Ausführung in Größe 4: Type F4-1 RN. Der Arbeitsbereich der Gewinde-Rollköpfe entspricht dem der Standard-Gewinde-Rollköpfe.

Infolge Schaftbohrung verändert sich jedoch die max. Rolllänge.

Gewinde-Rollköpfe dieser Art sind auch mit Schäften nach DIN 69880 lieferbar. Es ist hier zu prüfen, ob der Rollkopf dann noch kollisionsfrei durchschaltbar eingesetzt werden kann.

**Rollköpfe Typen F32 RN bis F56-1 RN**  
**Rolling Heads Type F32 RN, F56-1 RN**



- a = Schalhub  
Opening movement
- c = Rollkopf geöffnet  
Rolling Head opened
- d = Rollkopf geschlossen  
Rolling Head closed
- e = Rollkopf öffnet  
Rolling Head opening direction
- f = Rollkopf schließt  
Rolling Head closing direction  
(Bei Rollköpfen für Linksgewinde  
ist die Schalrichtung entgegengesetzt)  
(For Rolling Heads for left hand Threads  
directions are reversed)

FU Type Heads with shanks (F32-1 RN thru F56-1 RN) are available for use on application requiring pull-off opening. They may also be opened by having component contact the inside trip.

F-RN heads must be used stationary and be closed either manually or by having handle contact reset bracket. When open F-RN Heads project an additional amount, see column a in table.

The diameter capacity of FU and F-RN are identical, but due to restrictions within the shank thread lengths may be limited. Please see table. Shanks to DIN 69880 are available on special order.

**Operation of F-RN style on CNC Machine Tools**

It is suggested to program the feed rate for Axial Thread Rolling heads at less than the actual pitch of the thread being rolled. Use a feed rate of 0.0005" to 0.002" less than the pitch per revolution.

The smaller figure should be used for finer pitch, longer threads to prevent the die head from pulling open before the required thread length rolled.

| Bau- und Anschlußmaße für feststehend verwendbare Rollköpfe Typ FU mit Schaftaufnahme in mm   inch                        |             |                              |                |                |                |                |                |   |                |                |
|---|-------------|------------------------------|----------------|----------------|----------------|----------------|----------------|---|----------------|----------------|
| Dimensions and Shank Details for stationary F-type Thread Rolling Head with shank DIN 69880, 1.575" diameter in mm   inch |             |                              |                |                |                |                |                |   |                |                |
| Rollkopf<br>Rolling Head  | D           | D <sub>1</sub> <sup>1)</sup> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | D <sub>5</sub> | D <sub>6</sub> | Linksgewinde<br>L.H. Thread<br>D <sub>7</sub> | D <sub>8</sub> | D <sub>9</sub> |
| F32 RN  | 125   4.921 | 131   5.157                  | 38   1.496     | 25   0.984     | 40   1 1/2     | 25   0.984     | 32   1.26      | M 30 x 1.5                                    | 125   4.921    | M 8            |
| F3-1 RN   |             |                              |                | 19   0.748     | 30   1 1/4     |                |                | M 24 x 1.5                                    |                |                |
| F34-1 RN  | 125   4.921 | 128   5.039                  | 44   1.732     | 25   0.984     | 40   1 1/2     | 25   0.984     | 32   1.26      | M 30 x 1.5                                    | 125   4.921    | M 8            |
|   |             |                              |                | 19   0.748     | 30   1 1/4     |                |                | M 24 x 1.5                                    |                |                |
| F4-1 RN   | 165   6.496 | 161   6.339                  | 46   1.811     | 32   1.26      | 60   2 1/2     | 32   1.26      | -              | M 39 x 1.5                                    | 125   4.921    | M 8            |
|   |             |                              |                | 32   1.26      | 50   2; 2 1/8  |                |                | M 39 x 1.5                                    |                |                |
|   |             |                              |                | 32   1.26      | 1 3/4          |                |                | M 39 x 1.5                                    |                |                |
|   |             |                              |                | 28   1.102     | 40   1 1/2     |                |                | M 30 x 1.5                                    |                |                |
| F45-1 RN  | 165   6.496 | 161   6.339                  | 48   1.89      | 32   1.26      | 60   2 1/2     | 32   1.26      | 37   1.457     | M 39 x 1.5                                    | 125   4.921    | M 8            |
|   |             |                              |                | 32   1.26      | 50   2; 2 1/8  |                |                | M 39 x 1.5                                    |                |                |
|   |             |                              |                | 32   1.26      | 1 3/4          |                |                | M 39 x 1.5                                    |                |                |
|   |             |                              |                | 28   1.102     | 40   1 1/2     |                |                | M 30 x 1.5                                    |                |                |
| F5-1 RN   | 200   7.874 | 204   8.031                  | 55   2.165     | 40   1.575     | 70   2 3/4     | 40   1.575     | -              | M 48 x 1.5                                    | 156   6.142    | M 10           |
|   |             |                              |                | 40   1.575     | 60             |                |                | M 39 x 1.5                                    |                |                |
|   |             |                              |                | 32   1.26      | 2 1/4; 2 1/2   |                |                | M 39 x 1.5                                    |                |                |
|   |             |                              |                | 32   1.26      | 50   2; 2 1/8  |                |                | M 39 x 1.5                                    |                |                |
| F56-1 RN  | 200   7.874 | 204   8.031                  | 58   2.283     | 40   1.575     | 70   2 3/4     | 40   1.575     | 53   2.087     | M 48 x 1.5                                    | 156   6.142    | M 10           |
|   |             |                              |                | 40   1.575     | 60             |                |                | M 39 x 1.5                                    |                |                |
|   |             |                              |                | 32   1.26      | 2 1/4; 2 1/2   |                |                | M 39 x 1.5                                    |                |                |
|   |             |                              |                | 32   1.26      | 50   2; 2 1/8  |                |                | M 39 x 1.5                                    |                |                |
| Rollkopf<br>Rolling Head  | L           | L <sub>1</sub>               | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | L <sub>5</sub> | L <sub>6</sub> | L <sub>7</sub>                                | a              | α              |
| F32 RN  | 79,5   3.13 | 239   9.409                  | 131,5   5.177  | 123   4.843    | -              | 10   0.394     | 54,8   2.157   | 130,3   5.13                                  | 4   0.157      | 30°            |
| F3-1 RN   |             | 234   9.213                  |                | 113   4.449    |                |                |                |   |                |                |
| F34-1 RN  | 79,5   3.13 | 241   9.488                  | 133,5   5.256  | 123   4.843    | 84   3.307     | 10   0.394     | 56,5   2.224   | 132   5.197                                   | 4   0.157      | 30°            |
|   |             | 236   9.291                  |                | 113   4.449    |                |                |                |   |                |                |
| F4-1 RN   | 79,5   3.13 | 248,5   9.783                | 138   5.433    | 133   5.236    | -              | 10   0.394     | 62   2.441     | 86,5   3.406                                  | 4   0.157      | 30°            |
|   |             | 248,5   9.783                |                | 133   5.236    |                |                |                |   |                |                |
|   |             | 248,5   9.783                |                | 133   5.236    |                |                |                |   |                |                |
|   |             | 248,5   9.783                |                | 120   4.724    |                |                |                |   |                |                |
| F45-1RN   | 79,5   3.13 | 251   9.882                  | 140   5.512    | 133   5.236    | 89   3.504     | 10   0.394     | 65,2   2.567   | 89,7   3.531                                  | 4   0.157      | 30°            |
|   |             | 251   9.882                  |                | 133   5.236    |                |                |                |   |                |                |
|   |             | 251   9.882                  |                | 133   5.236    |                |                |                |   |                |                |
|   |             | 249   9.803                  |                | 121   4.764    |                |                |                |   |                |                |
| F5-1 RN   | 95   3.74   | 303   11.929                 | 173,5   6.831  | 175   6.89     | -              | 14   0.551     | 88,9   3.5     | 121   4.764                                   | 5   0.197      | 30°            |
|   |             | 297,5   11.713               |                | 175   6.89     |                |                |                |   |                |                |
|   |             | 297,5   11.713               |                | 139   5.472    |                |                |                |   |                |                |
|   |             | 297,5   11.713               |                | 139   5.472    |                |                |                |   |                |                |
| F56-1 RN  | 95   3.74   | 300   11.811                 | 168   6.614    | 170   6.693    | 99   3.898     | 14,56   0.573  | 85,7   3.374   | 117,7   4.634                                 | 5   0.197      | 30°            |
|   |             | 293,5   11.555               |                | 170   6.693    |                |                |                |   |                |                |
|   |             | 293,5   11.555               |                | 134   5.276    |                |                |                |   |                |                |
|   |             | 293,5   11.555               |                | 134   5.276    |                |                |                |   |                |                |

<sup>1)</sup> D<sub>1</sub> = Größter Außen-Ø des Gewinde-Rollkopfes bei Rollenstellung im geöffneten Zustand.

<sup>1)</sup> D<sub>1</sub> = largest Head diameter including rolls.



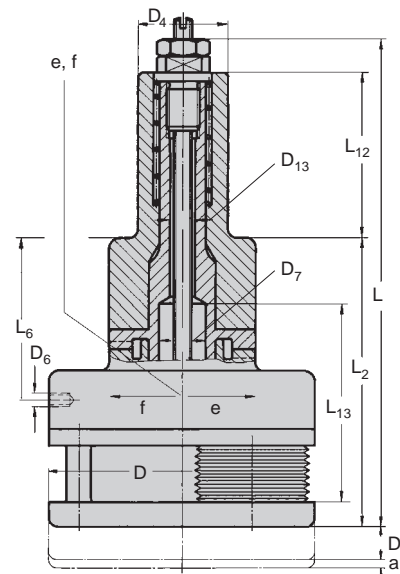
Ausziehschäfte werden hauptsächlich zur Aufnahme von Gewinde-Rollköpfen auf kurvengesteuerten Revolver-Automaten benötigt. Sie dienen dazu, eine eventuelle Differenz zwischen dem erforderlichen Rollkopf-Vorschub und dem Steigungsvorschub des Schlittens auszugleichen.

Falls nicht anders vorgeschrieben, werden Rollköpfe mit Ausziehschaft zur Begrenzung der zu rollenden Gewindelänge mit Innenanschlag geliefert. Auf Wunsch kann die Lieferung aber auch mit Außenanschlag (Anschlagmutter) erfolgen.

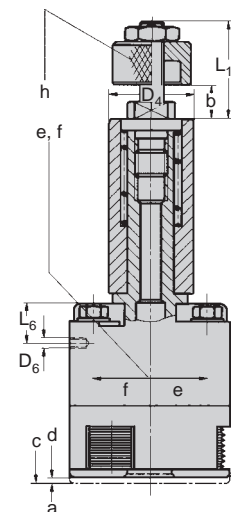
Compensating Pull-out Shanks are mainly used for adaption of Thread Rolling Heads for Automatics, screw-machines. Their main purpose is compensation of differences between the required feed of the Head and the under feed of the Machine Slide.

If no other information is given, Thread Rolling Heads with Compensating Pull-out Shanks are supplied with Internal End Stop for limitation of thread length to be rolled. If required, these Heads can be supplied with External Stop Nut.

### Ausziehschaft mit Innenanschlag Pull-out Shank with internal Stop



### Ausziehschaft mit Anschlagmutter (Außenanschlag) Pull-out Shank with External Stop Nut



- a = Schalhub  
Opening movement
- c = Rollkopf geöffnet  
Rolling Head opened
- d = Rollkopf geschlossen  
Rolling Head closed
- e = Rollkopf öffnet  
Rolling Head opened
- f = Rollkopf schließt  
Rolling Head closed  
(Bei Rollköpfen für Linksgewinde ist die Schalrichtung entgegengesetzt)  
(For Rolling Heads for left hand Threads directions are reversed)
- h = Anschlagmutter  
Stop nut
- $\alpha$  = Schließwinkel  
opening/closing angle

| Bau- und Anschlußmaße für feststehend verwendbare Rollköpfe mit Ausziehschäften in mm   inch |   |                 |                 |   |                 |                                       |                |                |                 |              |
|--|---|-----------------|-----------------|---|-----------------|---------------------------------------|----------------|----------------|-----------------|--------------|
| Dimensions for stationary Rolling Heads with pull-outs shanks in mm   inch                   |   |                 |                 |   |                 |                                       |                |                |                 |              |
| Rollkopf<br>Rolling Head   | D | D <sub>4</sub>  | D <sub>6</sub>  | D <sub>7</sub>  | D <sub>13</sub> | L                                     | L <sub>2</sub> | L <sub>6</sub> | L <sub>12</sub> |              |
| F001   | Z | 40   1.575      | 20   3/4        | M 5   | 5,5   0.217     | 5,3   0.209                           | 94   3.701     | 40,4   1.591   | 10,5   0.413    | 45   1.772   |
| F01  | Z | 40   1.575      | 20   3/4        | M 5   | 7   0.276       | 5,3   0.209                           | 98,8   3.89    | 45,3   1.783   | 10,5   0.413    | 45   1.772   |
| F0   | Z | 50   1.968      | 20   3/4        | M 5   | 7   0.276       | 5,5   0.217                           | 106,5   4.193  | 58,5   2.303   | 33,5   1.319    | 40   1.575   |
| F1   | Z | 64   2.52       | 20   3/4        | M 6   | 11   0.433      | 5,5   0.217                           | 116   4.567    | 68   2.677     | 37   1.457      | 40   1.575   |
| F12  | Z |                 |                 |   |                 |                                       |                |                |                 |              |
| F1223  | Z | 56   2.205      | 20   3/4        | M 8 x 1   | 8,2   0.323     | 5,2   0.205                           | 92,5   3.642   | 59,5   2.343   | 25   0.984      | 30,5   1.201 |
| F2   | Z | 88   3.465      | 25   1"         | M 6   | 17   0.669      | 9   0.354                             | 149   5.866    | 87,5   3.445   | 50   1.968      | 50   1.968   |
| F23  | Z |                 |                 |   |                 |                                       |                |                |                 |              |
| F233400  | Z | 96   3.78       | 25   1", 1 1/4" | M 8   | 28   1.102      | 9   0.354                             | 178   7.008    | 106,5   4.193  | 45,5   1.791    | 60   2.362   |
| F3   | Z | 117   4.606     | 30              | M 8   | 22   0.866      | 11   0.433                            | 176,5   6.949  | 103,5   4.075  | 57,5   2.264    | 60   2.362   |
| F34  | Z |                 | 1 1/4", 1 1/2"  |   |                 |                                       |                |                |                 |              |
| Rollkopf<br>Rolling Head   |   | L <sub>13</sub> | L <sub>14</sub> | Größte rollbare Gewindelänge<br>Max. rollable Thread Length     |                 |                                       | a              | b              | α               |              |
| F001   | Z | 37   1.457      | 27   1.063      | 60   2.362  |                 |                                       | 1,5   0.059    | 8   0.315      | 32°             |              |
| F01  | Z | 40   1.575      | 27   1.063      | bis einschließlich Ø 5<br>up to including Ø 0.197<br>60   2.362 |                 | > Ø 5<br>> Ø 0.197<br>38   1.496      | 1,5   0.059    | 8   0.315      | 32°             |              |
| F0   | Z | 37   1.457      | 27   1.063      | 24   0.945 <sup>1)</sup>  |                 |                                       | 2   0.079      | 12   0.079     | 50°             |              |
| F1   | Z | 51   2.008      | 27   1.063      | Ø 6-10   Ø 0.236-0.394<br>37   1.457 <sup>1)</sup>              |                 | Ø 11-12   Ø 0.433-0.472<br>15   0.591 | 2   0.079      | 12   0.079     | 60°             |              |
| F12  | Z |                 |                 |   |                 |                                       |                |                |                 |              |
| F1223  | Z | 52   2.047      | 27   1.063      | 38   1.496 <sup>1)</sup>  |                 |                                       | 2   0.079      | 8   0.315      | 50°             |              |
| F2   | Z | 65   2.559      | 32   1.26       | Ø 8   Ø 0.315<br>109   4.291 <sup>1)</sup>                      |                 |                                       | 3   0.118      | 12   0.472     | 60°             |              |
| F23  | Z |                 |                 | Ø 9-16   Ø 0.354-0.63<br>65   2.559                             |                 |                                       |                |                |                 |              |
|  |   |                 |                 | Ø 18-22   Ø 0.709-0.866<br>20   0.787                           |                 |                                       |                |                |                 |              |
| F233400  | Z | 67   2.638      | 32   1.26       | Ø 22-26   Ø 0.866-1.024<br>67   2.638                           |                 | Ø 28-36   Ø 1.102-1.417<br>27   1.063 | 3   0.118      | 12   0.472     | 30°             |              |
| F3   | Z | 80   3.15       | -               | Ø 12-20   Ø 0.472-0.787   |                 | Ø 22-30   Ø 0.866-1.181               | 4   0.157      | 12   0.472     | 60°             |              |
| F34  | Z |                 |                 | 80   3.15   |                 | 25   0.984                            |                |                |                 |              |

<sup>1)</sup> Max. Rolllänge bei Verwendung von Innenanschlag mit drehbarem Teller.

<sup>1)</sup> Maximum length when using internal rotating stop.

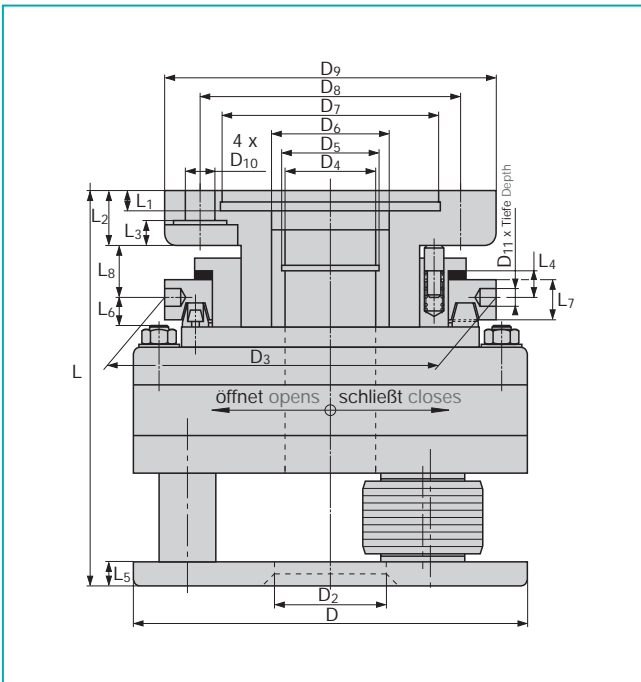


Speziell zum Rollen von Gewinden auf Rohren wurden Gewinde-Rollköpfe mit 5 und 6 Rollen entwickelt. Durch die Verteilung des Rolldruckes auf 5 und 6 Rollen wird die Gefahr der Rohrdeformierung (unrund) wesentlich verringert und es können einwandfreie Gewinde gerollt werden.

Das Gewinderollen auf Rohren erfolgt je nach Wandstärke des Rohres mit oder ohne Einsteckdorn.

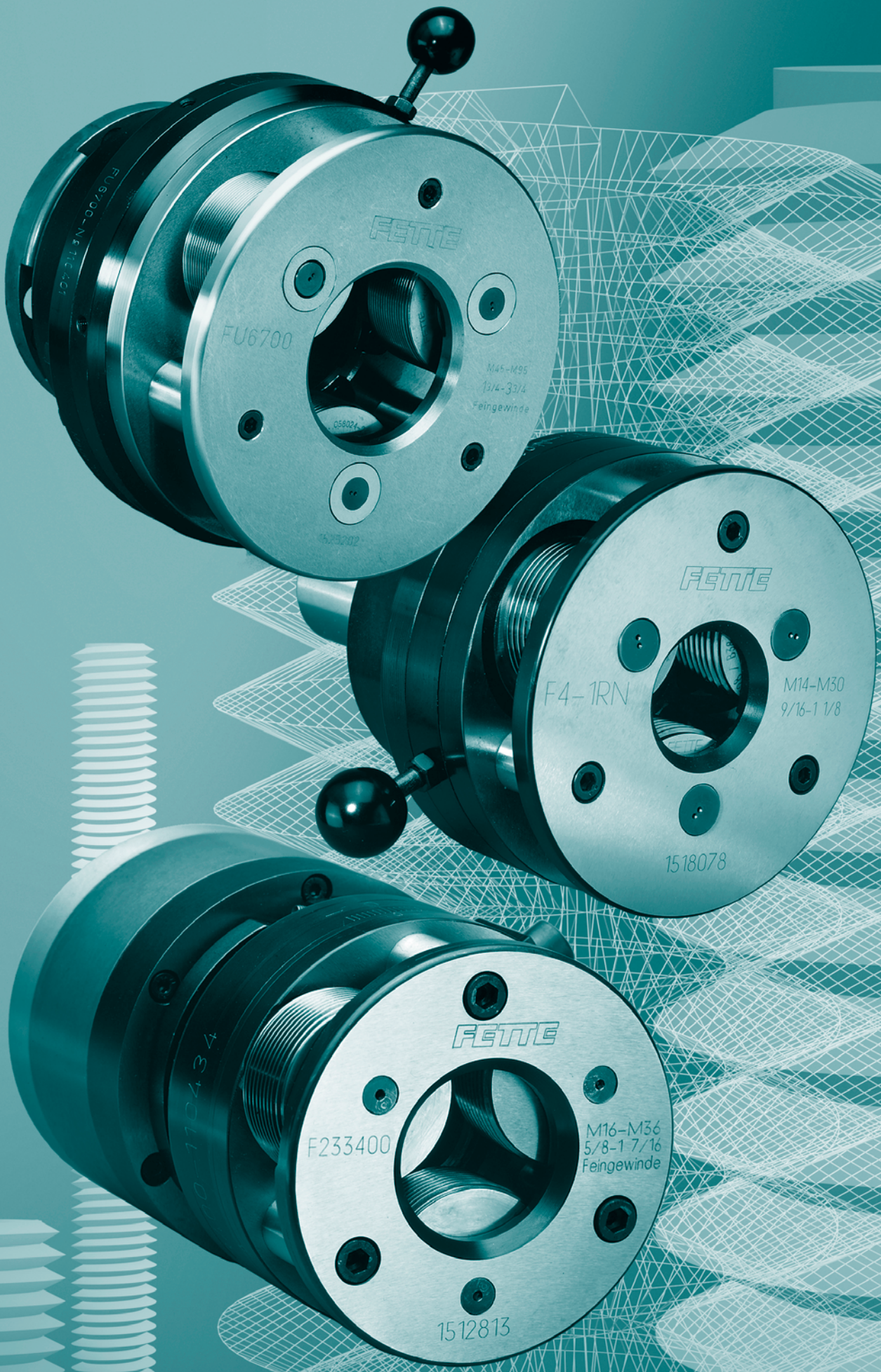
Thread Rolling Heads with 5 and 6 Rolls have been designed especially for rolling of threads on thin-walled tubing. By distributing the rolling pressure over 5 and 6 Rolls, danger of tube deformation (out of roundness) is considerably decreased, and it is possible to produce perfect threads.

Depending on the wall thickness of the tubing to be rolled, Thread Rolling can be done with or without a supporting mandrel.



| Rollkopf<br>Rolling Head | Anzahl Rollen<br>Number of Rolls | Rollkopf $\sphericalangle$<br>Rolling Head angle $\sphericalangle$ | Arbeitsbereiche<br>Capacity |                 | Arbeitsbereiche<br>Capacity Pipe Thread<br>DIN ISO 228 |
|--------------------------|----------------------------------|--|-----------------------------|-----------------|--|
|                          |                                  |  | mm                          | inch            |  |
| FUP 3                    | 5                                | 1° 20'   | Ø 23 – 27                   | Ø 0.906 – 1.063 | G 5/8 – G 3/4  |
| FUP 4                    | 5                                | 1° 20'   | Ø 27 – 30                   | Ø 1.063 – 1.181 | G 3/4 – G 7/8  |
| FUP 5                    | 5                                | 1° 20'   | Ø 30 – 33                   | Ø 1.181 – 1.299 | G 7/8 – G 1  |
| FUP 7                    | 5                                | 1° 20'   | Ø 32,5 – 35,5               | Ø 1.280 – 1.398 | G 1  |
| FUP 8                    | 5                                | 1° 10'   | Ø 36 – 40                   | Ø 1.417 – 1.575 | G 1 1/8  |
| FUP 9                    | 5                                | 1° 10'   | Ø 39,5 – 48                 | Ø 1.555 – 1.890 | G 1 1/4 – G 1 1/2                                      |
| FUPT 10                  | 5                                | 1°   | Ø 48 – 52                   | Ø 1.890 – 2.047 | G 1 1/2 – G 1 5/8                                      |
| FUP 11                   | 6                                | 0° 40'   | Ø 48 – 52                   | Ø 1.890 – 2.047 | –  |
| FUP 1100                 | 6                                | 0° 40'   | Ø 48 – 56                   | Ø 1.890 – 2.205 | –  |
| FUPT 12                  | 5                                | 1°   | Ø 54 – 59                   | Ø 2.126 – 2.323 | G 1 5/8 – G 1 3/4                                      |
| FUPT 13                  | 5                                | 0° 40'   | Ø 60 – 70                   | Ø 2.362 – 2.756 | G 2 – G 2 1/4  |
| FUPT 14                  | 5                                | 0° 40'   | Ø 65 – 76                   | Ø 2.559 – 2.992 | G 2 1/4 – G 2 1/2                                      |
| FUPT 15                  | 5                                | 0° 30'   | Ø 70 – 86                   | Ø 2.756 – 3.386 | G 2 1/2 – G 2 3/4                                      |
| FUPT 17                  | 5                                | 0° 30'   | Ø 80 – 110                  | Ø 3.150 – 4.331 | G 2 3/4 – G 3 1/4                                      |
| FUPT 18                  | 5                                | 0° 20'   | Ø 95 – 140                  | Ø 3.740 – 5.512 | G 3 1/2 – G 5  |
| FUPT 19                  | 5                                | 0° 20'   | Ø 120 – 180                 | Ø 4.724 – 7.087 | G 5 – G 6  |
| FUPT 20                  | 5                                | 0° 30'   | Ø 165 – 230                 | Ø 6.496 – 9.055 | –  |

| Rollkopf<br>Rolling Head | Baumaße in mm   inch<br>Dimensions in mm   inch |                |                |                |                               |                |                |  |                |                 |                     |                          |  |
|--------------------------|---|----------------|----------------|----------------|-------------------------------|----------------|----------------|--|----------------|-----------------|---------------------|--------------------------|--|
|                          | D   | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | Links L. H.<br>D <sub>5</sub> | D <sub>6</sub> | D <sub>7</sub> | D <sub>8</sub>                         | D <sub>9</sub> | D <sub>10</sub> | D <sub>11</sub> x T |                          |  |
| FUP 3                    | 125<br>4.921                                    | 30<br>1.181    | 140<br>5.512   | 28<br>1.102    | M 30 x 1,5                    | 40<br>1.575    | 92<br>3.622    | +0.035<br>+0.010<br>+0.001"<br>0"      | 110<br>4.331   | 140<br>5.512    | 13<br>0.512         | 8 x 8<br>0.315 x 0.315   |  |
| FUP 4                    | 125<br>4.921                                    | 32<br>1.26     | 140<br>5.512   | 28<br>1.102    | M 30 x 1,5                    | 40<br>1.575    | 92<br>3.622    | +0.035<br>+0.010<br>+0.001"<br>0"      | 110<br>4.331   | 140<br>5.512    | 13<br>0.512         | 8 x 8<br>0.315 x 0.315   |  |
| FUP 5                    |   |                |                |                |                               |                |                |  |                |                 |                     |                          |  |
| FUP 7                    | 165<br>6.496                                    | 44<br>1.732    | 140<br>5.512   | 37<br>1.457    | M 39 x 1,5                    | 50<br>1.968    | 92<br>3.622    | +0.035<br>+0.010<br>+0.001"<br>0"      | 110<br>4.331   | 140<br>5.512    | 13<br>0.512         | 8 x 8<br>0.315 x 0.315   |  |
| FUP 8                    |   |                |                |                |                               |                |                |  |                |                 |                     |                          |  |
| FUP 9                    | 200<br>7.874                                    | 48,5<br>1.909  | 159<br>6.26    | 46<br>1.811    | M 48 x 1,5                    | 70<br>2.756    | 140<br>5.512   | +0.040<br>+0.015<br>+0.002"<br>+0.001" | 170<br>6.693   | 200<br>7.874    | 13<br>0.512         | 8 x 12<br>0.315 x 0.472  |  |
| FUPT 10                  | 200<br>7.874                                    | 54<br>2.126    | 159<br>6.26    | 54<br>2.126    | M 56 x 1,5                    | 70<br>2.756    | 140<br>5.512   | +0.040<br>+0.015<br>+0.002"<br>+0.001" | 170<br>6.693   | 200<br>7.874    | 13<br>0.512         | 8 x 12<br>0.315 x 0.472  |  |
| FUP 11                   | 190<br>7.480                                    | 55<br>2.165    | 147<br>5.787   | 54<br>2.126    | M 56 x 1,5                    | 70<br>2.756    | 140<br>5.512   | +0.040<br>+0.015<br>+0.002"<br>+0.001" | 170<br>6.693   | 200<br>7.874    | 13<br>0.512         | 8 x 12<br>0.315 x 0.472  |  |
| FUP 1100                 | 190<br>7.48                                     | 58<br>2.283    | 147<br>5.787   | 54<br>2.126    | M 56 x 1,5                    | 70<br>2.756    | 140<br>5.512   | +0.040<br>+0.015<br>+0.002"<br>+0.001" | 170<br>6.693   | 200<br>7.874    | 13<br>0.512         | 8 x 12<br>0.315 x 0.472  |  |
| FUPT 12                  | 275<br>10.827                                   | 62<br>2.441    | 195<br>7.677   | 60<br>2.362    | M 76 x 2                      | 63<br>2.48     | 140<br>5.512   | +0.040<br>+0.015<br>+0.002"<br>+0.001" | 170<br>6.693   | 200<br>7.874    | 13<br>0.512         | 12 x 19<br>0.472 x 0.748 |  |
| FUPT 13                  | 275<br>10.827                                   | 72<br>2.835    | 195<br>7.677   | 72<br>2.835    | M 76 x 2                      | 72<br>2.835    | 140<br>5.512   | +0.040<br>+0.015<br>+0.002"<br>+0.001" | 170<br>6.693   | 200<br>7.874    | 13<br>0.512         | 12 x 19<br>0.472 x 0.748 |  |
| FUPT 14                  | 275<br>10.827                                   | 84<br>3.307    | 219<br>8.622   | 84<br>3.307    | M 95 x 2                      | 110<br>4.331   | 140<br>5.512   | +0.040<br>+0.015<br>+0.002"<br>+0.001" | 170<br>6.693   | 200<br>7.874    | 13<br>0.512         | 12 x 19<br>0.472 x 0.748 |  |
| FUPT 15                  | 320<br>12.598                                   | 90<br>3.543    | 264<br>10.394  |                |                               |                | 140<br>5.512   | +0.040<br>+0.015<br>+0.002"<br>+0.001" | 170<br>6.693   | 200<br>7.874    | 18<br>0.709         | 18 x 25<br>0.709 x 0.984 |  |
| FUPT 17                  | 390<br>15.354                                   | 112<br>4.409   | 320<br>12.598  |                |                               |                | 200<br>7.874   | +0.040<br>+0.015<br>+0.002"<br>+0.001" | 270<br>10.63   | 310<br>12.205   | 17<br>0.669         | 18 x 25<br>0.709 x 0.984 |  |
| FUPT 18                  | 390<br>15.354                                   | 142<br>5.591   | 320<br>12.598  | 142<br>5.591   | M 155 x 3                     | 177<br>6.968   | 200<br>7.874   | +0.040<br>+0.015<br>+0.002"<br>+0.001" | 270<br>10.63   | 310<br>12.205   | 17<br>0.669         | 18 x 25<br>0.709 x 0.984 |  |
| FUPT 19                  | 514<br>20.236                                   | 182<br>7.165   | 435<br>17.126  | 232<br>9.134   | M 240 x 6                     | 274<br>10.787  | 300<br>11.811  | +0.052<br>+0.015<br>+0.002"<br>+0.001" | 375<br>14.764  | 435<br>17.126   | 25<br>0.984         | 18 x 25<br>0.709 x 0.984 |  |
| FUPT 20                  | 514<br>20.236                                   | 232<br>9.134   | 435<br>17.126  | 232<br>9.134   | M 240 x 6                     | 274<br>10.787  | 300<br>11.811  | +0.052<br>+0.015<br>+0.002"<br>+0.001" | 375<br>14.764  | 435<br>17.126   | 25<br>0.984         | 18 x 25<br>0.709 x 0.984 |  |
| Rollkopf<br>Rolling Head | L   | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub>                | L <sub>5</sub> | L <sub>6</sub> | L <sub>7</sub>                         | L <sub>8</sub> | a               | b                   |                          |  |
| FUP 3                    | 146,5   5.768                                   | 8,5   0.335    | 23   0.906     | 10,5   0.413   | 11,5   0.453                  | 8   0.315      | -              | 17   0.669                             | 22   0.866     | 4   0.157       | 22°                 |                          |  |
| FUP 4                    | 146,5   5.768                                   | 8,5   0.335    | 23   0.906     | 10,5   0.413   | 11,5   0.453                  | 8   0.315      | -              | 17   0.669                             | 22   0.866     | 4   0.157       | 22°                 |                          |  |
| FUP 5                    |   |                |                |                |                               |                |                |  |                |                 |                     |                          |  |
| FUP 7                    | 150,5   5.925                                   | 8,5   0.335    | 23   0.906     | 10,5   0.413   | 11,5   0.453                  | 10   0.394     | 12   0.472     | 21   0.827                             | 22   0.866     | 4   0.157       | 30°                 |                          |  |
| FUP 8                    |   |                |                |                |                               |                |                |  |                |                 |                     |                          |  |
| FUP 9                    | 169,5   6.673                                   | 8,5   0.335    | 23   0.906     | 11   0.433     | 10,5   0.413                  | 12   0.472     | 11,2   0.441   | 22   0.866                             | 22,5   0.886   | 5   0.197       | 30°                 |                          |  |
| FUPT 10                  | 193,2   7.606                                   | 8,5   0.335    | 23   0.906     | 11   0.433     | 10,5   0.413                  | 15   0.591     | 10,5   0.413   | 22   0.866                             | 23   0.906     | 5   0.197       | 20°                 |                          |  |
| FUP 11                   | 165   6.496                                     | 8,5   0.335    | 25   0.984     | 11   0.433     | 9,5   0.374                   | 10   0.394     | 10   0.394     | 19,5   0.866                           | 22,1   0.87    | 5   0.197       | 28°                 |                          |  |
| FUP 1100                 | 165   6.496                                     | 8,5   0.335    | 25   0.984     | 11   0.433     | 9,5   0.374                   | 10   0.394     | 10   0.394     | 19,5   0.866                           | 22,1   0.87    | 5   0.197       | 28°                 |                          |  |
| FUPT 12                  | 277   10.906                                    | 8,5   0.335    | 34   1.339     | 20   0.787     | 20   0.787                    | 20   0.787     | 19   0.748     | 45   1.772                             | 35,6   1.402   | 6   0.236       | 28°                 |                          |  |
| FUPT 13                  | 277   10.906                                    | 8,5   0.335    | 34   1.339     | 20   0.787     | 20   0.787                    | 20   0.787     | 19   0.748     | 40   1.575                             | 35,6   1.402   | 6   0.236       | 28°                 |                          |  |
| FUPT 14                  | 281,3   11.075                                  | 8,5   0.335    | 25   0.984     | 11   0.433     | 20   0.787                    | 24   0.945     | 29   1.142     | 40   1.575                             | 35,6   1.402   | 6   0.236       | 21°                 |                          |  |
| FUPT 15                  |   |                |                |                |                               |                |                |  |                |                 |                     |                          |  |
| FUPT 17                  |   |                |                |                |                               |                |                |  |                |                 |                     |                          |  |
| FUPT 18                  | 365,5   14.39                                   | 10   0.394     | 38   1.496     | 18   0.709     | 32   1.26                     | 24,6   0.968   | 38   1.496     | 52   2.047                             | 59   2.323     | 15   0.591      | 20°                 |                          |  |
| FUPT 19                  | 405   15.945                                    | 10,5   0.413   | 70   2.756     | 40   1.575     | 20   0.787                    | 30   1.181     | 38   1.496     | 46   1.811                             | 45   1.772     | 10   0.394      | 20°                 |                          |  |
| FUPT 20                  | 404   15.906                                    | 10,5   0.413   | 70   2.756     | 45   1.772     | 25   0.984                    | 30   1.181     | 43   1.693     | 46   1.811                             | 45   1.772     | 10   0.394      | 17°                 |                          |  |



FU6700

FETTE

M45-M95  
1 3/4-3 3/4  
Feingewinde

1525202

F4-1RN

FETTE

M14-M30  
9/16-1 1/8

1518078

F233400

FETTE

M16-M36  
5/8-1 7/16  
Feingewinde

1512813

**Arbeitsbereiche für feststehend verwendbare Rollköpfe mit Schaftaufnahme wie F-RN (FU-Typen), jedoch z. T. begrenzte max. Rolllänge**

Capacity range for stationary usable rolling attachments with shank adaptations type F-RN (like FU-types), with partially limited max. rolling lengths

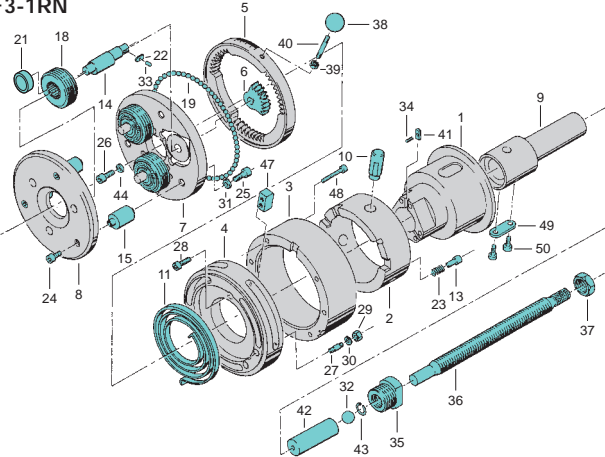
| Rollkopf<br>Rolling<br>Head | Arbeitsbereiche<br>Capacity |            |              |             |                             | Max.<br>Rolllänge<br>Max.<br>Rolling<br>length | D <sub>4</sub> |                          | Zul. Werkstück-<br>Steigungswinkel<br>Permissible<br>Component Part<br>Lead Angle |        |
|-----------------------------|-----------------------------|------------|--------------|-------------|-----------------------------|--|----------------|--------------------------|---|--------|
|                             | Metrisch<br>Metric          |            | Zoll<br>Inch |             | Rohrgewinde<br>Pipe threads |  |                |                          |   |        |
|                             | min.                        | max.       | min.         | max.        | Zoll   Inch                 | mm   inch                                      | mm             | inch                     | min.  | max.   |
| F32RN                       | M 10 x 1                    | M 18 x 2,5 | 7/16 – 20    | 11/16 – 11  | 1/4                         | ∞  | 40/30          | 1 1/2<br>1 1/4           | 1° 50'  | 3° 30' |
| F3-1RN                      | M 12 x 1,5                  | M 22 x 2,5 | 7/16 – 18    | 15/16 – 9   | 1/4; 1/2                    | ∞  | 40             | 1 1/2                    | 1° 50'  | 3° 30' |
|                             | M 12 x 1,5                  | M 20 x 2,5 | 7/16 – 18    | 3/4 – 10    | 1/4                         | ∞  | 30             | 1 1/4                    |   |        |
|                             | M 22 x 2                    | M 22 x 2,5 | 7/8 – 11     | 15/16 – 9   | 1/2                         | 108   4.252                                    | 30             | 1 1/4                    |   |        |
| F34-1RN                     | M 12 x 1                    | M 24 x 1,5 | 1/2 – 28     | 7/8 – 14    | 3/8; 1/2; 5/8               | ∞  | 40             | 1 1/2                    | 0° 50'  | 1° 50' |
|                             | M 27 x 1,5                  | M 30 x 1,5 | 1 – 20       | 1 1/8 – 11  | 3/4                         | 84   3.307                                     | 40             | 1 1/2                    |   |        |
|                             | M 12 x 1                    | M 20 x 1,5 | 9/16 – 26    | 7/8 – 14    | 3/8                         | ∞  | 30             | 1 1/4                    |   |        |
|                             | M 22 x 1,5                  | M 24 x 1,5 | 7/8 – 24     | 7/8 – 14    | 3/8; 1/2; 5/8               | 108   4.252                                    | 30             | 1 1/4                    |   |        |
|                             | M 27 x 1,5                  | M 30 x 1,5 | 1 – 20       | 1 1/8 – 11  | 3/4                         | 84   3.307                                     | 30             | 1 1/4                    |   |        |
|                             | M 14 x 2                    | M 30 x 3,5 | 9/16 – 18    | 1 1/8 – 7   | 3/8; 1/2; 5/8               | ∞  | 60/50          | 2 1/2; 2 1/8<br>2; 1 3/4 |   |        |
| F4-1RN                      | M 14 x 2                    | M 27 x 3   | 9/16 – 18    | 1 – 8       | 3/8; 1/2; 5/8               | ∞  | 40             | 1 1/2                    |   |        |
|                             |                             | M 30 x 3,5 | 1 – 12       | 1 1/8 – 7   |                             | 120   4.724                                    | 40             | 1 1/2                    |   |        |
| F45-1RN                     | M 16 x 1                    | M 30 x 2   | 3/4 – 28     | 1 3/16 – 12 | 3/8 – 7/8                   | ∞  | 60/50          | 2 1/2; 2 1/8             | 0° 40'  | 1° 40' |
|                             | M 33 x 1,5                  | M 36 x 2   | 1 1/4 – 18   | 1 3/8 – 12  | 1                           | 89   3.504                                     | 60/50          | 2; 1 3/4<br>2 1/2; 2 1/8 |   |        |
|                             | M 39 x 1,5                  | M 42 x 2   | 1 7/16 – 16  | 1 1/2 – 12  | 1 1/8; 1 1/4                | 28   1.102                                     | 60/50          | 2; 1 3/4<br>2 1/2; 2 1/8 |   |        |
|                             | M 16 x 1                    | M 27 x 2   | 3/4 – 28     | 1 1/16 – 12 | 3/8 – 3/4                   | ∞  | 40             | 2; 1 3/4;<br>1 1/2       |   |        |
|                             | M 30 x 1,5                  | M 30 x 2   | 1 1/8 – 20   | 1 3/16 – 12 | 7/8                         | 121   4.764                                    | 40             | 1 1/2                    |   |        |
|                             | M 33 x 1,5                  | M 36 x 2   | 1 1/4 – 18   | 1 3/8 – 12  | 1                           | 89   3.504                                     | 40             | 1 1/2                    |   |        |
|                             | M 39 x 1,5                  | M 42 x 2   | 1 7/16 – 16  | 1 1/2 – 12  | 1 1/8; 1 1/8                | 28   1.102                                     | 40             | 1 1/2                    |   |        |
| F5-1RN                      | M 18 x 1,5                  | M 39 x 4   | 3/4 – 12     | 1 1/2 – 6   | 1/2; 5/8                    | ∞  | 70             | 2 3/4                    | 1° 30'  | 3°     |
|                             | M 18 x 1,5                  | M 39 x 4   | 3/4 – 12     | 1 1/2 – 6   | 1/2; 5/8                    | ∞  | 60             | 2 1/2; 2 1/4             |   |        |
|                             | M 18 x 1,5                  | M 39 x 4   | 3/4 – 12     | 1 1/2 – 6   | 1/2; 5/8                    | ∞  | 50             | 2 1/8; 2                 |   |        |
| F56-1RN                     | M 22 x 1,5                  | M 39 x 2   | 7/8 – 28     | 1 1/2 – 10  | 3/4 – 1 1/8                 | ∞  | 70             | 2 3/4                    | 0° 35'  | 1° 25' |
|                             | M 42 x 1,5                  | M 52 x 3   | 1 5/8 – 18   | 2 – 7       | 1 1/4 – 1 5/8               | 108   4.252                                    | 70             | 2 3/4                    |   |        |
|                             |                             |            | 2 1/8 – 12   | 2 1/8 – 8   | 1 3/4                       | 38   1.496                                     | 70             | 2 3/4                    |   |        |
|                             | M 22 x 1,5                  | M 39 x 2   | 7/8 – 28     | 1 1/2 – 10  | 3/4 – 1 1/8                 | ∞  | 60             | 2 1/2; 2 1/4             |   |        |
|                             | M 42 x 1,5                  | M 52 x 3   | 1 5/8 – 18   | 2 – 7       | 1 1/4 – 1 5/8               | 108   4.252                                    | 60             | 2 1/2; 2 1/4             |   |        |
|                             |                             |            | 2 1/8 – 12   | 2 1/8 – 8   | 1 3/4                       | 38   1.496                                     | 60             | 2 1/2; 2 1/4             |   |        |
|                             | M 22 x 1,5                  | M 30 x 2   | 7/8 – 28     | 1 1/8 – 12  | 3/4; 7/8                    | ∞  | 50             | 2 1/8; 2                 |   |        |
|                             | M 33 x 1,5                  | M 39 x 2   | 1 1/4 – 24   | 1 1/2 – 10  | 1; 1 1/8                    | 134   5.276                                    | 50             | 2 1/8; 2                 |   |        |
|                             | M 42 x 1,5                  | M 52 x 3   | 1 5/8 – 18   | 2 – 7       | 1 1/4 – 1 5/8               | 108   4.252                                    | 50             | 2 1/8; 2                 |   |        |
|                             |                             |            | 2 1/8 – 12   | 2 1/8 – 8   | 1 3/4                       | 38   1.496                                     | 50             | 2 1/8; 2                 |   |        |



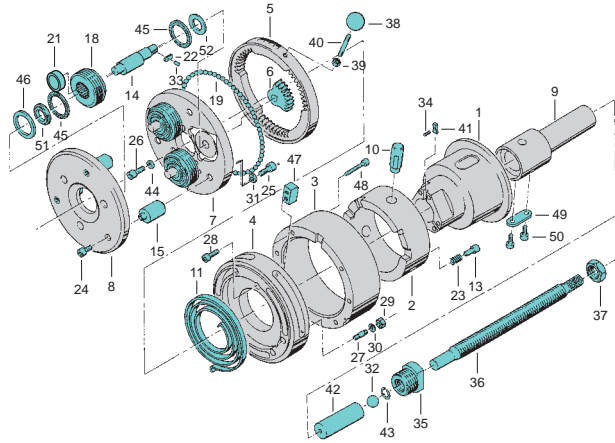
| Rollkopf<br>Rolling Head |   | F32RN | F3-1RN | F34-1RN | F4-1RN | F45-1RN | F5-1RN | F56-1RN |
|--------------------------|---|-------|--------|---------|--------|---------|--------|---------|
| Teil Nr.<br>Part No.     | Benennung<br>Part description                     |       |        |         |        |         |        |         |
| 1                        | Mitnehmer<br>Flange                               | 1     | 1      | 1       | 1      | 1       | 1      | 1       |
| 2                        | Kupplung<br>Clutch                                | 1     | 1      | 1       | 1      | 1       | 1      | 1       |
| 3                        | Schutzring<br>Operating ring                      | 1     | 1      | 1       | 1      | 1       | 1      | 1       |
| 4                        | Federgehäuse<br>Spring housing                    | 1     | 1      | 1       | 1      | 1       | 1      | 1       |
| 5                        | Zahnkranz<br>Gear ring                            | 1     | 1      | 1       | 1      | 1       | 1      | 1       |
| 6                        | Zahnbogen<br>Gear sectors                         | 3     | 3      | 3       | 3      | 3       | 3      | 3       |
| 7                        | Zwischenplatte<br>Centre plate                    | 1     | 1      | 1       | 1      | 1       | 1      | 1       |
| 7a                       | Buchse für Zwischenplatte<br>Centre plate bushing | -     | -      | -       | -      | -       | 3      | 3       |
| 8                        | Frontplatte<br>Front plate                        | 1     | 1      | 1       | 1      | 1       | 1      | 1       |
| 8a                       | Buchse für Frontplatte<br>Front plate bushing     | -     | -      | -       | -      | -       | 3      | 3       |
| 9                        | Schaft<br>Shank                                   | 1     | 1      | 1       | 1      | 1       | 1      | 1       |
| 10                       | Bolzen<br>Pin                                     | 3     | 3      | 3       | 3      | 3       | 3      | 3       |
| 11                       | Spiralfeder<br>Coil spring                        | 1     | 1      | 1       | 1      | 1       | 1      | 1       |
| 13                       | Federbolzen<br>Spring pin                         | 4     | 4      | 4       | 4      | 4       | 3      | 3       |
| 14                       | Exzenterbolzen<br>Eccentric spindles              | 3     | 3      | 3       | 3      | 3       | 3      | 3       |
| 15                       | Distanzbolzen<br>Spacer studs                     | 3     | 3      | 3       | 3      | 3       | 3      | 3       |
| 17                       | Axialscheibe<br>Axial washer                      | -     | -      | -       | -      | 6       | -      | -       |
| 17                       | Scheibe<br>Washer                                 | -     | -      | -       | -      | -       | -      | 3       |
| 18                       | Gewinderolle<br>Thread roll                       | -     | -      | -       | -      | -       | -      | -       |
| 19                       | Stahlkugel<br>Steel ball                          | 87    | 87     | 87      | 116    | 116     | 145    | 145     |
| 21                       | HM-Buchse<br>Carbide Bushing                      | 3     | 3      | 3       | 3      | 3       | 3      | 3       |
| 22                       | Paßfeder<br>Fitting key                           | 3     | 3      | 3       | 3      | 3       | 3      | 3       |
| 23                       | Druckfeder<br>Pressure ring                       | 4     | 4      | 4       | 4      | 4       | 3      | 3       |
| 24                       | Zylinderschraube<br>Cap screw                     | 3     | 3      | 3       | 3      | 3       | 3      | 3       |
| 25                       | Zylinderschraube<br>Cap screw                     | 3     | 3      | 3       | 3      | 3       | 3      | 3       |
| 26                       | Zylinderschraube<br>Cap screw                     | 6     | 6      | 6       | 6      | 6       | 6      | 6       |
| 27                       | Stiftschraube<br>Stud                             | 6     | 6      | 6       | 6      | 6       | 6      | 6       |
| 28                       | Zylinderschraube<br>Cap screw                     | 3     | 3      | 3       | 8      | 8       | 8      | 8       |
| 29                       | Sechskantmutter<br>Hexagon nut                    | 6     | 6      | 6       | 6      | 6       | 6      | 6       |
| 30                       | Scheibe<br>Washer                                 | 6     | 6      | 6       | 6      | 6       | 6      | 6       |
| 31                       | Federring<br>Lock washer                          | 3     | 3      | 3       | 3      | 3       | 3      | 3       |

| Rollkopf<br>Rolling Head |   | F32RN | F3-1RN | F34-1RN | F4-1RN | F45-1RN | F5-1RN | F56-1RN |
|--------------------------|---|-------|--------|---------|--------|---------|--------|---------|
| Teil Nr.<br>Part No.     | Benennung<br>Part description           |       |        |         |        |         |        |         |
| 32                       | Stahlkugel<br>Steel ball                | 1     | 1      | 1       | 1      | 1       | 1      | 1       |
| 33                       | Zylinderstift<br>Shear pins             | 3     | 3      | 3       | 3      | 3       | 3      | 3       |
| 34                       | Spannhülse<br>Roll pins                 | 3     | 3      | 3       | 3      | 3       | 3      | 3       |
| 35                       | Schraubstutzen<br>Stop screw body       | 1     | 1      | 1       | 1      | 1       | 1      | 1       |
| 36                       | Anschlagschraube<br>Stop screw          | 1     | 1      | 1       | 1      | 1       | 1      | 1       |
| 37                       | Sechskantmutter<br>Hexagon nut          | 1     | 1      | 1       | 1      | 1       | 1      | 1       |
| 38                       | Kugelknopf<br>Ball                      | 1     | 1      | 1       | 1      | 1       | 1      | 1       |
| 39                       | Sechskantmutter<br>Hexagon nut          | 1     | 1      | 1       | 1      | 1       | -      | -       |
| 39                       | Kupplungskeil<br>Clutch wedge           | -     | -      | -       | -      | -       | 3      | 3       |
| 40                       | Griff<br>Handle                         | 1     | 1      | 1       | 1      | 1       | 1      | 1       |
| 41                       | Paßfeder<br>Fitting key                 | 3     | 3      | 3       | 3      | 3       | 3      | 3       |
| 42                       | drehbarer Anschlag<br>Rotating end stop | 1     | 1      | 1       | 1      | 1       | 1      | 1       |
| 43                       | Sprengring<br>Circlip                   | 1     | 1      | 1       | 1      | 1       | 1      | 1       |
| 44                       | Sicherungsring<br>Circlip               | 6     | 6      | 6       | 6      | 6       | 6      | 6       |
| 45                       | Axial-Nadelkäfig<br>Axial bearing cage  | -     | -      | 6       | -      | -       | -      | -       |
| 45                       | Spannhülse<br>Roll pins                 | -     | -      | -       | -      | -       | 3      | -       |
| 46                       | Axial-Scheibe<br>Axial washer           | -     | -      | 3       | -      | -       | -      | -       |
| 46                       | Axial-Nadelkäfig<br>Axial bearing cage  | -     | -      | -       | -      | 6       | -      | -       |
| 46                       | Spannhülse<br>Roll pins                 | -     | -      | -       | -      | -       | 3      | -       |
| 47                       | Kupplungskeil<br>Clutch wedge           | 3     | 3      | 3       | 3      | 3       | -      | -       |
| 48                       | Zylinderschraube<br>Cap screw           | 8     | 8      | 8       | -      | -       | -      | -       |
| 48                       | Abdeckscheibe<br>Cover plate            | -     | -      | -       | 3      | 3       | 3      | 3       |
| 49                       | Paßfeder<br>Fitting key                 | 1     | 1      | 1       | 1      | 1       | 1      | 1       |
| 50                       | Zylinderschraube<br>Cap screw           | 2     | 2      | 2       | 2      | 2       | 2      | 2       |
| 51                       | Zentrierscheibe<br>Centering ring       | -     | -      | -       | -      | -       | -      | 6       |
| 51                       | Zylinderschraube<br>Cap screw           | -     | -      | -       | 3      | 3       | -      | -       |
| 52                       | Zentrierscheibe<br>Centering ring       | -     | -      | 3       | -      | -       | -      | -       |
| 52                       | Axial-Nadelkäfig<br>Axial bearing cage  | -     | -      | -       | -      | -       | -      | 6       |
| 54                       | Zylinderschraube<br>Cap screw           | -     | -      | -       | -      | -       | 3      | 3       |
| 55                       | Sechskantmutter<br>Hexagon nut          | -     | -      | -       | -      | -       | 1      | 1       |

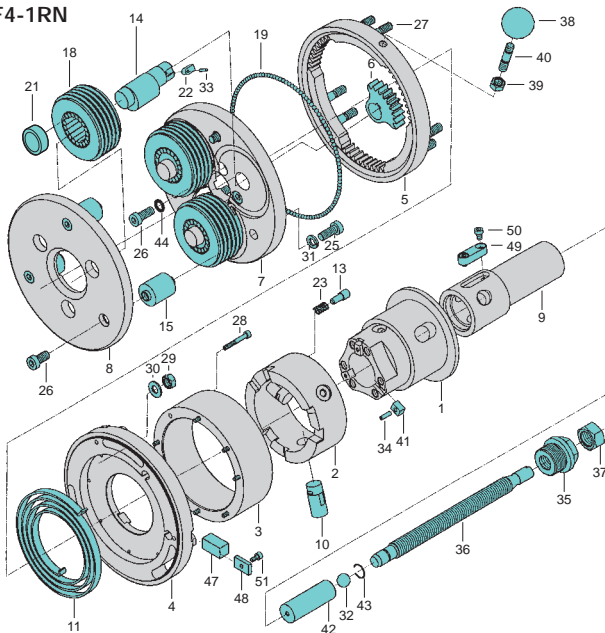
**F32RN**  
**F3-1RN**



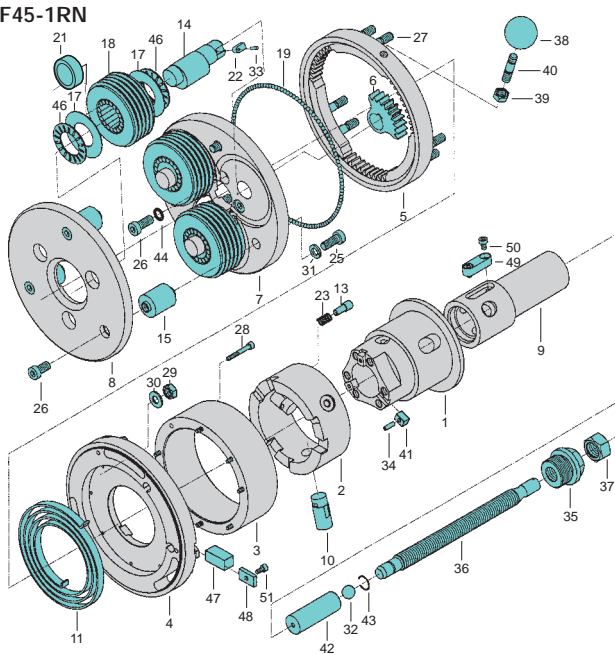
**F34-1RN**



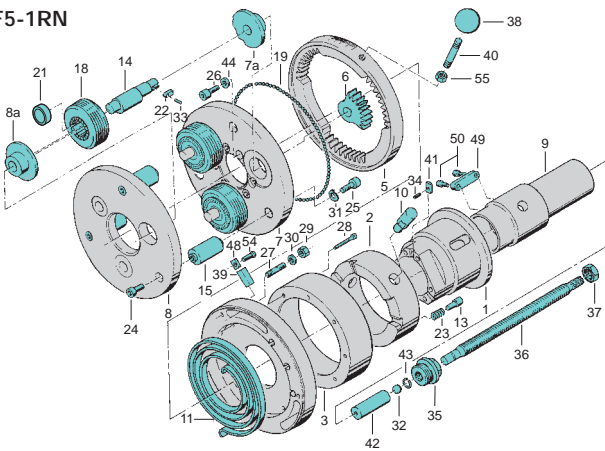
**F4-1RN**



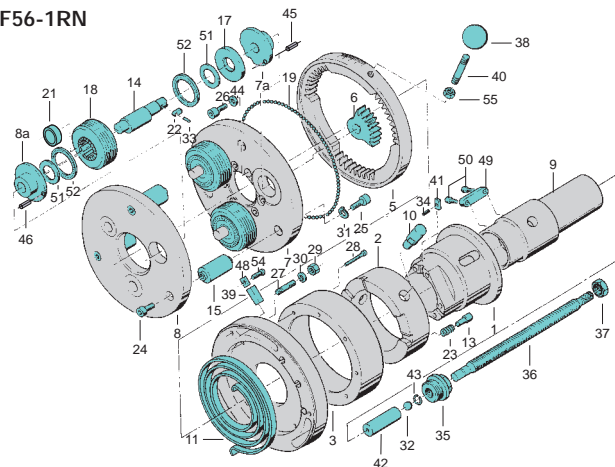
**F45-1RN**



**F5-1RN**



**F56-1RN**



**für Rechtsgewinde**

- feststehend und umlaufend verwendbar
- Rollen-Schrägstellung = 3° 30'
- Gewicht ohne Rollen = ca. 1,541 kg

**for right-hand threads**

- used stationary or rotating
- inclined position of rolls = 3° 30'
- weight without rolls = approx. 3.4 lb

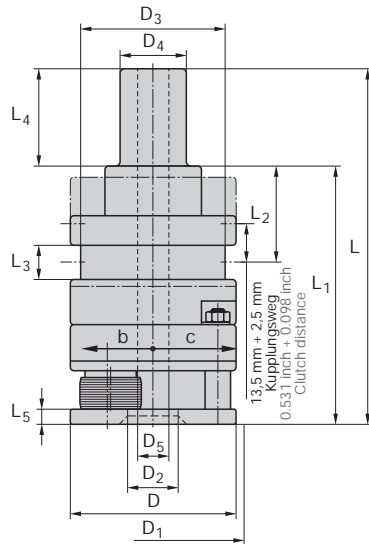
**für Linksgewinde**

- Typ K1YL
- Baumaß wie für Rechtsgewinde-Rollkopf

**for left-hand threads**

- Type K1YL
- Dimensions like right-hand thread rolling head

b = Rollkopf öffnet  
 Rolling Head opening direction  
 c = Rollkopf schließt  
 Rolling Head closing direction



**Baumaße in mm**

**Dimension in inches**

| Baumaße in mm / Dimension in inches |                |                |                |                |                |        |                |                |                |                |                |  | K1Y             |
|-------------------------------------|----------------|----------------|----------------|----------------|----------------|--------|----------------|----------------|----------------|----------------|----------------|--|-----------------|
| D                                   | D <sub>1</sub> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | D <sub>5</sub> | L      | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | L <sub>5</sub> |  | Ident No.       |
| 64                                  | 70             | 17             | 56,4           | 25,4           | 12             | 137    | 99             | 37             | 13,5           | 38,1           | 6              |  | Schaft-Ø 1 Zoll |
| 2.520"                              | 2.756"         | 0.669"         | 2.220"         | 1"             | 0.472"         | 5.394" | 3.898"         | 1.457"         | 0.531"         | 1.500"         | 0.236"         |  | Shank-Ø 1"      |
|                                     |                |                |                |                |                |        |                |                |                |                |                |  | 2169980         |

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Gewinde <b>M</b> |           |           |
|---------------------------------|-----------|-----------|
| Metric ISO Threads              |           |           |
| Nennmaß x Steigung<br>mm        | Anlauf 1k | Anlauf 2K |
|                                 | Lead 1k   | Lead 2k   |
| Nominal Size x Pitch            | Ident No. |           |
| M 6 ... 8 x 1                   | 1504564   | 1504573   |
| M 8 ... 9 x 1,25                | 1504653   | 1504671   |
| M 10 x 1,5                      | 1504715   | 1504724   |

| Metrisches ISO-Feingewinde <b>M</b> |           |           |
|-------------------------------------|-----------|-----------|
| Metric ISO Fine Pitch Threads       |           |           |
| Nennmaß x Steigung<br>mm            | Anlauf 1k | Anlauf 2K |
|                                     | Lead 1k   | Lead 2k   |
| Nominal Size x Pitch                | Ident No. |           |
| M 6 ... 8 x 0,75                    | 1504779   | 1504788   |
| M 8 ... 10 x 1                      | 1504813   | 1504822   |
| M 10 ... 11 x 1,25                  | 1505000   | 1505019   |

| Unified-Gewinde, fein <b>UNF</b> |           |           |
|----------------------------------|-----------|-----------|
| Unified Threads, Fine Pitch      |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 1/4 - 28 UNF                     | 1505625   | 1505634   |
| 5/16 ... 3/8 - 24 UNF            | 1505652   | 1505661   |
| 7/16 - 20 UNF                    | 2241471   | 2169909   |

| Unified-Gewinde, grob <b>UNC</b> |           |           |
|----------------------------------|-----------|-----------|
| Unified Threads, Coarse Pitch    |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 1/4 - 20 UNC                     | 1505545   | 1505554   |
| 5/16 - 18 UNC                    | 1505563   | 1505572   |
| 3/8 - 16 UNC                     | 1505581   | 1505590   |
| 7/16 - 14 UNC                    | 2166949   | 2166784   |

| Whitworth-Feingewinde <b>BSF</b> |           |           |
|----------------------------------|-----------|-----------|
| Whitworth Fine Pitch Threads     |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2k |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 1/4 - 26 BSF                     | 1505304   | 1505313   |
| 5/16 - 22 BSF                    | 1505322   | 1505331   |
| 3/8 - 20 BSF                     | 1505359   | 1505368   |
| 7/16 - 20 BSF                    | 2241469   | 2241470   |

| Rändel<br>Knurls  |                             |         |         |
|---|-----------------------------|---------|---------|
| Nennmaß x Steigung<br>Nominal Size x Pitch<br>mm   inch |                             | RAA     | RGE     |
| Ident No.   |                             |         |         |
| Ø 6 ... Ø 8 x 0,5                                       | Ø 0.236 ... Ø 0.315 x 0.02  | 1505901 | 1506205 |
| Ø 8 ... Ø 10 x 0,5                                      | Ø 0.315 ... Ø 0.394 x 0.02  | 2168750 | 1506214 |
| Ø 6 ... Ø 8 x 0,6                                       | Ø 0.236 ... Ø 0.315 x 0.024 | 1505910 | 1506223 |
| Ø 8 ... Ø 10 x 0,6                                      | Ø 0.315 ... Ø 0.394 x 0.024 | 1505929 | 1506232 |
| Ø 6 ... Ø 8 x 0,8                                       | Ø 0.236 ... Ø 0.315 x 0.031 | 1505947 | 1506241 |
| Ø 8 ... Ø 10 x 0,8                                      | Ø 0.315 ... Ø 0.394 x 0.031 | 1505956 | 1506250 |
| Ø 6 ... Ø 8 x 1,0                                       | Ø 0.236 ... Ø 0.315 x 0.039 | 2166321 | 1506269 |
| Ø 8 ... Ø 10 x 1,0                                      | Ø 0.315 ... Ø 0.394 x 0.039 | 1505983 | 1506278 |
| Ø 6 ... Ø 8 x 1,2                                       | Ø 0.236 ... Ø 0.315 x 0.047 | 1505992 | 1506287 |
| Ø 8 ... Ø 10 x 1,2                                      | Ø 0.315 ... Ø 0.394 x 0.047 | 1506009 | 1506296 |
| Ø 6 ... Ø 8 x 1,5                                       | Ø 0.236 ... Ø 0.315 x 0.059 | 1506027 | 1506312 |
| Ø 8 ... Ø 10 x 1,5                                      | Ø 0.315 ... Ø 0.394 x 0.059 | 1506036 | 1506321 |
| Ø 7 ... Ø 8 x 1,6                                       | Ø 0.276 ... Ø 0.315 x 0.063 | 2242104 | 2242108 |
| Ø 8 ... Ø 10 x 1,6                                      | Ø 0.315 ... Ø 0.394 x 0.063 | 2242105 | 2242109 |
| Ø 7 ... Ø 8 x 2,0                                       | Ø 0.276 ... Ø 0.315 x 0.079 | 2242106 | 2242110 |
| Ø 8 ... Ø 10 x 2,0                                      | Ø 0.315 ... Ø 0.394 x 0.079 | 2242107 | 2242111 |

| Glätten<br>Burnishing                |                   | Ident No. |
|--------------------------------------|-------------------|-----------|
| Nennmaß<br>Nominal Size<br>mm   inch |                   | Ident No. |
| Ø 6 - Ø 8                            | Ø 0.236 - Ø 0.315 | 1506330   |
| Ø 7 - Ø 10                           | Ø 0.276 - Ø 0.394 | 1506349   |

| Whitworth-Gewinde <b>BSW</b>     |           |           |
|----------------------------------|-----------|-----------|
| Whitworth Threads                |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2k |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 1/4 - 20 BSW                     | 1505215   | 1505224   |
| 5/16 - 18 BSW                    | 1505233   | 1505242   |
| 3/8 - 16 BSW                     | 1505279   | 1505288   |

| British-Association-Gewinde <b>BA</b> |           |           |
|---------------------------------------|-----------|-----------|
| British Association Threads           |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll      | Anlauf 1k | Anlauf 2K |
|                                       | Lead 1k   | Lead 2k   |
| Nominal Size x TPI                    | Ident No. |           |
| Nr. 0 - 25.4 BA                       | 1505509   | 1505518   |

| Amerikanisches Rohrgewinde <b>NPT</b> |           |
|---------------------------------------|-----------|
| American Pipe Threads                 |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll      | Anlauf 1k |
|                                       | Lead 1k   |
| Nominal Size x TPI                    | Ident No. |
| 1/16 - 27 NPT                         | 1506964   |
| 1/8 - 27 NPT                          | 1506973   |

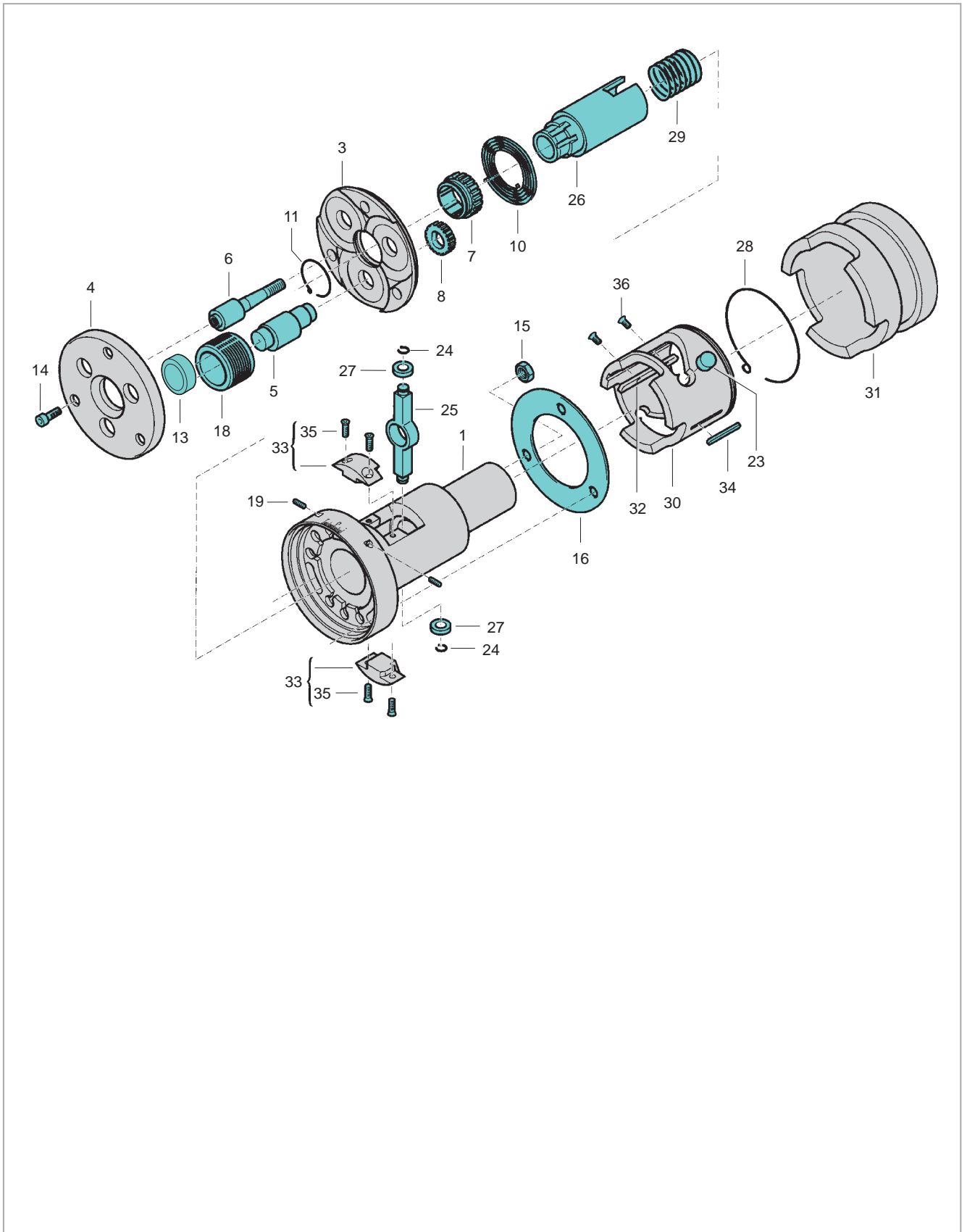
| Amerikanisches Rohrgewinde <b>NPTF</b> |           |
|--|-----------|
| American Dryseal Pipe Threads          |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll       | Anlauf 1k |
|  | Lead 1k   |
| Nominal Size x TPI                     | Ident No. |
| 1/16 - 27 NPTF                         | 2248946   |
| 1/8 - 27 NPTF                          | 2245597   |

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 0,105 bis 0,155 kg.

Thread dimensions combined in one block can be rolled with **one** set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 0.23 to 0.34 lb.

| Rollkopf<br>Rolling Head |               |  | K1Y                             | Rollkopf<br>Rolling Head |               |  | K1Y                                |
|--------------------------|---------------|--|---------------------------------|--------------------------|---------------|--|------------------------------------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                                  | Ident No.                          |
| 1                        | 1             | Körper Ø 25,4 mm<br>Body Ø 1"            | 2169979                         | 19                       | 1             | Gewindestift<br>Set screw                                      | M4 x 8 mm<br>2142062               |
| 3                        | 1             | Zwischenplatte<br>Centre plate           | 2164720                         | 23                       | 2             | Gummistopfen<br>Ø 10x 5 mm<br>Rubber shock<br>Ø 0.394 x 0.197" | 2242587                            |
| 4                        | 1             | Frontplatte<br>Front plate               | 2164721                         |                          |               |  |                                    |
| 5                        | 3             | Exzenterbolzen<br>Eccentric spindles     | 2164637                         | 24                       | 2             | Sicherungsring<br>Circlip                                      | 2142797                            |
| 6                        | 3             | Distanzbolzen<br>Spacer studs            | 2164638                         | 25                       | 1             | Kupplungshebel<br>Clutch lever                                 | 2169920                            |
| 7                        | 1             | Zahnrad<br>Center gear                   | 2164639                         | 26                       | 1             | Antriebsbuchse<br>Drive bushing                                | 2240083                            |
| 8                        | 3             | Zahnrad<br>Spur gear                     | 2164640                         | 27                       | 2             | Kurvenrolle<br>Roller bearing                                  | 2169930                            |
| 10                       | 1             | Spiralfeder<br>Coil spring               | 2241295                         | 28                       | 1             | Sicherungsring<br>Circlip                                      | 2169932                            |
| 11                       | 1             | Sicherungsring<br>Circlip                | 2164705                         | 29                       | 1             | Druckfeder<br>Pressure spring                                  | 2169977                            |
| 13                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2165072                         | 30                       | 1             | Kurvenring<br>Camring  | 2169978                            |
| 14                       | 3             | Zylinderschraube<br>Cap screw            | 2148736                         | 31                       | 1             | Schaltring<br>Operating ring                                   | 2169931                            |
| 15                       | 3             | Sechskantmutter<br>Hexagon nut           | 2148397                         | 32                       | 1             | Keil<br>Key  | 2169919                            |
| 16                       | 1             | Ringscheibe<br>Ring washer               | 2164644                         | 33                       | 2             | Kupplungseinsatz<br>Coupling plate                             | 2169913                            |
| 18                       | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual | 34                       | 1             | Passfeder<br>Fitting key                                       | 2240087                            |
| 19                       | 1             | Gewindestift<br>Set screw                | M4 x 16 mm<br>2142065           | 35                       | 4             | Zylinderschraube<br>Cap screw                                  | gehört zu Teil 33<br>included w/33 |
| 19                       | 2             | Gewindestift<br>Set screw                | M4 x 12 mm<br>2142064           | 36                       | 2             | Zylinderschraube<br>Cap screw                                  | 2245037                            |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!



**für Rechtsgewinde**

- feststehend und umlaufend verwendbar
- speziell für Feingewinde
- Rollen-Schrägstellung = 1° 50'
- Gewicht ohne Rollen = ca. 1,541 kg

**for right-hand threads**

- used stationary or rotating
- especially for rolling of Fine Pitch Threads
- inclined position of rolls = 1° 50'
- weight without rolls = approx. 3.4 lb

b = Rollkopf öffnet

Rolling Head opening direction

c = Rollkopf schließt

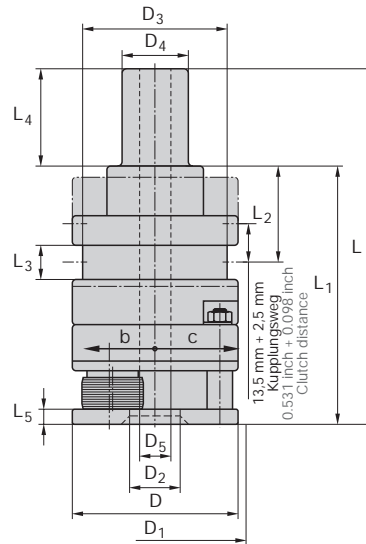
Rolling Head closing direction

**für Linksgewinde**

- Typ K12YL
- Baumaß wie für Rechtsgewinde-Rollkopf

**for left-hand threads**

- Type K12YL
- Dimensions like right-hand thread rolling head



**Baumaße in mm**

**Dimension in inches**

K12Y

| D      | D <sub>1</sub> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | D <sub>5</sub> | L      | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | L <sub>5</sub> | Ident No.       |
|--------|----------------|----------------|----------------|----------------|----------------|--------|----------------|----------------|----------------|----------------|----------------|-----------------|
| 64     | 70             | 20             | 56,4           | 25,4           | 12             | 137,9  | 99,8           | 37             | 13,5           | 38,1           | 6              | Schaft-Ø 1 Zoll |
| 2.520" | 2.756"         | 0.787"         | 2.220"         | 1"             | 0.472"         | 5.429" | 3.929"         | 1.457"         | 0.531"         | 1.500"         | 0.236"         | Shank-Ø 1"      |
|        |                |                |                |                |                |        |                |                |                |                |                | 2246440         |



für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Gewinde           |                      | M                    |  |
|----------------------------------|----------------------|----------------------|--|
| Metric ISO Threads               |                      |                      |  |
| Nennmaß x Steigung<br>mm         | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |  |
|                                  |                      | Ident No.            |  |
| M 6 ... 7 x 0,5                  | 1507516              | 1507525              |  |
| M 7 ... 8 x 0,5                  | 1507534              | 1507543              |  |
| M 6 ... 7 x 0,75                 | 1507605              | 1507614              |  |
| M 8 ... 9 x 0,75                 | 1507632              | 1507641              |  |
| M 9 ... 10 x 0,75                | 1507669              | 1507678              |  |
| M 10 ... 11 x 0,75               | 1507703              | 1507712              |  |
| M 11 ... 12 <sup>1)</sup> x 0,75 | 1507721              | 1507730              |  |
| M 8 ... 9 x 1                    | 1507767              | 1507776              |  |
| M 9 ... 10 x 1                   | 1507785              | 1507794              |  |
| M 10 ... 11 x 1                  | 1507838              | 1507847              |  |
| M 11 ... 12 <sup>1)</sup> x 1    | 1507865              | 1507874              |  |
| M 10 ... 11 x 1,25               | 1507892              | 1507909              |  |
| M 11 ... 12 <sup>1)</sup> x 1,25 | 1507918              | 1507927              |  |
| M 12 <sup>1)</sup> x 1,5         | 1507963              | 1507972              |  |

| Unified-Gewinde, fein UN/UNF/UNS/UNEF |                      |                      |
|---------------------------------------|----------------------|----------------------|
| Unified Threads, Fine Pitch           |                      |                      |
| Nennmaß x Gangzahl<br>auf 1 Zoll      | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |
|                                       |                      |                      |
| 1/4 ... 5/16 - 40 UNS                 | 2241721              | 2169907              |
| 5/16 ... 3/8 - 36 UNF                 | 2242136              | 2242137              |
| 7/16 - 36 UNF                         | 2242138              | 2242139              |
| 5/16 ... 3/8 - 32 UNEF                | 1508105              | 1508114              |
| 3/8 ... 7/16 - 32 UN                  | 2242122              | 2242123              |
| 7/16 ... 1/2 - 32 UNF                 | 2242140              | 2242141              |
| 3/8 ... 7/16 - 28 UNF                 | 2242142              | 2242143              |
| 7/16 ... 1/2 <sup>1)</sup> - 28 UNEF  | 1508123              | 1508132              |
| 7/16 ... 1/2 <sup>1)</sup> - 26 UNF   | 2242144              | 2242145              |
| 3/8 ... 7/16 - 24 UNS                 | 2167553              | 1508150              |
| 7/16 ... 1/2 <sup>1)</sup> - 24 UNS   | 1508203              | 2242147              |
| 7/16 ... 1/2 <sup>1)</sup> - 22 UNF   | 2242146              | 2242148              |
| 7/16 ... 1/2 <sup>1)</sup> - 20 UNF   | 1508178              | 1508187              |

| Whitworth-Feingewinde                |                      | BSFS                 |  |
|--------------------------------------|----------------------|----------------------|--|
| Whitworth Fine Pitch Threads         |                      |                      |  |
| Nennmaß x Gangzahl<br>auf 1 Zoll     | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |  |
|                                      |                      | Ident No.            |  |
| 1/4 ... 5/16 - 32 BSFS               | 2242112              | 2242113              |  |
| 5/16 ... 3/8 - 26 BSFS               | 2242114              | 2242115              |  |
| 5/16 ... 3/8 - 32 BSFS               | 2242118              | 2242119              |  |
| 7/16 ... 1/2 <sup>1)</sup> - 26 BSFS | 2242126              | 2242127              |  |
| 7/16 ... 1/2 <sup>1)</sup> - 20 BSFS | 2242134              | 2242135              |  |

| Whitworth-Rohrgewinde            |                      |                      | G |
|----------------------------------|----------------------|----------------------|---|
| Whitworth Pipe Threads           |                      |                      |   |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k |   |
|                                  |                      | Ident No.            |   |
| G 1/8 - 28                       | 1508052              | 1508061              |   |
| G 1/4 <sup>1)</sup> - 19         | 1508089              | 1508098              |   |

| Amerikanisches Rohrgewinde       |                      | NPT       |
|----------------------------------|----------------------|-----------|
| American Pipe Threads            |                      |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k | Ident No. |
|                                  |                      |           |
| 1/8 - 27 NPT                     |                      | 2164716   |
| 1/4 - 18 NPT                     |                      | 2167396   |

| Amerikanisches Rohrgewinde       |                      | NPTF      |
|----------------------------------|----------------------|-----------|
| American Dryseal Pipe Threads    |                      |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k | Ident No. |
|                                  |                      |           |
| 1/8 - 27 NPTF                    |                      | 2166823   |
| 1/4 - 18 NPTF                    |                      | 2243188   |

<sup>1)</sup> Längenbegrenzung  
Für Kurzgewinde bis 14 mm Länge einschließlich Auslauf.

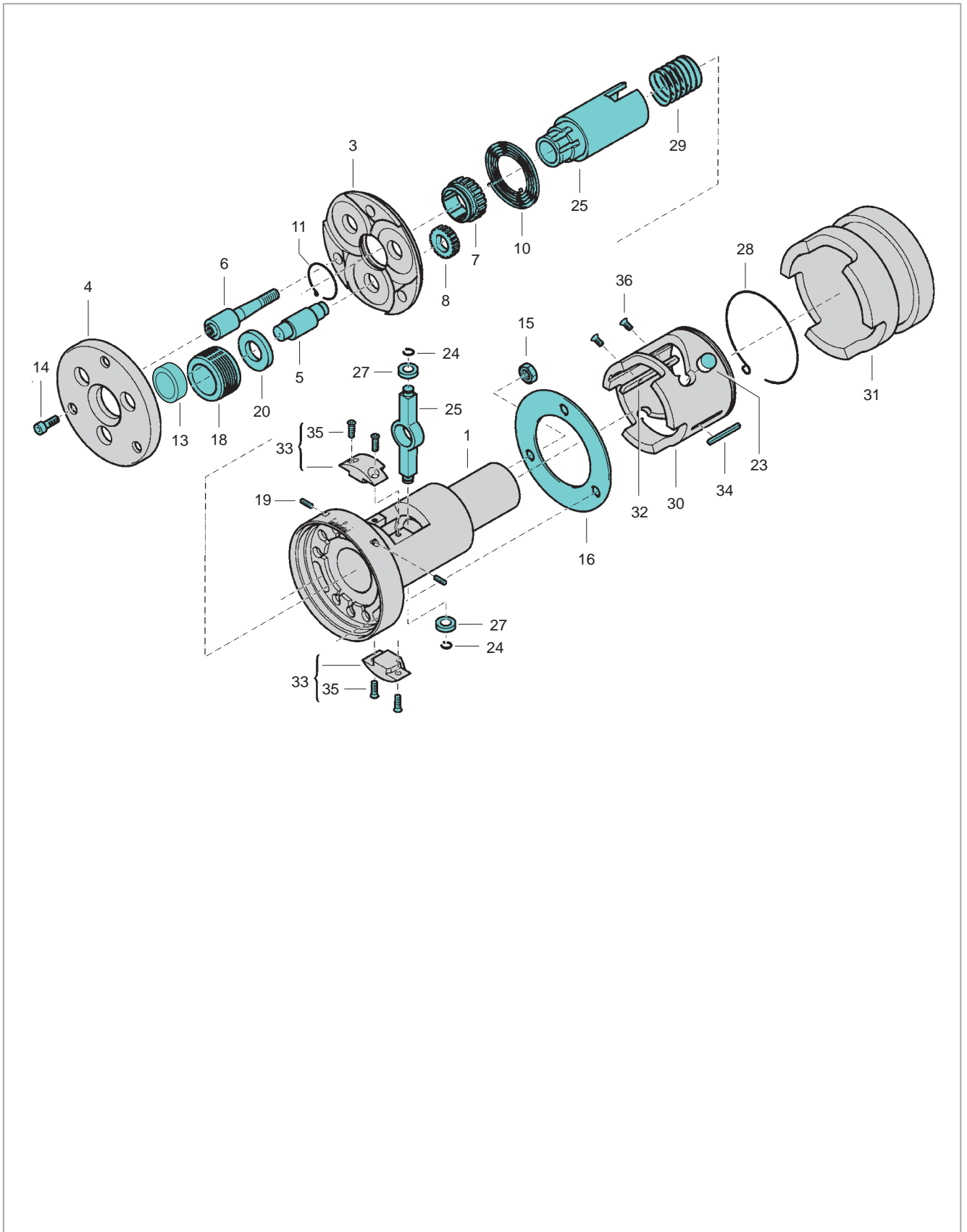
<sup>1)</sup> Length limitation  
For short threads up to 14 mm/0.551" including runout.

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 0,070 bis 0,130 kg.

Thread dimensions combined in one block can be rolled with **one** set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 0.15 to 0.29 lb.

| Rollkopf<br>Rolling Head |               |  | K12Y                            | Rollkopf<br>Rolling Head |               |   | K12Y                               |
|--------------------------|---------------|--|---------------------------------|--------------------------|---------------|---|------------------------------------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                                   | Ident No.                          |
| 1                        | 1             | Körper Ø 25,4 mm<br>Body Ø 1"            | 2169979                         | 20                       | 3             | Scheibe<br>Washer   | 2144741                            |
| 3                        | 1             | Zwischenplatte<br>Centre plate           | 2164756                         | 23                       | 2             | Gummistopfen<br>Ø 10 x 5 mm<br>Rubber shock<br>Ø 0.394 x 0.197" | 2242587                            |
| 4                        | 1             | Frontplatte<br>Front plate               | 2164757                         |                          |               |   |                                    |
| 5                        | 3             | Exzenterbolzen<br>Eccentric spindles     | 2164737                         | 24                       | 2             | Sicherungsring<br>Circlip                                       | 2142797                            |
| 6                        | 3             | Distanzbolzen<br>Spacer studs            | 2164738                         | 25                       | 1             | Kupplungshebel<br>Clutch lever                                  | 2169920                            |
| 7                        | 1             | Zahnrad<br>Center gear                   | 2164739                         | 26                       | 1             | Antriebsbuchse<br>Drive bushing                                 | 2240083                            |
| 8                        | 3             | Zahnrad<br>Spur gear                     | 2164740                         | 27                       | 2             | Kurvenrolle<br>Roller bearing                                   | 2169930                            |
| 10                       | 1             | Spiralfeder<br>Coil spring               | 2241295                         | 28                       | 1             | Sicherungsring<br>Circlip                                       | 2169932                            |
| 11                       | 1             | Sicherungsring<br>Circlip                | 2164642                         | 29                       | 1             | Druckfeder<br>Pressure spring                                   | 2169977                            |
| 13                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2173512                         | 30                       | 1             | Kurvenring<br>Camring   | 2169978                            |
| 14                       | 3             | Zylinderschraube<br>Cap screw            | 2148736                         | 31                       | 1             | Schaltring<br>Operating ring                                    | 2169931                            |
| 15                       | 3             | Sechskantmutter<br>Hexagon nut           | 2148397                         | 32                       | 1             | Keil<br>Key   | 2169919                            |
| 16                       | 1             | Ringscheibe<br>Ring washer               | 2164644                         | 33                       | 2             | Kupplungseinsatz<br>Coupling plate                              | 2169913                            |
| 18                       | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual | 34                       | 1             | Passfeder<br>Fitting key  | 2240087                            |
| 19                       | 1             | Gewindestift<br>Set screw                | M4 x 16 mm<br>2142065           | 35                       | 4             | Zylinderschraube<br>Cap screw                                   | gehört zu Teil 33<br>included w/33 |
| 19                       | 2             | Gewindestift<br>Set screw                | M4 x 12 mm<br>2142064           | 36                       | 2             | Zylinderschraube<br>Cap screw                                   | 2245037                            |
| 19                       | 1             | Gewindestift<br>Set screw                | M4 x 8 mm<br>2142062            |                          |               |   |                                    |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
 When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!



**für Rechtsgewinde**

- feststehend und umlaufend verwendbar
- Rollen-Schrägstellung = 3°
- Gewicht ohne Rollen = ca. 3,760 kg

**for right-hand threads**

- used stationary or rotating
- inclined position of rolls = 3°
- weight without rolls = approx. 8.3 lb

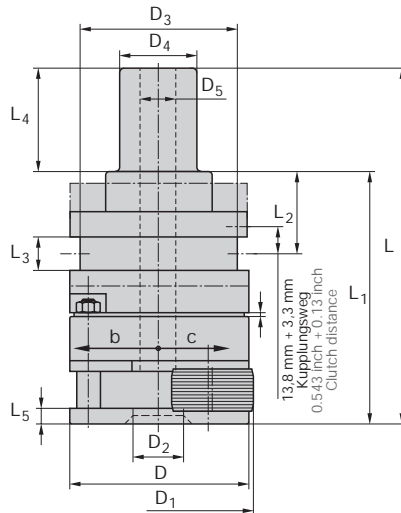
**für Linksgewinde**

- Typ K2YL
- Baumaß wie für Rechtsgewinde-Rollkopf

**for left-hand threads**

- Type K2YL
- Dimensions like right-hand thread rolling head

b = Rollkopf öffnet  
Rolling Head opening direction  
c = Rollkopf schließt  
Rolling Head closing direction



| Baumaße in mm<br>Dimension in inches |                |                |                |                |                |                 |                 |                |                |                |                |  | K2Y  |
|--------------------------------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|----------------|----------------|----------------|----------------|--|--|
| D                                    | D <sub>1</sub> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | D <sub>5</sub> | L               | L <sub>1</sub>  | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | L <sub>5</sub> |  | Ident No.  |
| 88<br>3.465"                         | 93,5<br>3.681" | 24<br>0.945"   | 77,7<br>3.059" | 38,1<br>1 1/2" | 17,6<br>0.693" | 175,5<br>6.909" | 124,5<br>4.902" | 40,9<br>1.610" | 16,6<br>0.654" | 51<br>2.008"   | 7,5<br>0.295"  |  | Schaft-Ø 1 1/2 Zoll<br>Shank-Ø 1 1/2"<br>2245014 |

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



**Metrisches ISO-Gewinde M**  
Metric ISO Threads

| Nennmaß x Steigung<br>mm | Anlauf 1k | Anlauf 2K |
|--------------------------|-----------|-----------|
|                          | Lead 1k   | Lead 2k   |
| Nominal Size x Pitch     | Ident No. |           |
| M 8 ... 10 x 1,25        | 1509569   | 1509578   |
| M 10 ... 12 x 1,5        | 1509747   | 1509756   |
| M 12 ... 14 x 1,75       | 1509970   | 1509989   |
| M 14 ... 16 x 2          | 1510085   | 1510094   |

**Metrisches ISO-Feingewinde M**  
Metric ISO Fine Pitch Threads

| Nennmaß x Steigung<br>mm | Anlauf 1k | Anlauf 2K |
|--------------------------|-----------|-----------|
|                          | Lead 1k   | Lead 2k   |
| Nominal Size x Pitch     | Ident No. |           |
| M 8 ... 10 x 1           | 1509532   | 1509541   |
| M 10 ... 12 x 1,25       | 1509676   | 1509685   |
| M 12 ... 14 x 1,5        | 1509925   | 1509934   |

**Unified-Gewinde, fein UNF**  
Unified Threads, Fine Pitch

| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|----------------------------------|-----------|-----------|
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 5/16 ... 3/8 – 24 UNF            | 1510717   | 1510726   |
| 7/16 ... 1/2 – 20 UNF            | 1510744   | 1510753   |
| 9/16 ... 5/8 – 18 UNF            | 1510762   | 1510771   |

**Unified-Gewinde, grob UNC**  
Unified Threads, Coarse Pitch

| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2K |
|----------------------------------|-----------|-----------|
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 5/16 – 18 UNC                    | 1510502   | 1510511   |
| 3/8 – 16 UNC                     | 1510548   | 1510566   |
| 7/16 – 14 UNC                    | 1510575   | 1510584   |
| 1/2 – 13 UNC                     | 1510593   | 1510600   |
| 9/16 – 12 UNC                    | 1510628   | 1510637   |
| 5/8 – 11 UNC                     | 1510646   | 1510655   |

**Whitworth-Rohrgewinde G**  
Whitworth Pipe Threads

| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2k |
|----------------------------------|-----------|-----------|
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| G 1/4 – 19                       | 1510450   | 2168838   |

**Rändel Knurls**

| Nennmaß x Steigung<br>Nominal Size x Pitch<br>mm   inch | RAA       | RGE     |
|---|-----------|---------|
|   | Ident No. |         |
| Ø 8 ... Ø 10 x 0,5   Ø 0.315 ... Ø 0.394 x 0.02         | 2169065   | 2242649 |
| Ø 10 ... Ø 12 x 0,5   Ø 0.394 ... Ø 0.472 x 0.02        | 2168390   | 2242650 |
| Ø 12 ... Ø 14 x 0,5   Ø 0.472 ... Ø 0.551 x 0.02        | 2169722   | 2242651 |
| Ø 14 ... Ø 16 x 0,5   Ø 0.551 ... Ø 0.63 x 0.02         | 2165306   | 2242652 |
| Ø 8 ... Ø 10 x 0,6   Ø 0.315 ... Ø 0.394 x 0.024        | 2168916   | 2242653 |
| Ø 10 ... Ø 12 x 0,6   Ø 0.394 ... Ø 0.472 x 0.024       | 2165181   | 2242654 |
| Ø 12 ... Ø 14 x 0,6   Ø 0.472 ... Ø 0.551 x 0.024       | 2240175   | 1511119 |
| Ø 14 ... Ø 16 x 0,6   Ø 0.551 ... Ø 0.63 x 0.024        | 1510904   | 2242655 |
| Ø 8 ... Ø 10 x 0,8   Ø 0.315 ... Ø 0.394 x 0.031        | 2242640   | 1511128 |
| Ø 10 ... Ø 12 x 0,8   Ø 0.394 ... Ø 0.472 x 0.031       | 1510913   | 1511137 |
| Ø 12 ... Ø 14 x 0,8   Ø 0.472 ... Ø 0.551 x 0.031       | 2168836   | 1511146 |
| Ø 14 ... Ø 16 x 0,8   Ø 0.551 ... Ø 0.63 x 0.031        | 1510922   | 1511155 |
| Ø 8 ... Ø 10 x 1,0   Ø 0.315 ... Ø 0.394 x 0.039        | 1510931   | 1511173 |
| Ø 10 ... Ø 12 x 1,0   Ø 0.394 ... Ø 0.472 x 0.039       | 1510940   | 1511182 |
| Ø 12 ... Ø 14 x 1,0   Ø 0.472 ... Ø 0.551 x 0.039       | 1510959   | 1511191 |
| Ø 14 ... Ø 16 x 1,0   Ø 0.551 ... Ø 0.63 x 0.039        | 1510968   | 1511208 |
| Ø 8 ... Ø 10 x 1,2   Ø 0.315 ... Ø 0.394 x 0.047        | 2168835   | 2242656 |
| Ø 10 ... Ø 12 x 1,2   Ø 0.394 ... Ø 0.472 x 0.047       | 1510986   | 2167590 |
| Ø 12 ... Ø 14 x 1,2   Ø 0.472 ... Ø 0.551 x 0.047       | 1510995   | 2168410 |
| Ø 14 ... Ø 16 x 1,2   Ø 0.551 ... Ø 0.63 x 0.047        | 1511002   | 1511217 |
| Ø 8 ... Ø 10 x 1,5   Ø 0.315 ... Ø 0.394 x 0.059        | 2168834   | 2169196 |
| Ø 10 ... Ø 12 x 1,5   Ø 0.394 ... Ø 0.472 x 0.059       | 1511011   | 2168833 |
| Ø 12 ... Ø 14 x 1,5   Ø 0.472 ... Ø 0.551 x 0.059       | 1511020   | 2166950 |
| Ø 14 ... Ø 16 x 1,5   Ø 0.551 ... Ø 0.63 x 0.059        | 2167772   | 2168962 |
| Ø 8 ... Ø 10 x 1,6   Ø 0.315 ... Ø 0.394 x 0.063        | 2242641   | 2242657 |
| Ø 10 ... Ø 12 x 1,6   Ø 0.394 ... Ø 0.472 x 0.063       | 2242642   | 2242658 |
| Ø 12 ... Ø 14 x 1,6   Ø 0.472 ... Ø 0.551 x 0.063       | 2242643   | 2242659 |
| Ø 14 ... Ø 16 x 1,6   Ø 0.551 ... Ø 0.63 x 0.063        | 2242644   | 2168821 |
| Ø 9 ... Ø 10 x 2,0   Ø 0.354 ... Ø 0.394 x 0.079        | 2242645   | 2242660 |
| Ø 10 ... Ø 12 x 2,0   Ø 0.394 ... Ø 0.472 x 0.079       | 2242646   | 2242661 |
| Ø 12 ... Ø 14 x 2,0   Ø 0.472 ... Ø 0.551 x 0.079       | 2242647   | 2242661 |
| Ø 14 ... Ø 16 x 2,0   Ø 0.551 ... Ø 0.63 x 0.079        | 2242648   | 2242663 |

**Glätten  
Burnishing**

| Nennmaß<br>Nominal Size<br>mm   inch | Ident No. |
|--------------------------------------|-----------|
| Ø 8 – Ø 10   Ø 0.315 – Ø 0.394       | 1511253   |
| Ø 10 – Ø 12   Ø 0.394 – Ø 0.472      | 1511262   |
| Ø 12 – Ø 14   Ø 0.472 – Ø 0.551      | 1511271   |
| Ø 14 – Ø 16   Ø 0.551 – Ø 0.63       | 1511280   |

**Whitworth-Gewinde BSW**  
Whitworth Threads

| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2k |
|----------------------------------|-----------|-----------|
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 5/16 – 18 BSW                    | 1510209   | 1510218   |
| 3/8 – 16 BSW                     | 1510236   | 1510245   |
| 7/16 – 14 BSW                    | 1510263   | 1510272   |
| 1/2 ... 9/16 – 12 BSW            | 1510281   | 1510290   |
| 5/8 – 11 BSW                     | 1510316   | 1510325   |

**Whitworth-Feingewinde BSF**  
Whitworth Fine Pitch Threads

| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2k |
|----------------------------------|-----------|-----------|
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| 5/16 – 22 BSF                    | 1510334   | 2240407   |
| 3/8 – 20 BSF                     | 1510352   | 1510361   |
| 7/16 – 18 BSF                    | 1510370   | 1510389   |
| 1/2 ... 9/16 – 16 BSF            | 1510398   | 1510405   |
| 5/8 ... 9/16 – 14 BSF            | 1510414   | 1510423   |

| Amerikanisches Rohrgewinde<br>American Pipe Threads    |                      | NPT       |
|--|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Ident No. |
| 1/4 - 18 NPT   | 2164717              |           |

| Rundgewinde<br>Knuckle Form Threads                    |                      |                      | Rd        |
|--|----------------------|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k | Ident No. |
| Rd 16 x 1/8  | 2169921              | 2166994              |           |

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 0,245 bis 0,425 kg.

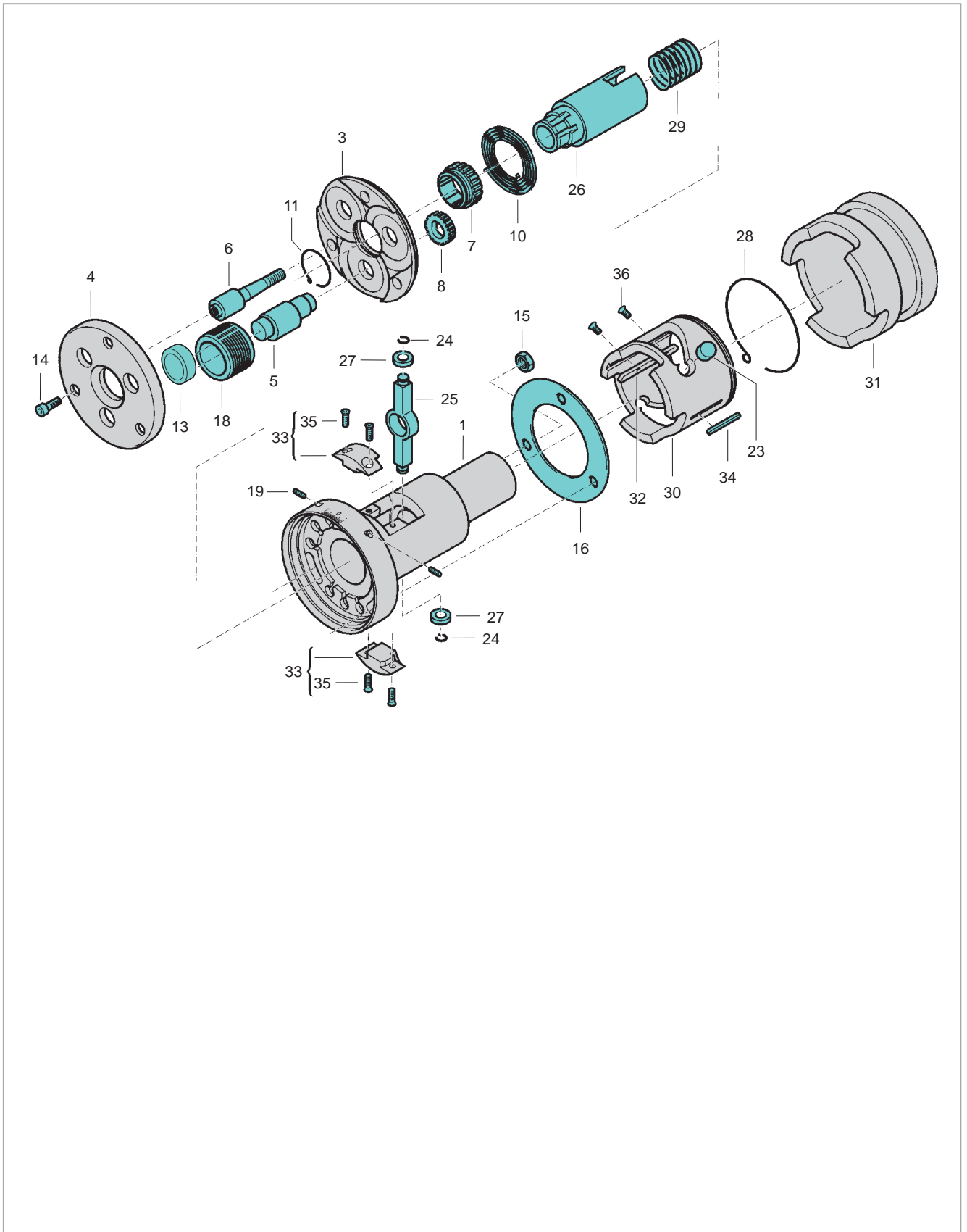
Thread dimensions combined in one block can be rolled with **one** set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 0.54 to 0.94 lb.

| Amerikanisches Rohrgewinde<br>American Dryseal Pipe Threads |                      | NPTF      |
|---|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI      | Anlauf 1k<br>Lead 1k | Ident No. |
| 1/4 - 18 NPTF   | 2168616              |           |

### Ersatzteile für Rollköpfe K2Y Spare Parts for Rolling Heads K2Y

| Rollkopf<br>Rolling Head |               |  | K2Y                             | Rollkopf<br>Rolling Head |               |   | K2Y                                |
|--------------------------|---------------|--|---------------------------------|--------------------------|---------------|---|------------------------------------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                                   | Ident No.                          |
| 1                        | 1             | Körper Ø 38,1 mm<br>Body Ø 1 1/2"        | 2245025                         | 19                       | 1             | Gewindestift<br>Set screw                                       | M4 x 10 mm<br>2142063              |
| 3                        | 1             | Zwischenplatte<br>Centre plate           | 2164897                         | 23                       | 2             | Gummistopfen<br>Ø 13 x 7 mm<br>Rubber shock<br>Ø 0.518 x 0.276" | 2245035                            |
| 4                        | 1             | Frontplatte<br>Front plate               | 2164898                         |                          |               |   |                                    |
| 5                        | 3             | Exzenterbolzen<br>Eccentric spindles     | 2164770                         | 24                       | 2             | Sicherungsring<br>Circlip                                       | 2245036                            |
| 6                        | 3             | Distanzbolzen<br>Spacer studs            | 2164771                         | 25                       | 1             | Kupplungshebel<br>Clutch lever                                  | 2245015                            |
| 7                        | 1             | Zahnrad<br>Center gear                   | 2164772                         | 26                       | 1             | Antriebsbuchse<br>Drive bushing                                 | 2245016                            |
| 8                        | 3             | Zahnrad<br>Spur gear                     | 2164773                         | 27                       | 2             | Kurvenrolle<br>Roller bearing                                   | 2245017                            |
| 10                       | 1             | Spiralfeder<br>Coil spring               | 2167847                         | 28                       | 1             | Sicherungsring<br>Circlip                                       | 2245018                            |
| 11                       | 1             | Sicherungsring<br>Circlip                | 2164775                         | 29                       | 1             | Druckfeder<br>Pressure spring                                   | 2245019                            |
| 13                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2164887                         | 30                       | 1             | Kurvenring<br>Camring   | 2245020                            |
| 14                       | 3             | Zylinderschraube<br>Cap screw            | 2142999                         | 31                       | 1             | Schaltring<br>Operating ring                                    | 2245021                            |
| 15                       | 3             | Sechskantmutter<br>Hexagon nut           | 2148393                         | 32                       | 1             | Keil<br>Key   | 2245022                            |
| 16                       | 1             | Ringscheibe<br>Ring washer               | 2245034                         | 33                       | 2             | Kupplungseinsatz<br>Coupling plate                              | 2245023                            |
| 18                       | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual | 34                       | 1             | Passfeder<br>Fitting key  | 2245024                            |
| 19                       | 1             | Gewindestift<br>Set screw                | M4 x 25 mm<br>2142066           | 35                       | 4             | Zylinderschraube<br>Cap screw                                   | gehört zu Teil 33<br>included w/33 |
| 19                       | 2             | Gewindestift<br>Set screw                | M4 x 16 mm<br>2142065           | 36                       | 2             | Zylinderschraube<br>Cap screw                                   | 1045131                            |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!



**für Rechtsgewinde**

- feststehend und umlaufend verwendbar
- speziell für Feingewinde
- Rollen-Schrägstellung = 1° 25'
- Gewicht ohne Rollen = ca. 3,806 kg

**for right-hand threads**

- used stationary or rotating
- especially for rolling of Fine Pitch Threads
- inclined position of rolls = 1° 25'
- weight without rolls = approx. 8.4 lb

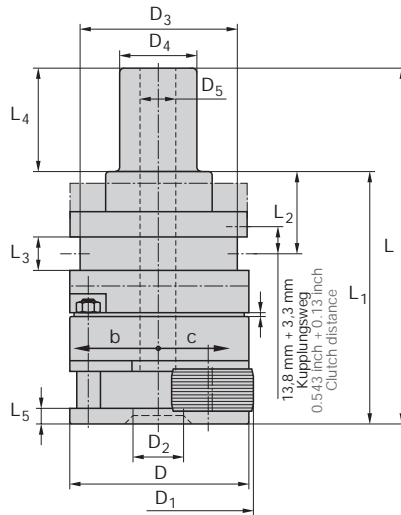
**für Linksgewinde**

- Typ K23YL
- Baumaß wie für Rechtsgewinde-Rollkopf

**for left-hand threads**

- Type K23YL
- Dimensions like right-hand thread rolling head

b = Rollkopf öffnet  
 Rolling Head opening direction  
 c = Rollkopf schließt  
 Rolling Head closing direction



| Baumaße in mm<br>Dimension in inches |                |                |                |                |                |        |                |                |                |                |                | K23Y                |
|--------------------------------------|----------------|----------------|----------------|----------------|----------------|--------|----------------|----------------|----------------|----------------|----------------|---------------------|
| D                                    | D <sub>1</sub> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | D <sub>5</sub> | L      | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | L <sub>5</sub> | Ident No.           |
| 88                                   | 93,5           | 28             | 77,7           | 38,1           | 17,6           | 176,6  | 125,6          | 40,9           | 16,6           | 51             | 7,5            | Schaft-Ø 1 1/2 Zoll |
| 3.465"                               | 3.681"         | 1.102"         | 3.059"         | 1 1/2"         | 0.693"         | 6.953" | 4.945"         | 1.610"         | 0.654"         | 2.008"         | 0.295"         | Shank-Ø 1 1/2"      |
|                                      |                |                |                |                |                |        |                |                |                |                |                | 2246441             |



für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Feingewinde M                  |           |           |
|---|-----------|-----------|
| Metric ISO Fine Pitch Threads                 |           |           |
| Nennmaß x Steigung<br>mm                      | Anlauf 1k | Anlauf 2K |
|   | Lead 1k   | Lead 2k   |
| Nominal Size x Pitch                          | Ident No. |           |
| M 8 ... 10 x 0,5                              | 1511725   | 2242958   |
| M 8 ... 10 x 0,75                             | 1511707   | 1511716   |
| M 10 ... 12 x 0,75                            | 1511743   | 1511752   |
| M 10 ... 12 x 1                               | 1511770   | 1511789   |
| M 12 ... 14 x 1                               | 1511798   | 1511814   |
| M 14 ... 16 x 1                               | 1511887   | 1511912   |
| M 16 ... 18 <sup>1)</sup> x 1                 | 1511985   | 1511994   |
| M 18 <sup>1)</sup> ... 20 <sup>1)</sup> x 1   | 1512074   | 1512083   |
| M 14 ... 16 x 1,25                            | 1511949   | 1511958   |
| M 16 ... 18 <sup>1)</sup> x 1,5               | 1512029   | 1512038   |
| M 18 <sup>1)</sup> ... 20 <sup>1)</sup> x 1,5 | 1512127   | 1512136   |
| M 20 <sup>1)</sup> ... 22 <sup>1)</sup> x 1,5 | 1512172   | 1512181   |

| Unified-Gewinde, fein UN/UNF/UNEF                 |           |           |
|---|-----------|-----------|
| Unified Threads, Fine Pitch                       |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll                  | Anlauf 1k | Anlauf 2K |
|   | Lead 1k   | Lead 2k   |
| Nominal Size x TPI                                | Ident No. |           |
| 5/16 ... 3/8 -32 UNF                              | 1512403   | 1512412   |
| 3/8 ... 7/16 -32 UNF                              | 2242901   | 2242902   |
| 7/16 ... 1/2 -28 UNF                              | 1512378   | 2242903   |
| 7/16 ... 1/2 -32 UN                               | 2240057   | 2168596   |
| 1/2 ... 9/16 -20 UN                               | 1512421   | 1512430   |
| 1/2 ... 9/16 -28 UN                               | 2242730   | 2242905   |
| 1/2 ... 9/16 -32 UN                               | 2242906   | 2242907   |
| 9/16 ... 5/8 -18 UNF                              | 1512494   | 1512500   |
| 9/16 ... 5/8 -20 UN                               | 2168849   | 2168772   |
| 9/16 ... 5/8 -24 UNF                              | 2169198   | 2242908   |
| 9/16 ... 5/8 -28 UN                               | 2242288   | 2242909   |
| 9/16 ... 5/8 -32 UN                               | 2242087   | 2242910   |
| 5/8 ... 11/16 <sup>1)</sup> -16 UN                | 2242911   | 2242912   |
| 5/8 ... 11/16 <sup>1)</sup> -20 UN                | 2242913   | 2242914   |
| 5/8 ... 11/16 <sup>1)</sup> -24 UNF               | 2242915   | 2242916   |
| 5/8 ... 11/16 <sup>1)</sup> -28 UN                | 2242917   | 2242918   |
| 11/16 <sup>1)</sup> ... 3/4 <sup>1)</sup> -16 UNF | 1512449   | 1512458   |
| 11/16 <sup>1)</sup> ... 3/4 <sup>1)</sup> -20 UNF | 1512387   | 1512396   |
| 3/4 <sup>1)</sup> ... 13/16 <sup>1)</sup> -16 UN  | 2245452   | 2242920   |
| 3/4 <sup>1)</sup> ... 13/16 <sup>1)</sup> -20 UNF | 2242921   | 2242922   |
| 13/16 <sup>1)</sup> ... 7/8 <sup>1)</sup> -20 UNF | 2242923   | 2242924   |

| Whitworth-Rohrgewinde G          |           |           |
|----------------------------------|-----------|-----------|
| Whitworth Pipe Threads           |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2k |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| G 1/8 - 28                       | 1512305   | 1512314   |
| G 1/4 - 19                       | 1512323   | 1512332   |
| G 3/8 <sup>1)</sup> - 19         | 1512341   | 1512350   |
| G 1/2 <sup>1)</sup> - 14         | 1512519   | 2168208   |

| Whitworth-Feingewinde BSF                          |           |           |
|--|-----------|-----------|
| Whitworth Fine Pitch Threads                       |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll                   | Anlauf 1k | Anlauf 2k |
|  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI                                 | Ident No. |           |
| 5/16 ... 3/8 -32 BSFS                              | 2242881   | 2242882   |
| 7/16 ... 1/2 -26 BSFS                              | 2168872   | 2242883   |
| 1/2 ... 9/16 -20 BSFS                              | 2240199   | 2242884   |
| 1/2 ... 9/16 -26 BSFS                              | 2242885   | 2242886   |
| 9/16 ... 5/8 -20 BSFS                              | 2240198   | 2242887   |
| 9/16 ... 5/8 -26 BSFS                              | 2242888   | 2242889   |
| 5/8 ... 11/16 <sup>1)</sup> -20 BSFS               | 2242890   | 2242891   |
| 5/8 ... 11/16 <sup>1)</sup> -26 BSFS               | 2242892   | 2242893   |
| 3/4 <sup>1)</sup> ... 13/16 <sup>1)</sup> -26 BSFS | 2242894   | 2242895   |
| 3/4 <sup>1)</sup> ... 13/16 <sup>1)</sup> -16 BSFS | 2245304   | 2245305   |
| 3/4 <sup>1)</sup> ... 13/16 <sup>1)</sup> -20 BSFS | 2242897   | 2242898   |
| 13/16 <sup>1)</sup> ... 7/8 <sup>1)</sup> -20 BSFS | 2242899   | 2242900   |

| Amerikanisches Rohrgewinde NPT   |           |
|----------------------------------|-----------|
| American Pipe Threads            |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k |
|                                  | Lead 1k   |
| Nominal Size x TPI               | Ident No. |
| 1/8 - 27 NPT                     | 2165335   |
| 1/4 - 18 NPT                     | 2164611   |
| 3/8 - 18 NPT                     | 2166779   |

| Amerikanisches Rohrgewinde NPTF  |           |
|----------------------------------|-----------|
| American Dryseal Pipe Threads    |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k |
|                                  | Lead 1k   |
| Nominal Size x TPI               | Ident No. |
| 1/8 - 27 NPTF                    | 2164629   |
| 1/4 - 18 NPTF                    | 2166947   |
| 3/8 - 18 NPTF                    | 2168651   |

<sup>1)</sup> Für Kurzgewinde bis 19 mm Länge einschließlich Auslauf.

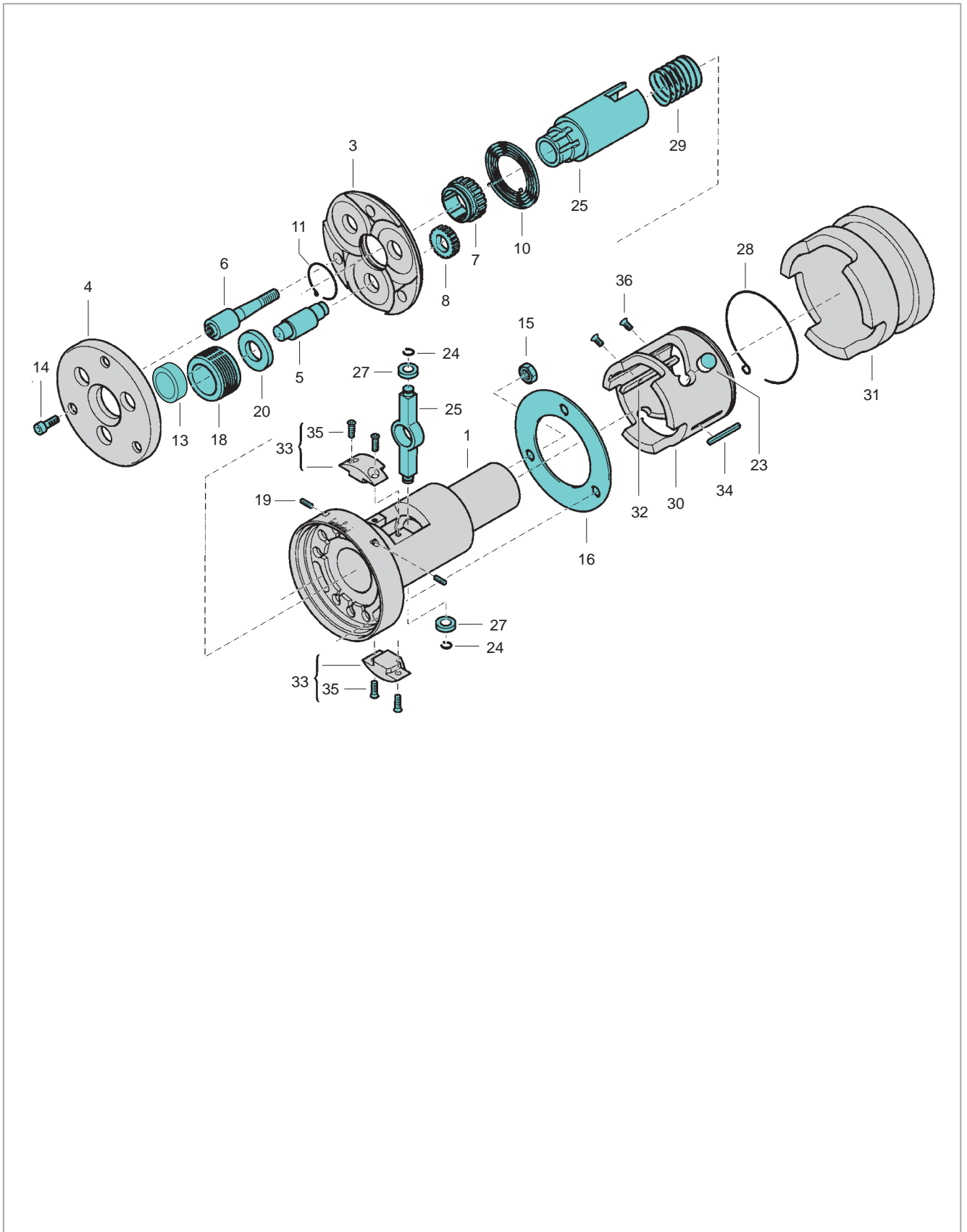
<sup>1)</sup> For short threads up to 19 mm/0.748" including runout.

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 0,170 bis 0,320 kg.

Thread dimensions combined in one block can be rolled with **one** set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 0.37 to 0.71 lb.

| Rollkopf<br>Rolling Head |               |  | K23Y                            | Rollkopf<br>Rolling Head |               |   | K23Y                               |
|--------------------------|---------------|--|---------------------------------|--------------------------|---------------|---|------------------------------------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                                   | Ident No.                          |
| 1                        | 1             | Körper Ø 38,1 mm<br>Body Ø 1 1/2"        | 2245025                         | 20                       | 3             | Scheibe<br>Washer   | 2164935                            |
| 3                        | 1             | Zwischenplatte<br>Centre plate           | 2164927                         | 23                       | 2             | Gummistopfen<br>Ø 13 x 7 mm<br>Rubber shock<br>Ø 0.512 x 0.276" | 2245035                            |
| 4                        | 1             | Frontplatte<br>Front plate               | 2164928                         |                          |               |   |                                    |
| 5                        | 3             | Exzenterbolzen<br>Eccentric spindles     | 2164931                         | 24                       | 2             | Sicherungsring<br>Circlip                                       | 2245036                            |
| 6                        | 3             | Distanzbolzen<br>Spacer studs            | 2164932                         | 25                       | 1             | Kupplungshebel<br>Clutch lever                                  | 2245015                            |
| 7                        | 1             | Zahnrad<br>Center gear                   | 2164933                         | 26                       | 1             | Antriebsbuchse<br>Drive bushing                                 | 2245016                            |
| 8                        | 3             | Zahnrad<br>Spur gear                     | 2164934                         | 27                       | 2             | Kurvenrolle<br>Roller bearing                                   | 2245017                            |
| 10                       | 1             | Spiralfeder<br>Coil spring               | 2167847                         | 28                       | 1             | Sicherungsring<br>Circlip                                       | 2245018                            |
| 11                       | 1             | Sicherungsring<br>Circlip                | 2164775                         | 29                       | 1             | Druckfeder<br>Pressure spring                                   | 2245019                            |
| 13                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2164705                         | 30                       | 1             | Kurvenring<br>Camring   | 2245020                            |
| 14                       | 3             | Zylinderschraube<br>Cap screw            | 2142999                         | 31                       | 1             | Schaltring<br>Operating ring                                    | 2245021                            |
| 15                       | 3             | Sechskantmutter<br>Hexagon nut           | 2148393                         | 32                       | 1             | Keil<br>Key   | 2245022                            |
| 16                       | 1             | Ringscheibe<br>Ring washer               | 2245034                         | 33                       | 2             | Kupplungseinsatz<br>Coupling plate                              | 2245023                            |
| 18                       | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual | 34                       | 1             | Passfeder<br>Fitting key  | 2245024                            |
| 19                       | 1             | Gewindestift<br>Set screw                | M4 x 25 mm<br>2142066           | 35                       | 4             | Zylinderschraube<br>Cap screw                                   | gehört zu Teil 33<br>included w/33 |
| 19                       | 2             | Gewindestift<br>Set screw                | M4 x 16 mm<br>2142065           | 36                       | 2             | Zylinderschraube<br>Cap screw                                   | 1045131                            |
| 19                       | 1             | Gewindestift<br>Set screw                | M4 x 10 mm<br>2142063           |                          |               |   |                                    |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
 When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!



**für Rechtsgewinde**

- feststehend und umlaufend verwendbar
- Rollen-Schrägstellung = 2° 40'
- Gewicht ohne Rollen = ca. 8,280 kg

**for right-hand threads**

- used stationary or rotating
- inclined position of rolls = 2° 40'
- weight without rolls = approx. 18.3 lb

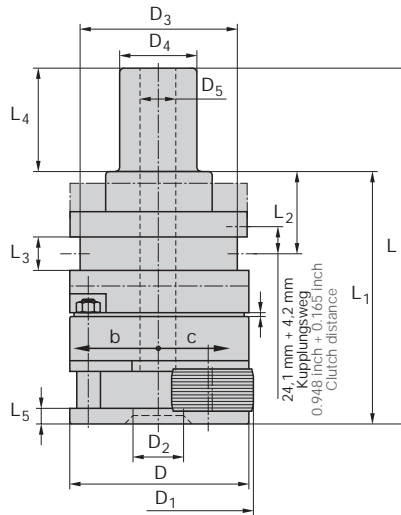
**für Linksgewinde**

- Typ K3YL
- Baumaß wie für Rechtsgewinde-Rollkopf

**for left-hand threads**

- Type K3YL
- Dimensions like right-hand thread rolling head

b = Rollkopf öffnet  
Rolling Head opening direction  
c = Rollkopf schließt  
Rolling Head closing direction



| Baumaße in mm<br>Dimension in inches |                |                |                 |                |                |                 |                |                |                |                |                | K3Y  |
|--------------------------------------|----------------|----------------|-----------------|----------------|----------------|-----------------|----------------|----------------|----------------|----------------|----------------|--|
| D                                    | D <sub>1</sub> | D <sub>2</sub> | D <sub>3</sub>  | D <sub>4</sub> | D <sub>5</sub> | L               | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | L <sub>5</sub> | Ident No.  |
| 117<br>4.606"                        | 131<br>5.157"  | 38<br>1.496"   | 101,5<br>3.996" | 38,1<br>1 1/2" | 22,6<br>0.890" | 229,5<br>9.035" | 166<br>6.535"  | 59,2<br>2.331" | 19,8<br>0.780" | 63,5<br>2 1/2" | 8<br>0.315"    | Schaft-Ø 1 1/2 Zoll<br>Shank-Ø 1 1/2"<br>2247776 |

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



**Metrisches ISO-Gewinde M**  
Metric ISO Threads

| Nennmaß x Steigung<br>mm<br>Nominal Size x Pitch | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |
|--|----------------------|----------------------|
|  | Ident No.            |                      |
| M 12 ... 14 x 1,75                               | 1514312              | 1514321              |
| M 14 ... 16 x 2                                  | 1514438              | 1514447              |
| M 18 ... 20 x 2,5                                | 1514642              | 1514660              |
| M 20 ... 22 x 2,5                                | 1514768              | 1514777              |

**Metrisches ISO-Feingewinde M**  
Metric ISO Fine Pitch Threads

| Nennmaß x Steigung<br>mm<br>Nominal Size x Pitch | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |
|--|----------------------|----------------------|
|  | Ident No.            |                      |
| M 12 ... 14 x 1,5                                | 1514269              | 1514278              |
| M 14 ... 16 x 1,5                                | 1514385              | 1514401              |
| M 18 ... 20 x 2                                  | 1514606              | 1514615              |
| M 20 ... 22 x 2                                  | 2168931              | 1514740              |

**Unified-Gewinde, fein UNF**  
Unified Threads, Fine Pitch

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |
|--|----------------------|----------------------|
|  | Ident No.            |                      |
| 7/16 ... 1/2 – 20 UNF                                  | 1515570              | 1515589              |
| 9/16 ... 5/8 – 18 UNF                                  | 1515605              | 1515614              |
| 3/4 – 16 UNF   | 1515650              | 1515669              |
| 7/8 – 14 UNF   | 1515678              | 2169974              |

**Unified-Gewinde, grob UNC**  
Unified Threads, Coarse Pitch

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |
|--|----------------------|----------------------|
|  | Ident No.            |                      |
| 7/16 – 14 UNC  | 1515400              | 1515419              |
| 1/2 – 13 UNC   | 1515437              | 1515446              |
| 9/16 – 12 UNC  | 1515455              | 1515464              |
| 5/8 – 11 UNC   | 1515482              | 1515491              |
| 3/4 – 10 UNC   | 1515507              | 1515516              |
| 7/8 – 9 UNC  | 1515534              | 1515543              |

**Whitworth-Rohrgewinde G**  
Whitworth Pipe Threads

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2K<br>Lead 2k |
|--|----------------------|----------------------|
|  | Ident No.            |                      |
| G 1/4 ... 3/8 – 19                                     | 1515044              | 1515053              |
| G 1/2 – 14   | 1515080              | 1515106              |

**Rändel Knurls**

| Nennmaß x Steigung<br>Nominal Size x Pitch<br>mm   inch | RAA       | RGE     |
|---|-----------|---------|
|   | Ident No. |         |
| Ø 12 ... Ø 14 x 0,5   Ø 0.472 ... Ø 0.551 x 0.02        | 2243564   | 2243585 |
| Ø 14 ... Ø 16 x 0,5   Ø 0.551 ... Ø 0.63 x 0.02         | 2169627   | 2243586 |
| Ø 16 ... Ø 18 x 0,5   Ø 0.63 ... Ø 0.709 x 0.02         | 2243565   | 2243587 |
| Ø 18 ... Ø 20 x 0,5   Ø 0.709 ... Ø 0.787 x 0.02        | 2243566   | 2243588 |
| Ø 20 ... Ø 22 x 0,5   Ø 0.787 ... Ø 0.866 x 0.02        | 2243567   | 2243589 |
| Ø 12 ... Ø 14 x 0,6   Ø 0.472 ... Ø 0.551 x 0.024       | 2243568   | 2243590 |
| Ø 14 ... Ø 16 x 0,6   Ø 0.551 ... Ø 0.63 x 0.024        | 1515909   | 2243591 |
| Ø 16 ... Ø 18 x 0,6   Ø 0.63 ... Ø 0.709 x 0.024        | 2243569   | 2243592 |
| Ø 18 ... Ø 20 x 0,6   Ø 0.709 ... Ø 0.787 x 0.024       | 2243570   | 2243593 |
| Ø 20 ... Ø 22 x 0,6   Ø 0.787 ... Ø 0.866 x 0.024       | 2243571   | 2243594 |
| Ø 12 ... Ø 14 x 0,8   Ø 0.472 ... Ø 0.551 x 0.031       | 1515918   | 2168024 |
| Ø 14 ... Ø 16 x 0,8   Ø 0.551 ... Ø 0.63 x 0.031        | 2243572   | 2165370 |
| Ø 16 ... Ø 18 x 0,8   Ø 0.63 ... Ø 0.709 x 0.031        | 2168428   | 2243595 |
| Ø 18 ... Ø 20 x 0,8   Ø 0.709 ... Ø 0.787 x 0.031       | 1515936   | 2168023 |
| Ø 20 ... Ø 22 x 0,8   Ø 0.787 ... Ø 0.866 x 0.031       | 2243573   | 2243596 |
| Ø 12 ... Ø 14 x 1,0   Ø 0.472 ... Ø 0.551 x 0.039       | 1515972   | 1516114 |
| Ø 14 ... Ø 16 x 1,0   Ø 0.551 ... Ø 0.63 x 0.039        | 2165323   | 2243597 |
| Ø 16 ... Ø 18 x 1,0   Ø 0.63 ... Ø 0.709 x 0.039        | 1515990   | 1516123 |
| Ø 18 ... Ø 20 x 1,0   Ø 0.709 ... Ø 0.787 x 0.039       | 1516007   | 1516132 |
| Ø 20 ... Ø 22 x 1,0   Ø 0.787 ... Ø 0.866 x 0.039       | 1516016   | 2243598 |
| Ø 12 ... Ø 14 x 1,2   Ø 0.472 ... Ø 0.551 x 0.047       | 2241199   | 1516141 |
| Ø 14 ... Ø 16 x 1,2   Ø 0.551 ... Ø 0.63 x 0.047        | 1516025   | 1516150 |
| Ø 16 ... Ø 18 x 1,2   Ø 0.63 ... Ø 0.709 x 0.047        | 1516034   | 2243599 |
| Ø 18 ... Ø 20 x 1,2   Ø 0.709 ... Ø 0.787 x 0.047       | 1516043   | 1516169 |
| Ø 20 ... Ø 22 x 1,2   Ø 0.787 ... Ø 0.866 x 0.047       | 1516052   | 2168022 |
| Ø 12 ... Ø 14 x 1,5   Ø 0.472 ... Ø 0.551 x 0.059       | 1516070   | 1516187 |
| Ø 14 ... Ø 16 x 1,5   Ø 0.551 ... Ø 0.63 x 0.059        | 1516089   | 1516196 |
| Ø 16 ... Ø 18 x 1,5   Ø 0.63 ... Ø 0.709 x 0.059        | 2168315   | 1516203 |
| Ø 18 ... Ø 20 x 1,5   Ø 0.709 ... Ø 0.787 x 0.059       | 1516098   | 1516212 |
| Ø 20 ... Ø 22 x 1,5   Ø 0.787 ... Ø 0.866 x 0.059       | 2242855   | 1516221 |
| Ø 12 ... Ø 14 x 1,6   Ø 0.472 ... Ø 0.551 x 0.063       | 2243575   | 2243600 |
| Ø 14 ... Ø 16 x 1,6   Ø 0.551 ... Ø 0.63 x 0.063        | 2243576   | 2243601 |
| Ø 16 ... Ø 18 x 1,6   Ø 0.63 ... Ø 0.709 x 0.063        | 2243577   | 2243602 |
| Ø 18 ... Ø 20 x 1,6   Ø 0.709 ... Ø 0.787 x 0.063       | 2243578   | 2243603 |
| Ø 20 ... Ø 22 x 1,6   Ø 0.787 ... Ø 0.866 x 0.063       | 2243579   | 2243604 |
| Ø 12 ... Ø 14 x 2,0   Ø 0.472 ... Ø 0.551 x 0.079       | 2243580   | 2243605 |
| Ø 14 ... Ø 16 x 2,0   Ø 0.551 ... Ø 0.63 x 0.079        | 2243581   | 2242539 |
| Ø 16 ... Ø 18 x 2,0   Ø 0.63 ... Ø 0.709 x 0.079        | 2243582   | 2243606 |
| Ø 18 ... Ø 20 x 2,0   Ø 0.709 ... Ø 0.787 x 0.079       | 2243583   | 2243607 |
| Ø 20 ... Ø 22 x 2,0   Ø 0.787 ... Ø 0.866 x 0.079       | 2243584   | 2243608 |

**Glätten  
Burnishing**

| Nennmaß<br>Nominal Size<br>mm   inch | Ident No. |
|--------------------------------------|-----------|
| Ø 12 – Ø 14   Ø 0.472 – Ø 0.551      | 2241694   |
| Ø 14 – Ø 16   Ø 0.551 – Ø 0.63       | 1516249   |
| Ø 16 – Ø 18   Ø 0.63 – Ø 0.709       | 2165473   |
| Ø 18 – Ø 20   Ø 0.709 – Ø 0.787      | 1516258   |
| Ø 20 – Ø 22   Ø 0.787 – Ø 0.866      | 2169908   |

**Amerikanisches Rohrgewinde NPT**  
American Pipe Threads

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k |
|--|----------------------|
|  | Ident No.            |
| 1/4 – 18 NPT   | 2241666              |

**Amerikanisches Rohrgewinde NPTF**  
American Dryseal Pipe Threads

| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k |
|--|----------------------|
|  | Ident No.            |
| 1/4 – 18 NPTF  | 2166887              |



| Whitworth-Gewinde<br>Whitworth Threads                 |                      | BSW                  |           |
|--|----------------------|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k | Ident No. |
|  | 7/16 – 14 BSW        | 1515124              |           |
| 1/2 ... 9/16 – 12 BSW                                  | 1515151              | 1515160              |           |
| 5/8 ... 11/16 – 11 BSW                                 | 1515188              | 1515197              |           |
| 3/4 – 10 BSW   | 1515222              | 1515231              |           |
| 7/8 ... 15/16 <sup>1)</sup> – 9 BSW                    | 1515259              | 1515268              |           |

| Whitworth-Feingewinde<br>Whitworth Fine Pitch Threads  |                      | BSF                  |           |
|--|----------------------|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k | Ident No. |
|  | 7/16 – 18 BSF        | 1514900              |           |
| 1/2 ... 9/16 – 16 BSF                                  | 1514946              | 1514955              |           |
| 5/8 ... 11/16 – 14 BSF                                 | 1514964              | 1514973              |           |
| 3/4 – 12 BSF   | 1514982              | 1514991              |           |
| 7/8 ... 15/16 <sup>1)</sup> – 11 BSF                   | 2243559              | 1515008              |           |

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 0,750 bis 1,200 kg.

Thread dimensions combined in one block can be rolled with **one** set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 1.653 to 2.646 lb.

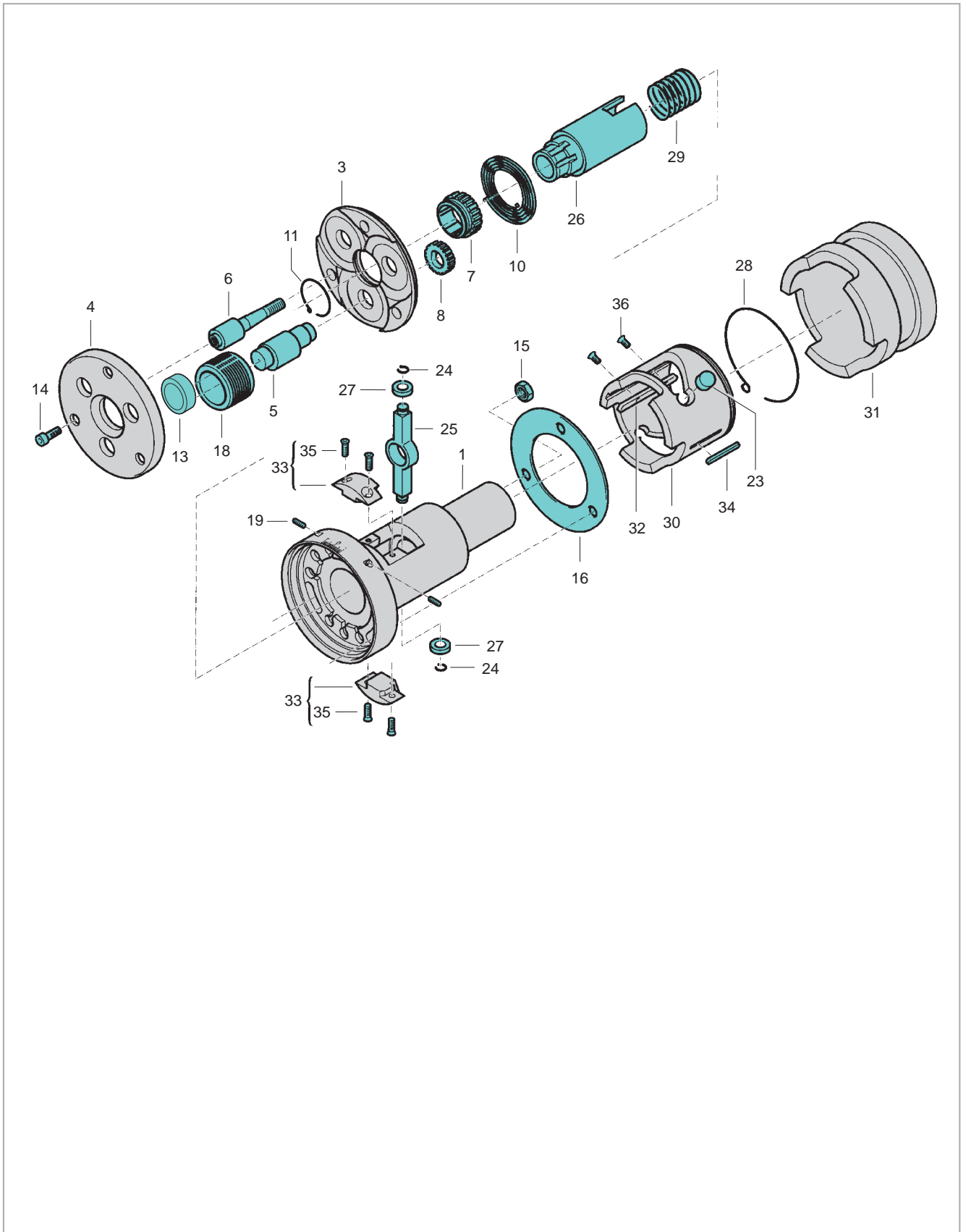
| Rundgewinde<br>Knuckle Form Threads                    |                      | Rd                   |           |
|--|----------------------|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Anlauf 2k<br>Lead 2k | Ident No. |
|  | Rd 18 – 20 x 1/8     | 2168222              |           |

- <sup>1)</sup> Für Kurzgewinde bis 24 mm Länge einschließlich Auslauf.  
<sup>1)</sup> For short threads up to 24 mm/0.945" including runout.

### Ersatzteile für Rollköpfe K3Y Spare Parts for Rolling Heads K3Y

| Rollkopf<br>Rolling Head |               |  | K3Y                             | Rollkopf<br>Rolling Head |               |   | K3Y                                |
|--------------------------|---------------|--|---------------------------------|--------------------------|---------------|---|------------------------------------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Bennennung<br>Part description           | Ident No.                       | Teil Nr.<br>Part No.     | Stück<br>Qty. | Bennennung<br>Part description                                  | Ident No.                          |
| 1                        | 1             | Körper Ø 38,1 mm<br>Body Ø 1 1/2"        | 2247777                         | 19                       | 1             | Gewindestift<br>Set screw                                       | M6 x 12 mm<br>2142076              |
| 3                        | 1             | Zwischenplatte<br>Centre plate           | 2165454                         | 23                       | 2             | Gummistopfen<br>Ø 16 x 7 mm<br>Rubber shock<br>Ø 0.630 x 0.276" | 2247869                            |
| 4                        | 1             | Frontplatte<br>Front plate               | 2165455                         |                          |               |   |                                    |
| 5                        | 3             | Exzenterbolzen<br>Eccentric spindles     | 2165028                         | 24                       | 2             | Sicherungsring<br>Circlip                                       | 2247868                            |
| 6                        | 3             | Distanzbolzen<br>Spacer studs            | 2165029                         | 25                       | 1             | Kupplungshebel<br>Clutch lever                                  | 2247779                            |
| 7                        | 1             | Zahnrad<br>Center gear                   | 2165030                         | 26                       | 1             | Antriebsbuchse<br>Drive bushing                                 | 2247780                            |
| 8                        | 3             | Zahnrad<br>Spur gear                     | 2165031                         | 27                       | 2             | Kurvenrolle<br>Roller bearing                                   | 2247781                            |
| 10                       | 1             | Spiralfeder<br>Coil spring               | 2247778                         | 28                       | 1             | Sicherungsring<br>Circlip                                       | 2247782                            |
| 11                       | 1             | Sicherungsring<br>Circlip                | 2165033                         | 29                       | 1             | Druckfeder<br>Pressure spring                                   | 2247867                            |
| 13                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2165072                         | 30                       | 1             | Kurvenring<br>Camring   | 2247783                            |
| 14                       | 3             | Zylinderschraube<br>Cap screw            | 2143007                         | 31                       | 1             | Schaltring<br>Operating ring                                    | 2247784                            |
| 15                       | 3             | Sechskantmutter<br>Hexagon nut           | 2148398                         | 32                       | 1             | Keil<br>Key   | 2247785                            |
| 16                       | 1             | Ringscheibe<br>Ring washer               | 2247949                         | 33                       | 2             | Kupplungseinsatz<br>Coupling plate                              | 2247786                            |
| 18                       | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual | 34                       | 1             | Passfeder<br>Fitting key  | 2247787                            |
| 19                       | 1             | Gewindestift<br>Set screw                | M6 x 30 mm<br>2142080           | 35                       | 4             | Zylinderschraube<br>Cap screw                                   | gehört zu Teil 33<br>included w/33 |
| 19                       | 2             | Gewindestift<br>Set screw                | M6 x 22 mm<br>2167148           | 36                       | 2             | Zylinderschraube<br>Cap screw                                   | 1045131                            |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!



**für Rechtsgewinde**

- feststehend und umlaufend verwendbar
- speziell für Feingewinde
- Rollen-Schrägstellung = 1° 15'
- Gewicht ohne Rollen = ca. 8,280 kg

**for right-hand threads**

- used stationary or rotating
- especially for rolling of Fine Pitch Threads
- inclined position of rolls = 1° 15'
- weight without rolls = approx. 18.3 lb

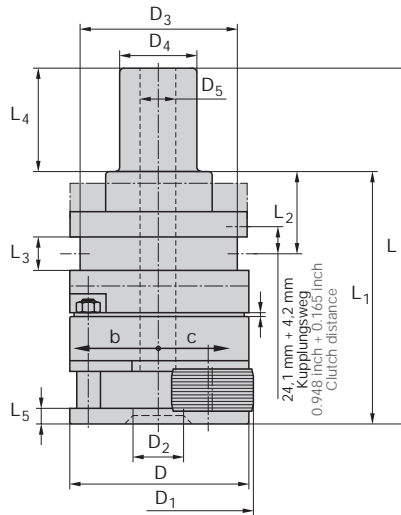
**für Linksgewinde**

- Typ K34YL
- Baumaß wie für Rechtsgewinde-Rollkopf

**for left-hand threads**

- Type K34YL
- Dimensions like right-hand thread rolling head

b = Rollkopf öffnet  
 Rolling Head opening direction  
 c = Rollkopf schließt  
 Rolling Head closing direction



| Baumaße in mm<br>Dimension in inches |                |                |                 |                |                |               |                 |                |                |                |                | K34Y   |
|--------------------------------------|----------------|----------------|-----------------|----------------|----------------|---------------|-----------------|----------------|----------------|----------------|----------------|--|
| D                                    | D <sub>1</sub> | D <sub>2</sub> | D <sub>3</sub>  | D <sub>4</sub> | D <sub>5</sub> | L             | L <sub>1</sub>  | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | L <sub>5</sub> | Ident No.  |
| 117<br>4.606"                        | 128<br>5.039"  | 44<br>1.732"   | 101,5<br>3.996" | 38,1<br>1 1/2" | 22,6<br>0.890" | 231<br>9.094" | 167,5<br>6.594" | 59,2<br>2.330" | 19,8<br>0.779" | 63,5<br>2 1/2" | 8<br>0.315"    | Schaft-Ø 1 1/2 Zoll<br>Shank-Ø 1 1/2"<br>2248648 |



für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Feingewinde M                  |           |           |
|---|-----------|-----------|
| Metric ISO Fine Pitch Threads                 |           |           |
| Nennmaß x Steigung<br>mm                      | Anlauf 1k | Anlauf 2K |
|   | Lead 1k   | Lead 2k   |
| Nominal Size x Pitch                          | Ident No. |           |
| M 12 ... 14 x 1                               | 1516800   | 1516819   |
| M 14 ... 16 x 1                               | 1516828   | 1516837   |
| M 16 ... 18 x 1                               | 1516846   | 1516855   |
| M 18 ... 20 x 1                               | 1516864   | 1516882   |
| M 16 ... 18 x 1,5                             | 1517006   | 1517015   |
| M 18 ... 20 x 1,5                             | 1517042   | 1517060   |
| M 20 ... 22 x 1,5                             | 1517088   | 1517113   |
| M 22 ... 24 <sup>1)</sup> x 1,5               | 1517159   | 1517177   |
| M 24 <sup>1)</sup> ... 27 <sup>1)</sup> x 1,5 | 1517195   | 1517202   |
| M 27 <sup>1)</sup> ... 30 <sup>1)</sup> x 1,5 | 1517220   | 1517248   |

| Unified-Gewinde, fein UN/UNF/UNEF                                 |           |           |
|---|-----------|-----------|
| Unified Threads, Fine Pitch                                       |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll                                  | Anlauf 1k | Anlauf 2K |
|   | Lead 1k   | Lead 2k   |
| Nominal Size x TPI  | Ident No. |           |
| 1/2 - 28 UNF  | 2243550   | 2243655   |
| 5/8 ... 1 <sup>1)</sup> /16 - 28 UN                               | 2165494   | 2246320   |
| 1 <sup>1)</sup> /16 ... 3/4 - 28 UN                               | 2246314   | 2246321   |
| 3/4 ... 1 <sup>3)</sup> /16 - 28 UN                               | 2246315   | 2246322   |
| 1 <sup>3)</sup> /16 ... 7/8 <sup>1)</sup> - 28 UN                 | 2246318   | 2246324   |
| 9/16 ... 5/8 - 24 UNF   | 2243651   | 2243656   |
| 5/8 ... 1 <sup>1)</sup> /16 - 24 UNF                              | 2240319   | 2243657   |
| 5/8 ... 1 <sup>1)</sup> /16 - 20 UN                               | 2246313   | 2246319   |
| 3/4 ... 1 <sup>3)</sup> /16 - 20 UNF                              | 2243652   | 2243658   |
| 1 <sup>3)</sup> /16 ... 7/8 <sup>1)</sup> - 20 UNF                | 2166331   | 2166820   |
| 7/8 <sup>1)</sup> ... 1 <sup>5)</sup> /16 <sup>1)</sup> - 20 UNF  | 2243653   | 2243659   |
| 1 <sup>5)</sup> /16 <sup>1)</sup> ... 1 <sup>1)</sup> - 20 UNF    | 2168615   | 2243660   |
| 5/8 - 18 UNF  | 1517505   | 1517514   |
| 1 <sup>1)</sup> /16 <sup>1)</sup> ... 1 <sup>1)</sup> /8 - 18 UNF | 2243654   | 2243661   |
| 3/4 - 16 UNF  | 2169226   | 2241532   |
| 3/4 ... 1 <sup>3)</sup> /16 - 16 UNF                              | 1517523   | 1517541   |
| 7/8 <sup>1)</sup> ... 1 <sup>5)</sup> /16 <sup>1)</sup> - 16 UN   | 2246317   | 2241474   |
| 7/8 - 14 UNF  | 1517550   | 1517569   |
| 7/8 <sup>1)</sup> ... 1 <sup>5)</sup> /16 <sup>1)</sup> - 12 UN   | 2246316   | 2246323   |
| 1 <sup>1)</sup> - 12 UNF  | 1517578   | 1517587   |

| Whitworth-Feingewinde BSF                                       |           |           |
|---|-----------|-----------|
| Whitworth Fine Pitch Threads                                    |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll                                | Anlauf 1k | Anlauf 2k |
|   | Lead 1k   | Lead 2k   |
| Nominal Size x TPI  | Ident No. |           |
| 9/16 ... 5/8 - 26 BSFS  | 2243620   | 2243634   |
| 5/8 ... 1 <sup>1)</sup> /16 - 26 BSFS                           | 2243621   | 2243635   |
| 1 <sup>1)</sup> /16 ... 3/4 - 26 BSFS                           | 2243622   | 2243636   |
| 3/4 ... 1 <sup>3)</sup> /16 - 26 BSFS                           | 2243623   | 2243637   |
| 9/16 ... 5/8 - 20 BSFS  | 2243624   | 2243638   |
| 5/8 ... 1 <sup>1)</sup> /16 - 20 BSFS                           | 2243625   | 2243639   |
| 1 <sup>1)</sup> /16 ... 3/4 - 20 BSFS                           | 2243626   | 2243640   |
| 3/4 ... 1 <sup>3)</sup> /16 - 20 BSFS                           | 2243627   | 2243641   |
| 1 <sup>3)</sup> /16 ... 7/8 <sup>1)</sup> - 20 BSFS             | 2243629   | 2243642   |
| 7/8 <sup>1)</sup> ... 1 <sup>5)</sup> /16 - 20 BSFS             | 2243630   | 2243643   |
| 1 <sup>5)</sup> /16 <sup>1)</sup> ... 1 <sup>1)</sup> - 20 BSFS | 2240197   | 2243644   |
| 1 <sup>1)</sup> /16 ... 3/4 - 16 BSFS                           | 2241703   | 2243645   |
| 3/4 ... 1 <sup>3)</sup> /16 - 16 BSFS                           | 2243631   | 2243646   |
| 1 <sup>1)</sup> /8 <sup>1)</sup> - 12 BSFS                      | 2243632   | 2243647   |
| 1 <sup>1)</sup> /16 <sup>1)</sup> - 10 BSFS                     | 2243633   | 2243648   |

| Whitworth-Rohrgewinde G          |           |           |
|----------------------------------|-----------|-----------|
| Whitworth Pipe Threads           |           |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k | Anlauf 2k |
|                                  | Lead 1k   | Lead 2k   |
| Nominal Size x TPI               | Ident No. |           |
| G 3/8 - 19                       | 1517408   | 1517417   |
| G 1/2 ... 5/8 <sup>1)</sup> - 14 | 1517435   | 1517444   |
| G 3/4 <sup>1)</sup> - 14         | 1517462   | 1517471   |
| G 7/8 <sup>1)</sup> - 14         | 2168006   | 2243649   |

| Amerikanisches Rohrgewinde NPT   |           |
|----------------------------------|-----------|
| American Pipe Threads            |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k |
|                                  | Lead 1k   |
| Nominal Size x TPI               | Ident No. |
| 3/8 - 18 NPT                     | 1517710   |
| 1/2 - 14 NPT                     | 1517738   |
| 3/4 - 14 NPT                     | 1517756   |

| Amerikanisches Rohrgewinde NPTF  |           |
|----------------------------------|-----------|
| American Dryseal Pipe Threads    |           |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k |
|                                  | Lead 1k   |
| Nominal Size x TPI               | Ident No. |
| 3/8 - 18 NPTF                    | 2165391   |
| 1/2 - 14 NPTF                    | 1517765   |
| 3/4 - 14 NPTF                    | 1517774   |

<sup>1)</sup> Für Kurzgewinde bis 24 mm Länge einschließlich Auslauf.

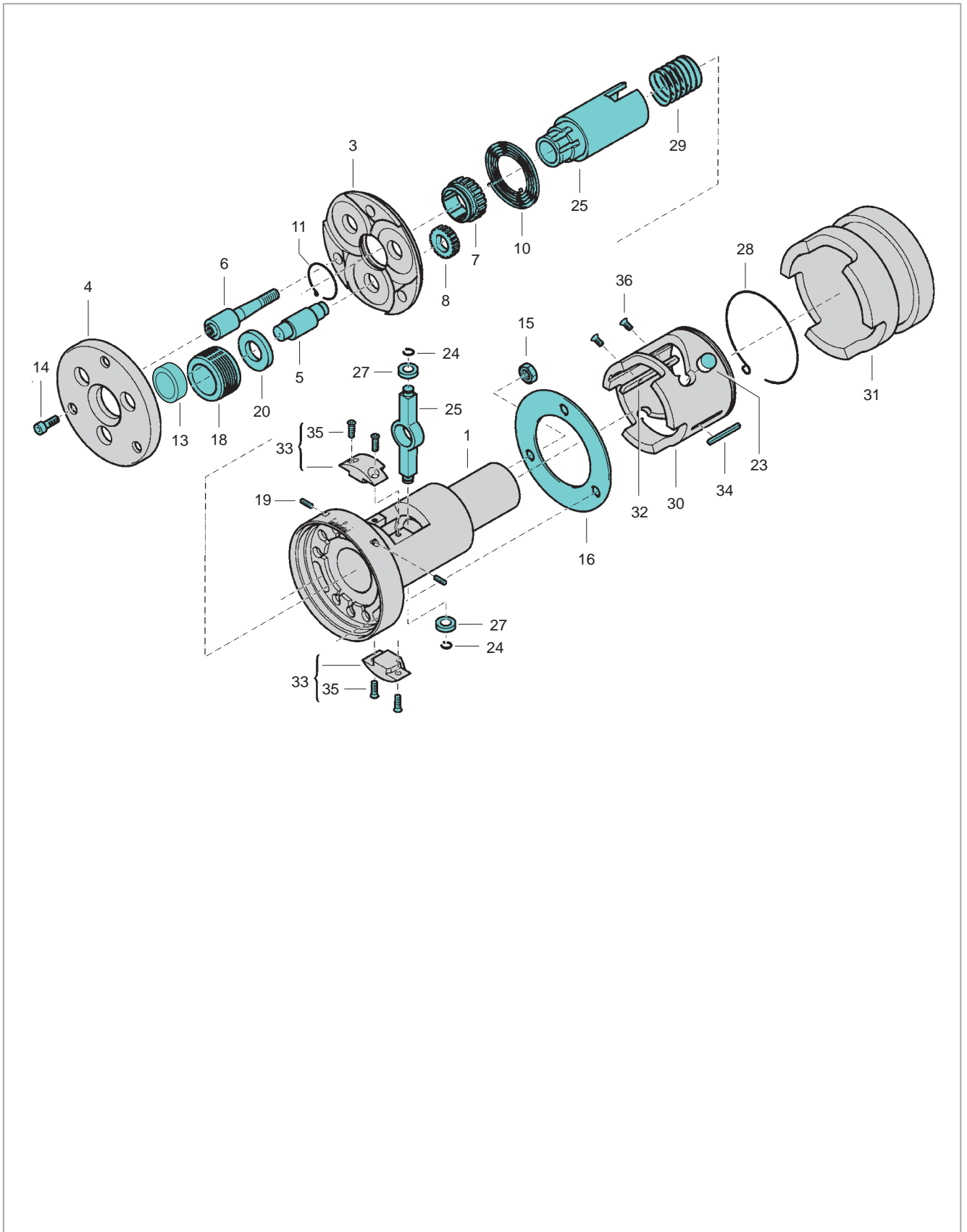
<sup>1)</sup> For short threads up to 24 mm/0.945" including runout.

Die in einem Feld zusammengefassten Gewindeabmessungen können mit **einem** Satz Gewinderollen gerollt werden. Gewicht für 1 Satz = 3 Stück Rollen je nach Gewinde-Nennmaß etwa 0,320 bis 0,850 kg.

Thread dimensions combined in one block can be rolled with **one** set of Rolls. Weight of 1 set of 3 Rolls according to Nominal Thread size approx 0.7 to 1.87 lb.

| Rollkopf<br>Rolling Head |               |  | K34Y                            | Rollkopf<br>Rolling Head |               |                                    | K34Y                               |
|--------------------------|---------------|--|---------------------------------|--------------------------|---------------|------------------------------------|------------------------------------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description            | Ident No.                       | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description      | Ident No.                          |
| 1                        | 1             | Körper Ø 38,1 mm<br>Body Ø 1 1/2"        | 2247777                         | 20                       | 3             | Scheibe<br>Washer                  | 2165539                            |
| 3                        | 1             | Zwischenplatte<br>Centre plate           | 2165571                         | 23                       | 2             | Gummistopfen<br>Ø 16 x 7 mm        | 2247869                            |
| 4                        | 1             | Frontplatte<br>Front plate               | 2165572                         |                          |               | Rubber shock<br>Ø 0.630 x 0.276"   |                                    |
| 5                        | 3             | Exzenterbolzen<br>Eccentric spindles     | 2165534                         | 24                       | 2             | Sicherungsring<br>Circlip          | 2247868                            |
| 6                        | 3             | Distanzbolzen<br>Spacer studs            | 2165535                         | 25                       | 1             | Kupplungshebel<br>Clutch lever     | 2247779                            |
| 7                        | 1             | Zahnrad<br>Center gear                   | 2165536                         | 26                       | 1             | Antriebsbuchse<br>Drive bushing    | 2247780                            |
| 8                        | 3             | Zahnrad<br>Spur gear                     | 2165537                         | 27                       | 2             | Kurvenrolle<br>Roller bearing      | 2247781                            |
| 10                       | 1             | Spiralfeder<br>Coil spring               | 2247778                         | 28                       | 1             | Sicherungsring<br>Circlip          | 2247782                            |
| 11                       | 1             | Sicherungsring<br>Circlip                | 2165033                         | 29                       | 1             | Druckfeder<br>Pressure spring      | 2247867                            |
| 13                       | 3             | Hartmetall-Laufbuchse<br>Carbide bushing | 2164887                         | 30                       | 1             | Kurvenring<br>Camring              | 2247783                            |
| 14                       | 3             | Zylinderschraube<br>Cap screw            | 2143007                         | 31                       | 1             | Schaltring<br>Operating ring       | 2247784                            |
| 15                       | 3             | Sechskantmutter<br>Hexagon nut           | 2148398                         | 32                       | 1             | Keil<br>Key                        | 2247785                            |
| 16                       | 3             | Ringscheibe<br>Ring washer               | 2247949                         | 33                       | 2             | Kupplungseinsatz<br>Coupling plate | 2247786                            |
| 18                       | 3             | Gewinderolle<br>Thread roll              | siehe Einsatzfall<br>individual | 34                       | 1             | Passfeder<br>Fitting key           | 2247787                            |
| 19                       | 1             | Gewindestift<br>Set screw                | M6 x 30 mm<br>2142080           | 35                       | 4             | Zylinderschraube<br>Cap screw      | gehört zu Teil 33<br>included w/33 |
| 19                       | 2             | Gewindestift<br>Set screw                | M6 x 22 mm<br>2167148           | 36                       | 2             | Zylinderschraube<br>Cap screw      | 1045131                            |
| 19                       | 1             | Gewindestift<br>Set screw                | M6 x 12 mm<br>2142076           |                          |               |                                    |                                    |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!



| Rollkopfgröße<br>Head size | HM-Laufbuchse<br>Carbide Bushing Standard | Lagernadel<br>Needle bearing Alternate | Schließstift<br>Closing Pin | Schließrolle<br>Closing Roller | Schließfeder<br>Closing Spring | Blockierkappe<br>Blocking cap | Schwungmasse<br>Inertia-weight | Bremssteine für Typ K<br>Brake Shoes for Type K<br>1 Satz = 2 Stück<br>1 Set = 2 Pieces | Anschlag Innen<br>Internal Stop                        |
|----------------------------|---|--|-----------------------------|--------------------------------|--------------------------------|-------------------------------|--------------------------------|---|--|
| 0                          | 2 x 2167472                               | 36 x 2148805                           | 2164584                     | 2169961                        | 2240148                        | 2241090                       |                                | 2190304   | R = 2430906<br>L = 2430908                             |
| 001                        | 3 x 2164558                               |  | 2164584                     | 2169961                        | 2240148                        | 2169875                       |                                |   | R = 2424640<br>L = 2424641                             |
| 01<br>01-1                 | 3 x 2164574                               |  | 2164584                     | 2169961                        | 2240148                        | 2169875<br>2241089            | 2168549                        | 2190295   | R = 2424642<br>L = 2424643                             |
| 1                          | 3 x 2164705                               | 57 x 2148817                           | F = 2164657<br>K = 2164584  | F = 2168952<br>K = 2169961     | 2240137                        | 2167529                       | 2241654                        | 2190303   | R = 2430916<br>L = 2430917                             |
| 12                         | 3 x 2173512                               | 54 x 2148820                           | F = 2164657<br>K = 2164584  | F = 2168952<br>K = 2169961     | 2240137                        | 2167529                       | 2241654                        | 2190303   | R = 2430916<br>L = 2430917                             |
| 1223                       | 3 x 2168892                               | 72 x 2148822                           | F = 2164828<br>K = 2164584  | F = 2242210<br>K = 2169961     | 2241362                        | 2241088                       | 2244829                        | 2190304   | R = 2430926<br>L = 2430927                             |
| 2                          | 3 x 2164887                               | 57 x 2148803                           | 2164790                     | 2169069                        | 2169177                        | 2168460                       | 2166184                        | 2190305   | R = 2430936<br>L = 2430937                             |
| 23                         | 3 x 2164705                               | 57 x 2148817                           | 2164790                     | 2169069                        | 2169177                        | 2168460                       | 2166184                        | 2190305   | R = 2430936<br>L = 2430937                             |
| 233400                     | 3 x 2168237                               | 72 x 2148819                           | F = 2164973<br>K = 2164790  | 2165069                        | 2241363                        | 2168631                       |                                | 2191170   | siehe S. 91<br>see p. 91                               |
| 3                          | 3 x 2165072                               | 54 x 2148814                           | 2168271                     | 2165069                        | 2241363                        | 2169242                       | 2244828                        | 2190306   | R = 2430954 <sup>1)</sup><br>L = 2430955 <sup>1)</sup> |
| 34                         | 3 x 2164887                               | 57 x 2148803                           | 2168271                     | 2165069                        | 2241363                        | 2169242                       | 2244828                        | 2190306   | R = 2430954 <sup>1)</sup><br>L = 2430955 <sup>1)</sup> |
| 32<br>3-1                  | 3 x 2165072                               | 54 x 2165094                           |                             | 2165069                        |                                |                               |                                |   | R = 2424644<br>L = 2424645                             |
| 34-1                       | 3 x 2164887                               | 57 x 2148803                           |                             | 2165069                        |                                |                               |                                |   | R = 2424644<br>L = 2424645                             |
| 4-1                        | 3 x 2167324                               | 57 x 2148811                           |                             | 2165069                        |                                |                               |                                |   | R = 2424646<br>L = 2424647                             |
| 45-1                       | 3 x 2165072                               | 54 x 2148814                           |                             | 2165069                        |                                |                               |                                |   | R = 2424646<br>L = 2424647                             |
| 5-1                        | 3 x 2163803                               | 78 x 2148800                           |                             |                                |                                |                               |                                |   | R = 2424648<br>L = 2424649                             |
| 56-1                       | 3 x 2167324                               | 57 x 2148811                           |                             |                                |                                |                               |                                |   | R = 2424648<br>L = 2424649                             |
| 6a-1<br>6b-1               | 3 x 2169115                               | 69 x 2148798                           |                             |                                |                                |                               |                                |   | R = 2424650<br>L = 2424651                             |
| 6700                       | 3 x 2167324<br>3 x 2167374                | 57 x 2148800                           |                             |                                |                                |                               |                                |   | R = 2424652<br>L = 2424653                             |

R = für Rechtsgewinde (right hand) rh

L = für Linksgewinde (left hand) lh

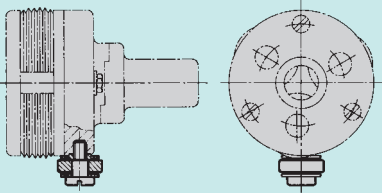
<sup>1)</sup> Nicht für Schaftdurchmesser 25 mm und 25,4 mm verwendbar.

<sup>1)</sup> Not for shank diameter 25 mm and 25.4 mm usable.

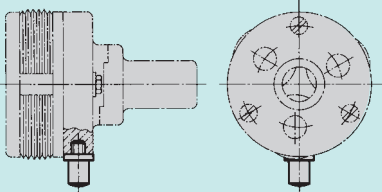
Zum Schließen von Gewinde-Rollköpfen, die auf Drehautomaten oder CNC-Maschinen Verwendung finden, dienen entweder Schließrollen, glatte Schließstifte auch flexibel (Glasfiber) oder Schließfedern, die von Schließkurven oder Schließvorrichtungen gesteuert werden (Abb. 1 bis 3).

For closing of Thread Rolling Heads used on Automatics, plain End Stop Pins or Closing Springs, operated over Closing Cams or Closing Attachments (Fig. 1 to 3), available normally from stock.

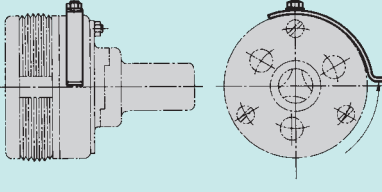
**1**  
**Schließrolle zum Schließen des Rollkopfes**  
Closing Roller for closing of Thread Rolling Heads



**2**  
**Schließstift zum Schließen des Rollkopfes**  
Closing Pin for closing of Thread Rolling Head



**3**  
**Schließfeder zum Schließen des Rollkopfes**  
Closing Spring for closing of Thread Rolling Head



**Schließeinrichtung**  
Closing device

**1** Werkzeugaufnahme des Revolvers  
Turret tool adaptor

**2** Kühlmittelentnahmestation  
Coolant withdrawal station

**3** Kühlmittelaustritt des Revolvers  
Turret coolant outlet

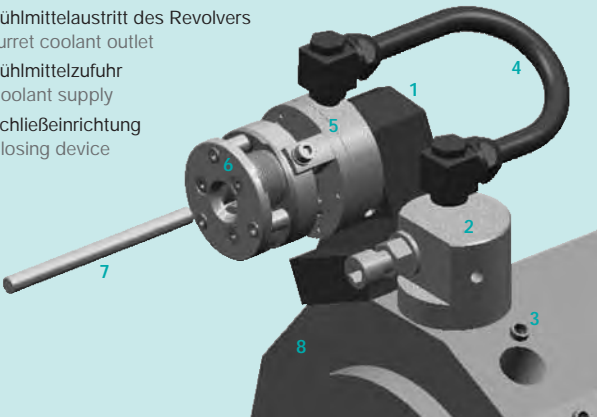
**4** Kühlmittelzufuhr  
Coolant supply

**5** Schließeinrichtung  
Closing device

**6** Axialrollkopf  
Axial rolling head

**7** Werkstück  
Workpiece

**8** Revolver  
Turret



Fette-Axialrollköpfe erzeugen das Gewinde oder die gewünschte Form und springen nach dem Rollvorgang selbsttätig auf. Für das nächste Gewinde müssen die Gewinderollen wieder in Arbeitsstellung gebracht werden, d. h. der Rollkopf muss geschlossen werden.

Um diesen Vorgang auf Revolverdrehmaschinen einfacher und schneller auszuführen, hat Fette eine Schliesseinrichtung entwickelt, die den Rollkopf über den Kühlmittelsanschluss der Maschine automatisch schließt.

Die Schließeinrichtung besteht aus zwei Teilen:

- a) Der eigentlichen Schließeinrichtung, die am Rollkopf montiert wird
- b) Der Kühlmittelübergabestation, die auf der Nachbarstation des Revolvers angebracht wird.

Zum Werkstückwechsel wird nur die Nachbarstation in Arbeitsposition gedreht und das Kühlmittel kurz eingeschaltet und der Rollkopf ist schon geschlossen.

**Vorteile der Fette Schließeinrichtung**

- Kühlmittel ist an jeder Revolverdrehmaschine vorhanden.
- Der Standard-Rollkopf kann genutzt werden, es wird lediglich ein Schliesswinkel montiert.
- Die Schließeinrichtung braucht nur auf den Rundschaft des Rollkopf geschoben und festgeklemmt werden.
- Das Schließen per Kühlmittel kann über eine einfache Funktion ins Maschinenprogramm integriert werden.
- Das Kühlmittel der Station, auf der der Rollkopf montiert ist, kann zum Kühlen während des Rollvorgangs genutzt werden.
- Durch die Aufteilung in zwei Komponenten lassen sich durch Kombinieren viele Rollköpfe und Maschinen kurzzeitig bedienen.

Fette axial rolling heads generate the thread or required form and then open automatically after rolling.

Before the next thread can be rolled the head must be closed. To make this procedure simply and easy on turret lathes, Fette has developed a closing device which closes the head by using the machine's coolant.

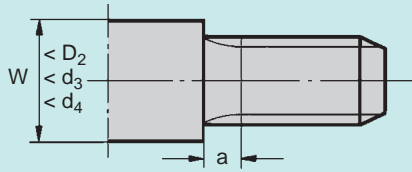
The closing device consists of two parts:

- a) The actual closing device, fitted to the rolling head
  - b) The coolant transfer station, fitted to the station of the turret
- To change the rolling head, only the station is brought into the working position and the coolant is switched on briefly: this closes the rolling head.

**Advantages of the Fette closing device:**

- Coolant is available at every turret lathe.
- The standard rolling head can be used, it is merely mounted on a closing bracket.
- The closing device only needs to be pushed on the round shank of the rolling head and clamped in position.
- Closing by means of the coolant can be integrated in the machine program by a simple function.
- The coolant of the station where the rolling head is fitted can be used for cooling during the rolling process.
- By dividing into two components, many rolling heads and machines can be operated at short notice by making corresponding combinations.

**1**  
**Gewindeauslauf am Werkstück**  
**Thread Run-out on component**



a = Gewindeauslauf  
 Thread Run-out  
 W = Werkstück-Bund-Ø  
 Component shoulder Ø

Sofern Werkstücke mit Bund gerollt werden sollen, kann die Vergrößerung der Frontplattenbohrung des Gewinde-Rollkopfes erforderlich werden.

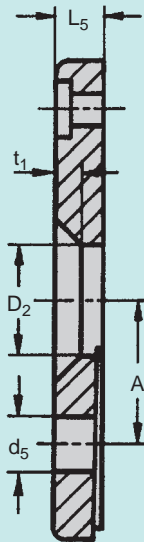
Wenn der Werkstückbund kleiner ist als das Maß  $D_2$  (Abb. 2), wird bis zum Abstand „a“ (Abb. 1) vom Bund ein voll ausgerolltes Gewinde erreicht.

Ist der Bund-Ø größer als das Maß  $D_2$ , kann die mittlere Bohrung der Frontplatte aufgebohrt werden (Abb. 3 und 4, Semi-Standard-Rollkopf-Ausführungen 1 und 2).

Bei Semi-Standard-Rollkopf-Ausführung 1 kann der Werkstückbund, der im Durchmesser kleiner ist als das Maß  $d_3$  (Abb. 3), um den Betrag  $t_2$  in die mittlere Frontplattenbohrung eintauchen. Hierbei wird bis zum Abstand  $t_3$  plus „a“ vom Bund ein voll ausgerolltes Gewinde erreicht.

Bei der Semi-Standard-Rollkopf-Ausführung 2 kann – sofern der Werkstückbund im Durchmesser kleiner ist als „ $d_4$ “ (Abb. 4) – bis zum Abstand „a“ vom Bund ein voll ausgerolltes Gewinde erreicht werden. In diesem Fall müssen jedoch die Gewinderollen auf Hartmetall-Laufbuchsen gelagert werden.

**2**  
**Frontplattenbohrung**  
**Normalausführung**  
**Bore of Front Plate**  
**Standard Design**



Der Gewindeauslauf „a“ ist: Siehe Seiten 206, 207.

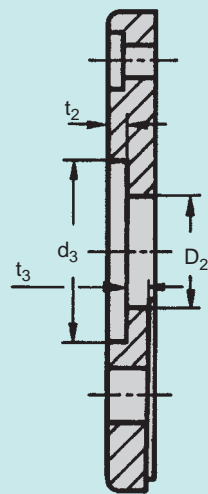
When rolling up to a shoulder it may be necessary to enlarge the hole in the front plate. If the shoulder is smaller than  $D_2$  a complete thread will be rolled up to the distance „a“ from the shoulder. If the shoulder diameter is larger than dimension  $D_2$  the bore of the front plate may be modified (see special design 1 and 2 in figures 3 and 4).

Special design 1 permits the component to penetrate the front plate for a distance of  $t_2$ .

With special design 2 the component can penetrate the front plate completely. When using this modification carbide bushings must be substituted for the needle bearings.

Thread Run-out „a“: Refer to pages 206, 207.

**3**  
**Frontplattenbohrung**  
**Sonderausführung 1**  
**Counter bore of Front Plate**  
**Special Design 1**



**4**  
**Frontplattenbohrung**  
**Sonderausführung 2**  
**Bore of Front Plate**  
**Special Design 2**



| Frontplattenmaße für Rollköpfe                     |                          |                |                            |                |                |                |                |                              |               |  |
|--|--------------------------|----------------|----------------------------|----------------|----------------|----------------|----------------|------------------------------|---------------|--|
| Dimensions of Front Plate for Thread Rolling Heads |                          |                |                            |                |                |                |                |                              |               |  |
| Rollkopfgröße<br>Head Type                         | Abmessungen in mm   inch |                |                            |                |                |                |                |                              |               |  |
|  | Dimensions in mm   inch  |                |                            |                |                |                |                |                              |               |  |
|  | D <sub>2</sub>           | d <sub>3</sub> | d <sub>4</sub>             | d <sub>5</sub> | L <sub>5</sub> | t <sub>1</sub> | t <sub>2</sub> | t <sub>3</sub> <sup>2)</sup> | A             |  |
| 001  | 7   0.276                | –              | 9,5   0.374                | 4,2   0.165    | 2,5   0.098    | 0,6   0.024    | –              | 2   0.079                    | 8   0.315     |  |
| 01   | 12   0.472               | –              | 13,5   0.531               | 4,2   0.165    | 4,5   0.177    | 0,6   0.024    | –              | 4   0.157                    | 10   0.394    |  |
| 1  | 17   0.669               | 24   0.945     | 24   0.945 <sup>1)</sup>   | 10   0.394     | 6   0.236      | 3   0.118      | 2   0.079      | 3   0.118                    | 18   0.709    |  |
| 12   | 20   0.787               | 27   1.063     | 27   1.063 <sup>1)</sup>   | 7   0.276      | 6   0.236      | 3   0.118      | 3   0.118      | 3,5   0.138                  | 18   0.709    |  |
| 1223   | 16   0.63                | 22   0.866     | 22   0.866 <sup>1)</sup>   | 7   0.276      | 5   0.197      | 3   0.118      | 2   0.079      | 2,5   0.098                  | 15   0.591    |  |
| 2  | 24   0.945               | 34   1.339     | 34   1.339 <sup>1)</sup>   | 11,5   0.453   | 7,5   0.295    | 3,75   0.148   | 3   0.118      | 3,5   0.138                  | 24   0.945    |  |
| 23   | 28   1.102               | 37   1.457     | 37   1.457 <sup>1)</sup>   | 8,5   0.335    | 7,5   0.295    | 3,75   0.148   | 4   0.157      | 3   0.118                    | 24   0.945    |  |
| 233400   | 39   1.535               | 52   2.047     | 52   2.047 <sup>1)</sup>   | 8,3   0.327    | 8   0.315      | 3   0.118      | 5   0.197      | 2,5   0.098                  | 31,5   1.24   |  |
| 32   | 38   1.496               | 44   1.732     | 44   1.732 <sup>1)</sup>   | 14   0.551     | 10   0.394     | 5   0.197      | 5   0.197      | 4   0.157                    | 30   1.181    |  |
| 3(3-1)   | 38   1.496               | 52   2.047     | 52   2.047 <sup>1)</sup>   | 14   0.551     | 8   0.315      | 4   0.157      | 3   0.118      | 4   0.157                    | 34   1.339    |  |
| 34(34-1)   | 44   1.732               | 55   2.165     | 55   2.165 <sup>1)</sup>   | 10,5   0.413   | 8   0.315      | 4   0.157      | 4,5   0.177    | 3   0.118                    | 34   1.339    |  |
| 4-1  | 46   1.811               | 63   2.48      | 63   2.48 <sup>1)</sup>    | 19   0.748     | 10   0.394     | 5   0.197      | 4   0.157      | 4,5   0.177                  | 42   1.654    |  |
| 45-1   | 48   1.89                | 68   2.677     | 68   2.677 <sup>1)</sup>   | 13,5   0.531   | 10   0.394     | 5   0.197      | 6   0.236      | 6,5   0.256                  | 42   1.654    |  |
| 5-1  | 55   2.165               | 63   2.48      | 63   2.48 <sup>1)</sup>    | 42   1.654     | 14   0.551     | 4   0.157      | 8   0.315      | 9,5   0.374                  | 54   2.126    |  |
| 56-1   | 58   2.283               | 71   2.795     | 71   2.795 <sup>1)</sup>   | 34   1.339     | 14,56   14.56  | 3   0.118      | 7   0.276      | 10,5   0.413                 | 54   2.126    |  |
| 6-1  | 75   2.953               | 101   3.976    | 101   3.976 <sup>1)</sup>  | 60   2.362     | 22   0.866     | 10   0.394     | 13,5   0.531   | 15,5   0.61                  | 82,5   3.248  |  |
| 6a-1   | 60   2.362               | 71   2.795     | –                          | 42   1.654     | 22   0.866     | 5   0.197      | 15,5   0.61    | 10   0.394 <sup>3)</sup>     | 57,75   2.274 |  |
| 6b-1   | 70   2.756               | 81   3.189     | –                          | 42   1.654     | 22   0.866     | 5   0.197      | 15,5   0.61    | 10   0.394 <sup>3)</sup>     | 63   2.48     |  |
| 6700   | 102   4.016              | 118   4.646    | 118   4.646 <sup>1)</sup>  | 36   1.417     | 14   0.551     | 5   0.197      | 8   0.315      | 10   0.394                   | 78   3.071    |  |
| 700  | 101   3.976              | 111   4.37     | 102   4.016                | 54   2.126     | 24   0.945     | 5,5   0.217    | 16   0.63      | 11,5   0.453                 | 84   3.307    |  |
| 7800   | 128   5.039              | 141   5.551    | 141   5.551 <sup>1)</sup>  | 36   1.417     | 14   0.551     | 5   0.197      | 8   0.315      | 8   0.315                    | 90   3.543    |  |
| 8-1  | 115   4.528              | 130   5.118    | 120   4.724                | 60   2.362     | 25   0.984     | 8   0.315      | 16,5   0.65    | 12   0.472                   | 96,75   3.809 |  |
| 96-1   | 135   5.315              | 176   6.929    | 176   6.929 <sup>1)</sup>  | 42   1.654     | 24,36   24.36  | 5   0.197      | 16   0.63      | 14,5   0.571                 | 108   4.252   |  |
| 11600  | 166   6.535              | 191   7.52     | 191   7.52 <sup>1)</sup>   | 36   1.417     | 18,29   18.29  | 10   0.394     | 12,5   0.492   | 9,5   0.374                  | 115   4.528   |  |
| 12800  | 232   9.134              | 266   10.472   | 266   10.472 <sup>1)</sup> | 42   1.654     | 30   1.181     | 10   0.394     | 24   0.945     | 11   0.433                   | 156   6.142   |  |

1) Axial-Nadelkäfige sind mit den Zentrierscheiben und gegebenenfalls auch mit den Axialscheiben von der Frontplattenseite zu entfernen und durch eine Scheibe hinter der Rolle liegend zu ersetzen. Statt Lagernadeln müssen Hartmetall-Laufbuchsen verwendet werden. Klammermaße gelten für Gewinde-Rollköpfe FU 3-1 und FU 34-1.

1) The needle bearings with their accompanying centering rings as well as the thrust washer on the front-plate side are to be removed. The thrust bearing and thrust washer behind the rolls are replaced by a single thrust washer of thicker proportions. Dimensions in parenthesis are for FU 3-1 and FU 34-1 Roll Heads.

2) bei Bund-Ø > D<sub>2</sub> < d<sub>3</sub>

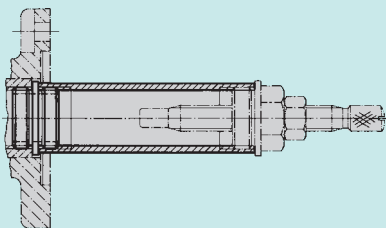
2) for shoulder diameters greater than > D<sub>2</sub> but less than d<sub>3</sub>

3) einschließlich Axial-Nadelkäfig

3) including thrust bearings

**Endanschlag für längere Gewinde**  
**End stop for longer thread length**

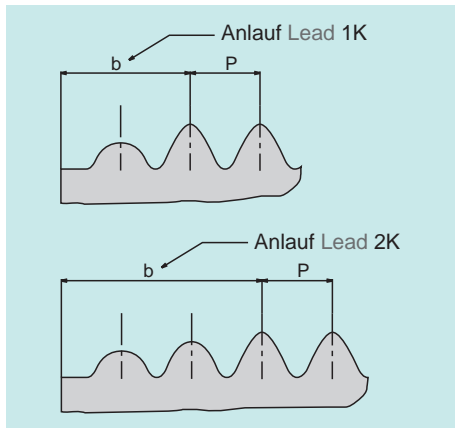
**Endanschlag im Verlängerungsrohr für etwa 200–600 mm lange Gewinde**  
**End Stop with Extension Tube for threads having a length of approx. 7.874– 23.622"**



Sofern die zu rollende Gewindelänge die durch normale Inneneinschläge einstellbare Gewindelänge übersteigt, können Verlängerungsrohre verwendet werden. Dieses hat natürlich eine Veränderung der Rolllänge im oberen Durchmesserbereich zur Folge. Die Abbildung zeigt die Anwendungsmöglichkeit.

If the thread length to be rolled exceeds the thread length normally allowed by the Internal End Stop, Extension Tubes can be used. The Extension Tube changes the length of thread that can be rolled. The figure shows the method of application.

**Bestimmung des Anlaufes an der Gewinderolle bei gegebener  
Freistichbreite am Werkstück**  
Lengths of Imperfect Starting Threads on Rolls



Diese Tabellen helfen Ihnen bei der Bestimmung des maximalen Anlaufes an der Gewinderolle.

Die gebräuchlichen Formeln für die Bestimmung des minimalen Auslaufes des Gewindes oder der minimalen Freistichbreite am Werkstück führen manchmal zu Werten, die von den Anforderungen, die an das Werkstück gestellt werden, her nicht zu realisieren sind. Die Tabellen geben Ihnen dazu Werte von der Stirnseite der Gewinderolle bis zum ersten vollprofiligen Zahn (siehe Maß b) der Gewinderolle an. Dieses gilt für die Anlaufbezeichnungen „1 K“ und „2 K“ bei den Standard-Rollköpfen.

This Table shows the distance from the front of the roll to the center of the first full thread on the roll. It is to be used to determine if the lead you want to use (1 K or 2 K) will thread into the undercut on a particular component, or if you can produce the required length of full thread.

| Steigung<br>Pitch<br>mm<br>inch | Anlauf<br>Lead | Rollkopfgröße Head Size |                |                |                |                |                |                           |                        |                |                |                      |                      |                |                |                |                 |                |                 |                 |                 |                  |                 |                 |                |  |
|---------------------------------|----------------|-------------------------|----------------|----------------|----------------|----------------|----------------|---------------------------|------------------------|----------------|----------------|----------------------|----------------------|----------------|----------------|----------------|-----------------|----------------|-----------------|-----------------|-----------------|------------------|-----------------|-----------------|----------------|--|
|                                 |                | 0                       | 001            | 01<br>01-1     | 1<br>23        | 12             | 1223           | 2<br>233400<br>34<br>34-1 | 2T<br>3<br>3-1<br>45-1 | 4-1<br>56-1    | 3T<br>3-1T     | 4-1T<br>5-1T<br>6700 | 5-1T<br>6a-1<br>6b-1 |                |                |                |                 |                |                 |                 |                 |                  |                 |                 |                |  |
|                                 |                | mm   inch               |                |                |                |                |                |                           |                        |                |                |                      |                      |                |                |                |                 |                |                 |                 |                 |                  |                 |                 |                |  |
| 0,25<br>0.01                    | 1 K<br>2 K     | 0,438<br>0,688          | 0,017<br>0,027 | 0,417<br>0,667 | 0,016<br>0,026 | 0,417<br>0,667 | 0,016<br>0,026 |                           |                        |                |                |                      |                      |                |                |                |                 |                |                 |                 |                 |                  |                 |                 |                |  |
| 0,3<br>0.012                    | 1 K<br>2 K     | 0,475<br>0,775          | 0,019<br>0,031 | 0,550<br>0,850 | 0,022<br>0,033 | 0,550<br>0,850 | 0,022<br>0,033 | 0,500<br>0,800            | 0,020<br>0,031         | 0,450<br>0,750 | 0,018<br>0,030 |                      |                      |                |                |                |                 |                |                 |                 |                 |                  |                 |                 |                |  |
| 0,35<br>0.014                   | 1 K<br>2 K     | 0,588<br>0,938          | 0,023<br>0,037 | 0,583<br>0,933 | 0,023<br>0,037 | 0,683<br>1,033 | 0,027<br>0,041 | 0,558<br>0,908            | 0,022<br>0,036         | 0,583<br>0,933 | 0,023<br>0,037 |                      |                      |                |                |                |                 |                |                 |                 |                 |                  |                 |                 |                |  |
| 0,4<br>0.016                    | 1 K<br>2 K     | 0,700<br>1,100          | 0,028<br>0,043 | 0,767<br>1,167 | 0,03<br>0,046  | 0,667<br>1,067 | 0,026<br>0,042 | 0,767<br>1,167            | 0,030<br>0,046         | 0,667<br>1,067 | 0,026<br>0,042 |                      |                      |                |                |                |                 |                |                 |                 |                 |                  |                 |                 |                |  |
| 0,45<br>0.018                   | 1 K<br>2 K     | 0,738<br>1,188          | 0,029<br>0,047 | 0,875<br>1,325 | 0,034<br>0,052 | 0,800<br>1,250 | 0,031<br>0,049 | 0,825<br>1,275            | 0,032<br>0,050         | 0,775<br>1,225 | 0,031<br>0,048 |                      |                      |                |                |                |                 |                |                 |                 |                 |                  |                 |                 |                |  |
| 0,5<br>0.02                     | 1 K<br>2 K     | 0,875<br>1,375          | 0,034<br>0,054 | 0,833<br>1,333 | 0,033<br>0,052 | 0,833<br>1,333 | 0,033<br>0,052 | 0,833<br>1,333            | 0,033<br>0,052         | 0,833<br>1,333 | 0,033<br>0,052 |                      |                      |                |                |                |                 |                |                 |                 |                 |                  |                 |                 |                |  |
| 0,6<br>0.024                    | 1 K<br>2 K     | 1,150<br>1,750          | 0,045<br>0,069 | 0,900<br>1,100 | 0,035<br>0,043 | 0,900<br>1,500 | 0,035<br>0,059 | 1,000<br>1,600            | 0,039<br>0,063         | 1,100<br>1,700 | 0,043<br>0,067 |                      |                      |                |                |                |                 |                |                 |                 |                 |                  |                 |                 |                |  |
| 0,7<br>0.028                    | 1 K<br>2 K     | 1,025<br>1,725          | 0,040<br>0,068 | 1,167<br>1,867 | 0,046<br>0,073 | 1,267<br>1,967 | 0,050<br>0,077 | 1,317<br>2,017            | 0,052<br>0,079         | 1,217<br>1,917 | 0,048<br>0,075 | 1,167<br>1,867       | 0,046<br>0,073       |                |                |                |                 |                |                 |                 |                 |                  |                 |                 |                |  |
| 0,75<br>0.03                    | 1 K<br>2 K     | 1,188<br>1,938          | 0,047<br>0,076 | 1,375<br>2,125 | 0,054<br>0,084 | 1,375<br>2,125 | 0,054<br>0,079 | 1,250<br>2,000            | 0,049<br>0,079         | 1,125<br>1,875 | 0,044<br>0,074 | 1,125<br>1,875       | 0,044<br>0,074       | 1,375<br>2,125 | 0,054<br>0,084 |                |                 |                |                 |                 |                 |                  |                 |                 |                |  |
| 0,8<br>0.031                    | 1 K<br>2 K     | 1,400<br>2,200          | 0,055<br>0,087 |                |                | 1,533<br>2,333 | 0,060<br>0,092 | 1,233<br>2,033            | 0,049<br>0,08          | 1,333<br>2,133 | 0,052<br>0,084 | 1,533<br>2,333       | 0,060<br>0,092       | 1,333<br>2,133 | 0,052<br>0,084 | 1,433<br>2,233 | 0,056<br>0,088  |                |                 |                 |                 |                  |                 |                 |                |  |
| 0,9<br>0.035                    | 1 K<br>2 K     | 1,525<br>2,425          | 0,060<br>0,095 |                |                | 1,550<br>2,450 | 0,061<br>0,096 | 1,350<br>2,250            | 0,053<br>0,089         | 1,650<br>2,550 | 0,065<br>0,1   | 1,750<br>2,650       | 0,069<br>0,104       | 1,600<br>2,500 | 0,063<br>0,098 | 1,400<br>2,300 | 0,055<br>0,091  |                |                 |                 |                 |                  |                 |                 |                |  |
| 1,0<br>0.039                    | 1 K<br>2 K     | 1,750<br>2,750          | 0,069<br>0,108 |                |                | 1,667<br>2,667 | 0,066<br>0,105 | 1,667<br>2,667            | 0,066<br>0,105         | 1,667<br>2,667 | 0,066<br>0,105 | 1,667<br>2,667       | 0,066<br>0,105       | 1,667<br>2,667 | 0,066<br>0,105 | 1,667<br>2,667 | 0,066<br>0,105  |                |                 |                 |                 |                  |                 |                 |                |  |
| 1,25<br>0.049                   | 1 K<br>2 K     |                         |                |                |                | 2,083<br>3,333 | 0,082<br>0,131 | 2,083<br>3,333            | 0,082<br>0,131         | 1,833<br>3,083 | 0,072<br>0,121 | 2,208<br>3,458       | 0,087<br>0,136       | 2,083<br>3,333 | 0,082<br>0,131 | 2,083<br>3,333 | 0,082<br>0,131  |                |                 |                 |                 |                  |                 |                 |                |  |
| 1,5<br>0.059                    | 1 K<br>2 K     |                         |                |                |                | 2,250<br>3,750 | 0,089<br>0,148 | 2,500<br>4,000            | 0,098<br>0,157         | 2,500<br>4,000 | 0,098<br>0,157 | 2,750<br>4,250       | 0,108<br>0,148       | 2,250<br>3,750 | 0,089<br>0,148 | 2,500<br>4,000 | 0,098<br>0,157  | 2,250<br>3,750 | 0,089<br>0,148  |                 |                 |                  |                 |                 |                |  |
| 1,75<br>0.069                   | 1 K<br>2 K     |                         |                |                |                |                |                | 2,792<br>4,542            | 0,110<br>0,179         |                |                | 3,276<br>5,042       | 0,129<br>0,198       | 3,145<br>4,899 | 0,124<br>0,193 | 3,042<br>4,792 | 0,120<br>0,189  | 2,792<br>4,542 | 0,110<br>0,203  |                 |                 |                  |                 |                 |                |  |
| 2,0<br>0.079                    | 1 K<br>2 K     |                         |                |                |                |                |                |                           |                        |                |                | 3,333<br>5,333       | 0,131<br>0,210       | 3,333<br>5,333 | 0,131<br>0,210 | 3,333<br>5,333 | 0,131<br>0,210  | 3,292<br>5,292 | 0,130<br>0,208  |                 |                 |                  |                 |                 |                |  |
| 2,5<br>0.098                    | 1 K<br>2 K     |                         |                |                |                |                |                |                           |                        |                |                |                      | 4,150<br>6,655       | 0,163<br>0,262 | 4,167<br>6,667 | 0,164<br>0,262 | 4,167<br>6,667  | 0,164<br>0,262 | 4,135<br>6,640  | 0,163<br>0,261  |                 |                  |                 |                 |                |  |
| 3,0<br>0.118                    | 1 K<br>2 K     |                         |                |                |                |                |                |                           |                        |                |                |                      |                      | 5,488<br>8,488 | 0,216<br>0,334 | 4,983<br>7,983 | 0,196<br>0,341  | 4,500<br>7,500 | 0,177<br>0,295  | 5,476<br>8,500  | 0,216<br>0,335  |                  |                 |                 |                |  |
| 3,5<br>0.138                    | 1 K<br>2 K     |                         |                |                |                |                |                |                           |                        |                |                |                      |                      |                | 6,083<br>9,583 | 0,239<br>0,377 | 6,807<br>10,307 | 0,268<br>0,406 | 5,833<br>9,333  | 0,230<br>0,367  | 6,555<br>10,055 | 0,258<br>0,396   |                 |                 |                |  |
| 4,0<br>0.157                    | 1 K<br>2 K     |                         |                |                |                |                |                |                           |                        |                |                |                      |                      |                |                |                |                 |                | 6,167<br>10,167 | 0,243<br>0,40   | 6,680<br>10,667 | 0,263<br>0,420   | 7,667<br>11,667 | 0,302<br>0,459  |                |  |
| 4,5<br>0.177                    | 1 K<br>2 K     |                         |                |                |                |                |                |                           |                        |                |                |                      |                      |                |                |                |                 |                |                 | 7,000<br>11,500 | 0,276<br>0,453  | 11,748<br>16,248 | 0,463<br>0,640  | 7,750<br>12,250 | 0,305<br>0,482 |  |
| 5,0<br>0.197                    | 1 K<br>2 K     |                         |                |                |                |                |                |                           |                        |                |                |                      |                      |                |                |                |                 |                |                 | 8,333<br>13,333 | 0,328<br>0,525  | 8,357<br>13,333  | 0,329<br>0,525  | 8,333<br>13,333 | 0,328<br>0,525 |  |
| 5,5<br>0.217                    | 1 K<br>2 K     |                         |                |                |                |                |                |                           |                        |                |                |                      |                      |                |                |                |                 |                |                 |                 |                 |                  |                 | 9,417<br>14,917 | 0,371<br>0,587 |  |
| 6,0<br>0.236                    | 1 K<br>2 K     |                         |                |                |                |                |                |                           |                        |                |                |                      |                      |                |                |                |                 |                |                 |                 |                 |                  |                 |                 |                |  |

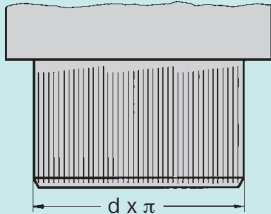


Bestimmung des Anlaufes an der Gewinderolle bei gegebener  
 Freistichbreite am Werkstück  
 Lengths of Imperfect Starting Threads on Rolls

| Gang-<br>zahl /<br>1"<br>T.P.I.<br>mm<br>inch | An-<br>lauf<br>Lead | Rollkopfgröße Head Size |       |        |       |       |       |       |       |       |       |       |       |        |       |        |        |        |       |
|---|---------------------|-------------------------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|--------|--------|--------|-------|
|   |                     | 0                       | 001   | 01     | 1     | 12    | 1223  | 2     | 2T    | 4-1   | 3T    | 4-1T  | 5-1T  |        |       |        |        |        |       |
|   |                     | 01-1                    | 23    | 233400 | 3     | 56-1  | 3-1T  | 5-1T  | 6a-1  | 6b-1  |       |       |       |        |       |        |        |        |       |
|   |                     | mm                      |       |        |       |       |       | inch  |       |       |       |       |       |        |       |        |        |        |       |
| 90  | 1 K                 | 0,546                   | 0,021 | 0,445  | 0,018 | 0,535 | 0,021 |       |       |       |       |       |       |        |       |        |        |        |       |
|   | 2 K                 | 0,828                   | 0,033 | 0,727  | 0,029 | 0,817 | 0,032 |       |       |       |       |       |       |        |       |        |        |        |       |
| 80  | 1 K                 | 0,582                   | 0,023 | 0,532  | 0,021 | 0,602 | 0,024 | 0,557 | 0,022 | 0,534 | 0,021 |       |       |        |       |        |        |        |       |
|   | 2 K                 | 0,900                   | 0,035 | 0,850  | 0,033 | 0,919 | 0,036 | 0,875 | 0,034 | 0,852 | 0,034 |       |       |        |       |        |        |        |       |
| 72  | 1 K                 | 0,588                   | 0,023 | 0,558  | 0,022 | 0,646 | 0,025 | 0,675 | 0,027 | 0,528 | 0,021 |       |       |        |       |        |        |        |       |
|   | 2 K                 | 0,911                   | 0,036 | 0,911  | 0,036 | 0,999 | 0,039 | 1,028 | 0,040 | 0,881 | 0,035 |       |       |        |       |        |        |        |       |
| 64  | 1 K                 | 0,725                   | 0,029 | 0,589  | 0,023 | 0,699 | 0,028 | 0,619 | 0,024 | 0,707 | 0,028 | 0,714 | 0,028 |        |       |        |        |        |       |
|   | 2 K                 | 1,122                   | 0,044 | 0,986  | 0,039 | 1,096 | 0,043 | 1,016 | 0,040 | 1,104 | 0,043 | 1,111 | 0,044 |        |       |        |        |        |       |
| 60  | 1 K                 | 0,722                   | 0,028 | 0,821  | 0,032 | 0,629 | 0,025 | 0,803 | 0,032 | 0,783 | 0,031 | 0,726 | 0,029 |        |       |        |        |        |       |
|   | 2 K                 | 1,145                   | 0,045 | 1,244  | 0,049 | 1,052 | 0,041 | 1,226 | 0,048 | 1,206 | 0,047 | 1,149 | 0,045 |        |       |        |        |        |       |
| 56  | 1 K                 | 0,709                   | 0,028 | 0,852  | 0,034 | 0,763 | 0,030 | 0,766 | 0,030 | 0,855 | 0,034 | 0,720 | 0,028 |        |       |        |        |        |       |
|   | 2 K                 | 1,163                   | 0,046 | 1,306  | 0,051 | 1,217 | 0,048 | 1,220 | 0,048 | 1,309 | 0,052 | 1,174 | 0,046 |        |       |        |        |        |       |
| 48  | 1 K                 | 0,958                   | 0,038 | 0,944  | 0,037 | 0,856 | 0,034 | 0,976 | 0,038 | 0,798 | 0,031 | 1,005 | 0,040 | 0,831  | 0,033 |        |        |        |       |
|   | 2 K                 | 1,487                   | 0,059 | 1,472  | 0,058 | 1,385 | 0,055 | 1,505 | 0,059 | 1,327 | 0,052 | 1,534 | 0,060 | 1,360  | 0,054 |        |        |        |       |
| 44  | 1 K                 | 0,971                   | 0,038 | 1,000  | 0,039 | 0,480 | 0,019 | 0,961 | 0,038 | 0,903 | 0,036 | 1,038 | 0,041 | 0,864  | 0,034 |        |        |        |       |
|   | 2 K                 | 1,548                   | 0,061 | 1,577  | 0,062 | 1,057 | 0,042 | 1,538 | 0,061 | 1,480 | 0,058 | 1,615 | 0,064 | 1,441  | 0,057 |        |        |        |       |
| 40  | 1 K                 | 0,984                   | 0,039 | 1,066  | 0,042 | 0,978 | 0,038 | 0,938 | 0,037 | 1,025 | 0,040 | 1,073 | 0,042 | 1,216  | 0,048 |        |        |        |       |
|   | 2 K                 | 1,619                   | 0,064 | 1,700  | 0,067 | 1,613 | 0,063 | 1,891 | 0,074 | 1,661 | 0,065 | 1,708 | 0,067 | 1,851  | 0,073 |        |        |        |       |
| 36  | 1 K                 | 1,353                   | 0,053 | 1,147  | 0,045 | 1,235 | 0,049 | 1,264 | 0,050 | 1,176 | 0,046 | 1,117 | 0,044 | 1,293  | 0,051 |        |        |        |       |
|   | 2 K                 | 2,059                   | 0,081 | 1,853  | 0,073 | 1,941 | 0,076 | 1,970 | 0,078 | 1,882 | 0,074 | 1,823 | 0,072 | 1,999  | 0,079 |        |        |        |       |
| 32  | 1 K                 | 1,419                   | 0,056 | 1,250  | 0,049 | 1,559 | 0,061 | 1,281 | 0,050 | 1,368 | 0,054 | 1,574 | 0,062 | 1,399  | 0,055 | 1,516  | 0,060  |        |       |
|   | 2 K                 | 2,214                   | 0,087 | 2,044  | 0,080 | 2,353 | 0,093 | 2,074 | 0,082 | 2,162 | 0,085 | 2,368 | 0,093 | 2,192  | 0,086 | 2,310  | 0,091  |        |       |
| 28  | 1 K                 | 1,506                   | 0,059 |        |       | 1,523 | 0,060 | 1,755 | 0,069 | 1,616 | 0,064 | 1,710 | 0,067 | 1,535  | 0,060 | 1,767  | 0,070  |        |       |
|   | 2 K                 | 2,413                   | 0,095 |        |       | 2,430 | 0,096 | 2,663 | 0,105 | 2,523 | 0,099 | 2,617 | 0,103 | 2,442  | 0,096 | 2,674  | 0,105  |        |       |
| 26  | 1 K                 | 1,801                   | 0,071 |        |       | 1,743 | 0,069 | 1,801 | 0,071 | 1,766 | 0,070 | 1,789 | 0,070 | 1,858  | 0,073 | 1,916  | 0,075  |        |       |
|   | 2 K                 | 2,778                   | 0,109 |        |       | 2,720 | 0,107 | 2,778 | 0,109 | 2,743 | 0,108 | 2,766 | 0,109 | 2,836  | 0,112 | 2,893  | 0,114  |        |       |
| 24  | 1 K                 | 1,620                   | 0,064 |        |       | 2,002 | 0,079 | 1,858 | 0,073 | 1,944 | 0,077 | 1,887 | 0,074 | 1,712  | 0,067 | 2,097  | 0,083  | 1,952  | 0,077 |
|   | 2 K                 | 2,678                   | 0,105 |        |       | 3,060 | 0,120 | 2,915 | 0,115 | 3,002 | 0,118 | 2,944 | 0,116 | 2,771  | 0,109 | 3,154  | 0,124  | 3,010  | 0,118 |
| 22  | 1 K                 | 1,845                   | 0,073 |        |       | 1,728 | 0,068 | 1,912 | 0,075 | 2,147 | 0,085 | 1,991 | 0,078 | 2,108  | 0,083 | 1,720  | 0,068  | 1,910  | 0,075 |
|   | 2 K                 | 3,000                   | 0,118 |        |       | 2,883 | 0,113 | 3,067 | 0,121 | 3,303 | 0,130 | 3,147 | 0,124 | 3,263  | 0,128 | 2,875  | 0,113  | 3,065  | 0,121 |
| 20  | 1 K                 | 2,413                   | 0,095 |        |       | 2,037 | 0,080 | 1,996 | 0,079 | 2,402 | 0,095 | 2,132 | 0,084 | 1,957  | 0,077 | 1,916  | 0,075  | 2,512  | 0,099 |
|   | 2 K                 | 3,683                   | 0,145 |        |       | 3,307 | 0,130 | 3,267 | 0,129 | 3,672 | 0,145 | 3,402 | 0,134 | 3,227  | 0,127 | 3,187  | 0,125  | 3,782  | 0,149 |
| 19  | 1 K                 |                         |       |        |       |       |       | 2,376 | 0,094 | 2,213 | 0,087 | 2,543 | 0,100 | 2,202  | 0,087 | 2,027  | 0,080  | 2,521  | 0,099 |
|   | 2 K                 |                         |       |        |       |       |       | 3,713 | 0,146 | 3,550 | 0,140 | 3,880 | 0,153 | 3,537  | 0,139 | 3,364  | 0,132  | 3,858  | 0,152 |
| 18  | 1 K                 |                         |       |        |       |       |       | 2,090 | 0,082 | 2,708 | 0,107 | 2,297 | 0,090 | 2,474  | 0,097 | 2,152  | 0,085  | 2,536  | 0,100 |
|   | 2 K                 |                         |       |        |       |       |       | 3,502 | 0,138 | 4,119 | 0,162 | 3,708 | 0,146 | 3,886  | 0,153 | 3,563  | 0,140  | 3,947  | 0,155 |
| 16  | 1 K                 |                         |       |        |       |       |       | 3,000 | 0,118 | 2,295 | 0,090 |       |       | 2,324  | 0,091 | 2,443  | 0,096  | 2,561  | 0,101 |
|   | 2 K                 |                         |       |        |       |       |       | 4,589 | 0,181 | 3,883 | 0,153 |       |       | 3,913  | 0,154 | 4,031  | 0,159  | 4,149  | 0,163 |
| 14  | 1 K                 |                         |       |        |       |       |       | 3,267 | 0,129 |       |       |       |       | 3,046  | 0,120 | 2,826  | 0,111  | 3,511  | 0,138 |
|   | 2 K                 |                         |       |        |       |       |       | 5,081 | 0,200 |       |       |       |       | 4,860  | 0,191 | 4,640  | 0,183  | 5,325  | 0,210 |
| 13  | 1 K                 |                         |       |        |       |       |       |       |       |       |       |       |       | 3,486  | 0,137 | 3,056  | 0,120  | 3,602  | 0,142 |
|   | 2 K                 |                         |       |        |       |       |       |       |       |       |       |       |       | 5,441  | 0,214 | 5,010  | 0,197  | 5,556  | 0,219 |
| 12  | 1 K                 |                         |       |        |       |       |       |       |       |       |       |       |       | 4,002  | 0,158 | 3,327  | 0,131  | 3,710  | 0,146 |
|   | 2 K                 |                         |       |        |       |       |       |       |       |       |       |       |       | 6,119  | 0,241 | 5,443  | 0,214  | 5,826  | 0,229 |
| 11  | 1 K                 |                         |       |        |       |       |       |       |       |       |       |       |       | 3,459  | 0,136 | 3,649  | 0,144  | 3,840  | 0,151 |
|   | 2 K                 |                         |       |        |       |       |       |       |       |       |       |       |       | 5,767  | 0,227 | 5,957  | 0,235  | 6,149  | 0,242 |
| 10  | 1 K                 |                         |       |        |       |       |       |       |       |       |       |       |       | 4,074  | 0,160 | 4,033  | 0,159  | 3,994  | 0,157 |
|   | 2 K                 |                         |       |        |       |       |       |       |       |       |       |       |       | 6,614  | 0,260 | 6,562  | 0,258  | 6,534  | 0,257 |
| 9   | 1 K                 |                         |       |        |       |       |       |       |       |       |       |       |       | 4,826  | 0,190 | 4,491  | 0,177  | 4,183  | 0,165 |
|   | 2 K                 |                         |       |        |       |       |       |       |       |       |       |       |       | 7,648  | 0,301 | 7,327  | 0,288  | 6,991  | 0,275 |
| 8   | 1 K                 |                         |       |        |       |       |       |       |       |       |       |       |       | 4,179  | 0,165 | 5,092  | 0,200  | 6,041  | 0,238 |
|   | 2 K                 |                         |       |        |       |       |       |       |       |       |       |       |       | 8,267  | 0,325 | 9,161  | 0,361  | 8,505  | 0,335 |
| 7   | 1 K                 |                         |       |        |       |       |       |       |       |       |       |       |       | 5,847  | 0,230 | 6,523  | 0,257  | 5,427  | 0,214 |
|   | 2 K                 |                         |       |        |       |       |       |       |       |       |       |       |       | 9,476  | 0,373 | 10,152 | 0,400  | 9,056  | 0,357 |
| 6   | 1 K                 |                         |       |        |       |       |       |       |       |       |       |       |       | 6,856  | 0,270 | 7,240  | 0,2851 | 7,623  | 0,300 |
|   | 2 K                 |                         |       |        |       |       |       |       |       |       |       |       |       | 11,089 | 0,437 | 11,473 | 0,452  | 11,856 | 0,467 |
| 5   | 1 K                 |                         |       |        |       |       |       |       |       |       |       |       |       |        |       |        |        | 13,267 | 0,522 |
|   | 2 K                 |                         |       |        |       |       |       |       |       |       |       |       |       |        |       |        |        | 18,347 | 0,722 |
| 4 1/2   | 1 K                 |                         |       |        |       |       |       |       |       |       |       |       |       |        |       |        |        | 9,975  | 0,393 |
|   | 2 K                 |                         |       |        |       |       |       |       |       |       |       |       |       |        |       |        |        | 15,619 | 0,615 |
| 4   | 1 K                 |                         |       |        |       |       |       |       |       |       |       |       |       |        |       |        |        | 9,033  | 0,356 |
|   | 2 K                 |                         |       |        |       |       |       |       |       |       |       |       |       |        |       |        |        | 15,383 | 0,606 |
| 3 1/2   | 1 K                 |                         |       |        |       |       |       |       |       |       |       |       |       |        |       |        |        |        |       |
|   | 2 K                 |                         |       |        |       |       |       |       |       |       |       |       |       |        |       |        |        |        |       |
| 3   | 1 K                 |                         |       |        |       |       |       |       |       |       |       |       |       |        |       |        |        |        |       |
|   | 2 K                 |                         |       |        |       |       |       |       |       |       |       |       |       |        |       |        |        |        |       |

Rändeln nach DIN 82  
Knurling to DIN 82

Abwicklung eines Rändel-  
auslaufes Rändelauslauf  
ca. 3,5 x Zahnhöhe (h)  
Knurl runout approx.  
3.5 x Tooth Height (h)



Achsparallele  
Rändelung Form RAA  
Straight Knurl  
Design RAA



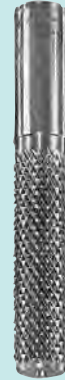
Rechtsgängige  
Rändelung Form RBR  
R. H. Helical Knurl  
Design RBR



Linksgängige  
Rändelung Form RBL  
L. H. Helical Knurl  
Design RBL



Links-Rechts-Rändel  
Form RGE  
Diamond Knurl  
Design RGE



Rändelungen und Kordelungen lassen sich mit Fette-Gewinde-  
Rollköpfen sehr wirtschaftlich herstellen.

Aus der Tabelle auf Seite 209 können die gängigen Teilungen und  
Zahnhöhen bei einem Lückenwinkel von 90° entnommen werden.  
Die Rollzeit – die Zeit vom Anfahren bis zum Öffnen des Rollkopfes  
– errechnet sich aus der Rolllänge, der Rollkopfkonstanten und der  
Drehzahl. Dabei ist es gleichgültig, ob das Werkstück oder der Roll-  
kopf umläuft. Wenn beide, Rollkopf und Werkstück umlaufen, so ist  
bei gleichem Drehsinn die Differenz – und bei entgegengesetztem  
Drehsinn die Summe der Drehzahlen anzusetzen.

Straight, Helical and Diamond Knurls can be rolled very  
economically by using Fette Thread Rolling Heads.

The following table shows the most commonly used pitches and  
tooth heights at 90° included angle: – page 209 –  
The actual rolling time is calculated by considering the rolling  
length, the given constant for the Thread Rolling Head and the  
spindle speed. In this case it is unimportant whether the compo-  
nent or the Thread Rolling Head is rotating. If both, Thread Rolling  
Head and component are rotating and in case of rotation in the  
same direction the difference – and when rotating in the opposite  
direction, the sum of the spindle speeds is entered.

Die Rollzeit errechnet sich nach folgender Formel:

$$t_r = \frac{60 \cdot L}{n \cdot d_v \cdot k} \quad [s]$$

Der Andrückvorschub errechnet sich nach folgender Formel:

$$s = d_v \cdot k \quad [mm/U]$$

$$d_v = d - h \quad [mm]$$

$$L = \text{Rolllänge} \quad [mm]$$

$$d_v = \text{Rolldurchmesser} \quad [mm]$$

$$d = \text{Außendurchmesser} \quad [mm]$$

$$h = \text{Zahnhöhe}^1) \quad [mm]$$

$$n = \text{Drehzahl} \quad [min^{-1}]$$

$$k = \text{Rollkopfkonstante}^1) \quad [mm]$$

$$v = \text{Rollgeschwindigkeit} \quad [m/min]$$

1) siehe nachfolgende Tabellen

Wie aus der Abwicklung einer Rändelung ersichtlich, ergibt sich  
beim Rollen ein sägenförmiger Auslauf. Dieser ist durch die Anord-  
nung der Rollen bedingt – für die Praxis jedoch ohne Bedeutung.  
Sollte er stören, so wird entweder ein Freistich vorgesehen oder  
das Gegenstück entsprechend angefast.

The actual rolling time is calculated by using the following formula:

$$t_r = \frac{60 \cdot L}{n \cdot d_v \cdot k} \quad [sec]$$

The rate of feed is calculated by using the following formula:

$$s = d_v \cdot k \quad [mm/rev.]$$

$$d_v = d - h \quad [mm]$$

$$L = \text{Rolling Length} \quad [mm]$$

$$d_v = \text{Blank diameter} \quad [mm]$$

$$d = \text{Major diameter} \quad [mm]$$

$$h = \text{Tooth height}^1) \quad [mm]$$

$$n = \text{Spindle Speed} \quad [RPM]$$

$$k = \text{Constant for Thread Rolling Head}^1) \quad [mm]$$

$$v = \text{Rolling Speed} \quad [SFM]$$

1) see tables on next pages

The rolled knurls runout on the component has a zigzag shape.  
This is caused by how the Rolls are assembled – which is not of  
importance for the knurls function. If this condition is not desired, a  
recess could be machined or the mating part could be chamfered  
accordingly.

**Rändel RAA und RGE mit einem Lückenwinkel von 90°**  
Knurl RAA and RGE with Gap Angle 90°

| Teilung<br>Pitch<br>t<br>mm   inch | Zahnhöhe<br>Tooth height<br>h<br>mm   inch |
|------------------------------------|--|
| 0,5   0.020                        | 0,23   0.009                               |
| 0,6   0.024                        | 0,25   0.01                                |
| 0,8   0.031                        | 0,37   0.014                               |
| 1,0   0.039                        | 0,47   0.018                               |
| 1,2   0.047                        | 0,5   0.02                                 |
| 1,5   0.059                        | 0,64   0.025                               |
| 1,6   0.063                        | 0,75   0.03                                |
| 2,0   0.079                        | 0,95   0.037                               |

**Rollkopfkongstante in Abhängigkeit von der Rollkopfgröße**  
(Standard-Ausführung)  
Set figure for the Thread Rolling Head in relation to the Head size  
(Standard-Design)

| Rollkopfgröße<br>Head Type | Rollkopfkongstante<br>Head Constant<br>k | Rollkopfgröße<br>Head Type | Rollkopfkongstante<br>Head Constant<br>k |
|----------------------------|--|----------------------------|--|
| 001                        | 0.22                                     | 45-1                       | 0.06                                     |
| 01                         | 0.19                                     | 5-1                        | 0.14                                     |
| 0                          | 0.22                                     | 56-1                       | 0.05                                     |
| 1                          | 0.19                                     | 6a-1                       | 0.11                                     |
| 12                         | 0.10                                     | 6b-1                       | 0.11                                     |
| 1223                       | 0.16                                     | 6700                       | 0.04                                     |
| 2                          | 0.16                                     | 700                        | 0.09                                     |
| 23                         | 0.08                                     | 7800                       | 0.032                                    |
| 233400                     | 0.07                                     | 8-1                        | 0.073                                    |
| 3                          | 0.15                                     | 96-1                       | 0.082                                    |
| 32                         | 0.15                                     | 11600                      | 0.023                                    |
| 34                         | 0.07                                     | 12600                      | 0.027                                    |
| 4-1                        | 0.14                                     |                            |  |

**Beispiel Example:**  
Rändel RAA 1,0–30 mm lang im Rollkopf F1  
Straight Knurling RAA 1,0–30 mm long in Rolling Head F1

**METRIC**

$$d_v = d - h$$

$$= 10 - 0,47 \quad d_v = 9,53 \text{ mm}$$

$$n = \frac{1000 \cdot v}{d_v \cdot \pi} \quad [\text{min}^{-1}]$$

$$= \frac{1000 \cdot 30}{9,53 \cdot 3,14} \quad n = 1000 \text{ min}^{-1}$$

$$t_r = \frac{60 \cdot L}{n \cdot d_v \cdot k} \quad [\text{s} | \text{sec}]$$

$$= \frac{60 \cdot 30}{1000 \cdot 9,53 \cdot 0,19} \quad t_r = 1 \text{ s} | \text{sec}$$

$$s = d_v \cdot k \quad [\text{mm/U} | \text{mm/rev}]$$

$$= 9,53 \cdot 0,19 \quad s = 1,8 \text{ mm/U} | \text{mm/rev}$$

**Beispiel Example:**  
Rändel RAA 0.047–1/4 Zoll lang im Rollkopf F1  
Straight Knurling RAA 0.047–1/4 inch long in Rolling Head F1

**INCH**

$$d_v = d - h$$

$$= 0.25 - 0.02 \quad d_v = 0.23 \text{ Inch}$$

$$n = \frac{12 \cdot v}{d_v \cdot \pi} \quad [\text{RPM}]$$

$$= \frac{12 \cdot 120}{0.23 \cdot 3.14} \quad n = 1994 \text{ RPM}$$

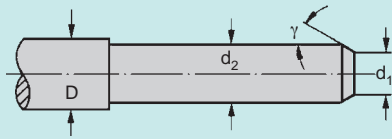
$$t_r = \frac{60 \cdot L}{n \cdot d_v \cdot k} \quad [\text{s} | \text{sec}]$$

$$= \frac{60 \cdot 75}{1994 \cdot 0.23 \cdot 0.19} \quad t_r = 0.52 \text{ s} | \text{sec}$$

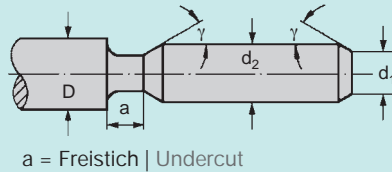
$$s = d_v \cdot k \quad [\text{Inch/U} | \text{inch/rev}]$$

$$= 0.23 \cdot 0.19 \quad s = 0.0437 \text{ Inch /U} | \text{inch/rev}$$

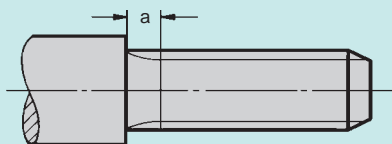
**1**  
Anfasung am Gewindeeinlauf bei Werkstücken ohne Freistich  
Chamfer at the thread start



**2**  
Anfasung und Freistich am Gewindeauslauf  
Chamfer and undercut at thread runout

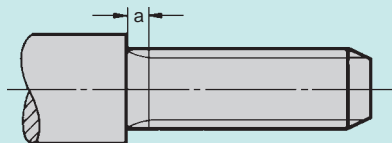


**3**  
Gewindeauslauflänge bei Rollenanlauf 2 K  
Length of thread runout for 2 K Roll lead



a = Gewindeauslauf ca. 3,3 x p  
genaue Werte siehe Tabellen Seiten 206, 207  
Thread runout approx. 3.3 x p  
See tables pages 206, 207.

**4**  
Gewindeauslauflänge bei Rollenanlauf 1 K  
Length of thread runout for 1 K Roll lead



a = Gewindeauslauf ca. 2,3 x p  
genaue Werte siehe Tabellen Seiten 206, 207  
Thread runout approx. 2.3 x p  
See tables pages 206, 207.

Der Ausgangs-Ø entspricht etwa dem Flanken-Ø des zu rollenden Gewindes. Je nach Werkstoff sind Abweichungen möglich. Der durch einen Rollversuch entsprechend der Bedienungsanleitung zum Gewinde-Rollkopf ermittelte Ausgangs-Ø ist das Größtmaß. Die Werkstücke sind unter  $\gamma = 10^\circ$  bis  $25^\circ$  zur Werkstückachse anzufasen. Ein Freistich im Gewindeauslauf ist nicht erforderlich (Abb. 1). Ist jedoch ein Freistich vorgesehen, ist auch dieser entsprechend Abb. 2 anzufassen. Der Durchmesser  $d_1$  muß ca. 0,5 bis 1 mm kleiner als der Kern-Ø des Gewindes sein.

**Fette-Axial-Gewinderollen sind doppelseitig verwendbar, für Rechts- und Linksgewinde.**

The blank diameter  $D_2$  corresponds approximately to the pitch diameter of the rolled thread. Adjust the head to size by using a rolled component or plug gage; then roll a thread and measure the pitch diameter. Adjust the head until you obtain correct pitch diameter, then increase the blank diameter until the major diameter falls within limits. Keep in mind that for every 0.001" change in the blank, the major will change 0.003". The component must have a  $10^\circ$  to  $30^\circ$  chamfer from the axis of the component starting from 0.020" to 0.039" below minor diameter of thread. If there is an undercut the chamfer angle on it should be from  $10^\circ$  to  $30^\circ$ . During the rolling operation the chamfer will grow  $15^\circ$ , so if you start with a  $30^\circ$  chamfer, it will be  $45^\circ$  after rolling.

**Fette-Axial Thread rolls can be used for right and left-hand threads they can be used from both sides either. For left-hand threads a left-hand Rolling Head is required.**

### Toleranz des Ausgangs-Ø

Die Toleranz des Ausgangs-Ø ist abhängig von der Toleranzklasse, vom gewünschten Ausrollgrad und von der Steigung des zu rollenden Gewindes. Entsprechend der Bedienungsanleitung zum Gewinde-Rollkopf wird durch einen Rollversuch das Größtmaß des Ausgangs-Ø und die Einstellung des Rollkopfes ermittelt. Bei unveränderter Rollkopf-Einstellung wird durch weitere Versuche das Kleinstmaß des Ausgangsdurchmessers ermittelt, bei welchem Flankendurchmesser und Außen-Ø des gerollten Gewindes noch innerhalb der geforderten Toleranzklasse liegen.

Die Tabelle zeigt die mögliche Toleranz. Als Richtwert kann bei einem Regelgewinde in der Toleranzklasse 6 g eingesetzt werden:  
**Toleranz des Ausgangs-Ø  $\approx$  halbe Toleranz des Flanken-Ø.**

### Blank Diameter Tolerance

Blank diameter tolerances have a definite relationship to the tolerance of the thread being rolled. Although the blank diameter information given is based on practice, it is only approximate. All blank diameters should be confirmed by testing before producing blanks in quantities.

The table shows the tolerances possible. For a Standard Type Thread, tolerance fit class 6 g can be used as a guide value: As a general rule the blank diameter tolerances for Unified and Metric ISO approximate one third of the pitch diameter tolerances.

| 5 Beispiele zur zulässigen Toleranz des Ausgangs-Ø<br>5 Examples of the permitted tolerance on the initial diameter | Gewinde M16<br>Größtmaß<br>Metric Thread M16<br>Maximum Size<br>mm   inch | 6 g (mittel)<br>Kleinstmaß<br>6 g (medium)<br>Minimum Size<br>mm   inch |
|---|---|---|
| Ausgangs-Ø<br>Blank diameter  | 14,7<br>0.579"  | 14,6<br>0.575"  |
| Zulässiger Ausgangs-Ø<br>Permissible major dia.   | 15,962<br>0.628"  | 15,682<br>0.617"  |
| Gerollter Außen-Ø<br>Rolled major diameter  | 15,960<br>0.628"  | 15,683<br>0.617"  |
| Zulässiger Flanken-Ø<br>Permissible pitch dia.  | 14,663<br>0.577"  | 14,503<br>0.571"  |
| Gerollter Flanken-Ø<br>Rolled pitch diameter  | 14,650<br>0.577"  | 14,590<br>0.574"  |

folglich: zulässige Toleranz für Ausgangs-Ø in diesem Fall:  $-0,1$  mm  
therefore: the permissible tolerance for the blank diameter in this case may be:  $-0.004$ "

**Rollzeit (Gewinde)**

Die Rollzeit – die Zeit vom Anfahren bis zum Öffnen des Rollkopfes – errechnet sich aus der Rolllänge, der Steigung und der Drehzahl. Dabei ist es gleichgültig, ob das Werkstück oder der Rollkopf umläuft.

**Rolling time**

The rolling time – that is the time starting with the approach movement until the Rolling Head opens up – is calculated by taking the rolling length, the pitch and the speed as factors. In that case it is unimportant, whether the component part or the Rolling Head are rotating.

|   |                               |   |  |
|---|-------------------------------|---|--|
| Die reine Rollzeit berechnet sich nach folgender Formel:  |                               | The actual rolling time is calculated by using the following formula:   |  |
| <b>METRIC</b>   |                               | <b>INCH</b>   |  |
| <b>Beispiel Example:</b><br>Gewinde M6x1 – 50 mm lang<br>(auf Baustahl -> v = 60 m/min; Flanken-Ø = 5,35 mm)<br>Thread M6x1 – 50mm long<br>(in mild steel -> v = 60m/min; pitch Ø = 5,35mm) |                               | <b>Beispiel Example:</b><br>Gewinde 1/4 x 20 UNC 2A – 2 Zoll lang<br>(auf AISI/020 -> v = 130 SFM; Flanken-Ø = 0,2143 Zoll)<br>Thread 1/4 x 20 UNC 2A – 2 inch long<br>(on AISI/020I -> v = 130 SFM; pitch Ø = 0.2143 inch) |  |
| $n = \frac{1000 \cdot v}{d_v \cdot \pi}$  | [min <sup>-1</sup> ]          | $n = \frac{12 \cdot v}{d_v \cdot \pi}$  | [min <sup>-1</sup> ]                     |
| $= \frac{1000 \cdot 60}{5,35 \cdot 3,14}$   | n = 3570 min <sup>-1</sup>    | $= \frac{12 \cdot 130}{2143 \cdot 3.14}$  | n = 2318 RPM                             |
| $t_r = \frac{60 \cdot L}{n \cdot P}$  | [s   sec]                     | $t_r = \frac{60 \cdot L}{n \cdot P}$  | [s   sec]                                |
| $= \frac{60 \cdot 50}{3570 \cdot 1}$  | t <sub>r</sub> = 0,84 s   sec | $= \frac{60 \cdot 2}{2318 \cdot 0.05}$  | t <sub>r</sub> = 1.04 s   sec            |
| d <sub>v</sub> = Vordrehdurchmesser Blank diameter  | [mm   inch]                   | v = Rollgeschwindigkeit Rolling Speed   | [m/min   SFM]                            |
| P = Steigung Lead   | [mm   inch]                   | n = Drehzahl Spindle speed  | [min <sup>-1</sup>   min <sup>-1</sup> ] |
| L = Rolllänge Rolling Length  | [mm   inch]                   | t <sub>r</sub> = Rollzeit Rolling time  | [s   sec]                                |

**Ausführung der Gewinderollen**  
Thread Roll Design

Die Gewinderollen weisen steigungsfreie Profilringe auf. Sie sind an beiden Seiten mit einem Anlauf (Anlauftring) versehen, der erstens für ein gutes Auflaufen auf das Werkstück sorgt und zweitens die Umformung in mehrere Phasen aufteilt.

Die Anlaufringe sind deshalb im Durchmesser kleiner als der Rollen-Außen-Ø. Die folgenden zwei Arten von Rollen-anläufen sind standardmäßig:

**1. Normaler Anlauf „2 K“**, der je Rolle beiderseitig zwei Anlauf-  
ringe besitzt, während die nachfolgenden Ringe ein volles Profil  
haben.

**2. Verkürzter Anlauf „1 K“**, der je Rolle beiderseitig einen Anlauf-  
ring besitzt, während die nachfolgenden Ringe ein volles Profil  
haben.

Für extreme Fälle werden Sonder-Anläufe vorgesehen.

Die Länge des Gewindeauslaufes am Werkstück wird vom Rollen-  
anlauf bestimmt und errechnet sich wie folgt: 1 K = ca. 2,3 x p,  
2 K = ca. 3,3 x p (siehe auch Tabelle Seiten 206, 207)

Gewinderollen mit normalem Anlauf (2 K) verdienen den Vorzug, da  
das Formen der Gewindeprofile sich auf mehrere Anlauf-  
ringe verteilt und die Standzeit der Rollen dadurch in der Regel  
bedeutend ansteigt.

Es ist also wirtschaftlicher, den zuzulassenden Gewindeauslauf  
bzw. den Freistich nach dem längeren Rollen-anlauf zu bemessen  
als umgekehrt.

Axial Thread Rolls are designed with annular profiles. They are  
provided with a lead (which acts like a chamfer on cutting tools)  
consisting of one or more ribs in a progression of reduced diameter.  
The following two types of leads are considered standard:

**1. Standard Long Lead.** The first 2 to 3 annular rings on each end  
of the roll are undersize whereas the intermediate annular rings have  
a full profile.

**2. Standard Short Lead.** The first 1 to 2 annular rings are modified  
permitting threading closer to a shoulder. Shorter and Longer Leads  
are available for special applications.

Please refer to charts on pages 206, 207 showing actual lengths of  
1 K and 2 K leads.

Generally Thread Rolls having a longer lead will provide greater roll  
life that those with a shorter lead. Product design engineers should  
consider this when designing threaded components.

Two important notes should be added min<sup>-1</sup> means RPM in metric.

Oberflächen von zylindrischen Werkstücken lassen sich mit Fette-Gewinde-Rollköpfen glätten, um die Oberflächenrauigkeit auf ein Minimum zu reduzieren. Die Oberfläche wird gleichzeitig verfestigt, die Korrosionsbeständigkeit wird wesentlich erhöht.

Durch das Glätten mit Fette-Gewinde-Rollköpfen wird eine Oberflächenrauigkeit von etwa 3 µm und kleiner erreicht. Die Oberflächenrauigkeit ist jedoch von mehreren Faktoren, wie Werkstoff, Vorarbeit, Drehzahl, Vorschub und Rollkopfeinstellung abhängig. Versuche zeigen von Fall zu Fall, ob die Ergebnisse den Ansprüchen genügen.

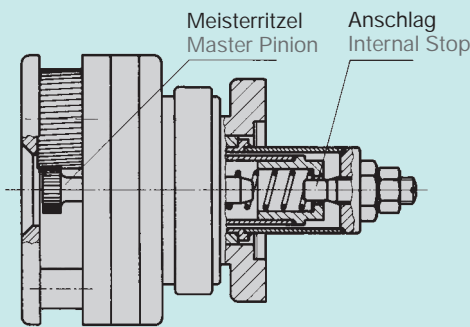
Das Vordrehmaß sollte man in etwa 0,04 mm oberhalb des gewünschten Maßes legen, mit einer Toleranz von ± 0,015 mm. Ein Maßwalzen (Toleranzeinengung) ist mit den Rollköpfen nicht möglich. Rollzeit, Andrückvorschub und Rollkopfkonstante: siehe Seite 208 wie beim Rändeln.

Surfaces of cylindrical components can be burnished by using Fette-Thread Rolling Heads in order to reduce the roughness of a surface to a minimum. At the same time the surface's ductile strength, and the resistance to corrosion will increase considerably.

Burnishing operations with Fette-Thread Rolling Heads do produce a surface roughness of approximately 3 µm and better. The surface roughness however is dependent upon several factors such as component material, machining operation prior to burnishing, spindle speed, feed and setting of the Thread Rolling Head.

The pre-machining dimension should be approx. 0.002" above the required dimension, with a tolerance of ± 0.001". For actual rolling time, feed rate and constant for Thread Rolling Head: see page 208, same as for Knurling.

**Rollkopf mit Meisterritzel für Kerbverzahnungen**  
 Thread Rolling Head with Master Pinion for rolling Serrations/Splines



**Kerbverzahnungen**

Zur Herstellung von Kerbverzahnungen mit einem Lückenwinkel von ca. 90° ist der Fette-Gewinde-Rollkopf ebenfalls geeignet. Um Werkstücke mit der geforderten Zähnezahl versehen zu können, wird zwischen die Rollen ein Meisterritzel axial federnd eingebaut. Die Abbildung zeigt die Arbeitsweise. Kerbverzahnungen nach DIN 5481 mit einem Lückenwinkel von 60° sind nicht herstellbar.

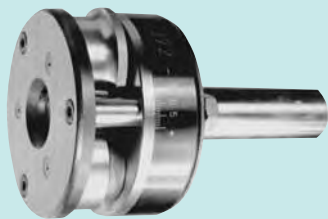
Rollzeit, Andrückvorschub und Rollkopfkonstante: siehe Seite 208 wie beim Rändeln.

**Rolling of Serrations**

Axial Fette-Thread and Form Rolling Heads may also be used for producing Serrations and Splines to SAE J-500 and ANSI B92.1 Specifications. Pressure angle must be approx. 45°. In order to produce a specific number of teeth it is necessary to use a spring loaded master pinion as shown in the left figure.

Actual rolling time, feed rate and constant factor for Rolling Head: see page 208 as shown for knurls.

**Gewinde-Rollkopf zum Kämpeln von Rohren**  
 Thread Rolling Head used for swaging of Tubes



**Kämpeln von Rohren**

Das Kämpeln von Rohren läßt sich mit Fette-Gewinde-Rollköpfen sehr wirtschaftlich durchführen, einen speziell für das Kämpeln ausgelegten Gewinde-Rollkopf.

Bei dieser Verwendung ist ein Zwangsvorschub erforderlich, da der Rollkopf nicht selbsttätig aufläuft.

**Swaging of Tubes**

Swaging of Tubes with Fette-Thread Rolling Heads is a very economical method. Thread Rolls specially designed for swaging operations.

For this application it is necessary to feed the Head into the part during the entire operation because the Head does not feed itself.

**Gekämpeltes Rohr**  
 Swaged Tube



Es gibt viele Möglichkeiten mit Rollköpfen zu arbeiten. Für den Rollvorgang ist es gleichgültig, ob sich das Werkstück oder der Rollkopf dreht. Es gibt deshalb Rollköpfe, die feststehend verwendet werden und andere, die auch umlaufend benutzt werden können. Beide Arten sind selbstöffnend. Die Rollen schwenken aus der Arbeitsstellung heraus, sobald das gerollte Werkstück den Endanschlag berührt und die Kupplung ausrückt. Die Spindel braucht dazu nicht stillgesetzt zu werden.

Feststehend eingesetzte Rollköpfe können von Hand oder bei Automaten durch eine Kurve geschlossen werden.

Umlaufend eingesetzte Rollköpfe, wie z. B. Rollköpfe der Typen „K“ und „FU“, werden während der Drehbewegung mit einer Schaltgabel wieder geschlossen. Sie können aber auch durch ein hohes Anlaufmoment der Spindel geschlossen werden. Beim Schließen schwenken die Rollen wieder in die Arbeitsstellung.

**Auswahl der Gewinde-Rollkopfgrößen**

Zur Auswahl der Gewinde-Rollkopfgrößen nach Gewindeabmessungen dienen die Tabellen auf den Seiten 26 bis 51. Zum Teil lassen sich gleiche Gewinde wegen Überschneidung der Arbeitsbereiche in verschiedenen Rollkopfgrößen herstellen.

**Rollgeschwindigkeiten**

Je nach Werkstückprofil und vorhandenen Spindeldrehzahlen sind folgende Rollgeschwindigkeiten zu empfehlen:

für Spitzgewinde  
 ca. 20–60 m/min.

für Trapezgewinde und ähnliche Profile  
 ca. 15–30 m/min.

Die Rollgeschwindigkeit errechnet sich wie die Schnittgeschwindigkeit.

There are many possible applications where Thread Rolling Heads can be used. As far as the Rolling Operation itself is concerned, it does not make any difference whether the component or the Thread Rolling Head is rotating. Both Types of Heads are self-opening.

Rolling Heads used in fixed applications can be closed manually or automatically.

Rotating Thread Rolling Heads types “K” and “FU” are closed by using a yoke. K-Type-Heads can also be closed by the fast starting torque of the spindle.

**Selection of Thread Rolling Head Sizes**

Thread Rolling Head Sizes are selected according to thread dimensions by using tables shown on pages 26 to 51. Because of overlapping of rolling ranges, some of the threads can be rolled in more than one size head.

**Rolling Speeds**

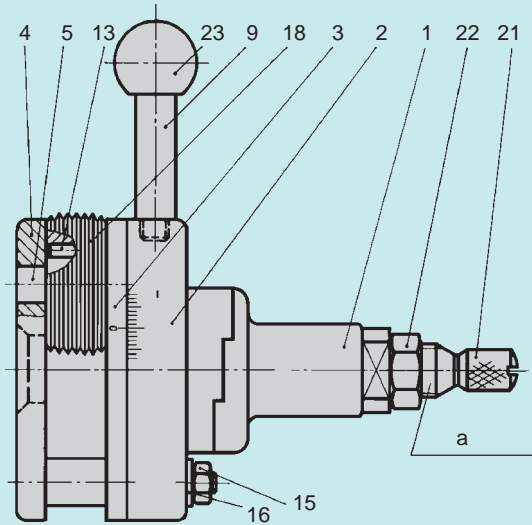
Depending on the workpiece profile and the available spindle speeds, the following rolling speeds can be recommended.

For V-threads  
 approx. 20–80 m/min. (60–240 SFM)

For ACME threads and similar cross sections  
 approx. 15–30 m/min. (45–90 SFM)

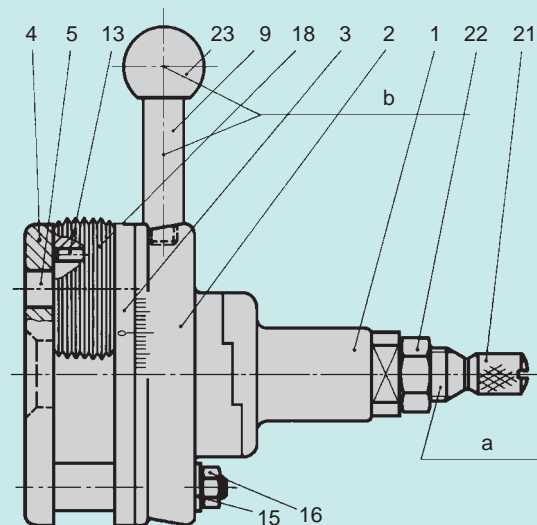
The rolling speed is calculated the same way like the cutting speed.

**1**  
Feststehend verwendbare Gewinde-Rollkopftypen F0-F34  
Thread Rolling Head Type F0-F34 used stationary



a = Anschlag  
Internal Stop

**2**  
Feststehend und umlaufend verwendbare  
Gewinde-Rollkopftypen K0-K34  
Thread Rolling Head Type K0-K34 used stationary or rotating



a = Anschlag  
Internal Stop  
b = nur für feststehenden Einsatz  
for fixed application only

**Einbau der Gewinderollen**

Frontplatte (4) abnehmen, Exzenterbolzen (5) einfetten oder dünn mit Molybdändisulfid-Paste einreiben, desgleichen die Schrägflächen an Front- (4) und Zwischenplatte (3). Rollen (18) in der Reihenfolge 1-2-3 oder A-B-C (bei F0 in der Reihenfolge 1-2 oder A-B) im Uhrzeigersinn aufstecken. (Bei Linksköpfen entgegen Uhrzeigersinn.)

Lagernadeln (13) oder Hartmetall-Laufbuchsen einsetzen. Frontplatte (4) aufsetzen und verschrauben.

**Einstellen des Rollkopfes auf Gewinde-Ø**

Der Rollkopf ist geschlossen, d. h. die Kupplungsklauen, der Schaft (1) und Federgehäuse (2) greifen voll ineinander. Schaft (1) und Federgehäuse (2) sind gespannt. Die drei Muttern (15) sind gelöst. Bei Verwendung eines Einstellkalibers, eines Gewindemusters oder eines glatten Dornes mit dem Kern-Ø des jeweils zu rollenden Gewindes wird der vordere Teil des Rollkopfes (Rollenkäfig) so lange im Bereich der drei Langlöcher (2) verdreht, bis die Rollen (18) mit ihrem Außen-Ø das Einstellkaliber berühren. Dann die drei Muttern (15) anziehen. Werden mit dem so eingestellten Rollkopf die gewünschten Gewindemaße noch nicht erreicht, d. h., fallen die gerollten Gewinde im Flanken-Ø zu groß aus, ist der Rollkopf um etwa einen halben Teilstrich enger zu stellen. Ein gerolltes Gewinde darf nicht nochmals gerollt werden. Reicht die Länge der drei Langlöcher (2) für die Verstellung nicht aus, sind die drei Muttern (15) und die Ringscheibe (16) zu entfernen und es wird wie folgt verfahren:

**Kopf soll für einen kleineren Durchmesser eingestellt werden**  
Markierung „0“ auf dem Rollenkäfig steht auf der Skala (2) in der äußersten Minusstellung (-).

**Assembly of Thread Rolls**

Remove Front Plate (#4), and apply a thin coat of grease or a thin layer of Molybdenum Di-Sulphide Paste on to the Eccentric Spindles and to the inclined surfaces on Front Plate (#4) and Centre Plate (3). Assemble the Rolls (#18) in the order 1-2-3 or A-B-C (for F0 Head the Rolls are assembled in the order 1-2 or A-B) in clockwise direction. (For left hand Heads Rolls are assembled in counter-clockwise direction.) Insert Needle Roller Bearings (13) or Carbide Bushes. Replace Front Plate (#4) and tighten screws.

**Setting of the Thread Rolling Head to required Thread Diameter**

Ensure the Thread Rolling Head is closed, i. e. the Dogs of the Clutch of parts 1 and 2 are in complete engagement. Parts 1 and 2 are spring loaded. Loosen three Nuts (#15). By using a Screw Plug Gage, or a threaded sample component or a plain plug, having the root diameter of the thread to be rolled, the front part of the Thread Rolling Head (Roll Cage) is turned within the range of the three slotted holes (in Part 2) until the outside diameter of the Rolls (#18) touch the Setting Gage. Now tighten the three Nuts (#15). Generally the thread dimensions produced with the Thread Rolling Head at this setting, will be oversize. In this case the Thread Rolling Head should be closed down by approximately 1/2 of a calibration mark and a new sample should be rolled. A rolled thread should never be rolled a second time. If the length of the three slotted Holes (in 2) is insufficient to obtain the correct size, it is then necessary to remove the three Nuts (#15) and the Ring Type Washer (#16) and to proceed as follows:

**To set Head to a smaller diameter**

The "0" Line on the Roll Cage Assembly will be opposite last graduation mark on the (-) minus side of the Scale on Part (#2).



Der Rollenkäfig wird abgezogen, um ca. 120° (bei Rollkopf Typ F0 um 180°) in Minusrichtung verdreht und wieder zusammengesteckt. Es erscheint jetzt die nächste Null-Markierung auf der Skala. Scheibe (16) und Muttern (15) sind wieder aufzustecken. Es ist jetzt möglich, den Kopf für einen kleineren Durchlaß einzustellen.

**Kopf soll für einen größeren Durchmesser eingestellt werden**  
 Hier wird umgekehrt verfahren.

**Einstellen des Rollkopfes auf Gewindelänge**

Die Gewindelänge ist grundsätzlich bei geöffnetem Kopf einzustellen, d. h. bei axial auseinandergezogener Kupplung, da der Kopf bei gelöster Klauenkupplung um die Kupplungshöhe länger ist, und während des Auseinanderziehens der Kupplung noch Gewinde erzeugt.

**Arbeitsweise mit Innenanschlag (Zubehör)**

Anschlagschraube (21) ist auf gewünschte Gewindelänge einzustellen und durch Mutter (22) zu sichern. Berührt das Werkstück die Anschlagschraube (21), wird die Klauenkupplung gelöst und der Kopf springt selbsttätig auf.

**Arbeitsweise mit Maschinenanschlag**

Die Gewindelänge wird bei konstanter Einspannlänge des Werkstückes durch Begrenzung des Pinolen- oder Spindelweges oder des Schlittens eingestellt. Kommt die Pinole, Spindel oder der Schlitten am Anschlag zum Stehen, wird die Klauenkupplung gelöst und der Kopf springt selbsttätig auf.

**Schließen des Rollkopfes**

**Typen F0 bis F34 und Typen K01-1 bis K34, feststehend verwendet**

Beim Schließen werden die Rollen (18) wieder in Arbeitsstellung gebracht. Der vordere Teil des Rollkopfes wird durch den Kugelgriff (9, 23) von Hand (bei Automaten mit einer Schließrolle, einem Schließstift oder einer Schließfeder von einer Kurve) verdreht, bis die Kupplung zwischen Federgehäuse (2) und Schaft (1) einrastet.

**Schließen des Rollkopfes**

**Typen K01-1 bis K34, umlaufend verwendet**

Der vordere Teil des Rollkopfes wird durch eine zusätzliche Schaltung mit Bremssteinen abgebremst, bis die Kupplung zwischen Federgehäuse (2) und Schaft (1) einrastet. Siehe Seite 219.

**Schließ- und Öffnungsrichtung**

Für F0–F34 und K0–K34 siehe Baumaßzeichnungen von Seite 52–95.

Remove the Roll Cage Assembly and rotate approximately 120° (180° in case of Thread Rolling Head Type F0) in the minus direction and re-assemble. Now the next "0" Line appears on the (+) plus side of the graduations and further adjustment is now possible.

**To set Head to a larger diameter**

Reverse to above procedure.

**To set Head for Thread Length**

Setting the thread length is always done when the Head is in an open position.

**Operation with Internal Stop (Supply)**

Stop Screw (#21) is set to the required thread length and is secured by locking Nut (#22). As soon as the component touches the Stop Screw (#21), the Dog Clutch commences disengagement and the Head opens automatically.

**Operation with Machine Stop**

The clamping length of the component must always be the same and in this case the thread length is set by limiting the travel of that part of the machine carrying the Rolling Head. As soon as the Machine Stop is contacted, the Dog Clutch is released and the Head opens automatically.

**To close Thread Rolling Heads Type F0–F34 and Type K01-1–K34 used stationary**

To close the Head, the Rolls (#18) are brought back into the rolling position, by rotating the front part of the Thread Rolling Head using Handle (#9 and 23), manually, (when the Head is used on an Automatic, a Closing Roller, a Closing Pin or a Closing Spring is engaged, operating over a cam), until the Clutch engages between the Spring Housing (#2) and Shank (#1).

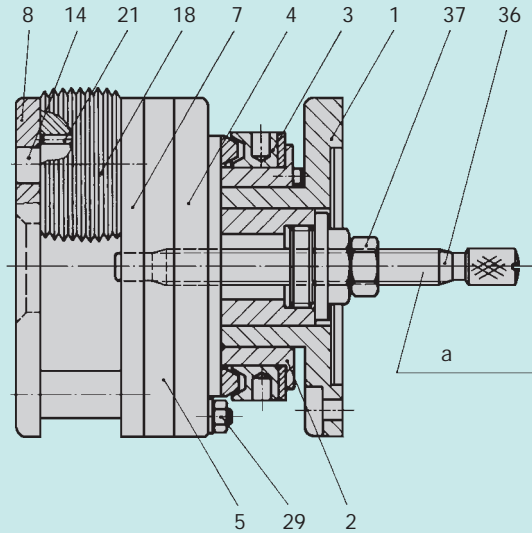
**To close the Thread Rolling Heads Type K01-1–K34, used in rotating application**

The front part of the Thread Rolling Head, which is rotating, is slowed down and brought to a stop by means of an additional Yoke, fitted with Brake Shoes, until the Clutch engages between the Spring Housing (#2) and Shank (#1). Refer to Page 219.

**Direction for closing and opening**

For F0–F34 and K0–K34 see Figures Pages 52–95.

**1**  
**Feststehend und umlaufend verwendbare**  
**Gewinde-Rollkopftypen FU3-1–FU12600**  
**Thread Rolling Head Type FU3-1–FU12600**  
**for stationary and rotating application**



a = Anschlag  
 Internal Stop

**Einbau der Gewinderollen**

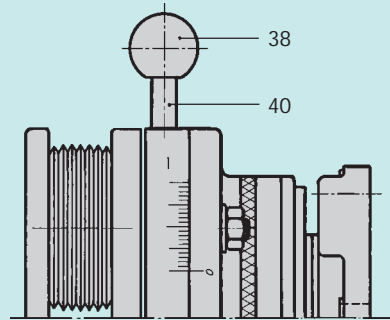
Frontplatte (8) abnehmen, Exzenterbolzen (14) einfetten oder dünn mit Molybdändisulfid-Paste einreiben, desgleichen die Schrägflächen an Front- (8) und Zwischenplatte (7). Rollen (18) in der Reihenfolge 1-2-3 oder A-B-C im Uhrzeigersinn aufstecken. (Bei Linksköpfen entgegen Uhrzeigersinn.) Lagernadeln bzw. Hartmetall-Laufbuchsen (21) einsetzen, Frontplatte (8) aufsetzen und verschrauben.

**Einstellen des Rollkopfes auf Gewinde-Ø**

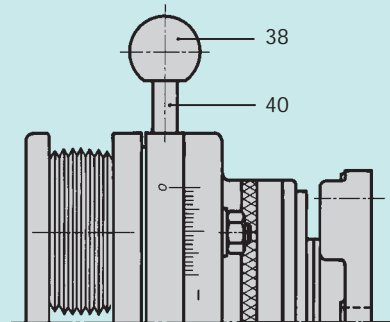
Der Rollkopf ist geschlossen, d. h. die Kupplungsteile (2, 4) greifen voll ineinander. Sie sind gespannt. Die drei Muttern (29) sind gelöst. Bei Verwendung eines Einstellkalibers, eines Gewindemusters oder eines glatten Dornes mit dem Kern-Ø des jeweils zu rollenden Gewindes wird der Zahnkranz (5) mittels Griff (40) und Kugelkopf (38) so lange im Bereich der drei Langlöcher (4) verdreht, bis die Rollen mit ihrem Außen-Ø das Einstellkaliber berühren. Dann die drei Muttern (29) anziehen. Werden mit dem so eingestellten Rollkopf die gewünschten Gewindemaße noch nicht erreicht, d. h. fallen die gerollten Gewinde im Flanken-Ø zu groß aus, ist der Rollkopf um etwa einen halben Teilstrich eng zu stellen.

Dabei muß bei den Rollkopftypen FU3-1 und FU34-1 die Minusseite (-) der Skala auf dem Zahnkranz (5) mittels Griff (40) in Richtung „0“ auf dem Federgehäuse (4) bewegt werden. Bei den Rollkopf-Typen FU4-1 bis FU8-1 und FU45-1 bis FU12600 muß die „0“

**2**  
**Einstellskala für Gewinde-Rollkopftypen FU3-1 und FU34-1**  
**Graduation for setting of Thread Rolling Heads Type FU3-1**  
**and FU34-1**



**3**  
**Einstellskala für Gewinde-Rollkopftypen FU4-1–FU12600**  
**Graduation for setting of Thread Rolling Heads Type**  
**FU4-1–FU12600**



**Assembly of Thread Rolls**

Remove Front Plate (#8), and apply a thin coat of grease or Molybdenum Di Sulphide Past to the Eccentric Spindles (#14), likewise to the inclined surfaces on Front Plate (#8) and Center Plate (#7). Assemble Rolls (#18) in the order 1-2-3 or A-B-C in clockwise direction. (In case of left hand Heads Rolls are assembled in counterclockwise direction.) Insert carbide bushings (#21) or optional needle bearings. Replace Front Plate (#8) and tighten screws.

**Setting of the Thread Rolling Head to required thread diameter**

Verify that the Thread Rolling Head is closed, i. e. Clutch Parts 2 and 4 are in complete engagement. Parts 2 and 4 are spring loaded. All three Nuts (#29) are loosened. By using a Setting Screw Plug Gauge, or a threaded sample component or a plain plug, having the root diameter of the thread to be rolled, the Gear Ring (#5) is turned within the range of the three Slotted Holes (#4) by means of Handle (#40 and 38) until the outside diameter of the Rolls touch the Setting Gauge. Then the three Nuts (#29) are tightened. Generally the required thread dimensions produced with the Thread Rolling Head should be closed down by approximately 1/2 of a calibration mark and a new sample should be rolled. A rolled thread should never be re-rolled.

When re-setting Thread Rolling Heads Type FU3-1 and FU34-1 it is necessary to turn the minus (-) end of the graduation on the Gear Ring (5) by means of Handle (#40) in the direction towards "0" on

auf dem Zahnkranz (5) mittels Griff (40) in Richtung Minus (-) der Skala auf dem Federgehäuse (4) bewegt werden. Bei Linksköpfen in beiden Fällen umgekehrt verfahren. Ein gerolltes Gewinde darf nicht nochmals gerollt werden.

**Einstellen des Rollkopfes auf Gewindelänge**

Die Gewindelänge ist grundsätzlich bei geöffnetem Kopf einzustellen. Dazu wird der Schaltring (3) zum Flansch des Mitnehmers (1) gedrückt. Dadurch wird die Klauenkupplung (2) gelöst und Federgehäuse (4) mit Zahnkranz (5), Griff (40) und Kugelkopf (38) verdrehen sich sprunghaft um etwa 30°.

**Arbeitsweise mit Innenanschlag**

Anschlagschraube (36) ist auf gewünschte Gewindelänge einzustellen und durch Mutter (37) zu sichern. Berührt das Werkstück die Anschlagschraube (36) wird die Klauenkupplung um den Betrag (a) laut Tabelle (z. B. Seite 86) versetzt und der Rollkopf springt selbsttätig auf. Verlängerungen durch Rohre laut Abb. 5, Seite 205, sind möglich.

**Arbeitsweise mit Außenanschlag**

Die Gewindelänge wird bei konstanter Einspannlänge durch einen Anschlag für eine zusätzliche Schaltgabel eingestellt. Berührt die Schaltgabel den Anschlag, wird die Klauenkupplung (2) gelöst und der Kopf springt selbsttätig auf.

**Schließen des Rollkopfes**

Beim Schließen werden die Rollen (18) wieder in Arbeitsstellung gebracht.

**Rollkopf feststehend:** Zahnkranz (5) und Federgehäuse (4) werden durch den Griff (40) mit Kugelkopf (38) von Hand verdreht, bis die Kupplung zwischen Federgehäuse (4) und Klauenkupplung (2) einrastet.

**Rollkopf umlaufend:** Das Federgehäuse (4) mit Zahnrad (5) wird durch den Schaltring (3) mit einer zusätzlichen Schaltgabel abgebremst und dadurch zur Klauenkupplung (2) verdreht, bis die Kupplung zwischen Federgehäuse (4) und Klauenkupplung (2) einrastet.

the Spring Housing (4). For Thread Rolling Heads Type FU4-1 up to FU8-1 and FU45-1 to FU12600 it is necessary to turn the "0" mark on the Gear Ring (5) by means of Handle (#40) in the direction towards minus (-) of the graduation of the Spring Housing (#49). With left hand Heads it is necessary to reverse the procedure in both cases.

**To set Thread Rolling Head for thread length**

Setting to thread length is always done when the Head is in an open position. It is therefore necessary to push the Operating Ring (3) towards the Flange (#1). This disengages the Dog Coupling (#2) and Spring Housing (#4) together with Gear Ring (#5), Handle (#40) and 38) are released through a 30° arc movement.

**Method of operation using Internal Stop**

Stop Screw (#36) is to be adjusted to the required thread length and is locked by Nut (#37). If the component touches the Stop Screw (36), the Dog Coupling (#2) is put in offset position by the amount (a) according to the Table (f. E. Page 86), and the Rolling Head opens up automatically. Extensions by using tubing according to figure 5, page 205, can be made.

**Operation with External Stop**

The clamping length of the component must always be kept the same, and in this case the thread length is set by Yoke Stop Nuts on the Yoke Rod. As soon as the Yoke touches the Stop Nut, the Dog Coupling (#29) is released, and the Head opens automatically.

**Closing Thread Rolling Heads**

When the Head is closed, the Rolls (#18) are brought back into the rolling position.

**Head used stationary:** Gear Ring (#59) and Spring Housing (#4) are turned manually by means of Handle (#40 and 38) until the Clutch engages between Spring Housing (4) and Dog Coupling (#2).

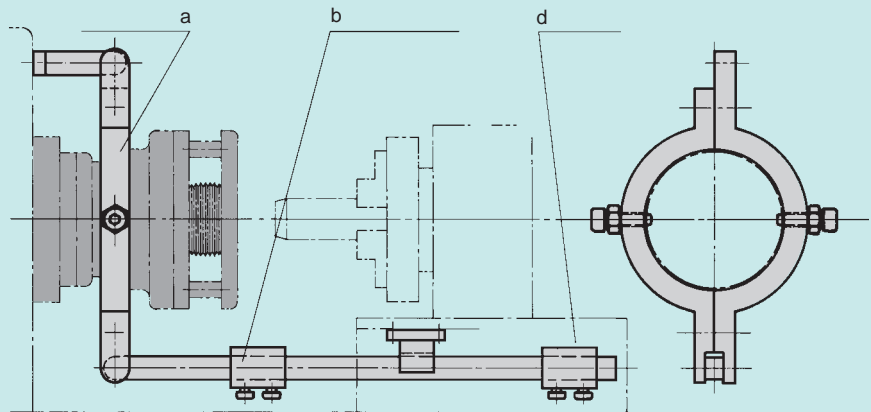
**Head used rotary:** Spring Housing (#4) together with Gear (#5) are slowed down by means of engaging Operating Ring (#83) with the Yoke, this in turn causes the parts to be twisted against Dog Coupling (#2) until the Dogs rest between the Spring Housing (#49) and the Dog Coupling (#2).

Mögliche Schaltanlagen zum Öffnen und Schließen der Gewinde-Rollköpfe und Spannwinkel für die Aufnahme von Gewinde-Rollköpfen sind in den Abbildungen 1 bis 3 dargestellt.

Possible Yoke and Stop Rod Arrangements for opening and closing of Thread Rolling Heads are illustrated in Figures 1 to 3. An Angle Plate 3 mounting for the FU Head is shown in Fig. 2.

**1**  
**Schaltanlage für umlaufend eingesetzte Gewinde-Rollköpfe (Typ FU)**  
**Yoke and Stop Rod Arrangement for Thread Rolling Heads used rotating (Type FU)**

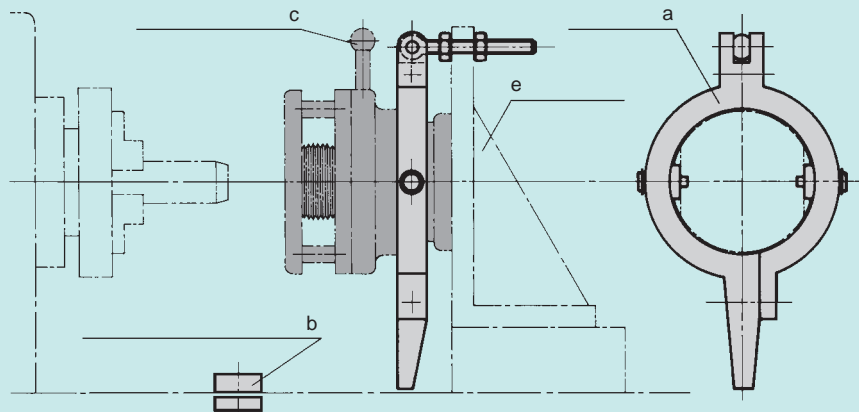
- a = Schaltgabel  
Yoke
- b = Außenanschlag zum Öffnen  
External Stop for opening
- d = Anschlag zum Schließen  
End Stop for closing



Außenanschlag zum Öffnen entfällt, wenn der Rollkopf mit Innenanschlag ausgerüstet ist.  
 External Stop for opening not required, if Thread Rolling Head is fitted with internal Stop.

**2**  
**Schaltanlage und Spannwinkel für feststehend eingesetzte Gewinde-Rollköpfe (Typ FU)**  
**Yoke and Stop Rod Arrangement and Angle Plate for Thread Rolling Heads used stationary (Type FU)**

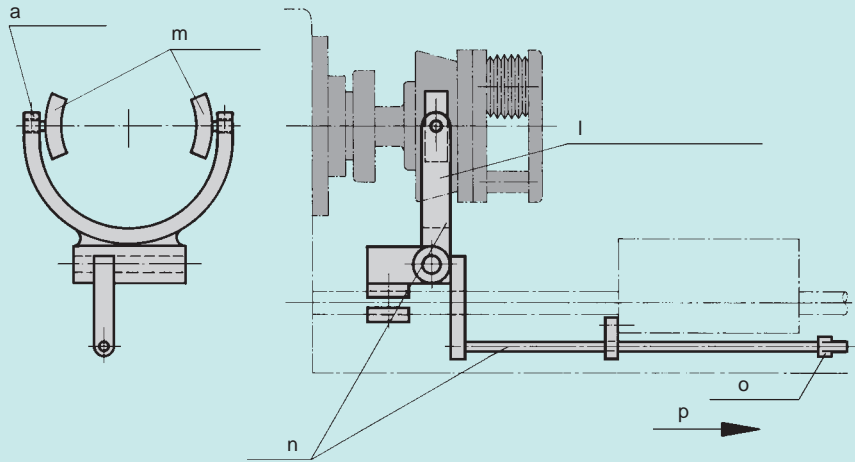
- a = Schaltgabel  
Yoke
- b = Außenanschlag zum Öffnen  
External Stop for opening
- c = Griff zum Schließen  
Closing Handle
- e = Spannwinkel für Rollkopf  
Angle Plate for Thread Rolling Head



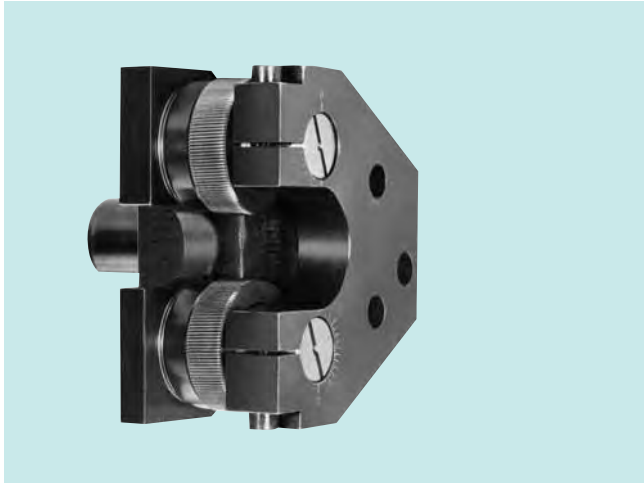
Schaltgabel und Außenanschlag entfallen, wenn der Rollkopf mit Innenanschlag ausgerüstet ist.  
 Yoke and External Stop not required, if Thread Rolling Head is fitted with internal Stop.

**3**  
Schaltanlage für einen umlaufend eingesetzten  
Gewinde-Rollkopf (Typ K)  
Yoke and Stop Rod Arrangement for Thread  
Rolling Head used in rotary application (Type K)

- a = Schaltgabel  
Yoke
- l = senkrechte Stellung bei  
geschlossenem Rollkopf  
Vertical position when Head is closed
- m = Bremssteine  
Brake Shoes
- n = Schalteinrichtung zum Schließen  
des Rollkopfes  
Yoke and Stop Rod Arrangement  
for closing of the Head
- o = Anschlag  
End Stop
- p = Schließrichtung der Schaltstange  
Direction of closing for Stop Rod



Öffnen durch Innenanschlag des Rollkopfes oder durch Maschinenanschlag.  
Schließen mit Schaltgabel.  
Opening of Thread Rolling Head by Internal Stop or End stop on the machine.  
Closing with Yoke and Stop Rod Arrangement.



**Die Fette-AC-Gewinde-Rollköpfe wurden für den Einsatz auf NC- und CNC-Drehmaschinen entwickelt**

Sie sparen teure CNC-Maschinenzeiten ein, da das Gewinde sekundenschnell in einem einzigen Arbeitsgang fertiggestellt wird, während das CNC-gesteuerte Schneiden bzw. Strehlen eines Gewindes dagegen mehrere Durchgänge erfordert.

Die extrem hohe Standzeit der Gewinderollen kommt besonders den Forderungen nach geringstmöglichem Personalaufwand zur Überwachung und Bedienung der Maschine entgegen.

**AC Rolling Heads were developed for use on NC- and CNC-Lathes.**

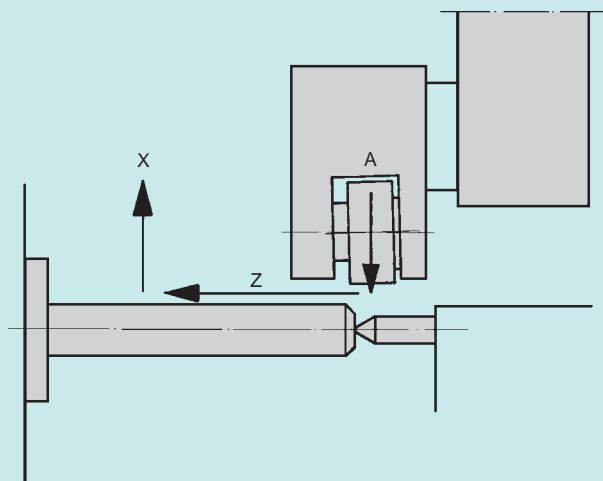
Fette AC Rolling Heads save expensive CNC Machine time by completing the threading one pass as compared to the multiple passes required when producing the thread with a single point turning tool. The extremely long tool life of a set of rolls reduces tool and labour costs.

**Arbeitsweise bei Aufnahme des Werkstückes zwischen Spitzen**  
Procedure when the workpiece is mounted between centers

**A** Der auf dem Revolver aufgenommene AC-Rollkopf wird in tangentialer Richtung auf Werkstückmitte gebracht.  
The AC Rolling Head mounted on the turret is moved to the workpiece center in the tangential direction.

**Z** Rollvorgang in axialer Richtung.  
Rolling process in the axial direction.

**X** Rollen werden in tangentialer Richtung zurückgezogen.  
The rolls are withdrawn tangentially.



**Einfache Montage**

Der AC-Gewinde-Rollkopf benötigt entgegen den sonstigen Axial-Rollköpfen **keinen Schließ- und Öffnungsmechanismus**, dessen Installation auf NC-Drehmaschinen meist nur mit einem Sonderaufwand möglich ist. Es findet überhaupt kein Schließen und Öffnen des Kopfes statt. Das entsprechende Zu- und Abführen des in sich starren Kopfes übernimmt das Maschinen-NC-Programm.

**Große Gewindelängen**

Gegenüber den Tangential-Rollköpfen, die auf derartigen Maschinen ebenfalls ohne Schließ- und Öffnungsmechanismus eingesetzt werden können, aber nur eine Profilierungslänge im Maß der Rollenbreite ermöglichen, kann der AC-Gewinde-Rollkopf durch das Axial-Rollprinzip praktisch eine **unbegrenzte Gewinde- bzw. sonstige Profillänge** erzeugen.

**Günstige Werkstückaufnahme**

Die programmgesteuerte Zuführung des AC-Gewinde-Rollkopfes auf das Werkstück zu, auch in radialer Richtung, ermöglicht die Bearbeitung auch von **Werkstücken zwischen Spitzen**, was sonst mit Axial-Rollköpfen nicht gegeben ist.

**Kompakte Bauweise**

Durch den nicht benötigten Schließ- und Öffnungsmechanismus auch innerhalb des Kopfes verfügt der AC-Gewinde-Rollkopf über eine **klein dimensionierte, kompakte Bauweise** mit allen sich daraus ergebenden Vorzügen.

**Rändeln, Glätten**

Neben der Herstellung von Außengewinden in der bekannten besonderen Roll-Qualität (hohe Genauigkeit, preßpolierte Gewindeflanken mit hoher Verschleißfestigkeit, usw.) bietet sich der AC-Gewinde-Rollkopf in sehr vielen Fällen gerade auch für die Herstellung von Rändelungen, für das Glätten von Oberflächen und dergleichen an, da die hier gebotenen Vorzüge und Bearbeitungsmöglichkeiten oft auf sonst keine andere Weise erzielt und genutzt werden können. Z. B. bei Rändelungen größerer Längen, bei dem Glätten von Dicht- und Lagersitzen, und immer einschließlich der Möglichkeit, das Werkzeug zwischen Spitzen aufnehmen zu können.

**Rollvorgang**

Der Rollkopf wird **axial** auf das Werkstück gedrückt, wobei der Andrückvorschub der Steigung des zu rollenden Gewindes entspricht.

Nach Erreichen der Gewindelänge wird der Rollkopf im Eilgang **tangential** abgezogen. Während des axialen Rollvorganges muß der Vorschub eingeschaltet bleiben.

**Sonstige Hinweise**

Der Schrägungswinkel entspricht ca. dem Steigungswinkel des zu rollenden Gewindes, wie bei den anderen Fette-Axial-Gewinde-Rollköpfen auch.

Der Gewindeauslauf beträgt mindestens 3 x Steigung.

Bei fliegender Bearbeitung des Werkstückes, wenn also nicht zwischen Spitzen aufgenommen wird, kann eine max. Rolllänge von etwa 5 x D erreicht werden, falls die Ausspannlänge nicht zu groß ist.

**Easy mounting**

In contrast to other axial rolling heads, the AC Rolling Head does **not require a closing mechanism**. In fact, no closing and opening of the head takes place at all. The corresponding in- and outfeed of the rigid head is controlled by the machine's CNC program.

**Long thread lengths**

Where as tangential rolling heads, which can also be used without closing and opening only allow a profiling length within the roll width, the AC Rolling Head can through its axial rolling principle produce an **unlimited thread or other profile length**.

**Favorable workpiece mounting**

The program-controlled feed of the AC Rolling Head towards the workpiece, also radially, makes it possible to machine workpieces between centers, which is otherwise not possible with axial heads.

**Compact construction**

The absence of a closing and opening mechanism means that the AC Rolling Head is of very compact construction, with all the resulting advantages.

**Knurling, burnishing**

Apart from the production of external threads in the well-known special rolled quality (high accuracy, pressure polished thread flanks with high wear resistance etc.) the AC Rolling Head is in many cases ideal for knurling or burnishing etc., since the advantages and machining possibilities offered by it can often not be achieved and utilized in any other way.

For example when knurling fairly long lengths or burnishing sealing and bearing surfaces – and always with the possibility of mounting the workpiece between centers.

**Rolling process**

The rolling head is pressed **axially** onto the workpiece, the approach feed depending on the pitch of the thread to be rolled. After the required thread length has been completed, the rolling head is immediately withdrawn **tangentially**. During axial rolling, the feed must remain switched on.

**Additional information**

The helix angle corresponds approximately to the lead angle of the thread to be rolled, as also in the case of the other Fette Axial Rolling Heads. **The thread runout is at least three times the pitch**. When working on an overhung mounted workpiece, i. e. not mounted between centers, a maximum rolling length of approximately five times the diameter can be achieved, if the overhung length is not too great.

### für Rechtsgewinde

- Schaftaufnahmen siehe Seite 244
- Rollen-Schrägstellung = 3°
- Gewicht ohne Rollen = ca. 2,7 kg

### for right-hand threads

- Shank adaptor see page 244
- inclined position of rolls = 3°
- weight without rolls = approx. 5.95 lb

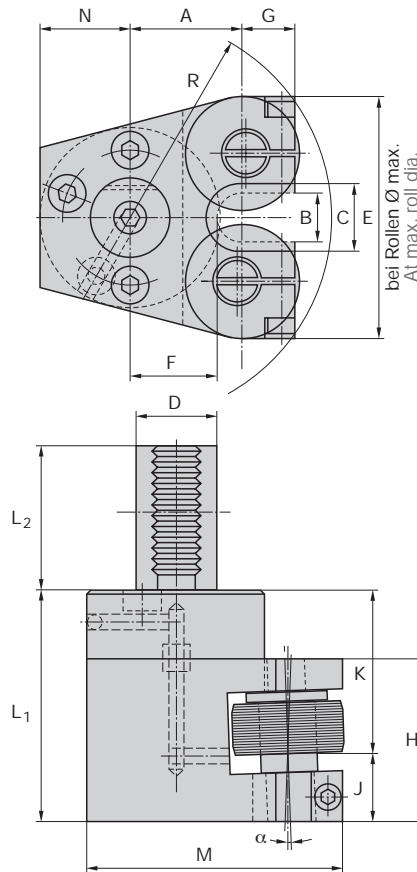
### für Linksgewinde

- Typ AC2L
- Baumaß wie für Rechtsgewinde-Rollkopf

### for left-hand threads

- Type AC2L
- Component dimension as for right-hand thread rolling head

Schaft- bis Werkstückmitte  
(Maß A = ... mm nur bei Standardrollkopf)  
Shank center to workpiece center  
(dimension A = ... mm/inch only with the standard rolling head)



Schaftaufnahme nach DIN 69 880 oder  
des Maschinentypes entsprechend  
Shank adaptor to DIN 69 880 or according  
to machine type

### Baumaße in mm

Dimension in inches

AC2

| A                       | B                       | C                       | D      | E      | F      | G      | H      | J      | K      | L <sub>1</sub> | L <sub>2</sub> (D = 20) | Ident No. |
|-------------------------|-------------------------|-------------------------|--------|--------|--------|--------|--------|--------|--------|----------------|-------------------------|-----------|
| 41,5                    | 18                      | 26                      | 20     | 91     | 32,5   | 20     | 62     | 25,3   | 61,7   | 87             | 40                      | 1509435   |
| 1.634"                  | 0.709"                  | 1.024"                  | 0.787" | 3.583" | 1.280" | 0.787" | 2.441" | 0.996" | 2.429" | 3.425"         | 1.575"                  |           |
|                         |                         |                         | 30     |        |        |        |        |        |        |                |                         |           |
|                         |                         |                         | 1.181" |        |        |        |        |        |        |                |                         |           |
|                         |                         |                         | 40     |        |        |        |        |        |        |                |                         |           |
|                         |                         |                         | 1.575" |        |        |        |        |        |        |                |                         |           |
|                         |                         |                         | 50     |        |        |        |        |        |        |                |                         |           |
|                         |                         |                         | 1.968" |        |        |        |        |        |        |                |                         |           |
| L <sub>2</sub> (D = 30) | L <sub>2</sub> (D = 40) | L <sub>2</sub> (D = 50) | M      | N      | R      | α      |        |        |        |                |                         |           |
| 55                      | 63                      | 78                      | 96,5   | 35     | 76,5   | 3°     |        |        |        |                |                         |           |
| 2.165"                  | 2.480"                  | 3.071"                  | 3.799" | 1.378" | 3.012" |        |        |        |        |                |                         |           |



für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Gewinde <b>M</b> |                      |
|---------------------------------|----------------------|
| Metric ISO Threads              |                      |
| Nennmaß x Steigung<br>mm        | Anlauf 1k<br>Lead 1k |
| Nominal Size x Pitch            | Ident No.            |
| M 8 x 1,25                      | 1511324              |
| M 9 x 1,25                      | 2243189              |
| M 10 x 1,5                      | 1511333              |
| M 11 x 1,5                      | 2243190              |
| M 12 x 1,75                     | 1511360              |
| M 14 x 2                        | 1511379              |
| M 16 x 2                        | 1511388              |

| Metrisches ISO-Feingewinde <b>M</b> |                      |
|-------------------------------------|----------------------|
| Metric ISO Fine Pitch Threads       |                      |
| Nennmaß x Steigung<br>mm            | Anlauf 1k<br>Lead 1k |
| Nominal Size x Pitch                | Ident No.            |
| M 8 x 1                             | 1511315              |
| M 9 x 1                             | 2243191              |
| M 10 x 1,25                         | 2167402              |
| M 12 x 1,25                         | 2167401              |
| M 12 x 1,5                          | 1511342              |
| M 13 x 1,5                          | 2243192              |
| M 14 x 1,5                          | 1511351              |

| Unified-Gewinde, fein <b>UNF</b> |                      |
|----------------------------------|----------------------|
| Unified Threads, Fine Pitch      |                      |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k |
| Nominal Size x TPI               | Ident No.            |
| 5/16 – 24 UNF                    | 2243210              |
| 3/8 – 24 UNF                     | 2243211              |
| 7/16 – 20 UNF                    | 2243212              |
| 1/2 – 20 UNF                     | 2169981              |

| Unified-Gewinde, grob <b>UNC</b> |                      |
|----------------------------------|----------------------|
| Unified Threads, Coarse Pitch    |                      |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k |
| Nominal Size x TPI               | Ident No.            |
| 5/16 – 18 UNC                    | 2243206              |
| 3/8 – 16 UNC                     | 2243207              |
| 7/16 – 14 UNC                    | 2243208              |
| 1/2 – 13 UNC                     | 2164894              |
| 9/16 – 12 UNC                    | 2243209              |
| 5/8 – 11 UNC <sup>1)</sup>       | 2240140              |

| Whitworth-Gewinde <b>BSW</b>     |                      |
|----------------------------------|----------------------|
| Whitworth Threads                |                      |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k |
| Nominal Size x TPI               | Ident No.            |
| 5/16 – 18 BSW                    | 2243195              |
| 3/8 – 16 BSW                     | 2243196              |
| 7/16 – 14 BSW                    | 2243197              |
| 1/2 – 12 BSW                     | 2243198              |
| 9/16 – 12 BSW                    | 2243199              |
| 5/8 – 11 BSW <sup>1)</sup>       | 2243200              |

| Whitworth-Feingewinde <b>BSF</b> |                      |
|----------------------------------|----------------------|
| Whitworth Fine Pitch Threads     |                      |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k |
| Nominal Size x TPI               | Ident No.            |
| 5/16 – 20 BSF                    | 2243201              |
| 3/8 – 20 BSF                     | 2243202              |
| 7/16 – 18 BSF                    | 2243203              |
| 1/2 – 16 BSF                     | 2243204              |
| 9/16 – 16 BSF                    | 2243205              |
| 5/8 – 14 BSF                     | 2168961              |

| Whitworth-Rohrgewinde <b>G</b>   |                      |
|----------------------------------|----------------------|
| Whitworth Pipe Threads           |                      |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k |
| Nominal Size x TPI               | Ident No.            |
| G 1/4 – 19                       | 2243214              |

<sup>1)</sup> nur auf Anfrage  
<sup>1)</sup> only on request

**Rändeln oder Glätten**

Im Bereich von 8–16 mm für jeden gewünschten Durchmesser jeweils ein Rollensatz erforderlich.  
Gewicht für 1 Satz = 2 Stück Rollen je nach Gewinde-Nennmaß etwa 0,17 bis 0,29 kg.  
Rollen mit Anlauf 2k auf Anfrage.

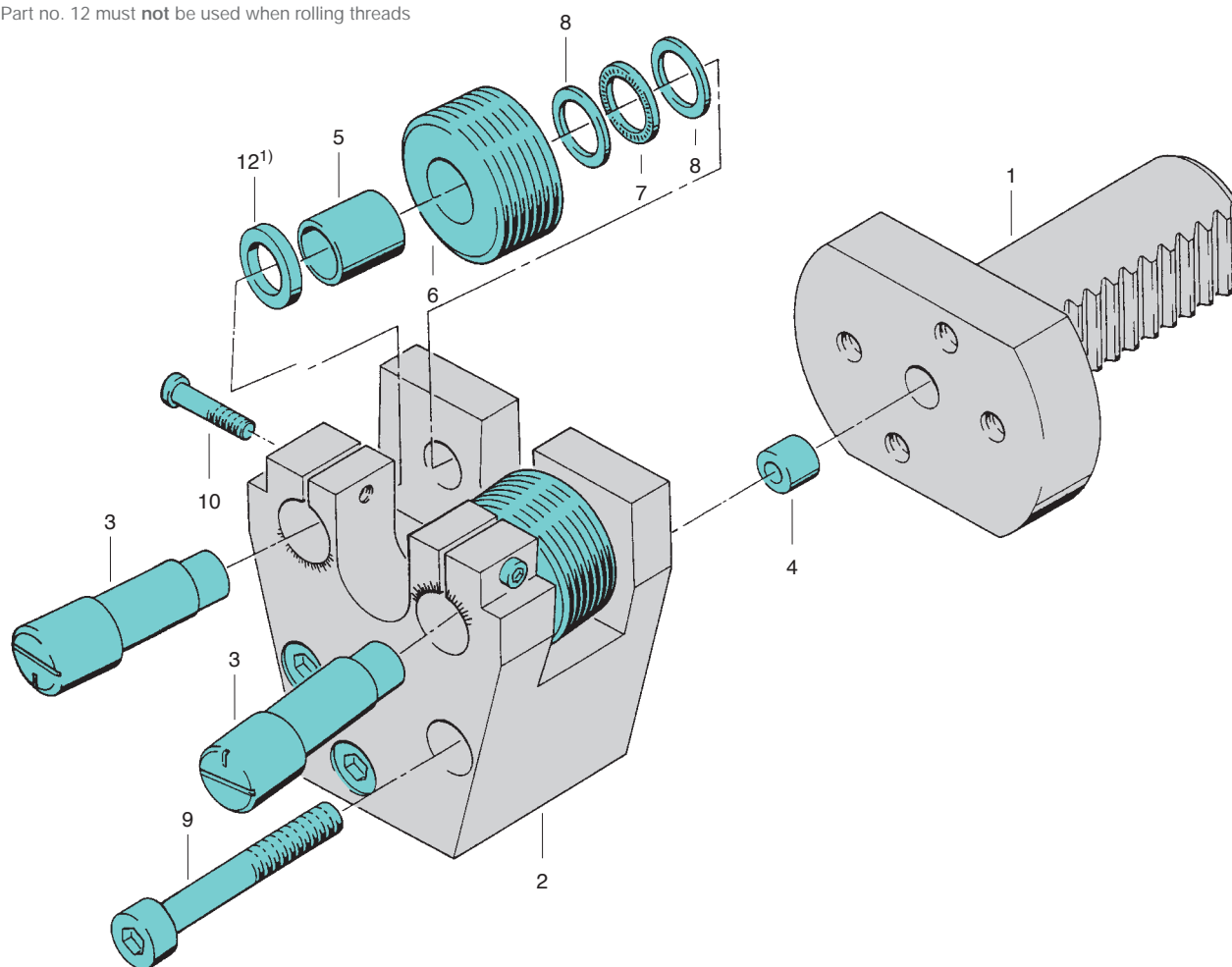
**Knurling or burnishing**

In the range of 8–16 mm/0.315–0.63" one set of rolls rewuired for each diameter.  
Weight for 1 set = 2 rolls each depending on Nominal Thread size approximately 0.37 to 0.64 lb.  
Rolls with 2k lead on request.

| Rollkopf<br>Rolling Head |               |   | AC2       | Rollkopf<br>Rolling Head |               |   | AC2       |
|--------------------------|---------------|---|-----------|--------------------------|---------------|---|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                     | Ident No. | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description   | Ident No. |
| 2                        | 1             | Rollenhalter<br>Roll holder                       | 2166965   | 9                        | 3             | Zylinderschraube<br>Cap screw   | 2141937   |
| 3                        | 2             | Exzenterbolzen<br>Eccentric spindles              | 2166962   | 10                       | 2             | Zylinderschraube<br>Cap screw   | 2141913   |
| 4                        | 1             | Zentrierbuchse<br>Centreing bushing               | 2166961   | 12                       | 2             | Scheibe.<br>Nur bei Verwendung<br>von Rändel- bzw.<br>Glättrollen<br>Washer.<br>Only when using<br>knurling rolls and<br>burnishing rolls | 2166964   |
| 5                        | 2             | Hartmetall-Laufbuchse<br>Carbide bushing          | 2167329   |                          |               |   |           |
| 7                        | 2             | Axial-Nadelkäfig<br>Thrust needle<br>bearing cage | 2149264   |                          |               |   |           |
| 8                        | 4             | Axial-Scheibe<br>Thrust bearing race              | 2148882   |                          |               |   |           |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!

1) Teil 12 darf beim Gewinderollen **nicht** verwendet werden!  
1) Part no. 12 must **not** be used when rolling threads



### für Rechtsgewinde

- Schaftaufnahmen siehe Seite 244
- Rollen-Schrägstellung = 2° 40'
- Gewicht ohne Rollen = ca. 4,1 kg

### for right-hand threads

- Shank adaptor see page 244
- inclined position of rolls = 2° 40'
- weight without rolls = approx. 9 lb

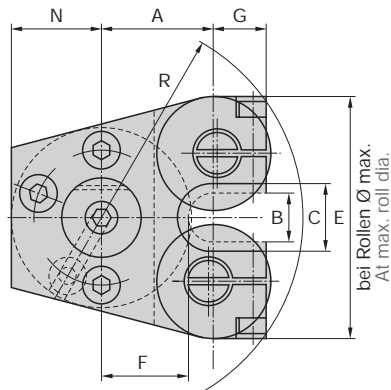
### für Linksgewinde

- Typ AC3L
- Baumaß wie für Rechtsgewinde-Rollkopf

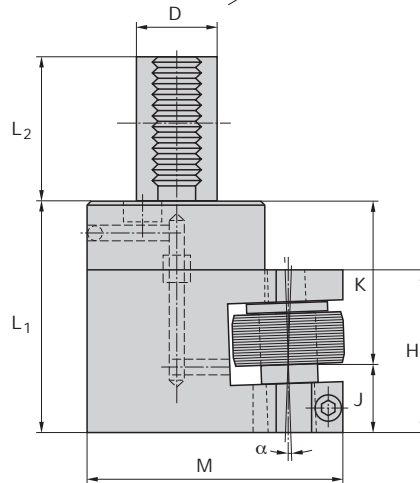
### for left-hand threads

- Type AC3L
- Component dimension as for right-hand thread rolling head

Schaft- bis Werkstückmitte  
(Maß A = ... mm nur bei Standardrollkopf)  
Shank center to workpiece center  
(dimension A = ... mm/inch only with the  
standard rolling head)



Schaftaufnahme nach DIN 69 880 oder  
des Maschinentypes entsprechend  
Shank adaptor to DIN 69 880 or according  
to machine type



### Baumaße in mm

### Dimension in inches

| Dimension in inches     |                         |                         |        |        |        |        |        |        |        |                |                         | AC3 |           |
|-------------------------|-------------------------|-------------------------|--------|--------|--------|--------|--------|--------|--------|----------------|-------------------------|-----|-----------|
| A                       | B                       | C                       | D      | E      | F      | G      | H      | J      | K      | L <sub>1</sub> | L <sub>2</sub> (D = 20) |     | Ident No. |
| 51                      | 24                      | 40                      | 20     | 127    | 39     | 25     | 68,5   | 27,1   | 66,4   | 93,5           | 40                      |     | 1514107   |
| 2.008"                  | 0.945"                  | 1.575"                  | 0.787" | 5.000" | 1.535" | 0.984" | 2.697" | 1.067" | 2.614" | 3.681"         | 1.575"                  |     |           |
|                         |                         |                         | 30     |        |        |        |        |        |        |                |                         |     |           |
|                         |                         |                         | 1.181" |        |        |        |        |        |        |                |                         |     |           |
|                         |                         |                         | 40     |        |        |        |        |        |        |                |                         |     |           |
|                         |                         |                         | 1.575" |        |        |        |        |        |        |                |                         |     |           |
|                         |                         |                         | 50     |        |        |        |        |        |        |                |                         |     |           |
|                         |                         |                         | 1.968" |        |        |        |        |        |        |                |                         |     |           |
| L <sub>2</sub> (D = 30) | L <sub>2</sub> (D = 40) | L <sub>2</sub> (D = 50) | M      | N      | R      | α      |        |        |        |                |                         |     |           |
| 55                      | 63                      | 78                      | 118,5  | 42,5   | 99     | 2° 40' |        |        |        |                |                         |     |           |
| 2.165"                  | 2.480"                  | 3.071"                  | 4.665" | 1.673" | 3.898" |        |        |        |        |                |                         |     |           |

für Rechts- und Linksgewinde  
 for right-hand and left-hand threads



| Metrisches ISO-Gewinde <b>M</b> |                      |
|---------------------------------|----------------------|
| Metric ISO Threads              |                      |
| Nennmaß x Steigung<br>mm        | Anlauf 1k<br>Lead 1k |
| Nominal Size x Pitch            | Ident No.            |
| M 12 x 1,75                     | 2240341              |
| M 14 x 2                        | 2240340              |
| M 16 x 2                        | 2243216              |
| M 18 x 2,5                      | 2243217              |
| M 20 x 2,5                      | 2240339              |
| M 22 x 2,5                      | 2167992              |

| Metrisches ISO-Feingewinde <b>M</b> |                      |
|-------------------------------------|----------------------|
| Metric ISO Fine Pitch Threads       |                      |
| Nennmaß x Steigung<br>mm            | Anlauf 1k<br>Lead 1k |
| Nominal Size x Pitch                | Ident No.            |
| M 12 x 1,25                         | 2243218              |
| M 12 x 1,5                          | 2243219              |
| M 13 x 1,5                          | 2243220              |
| M 14 x 1,5                          | 2242723              |
| M 15 x 1,5                          | 2243221              |
| M 16 x 1,5                          | 2242010              |
| M 17 x 2                            | 2243222              |
| M 18 x 2                            | 2243223              |
| M 19 x 2                            | 2243224              |
| M 20 x 2                            | 2243225              |
| M 21 x 2                            | 2243226              |
| M 22 x 2                            | 2243227              |

| Unified-Gewinde, fein <b>UNF</b> |                      |
|----------------------------------|----------------------|
| Unified Threads, Fine Pitch      |                      |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k |
| Nominal Size x TPI               | Ident No.            |
| 7/16 – 20 UNF                    | 2243249              |
| 1/2 – 20 UNF                     | 2243250              |
| 9/16 – 18 UNF                    | 2243251              |
| 5/8 – 18 UNF                     | 2243252              |

| Unified-Gewinde, grob <b>UNC</b> |                      |
|----------------------------------|----------------------|
| Unified Threads, Coarse Pitch    |                      |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k |
| Nominal Size x TPI               | Ident No.            |
| 7/16 – 14 UNC                    | 2243243              |
| 1/2 – 13 UNC                     | 2243244              |
| 9/16 – 12 UNC                    | 2243245              |
| 5/8 – 11 UNC                     | 2243246              |
| 3/4 – 10 UNC                     | 2243247              |
| 7/8 – 9 UNC                      | 2243248              |

| Whitworth-Gewinde <b>BSW</b>     |                      |
|----------------------------------|----------------------|
| Whitworth Threads                |                      |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k |
| Nominal Size x TPI               | Ident No.            |
| 7/16 – 14 BSW                    | 2243228              |
| 1/2 – 12 BSW                     | 2243229              |
| 9/16 – 12 BSW                    | 2243230              |
| 5/8 – 11 BSW                     | 2243231              |
| 11/16 – 11 BSW                   | 2243232              |
| 3/4 – 10 BSW                     | 2243233              |
| 7/8 – 9 <sup>1)</sup> BSW        | 2243234              |

| Whitworth-Feingewinde <b>BSF</b> |                      |
|----------------------------------|----------------------|
| Whitworth Fine Pitch Threads     |                      |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k |
| Nominal Size x TPI               | Ident No.            |
| 7/16 – 18 BSF                    | 2243235              |
| 1/2 – 16 BSF                     | 2243236              |
| 9/16 – 16 BSF                    | 2243237              |
| 5/8 – 14 BSF                     | 2243238              |
| 11/16 – 14 BSF                   | 2243239              |
| 3/4 – 12 BSF                     | 2243240              |
| 13/16 – 12 BSF                   | 2243241              |
| 7/8 – 11 BSF                     | 2243242              |

| Whitworth-Rohrgewinde <b>G</b>   |                      |
|----------------------------------|----------------------|
| Whitworth Pipe Threads           |                      |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k |
| Nominal Size x TPI               | Ident No.            |
| G 1/4 – 19                       | 2243253              |
| G 3/8 – 19                       | 2242009              |
| G 1/2 – 14                       | 2243254              |

<sup>1)</sup> nur auf Anfrage  
<sup>1)</sup> only on request

**Rändeln oder Glätten**

Im Bereich von 12–22 mm für jeden gewünschten Durchmesser jeweils ein Rollensatz erforderlich.  
 Gewicht für 1 Satz = 2 Stück Rollen je nach Gewinde-Nennmaß etwa 0,5 bis 0,8 kg.  
 Rollen mit Anlauf 2k auf Anfrage.

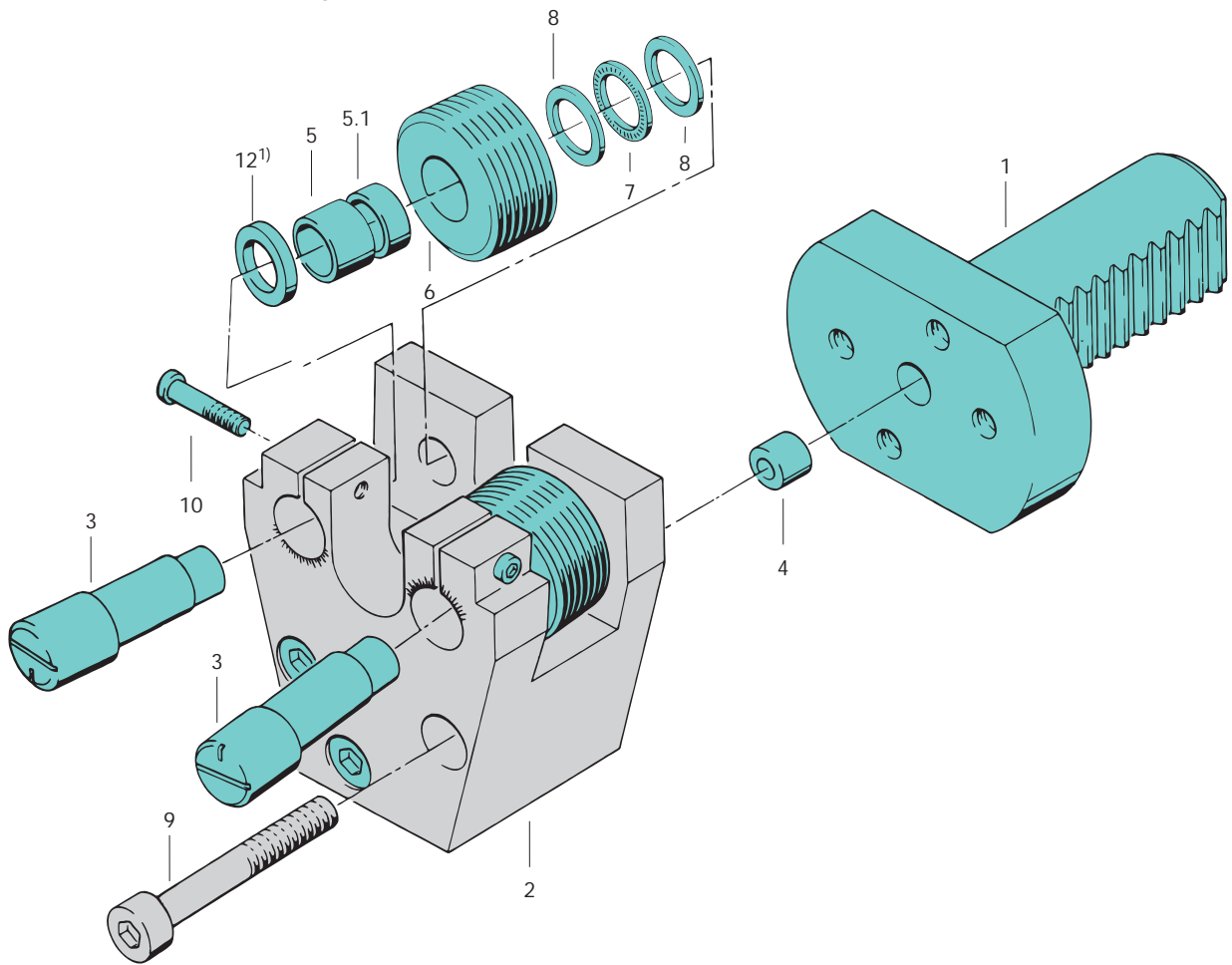
**Knurling or burnishing**

In the range of 12–22 mm/0.472–0.866" one set of rolls required for each diameter.  
 Weight for 1 set = 2 rolls each depending on Nominal Thread size approximately 1.1 to 1.8 lb.  
 Rolls with 2k lead on request.

| Rollkopf<br>Rolling Head |               |   | AC3       | Rollkopf<br>Rolling Head |               |   | AC3       |
|--------------------------|---------------|---|-----------|--------------------------|---------------|---|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                     | Ident No. | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description   | Ident No. |
| 2                        | 1             | Rollenhalter<br>Roll holder                       | 2166957   | 9                        | 3             | Zylinderschraube<br>Cap screw   | 2141937   |
| 3                        | 2             | Exzenterbolzen<br>Eccentric spindles              | 2166960   | 10                       | 2             | Zylinderschraube<br>Cap screw   | 2141914   |
| 4                        | 1             | Zentrierbuchse<br>Centreing bushing               | 2166961   | 12                       | 2             | Scheibe.<br>Nur bei Verwendung<br>von Rändel- bzw.<br>Glättrollen<br>Washer.<br>Only when using<br>knurling rolls and<br>burnishing rolls | 2166959   |
| 5                        | 2             | Hartmetall-Laufbuchse<br>Carbide bushing          | 2165072   |                          |               |   |           |
| 5.1                      | 2             | Hartmetall-Laufbuchse<br>Carbide bushing          | 2165073   |                          |               |   |           |
| 7                        | 2             | Axial-Nadelkäfig<br>Thrust needle<br>bearing cage | 2149265   |                          |               |   |           |
| 8                        | 4             | Axial-Scheibe<br>Thrust bearing race              | 2127472   |                          |               |   |           |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!

1) Teil 12 darf beim Gewinderollen **nicht** verwendet werden!  
1) Part no. 12 must **not** be used when rolling threads



### für Rechtsgewinde

- Schaftaufnahmen siehe Seite 244
- Rollen-Schrägstellung = 2° 40'
- Gewicht ohne Rollen = ca. 6,5 kg

### for right-hand threads

- Shank adaptor see page 244
- inclined position of rolls = 2° 40'
- weight without rolls = approx. 14.3 lb

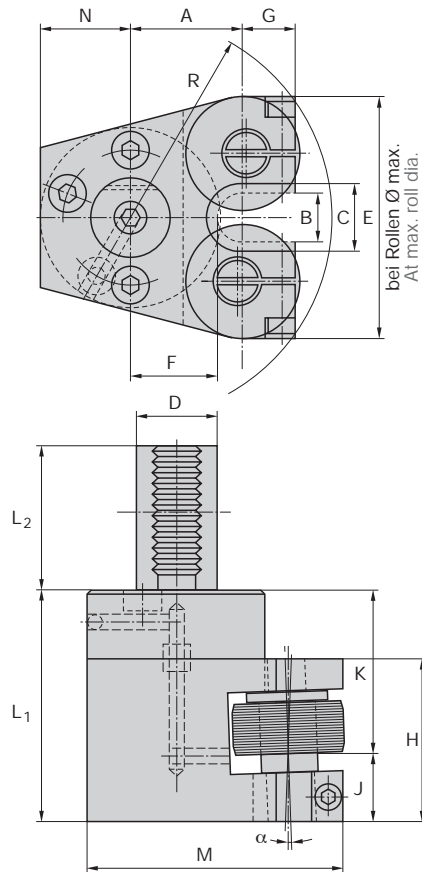
### für Linksgewinde

- Typ AC4L
- Baumaß wie für Rechtsgewinde-Rollkopf

### for left-hand threads

- Type AC4L
- Component dimension as for right-hand thread rolling head

Schaft- bis Werkstückmitte  
(Maß A = ... mm nur bei Standardrollkopf)  
Shank center to workpiece center  
(dimension A = ... mm/inch only with the  
standard rolling head)



Schaftaufnahme nach DIN 69 880 oder  
des Maschinentypes entsprechend  
Shank adaptor to DIN 69 880 or according  
to machine type

### Baumaße in mm

### Dimension in inches

| Dimension in inches     |        |                         |        |        |        |        |        |        |        |                |                         | AC4 |           |
|-------------------------|--------|-------------------------|--------|--------|--------|--------|--------|--------|--------|----------------|-------------------------|-----|-----------|
| A                       | B      | C                       | D      | E      | F      | G      | H      | J      | K      | L <sub>1</sub> | L <sub>2</sub> (D = 30) |     | Ident No. |
| 49                      | 32     | 50                      | 30     | 156    | 33     | 33     | 78     | 28,5   | 74,5   | 103            | 55                      |     | 1518096   |
| 1.929"                  | 1.260" | 1.968"                  | 1.181" | 6.142" | 1.299" | 1.299" | 3.071" | 1.122" | 2.933" | 4.055"         | 2.165"                  |     |           |
|                         |        |                         | 40     |        |        |        |        |        |        |                |                         |     |           |
|                         |        |                         | 1.575" |        |        |        |        |        |        |                |                         |     |           |
|                         |        |                         | 50     |        |        |        |        |        |        |                |                         |     |           |
|                         |        |                         | 1.968" |        |        |        |        |        |        |                |                         |     |           |
|                         |        |                         | 60     |        |        |        |        |        |        |                |                         |     |           |
|                         |        |                         | 2.362" |        |        |        |        |        |        |                |                         |     |           |
| L <sub>2</sub> (D = 40) |        | L <sub>2</sub> (D = 50) |        | M      | N      | R      | α      |        |        |                |                         |     |           |
| 63                      |        | 78                      |        | 122    | 40     | 113    | 2° 30' |        |        |                |                         |     |           |
| 2.480"                  |        | 3.071"                  |        | 4.803" | 1.575" | 4.449" |        |        |        |                |                         |     |           |



für Rechts- und Linksgewinde  
 for right-hand and left-hand threads



| Metrisches ISO-Gewinde <b>M</b> |                      |
|---------------------------------|----------------------|
| Metric ISO Threads              |                      |
| Nennmaß x Steigung<br>mm        | Anlauf 1k<br>Lead 1k |
| Nominal Size x Pitch            | Ident No.            |
| M 16 x 2                        | 2242950              |
| M 18 x 2,5                      | 2243256              |
| M 20 x 2,5                      | 2243257              |
| M 22 x 2,5                      | 2243258              |
| M 24 x 3 <sup>1)</sup>          | 2169794              |
| M 27 x 3 <sup>1)</sup>          | 2242762              |

| Metrisches ISO-Feingewinde <b>M</b> |                      |
|-------------------------------------|----------------------|
| Metric ISO Fine Pitch Threads       |                      |
| Nennmaß x Steigung<br>mm            | Anlauf 1k<br>Lead 1k |
| Nominal Size x Pitch                | Ident No.            |
| M 16 x 1,5                          | 2169769              |
| M 17 x 1,5                          | 2243259              |
| M 17 x 2                            | 2243260              |
| M 18 x 1,5                          | 2169768              |
| M 18 x 2                            | 2243261              |
| M 19 x 2                            | 2243262              |
| M 20 x 2                            | 2243263              |
| M 21 x 2                            | 2243264              |
| M 22 x 2                            | 2243265              |
| M 23 x 2                            | 2243266              |
| M 24 x 2                            | 2240469              |
| M 25 x 2                            | 2243267              |
| M 28 x 3 <sup>1)</sup>              | 2243268              |
| M 30 x 3 <sup>1)</sup>              | 2243269              |

| Unified-Gewinde, grob <b>UNC</b> |                      |
|----------------------------------|----------------------|
| Unified Threads, Coarse Pitch    |                      |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k |
| Nominal Size x TPI               | Ident No.            |
| 5/8 - 11 UNC                     | 2243283              |
| 3/4 - 10 UNC                     | 2243284              |
| 7/8 - 9 <sup>1)</sup> UNC        | 2243285              |

| Unified-Gewinde, fein <b>UNF</b> |                      |
|----------------------------------|----------------------|
| Unified Threads, Fine Pitch      |                      |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k |
| Nominal Size x TPI               | Ident No.            |
| 5/8 - 18 UNF                     | 2243287              |
| 3/4 - 16 UNF                     | 2243288              |
| 7/8 - 14 UNF                     | 2243289              |
| 1 - 12 UNF                       | 2169736              |

<sup>1)</sup> nur auf Anfrage  
<sup>1)</sup> only on request

| Whitworth-Gewinde <b>BSW</b>     |                      |
|----------------------------------|----------------------|
| Whitworth Threads                |                      |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k |
| Nominal Size x TPI               | Ident No.            |
| 5/8 - 11 BSW                     | 2243270              |
| 11/16 - 11 BSW                   | 2243271              |
| 3/4 - 10 BSW                     | 2243272              |
| 7/8 - 9 <sup>1)</sup> BSW        | 2243273              |

| Whitworth-Feingewinde <b>BSF</b> |                      |
|----------------------------------|----------------------|
| Whitworth Fine Pitch Threads     |                      |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k |
| Nominal Size x TPI               | Ident No.            |
| 5/8 - 14 BSF                     | 2243276              |
| 11/16 - 14 BSF                   | 2243277              |
| 3/4 - 12 BSF                     | 2243278              |
| 13/16 - 12 BSF                   | 2243279              |
| 7/8 - 11 BSF                     | 2243280              |
| 1 - 10 BSF                       | 2243281              |
| 1 1/8 - 9 <sup>1)</sup> BSF      | 2243282              |

| Whitworth-Rohrgewinde <b>G</b>   |                      |
|----------------------------------|----------------------|
| Whitworth Pipe Threads           |                      |
| Nennmaß x Gangzahl<br>auf 1 Zoll | Anlauf 1k<br>Lead 1k |
| Nominal Size x TPI               | Ident No.            |
| G 3/8 - 19                       | 2243290              |
| G 1/2 - 14                       | 2243291              |
| G 5/8 - 14                       | 2243292              |

**Rändeln oder Glätten**

Im Bereich von 16–30 mm für jeden gewünschten Durchmesser jeweils ein Rollensatz erforderlich.  
 Gewicht für 1 Satz = 2 Stück Rollen je nach Gewinde-Nennmaß etwa 0,74 bis 1,54 kg.  
 Rollen mit Anlauf 2k auf Anfrage.

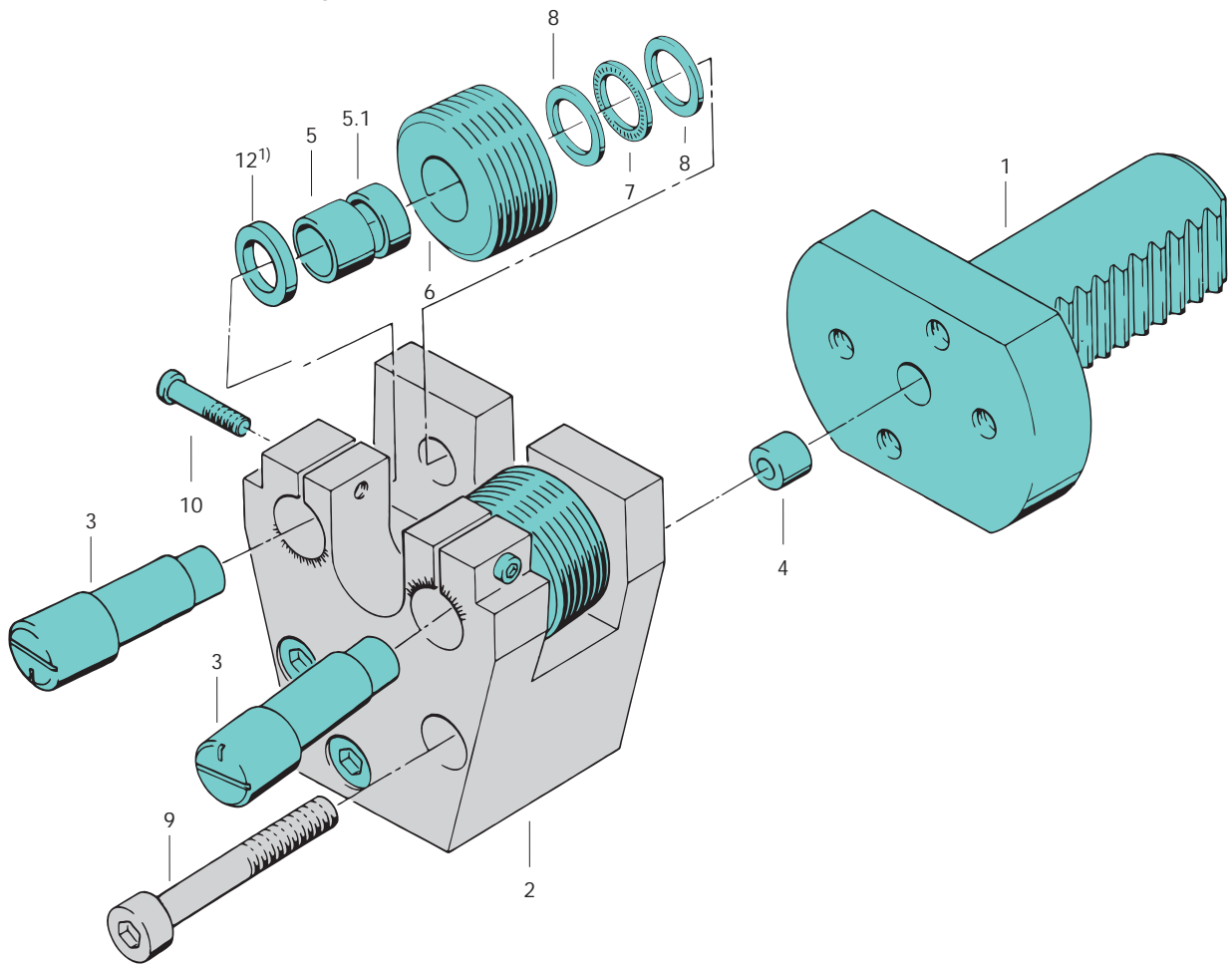
**Knurling or burnishing**

In the range of 16–30 mm/0.63–1.181" one set of rolls rewuired for each diameter.  
 Weight for 1 set = 2 rolls each depending on Nominal Thread size approximately 1.6 to 3.4 lb.  
 Rolls with 2k lead on request.

| Rollkopf<br>Rolling Head |               |   | AC4       | Rollkopf<br>Rolling Head |               |   | AC4       |
|--------------------------|---------------|---|-----------|--------------------------|---------------|---|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                     | Ident No. | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description   | Ident No. |
| 2                        | 1             | Rollenhalter<br>Roll holder                       | 2166956   | 9                        | 3             | Zylinderschraube<br>Cap screw   | 2141937   |
| 3                        | 2             | Exzenterbolzen<br>Eccentric spindles              | 2166955   | 10                       | 2             | Zylinderschraube<br>Cap screw   | 2141932   |
| 4                        | 1             | Zentrierbuchse<br>Centreing bushing               | 2166961   | 12                       | 2             | Scheibe.<br>Nur bei Verwendung<br>von Rändel- bzw.<br>Glättrollen<br>Washer.<br>Only when using<br>knurling rolls and<br>burnishing rolls | 2166954   |
| 5                        | 2             | Hartmetall-Laufbuchse<br>Carbide bushing          | 2167324   |                          |               |   |           |
| 5.1                      | 2             | Hartmetall-Laufbuchse<br>Carbide bushing          | 2167374   |                          |               |   |           |
| 7                        | 2             | Axial-Nadelkäfig<br>Thrust needle<br>bearing cage | 2167376   |                          |               |   |           |
| 8                        | 4             | Axial-Scheibe<br>Thrust bearing race              | 2167377   |                          |               |   |           |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!

1) Teil 12 darf beim Gewinderollen **nicht** verwendet werden!  
1) Part no. 12 must **not** be used when rolling threads



### für Rechtsgewinde

- Schaftaufnahmen siehe Seite 244
- Rollen-Schrägstellung = 1°
- Gewicht ohne Rollen = ca. 8,5 kg

### for right-hand threads

- Shank adaptor see page 244
- inclined position of rolls = 1°
- weight without rolls = approx. 18.7 lb

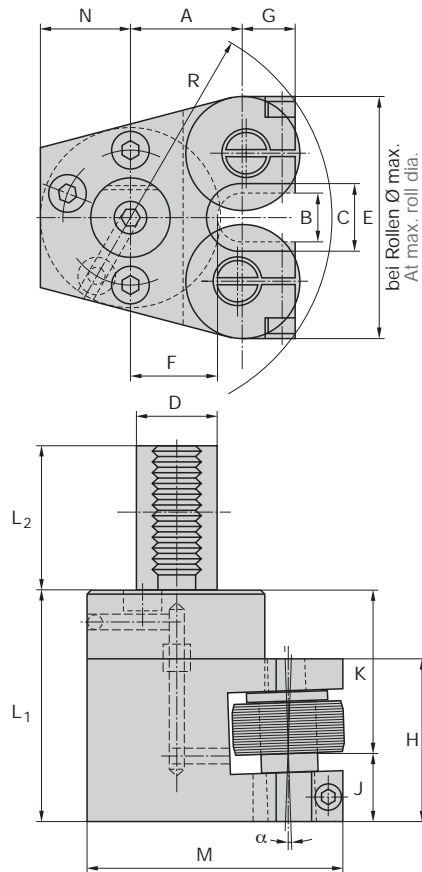
### für Linksgewinde

- Typ AC5L
- Baumaß wie für Rechtsgewinde-Rollkopf

### for left-hand threads

- Type AC5L
- Component dimension as for right-hand thread rolling head

Schaft- bis Werkstückmitte  
(Maß A = ... mm nur bei Standardrollkopf)  
Shank center to workpiece center  
(dimension A = ... mm/inch only with the  
standard rolling head)



Schaftaufnahme nach DIN 69 880 oder  
des Maschinentypes entsprechend  
Shank adaptor to DIN 69 880 or according  
to machine type

### Baumaße in mm

Dimension in inches

| Dimension in inches     |                         |                         |        |        |        |        |        |        |        |                |                         | AC5 |           |
|-------------------------|-------------------------|-------------------------|--------|--------|--------|--------|--------|--------|--------|----------------|-------------------------|-----|-----------|
| A                       | B                       | C                       | D      | E      | F      | G      | H      | J      | K      | L <sub>1</sub> | L <sub>2</sub> (D = 30) |     | Ident No. |
| 55                      | 56                      | 72                      | 30     | 193    | 27     | 33     | 78     | 29     | 74     | 103            | 55                      |     | 2169020   |
| 2.165"                  | 2.205"                  | 2.835"                  | 1.181" | 7.598" | 1.063" | 1.299" | 3.071" | 1.142" | 2.913" | 4.055"         | 2.165"                  |     |           |
|                         |                         |                         | 40     |        |        |        |        |        |        |                |                         |     |           |
|                         |                         |                         | 1.575" |        |        |        |        |        |        |                |                         |     |           |
|                         |                         |                         | 50     |        |        |        |        |        |        |                |                         |     |           |
|                         |                         |                         | 1.968" |        |        |        |        |        |        |                |                         |     |           |
|                         |                         |                         | 60     |        |        |        |        |        |        |                |                         |     |           |
|                         |                         |                         | 2.362" |        |        |        |        |        |        |                |                         |     |           |
| L <sub>2</sub> (D = 40) | L <sub>2</sub> (D = 50) | L <sub>2</sub> (D = 60) | M      | N      | R      | α      |        |        |        |                |                         |     |           |
| 63                      | 78                      | 94                      | 128    | 40     | 126    | 1°     |        |        |        |                |                         |     |           |
| 2.480"                  | 3.071"                  | 3.701"                  | 5.039" | 1.575" | 4.961" |        |        |        |        |                |                         |     |           |

für Rechts- und Linksgewinde  
for right-hand and left-hand threads



| Metrisches ISO-Gewinde<br>Metric ISO Threads |                      | M         |
|--|----------------------|-----------|
| Nennmaß x Steigung<br>mm                     | Anlauf 1k<br>Lead 1k | Ident No. |
| Nominal Size x Pitch                         |                      |           |
| M 26 x 1                                     | 2243297              |           |
| M 26 x 1,5                                   | 2243298              |           |
| M 27 x 1                                     | 2243299              |           |
| M 27 x 1,5                                   | 2243300              |           |
| M 27 x 2                                     | 2243301              |           |
| M 28 x 1                                     | 2243302              |           |
| M 28 x 1,5                                   | 2243303              |           |
| M 28 x 2                                     | 2243304              |           |
| M 29 x 1                                     | 2243305              |           |
| M 29 x 1,5                                   | 2243306              |           |
| M 30 x 1                                     | 2243307              |           |
| M 30 x 1,5                                   | 2243308              |           |
| M 30 x 2                                     | 2243309              |           |
| M 31 x 1                                     | 2243310              |           |
| M 31 x 1,5                                   | 2243311              |           |
| M 32 x 1,5                                   | 2243312              |           |
| M 32 x 2                                     | 2243313              |           |
| M 33 x 1                                     | 2243314              |           |
| M 33 x 1,5                                   | 2243315              |           |
| M 33 x 2                                     | 2243316              |           |
| M 34 x 1,5                                   | 2169895              |           |
| M 34 x 2                                     | 2169896              |           |
| M 35 x 1,5                                   | 2243317              |           |
| M 35 x 2                                     | 2243318              |           |
| M 36 x 1,5                                   | 2243319              |           |
| M 36 x 2                                     | 2243320              |           |
| M 37 x 1,5                                   | 2243321              |           |
| M 38 x 1,5                                   | 2243322              |           |
| M 38 x 2                                     | 2243323              |           |
| M 39 x 1,5                                   | 2243324              |           |
| M 39 x 2                                     | 2243325              |           |
| M 40 x 1,5                                   | 2243326              |           |
| M 40 x 2                                     | 2243327              |           |
| M 40 x 3 <sup>1)</sup>                       | 2243328              |           |
| M 42 x 1,5                                   | 2243329              |           |
| M 42 x 2                                     | 2243330              |           |
| M 42 x 3 <sup>1)</sup>                       | 2243331              |           |
| M 45 x 1,5                                   | 2240023              |           |
| M 45 x 2                                     | 2241458              |           |
| M 45 x 3 <sup>1)</sup>                       | 2243332              |           |
| M 48 x 1,5                                   | 2243333              |           |
| M 48 x 2                                     | 2243334              |           |
| M 48 x 3 <sup>1)</sup>                       | 2243335              |           |

<sup>1)</sup> nur auf Anfrage  
<sup>1)</sup> only on request

| Metrisches ISO-Gewinde<br>Metric ISO Threads |                      | M         |
|--|----------------------|-----------|
| Nennmaß x Steigung<br>mm                     | Anlauf 1k<br>Lead 1k | Ident No. |
| Nominal Size x Pitch                         |                      |           |
| M 50 x 2                                     | 2243336              |           |
| M 50 x 3 <sup>1)</sup>                       | 2243337              |           |
| M 52 x 2                                     | 2243338              |           |
| M 52 x 3 <sup>1)</sup>                       | 2243339              |           |

| Unified-Gewinde, fein<br>Unified Threads, Fine Pitch |                      | UNF       |
|--|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll                     | Anlauf 1k<br>Lead 1k | Ident No. |
| Nominal Size x TPI                                   |                      |           |
| 1 <sup>1</sup> / <sub>8</sub> - 12 UNF               | 2243373              |           |
| 1 <sup>1</sup> / <sub>4</sub> - 12 UNF               | 2169718              |           |
| 1 <sup>3</sup> / <sub>8</sub> - 12 UNF               | 2240364              |           |
| 1 <sup>1</sup> / <sub>2</sub> - 12 UNF               | 2169719              |           |

| Unified-Gewinde, fein<br>Unified Threads, Extra fine Pitch |                      | UNEF      |
|--|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll                           | Anlauf 1k<br>Lead 1k | Ident No. |
| Nominal Size x TPI   |                      |           |
| 1 <sup>1</sup> / <sub>16</sub> - 18 UNEF                   | 2243374              |           |
| 1 <sup>1</sup> / <sub>8</sub> - 18 UNEF                    | 2243375              |           |
| 1 <sup>3</sup> / <sub>16</sub> - 18 UNEF                   | 2243376              |           |
| 1 <sup>1</sup> / <sub>4</sub> - 18 UNEF                    | 2243377              |           |
| 1 <sup>5</sup> / <sub>16</sub> - 18 UNEF                   | 2243378              |           |
| 1 <sup>3</sup> / <sub>8</sub> - 18 UNEF                    | 2243379              |           |
| 1 <sup>7</sup> / <sub>16</sub> - 18 UNEF                   | 2243380              |           |
| 1 <sup>1</sup> / <sub>2</sub> - 18 UNEF                    | 2243381              |           |
| 1 <sup>9</sup> / <sub>16</sub> - 18 UNEF                   | 2243382              |           |
| 1 <sup>5</sup> / <sub>8</sub> - 18 UNEF                    | 2243383              |           |
| 1 <sup>11</sup> / <sub>16</sub> - 18 UNEF                  | 2243384              |           |

| Unified-Gewinde<br>Unified Threads     |                      | UN        |
|--|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll       | Anlauf 1k<br>Lead 1k | Ident No. |
| Nominal Size x TPI                     |                      |           |
| 1 <sup>1</sup> / <sub>16</sub> - 16 UN | 2243385              |           |
| 1 <sup>1</sup> / <sub>16</sub> - 20 UN | 2243386              |           |
| 1 <sup>1</sup> / <sub>16</sub> - 28 UN | 2243387              |           |
| 1 <sup>1</sup> / <sub>8</sub> - 16 UN  | 2243388              |           |
| 1 <sup>1</sup> / <sub>8</sub> - 20 UN  | 2243389              |           |
| 1 <sup>1</sup> / <sub>8</sub> - 28 UN  | 2243390              |           |
| 1 <sup>3</sup> / <sub>16</sub> - 12 UN | 2243391              |           |
| 1 <sup>3</sup> / <sub>16</sub> - 16 UN | 2243392              |           |
| 1 <sup>3</sup> / <sub>16</sub> - 20 UN | 2243393              |           |
| 1 <sup>3</sup> / <sub>16</sub> - 28 UN | 2243394              |           |
| 1 <sup>1</sup> / <sub>4</sub> - 16 UN  | 2243395              |           |
| 1 <sup>1</sup> / <sub>4</sub> - 20 UN  | 2243396              |           |
| 1 <sup>1</sup> / <sub>4</sub> - 28 UN  | 2243397              |           |
| 1 <sup>5</sup> / <sub>16</sub> - 12 UN | 2243398              |           |
| 1 <sup>5</sup> / <sub>16</sub> - 16 UN | 2243399              |           |
| 1 <sup>5</sup> / <sub>16</sub> - 20 UN | 2243400              |           |
| 1 <sup>5</sup> / <sub>16</sub> - 28 UN | 2243401              |           |
| 1 <sup>3</sup> / <sub>8</sub> - 16 UN  | 2243402              |           |
| 1 <sup>3</sup> / <sub>8</sub> - 20 UN  | 2243403              |           |
| 1 <sup>7</sup> / <sub>16</sub> - 16 UN | 2243404              |           |

| Unified-Gewinde<br>Unified Threads      |                      | UN        |
|---|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll        | Anlauf 1k<br>Lead 1k | Ident No. |
| Nominal Size x TPI                      |                      |           |
| 1 <sup>7</sup> / <sub>16</sub> - 20 UN  | 2243405              |           |
| 1 <sup>1</sup> / <sub>2</sub> - 16 UN   | 2243406              |           |
| 1 <sup>1</sup> / <sub>2</sub> - 20 UN   | 2243407              |           |
| 1 <sup>9</sup> / <sub>16</sub> - 12 UN  | 2243408              |           |
| 1 <sup>9</sup> / <sub>16</sub> - 16 UN  | 2243409              |           |
| 1 <sup>5</sup> / <sub>8</sub> - 12 UN   | 2169809              |           |
| 1 <sup>5</sup> / <sub>8</sub> - 16 UN   | 2243410              |           |
| 1 <sup>11</sup> / <sub>16</sub> - 12 UN | 2243411              |           |
| 1 <sup>11</sup> / <sub>16</sub> - 16 UN | 2243412              |           |
| 1 <sup>3</sup> / <sub>4</sub> - 12 UN   | 2243413              |           |
| 1 <sup>3</sup> / <sub>4</sub> - 16 UN   | 2243414              |           |
| 1 <sup>13</sup> / <sub>16</sub> - 12 UN | 2243416              |           |
| 1 <sup>13</sup> / <sub>16</sub> - 16 UN | 2243417              |           |
| 1 <sup>7</sup> / <sub>8</sub> - 12 UN   | 2240365              |           |
| 1 <sup>7</sup> / <sub>8</sub> - 16 UN   | 2243419              |           |
| 1 <sup>15</sup> / <sub>16</sub> - 12 UN | 2243421              |           |
| 1 <sup>15</sup> / <sub>16</sub> - 16 UN | 2243422              |           |
| 2 - 12 UN                               | 2243424              |           |
| 2 - 16 UN                               | 2243425              |           |
| 2 <sup>1</sup> / <sub>8</sub> - 12 UN   | 2243427              |           |

| Whitworth-Gewinde<br>Whitworth Threads   |                      | BSF       |
|--|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll         | Anlauf 1k<br>Lead 1k | Ident No. |
| Nominal Size x TPI                       |                      |           |
| 1 <sup>1</sup> / <sub>16</sub> - 20 BSFS | 2243341              |           |
| 1 <sup>1</sup> / <sub>8</sub> - 12 BSFS  | 2243342              |           |
| 1 <sup>1</sup> / <sub>8</sub> - 20 BSFS  | 2243343              |           |
| 1 <sup>3</sup> / <sub>16</sub> - 12 BSFS | 2243344              |           |
| 1 <sup>3</sup> / <sub>16</sub> - 20 BSFS | 2243345              |           |
| 1 <sup>1</sup> / <sub>4</sub> - 12 BSFS  | 2243346              |           |
| 1 <sup>1</sup> / <sub>4</sub> - 20 BSFS  | 2243347              |           |
| 1 <sup>5</sup> / <sub>16</sub> - 12 BSFS | 2243348              |           |
| 1 <sup>5</sup> / <sub>16</sub> - 20 BSFS | 2243349              |           |
| 1 <sup>3</sup> / <sub>8</sub> - 12 BSFS  | 2243350              |           |
| 1 <sup>3</sup> / <sub>8</sub> - 20 BSFS  | 2243351              |           |
| 1 <sup>7</sup> / <sub>16</sub> - 12 BSFS | 2243352              |           |
| 1 <sup>7</sup> / <sub>16</sub> - 20 BSFS | 2243353              |           |
| 1 <sup>1</sup> / <sub>2</sub> - 12 BSFS  | 2243354              |           |
| 1 <sup>1</sup> / <sub>2</sub> - 20 BSFS  | 2243355              |           |
| 1 <sup>5</sup> / <sub>8</sub> - 12 BSFS  | 2243356              |           |
| 1 <sup>5</sup> / <sub>8</sub> - 16 BSFS  | 2243357              |           |
| 1 <sup>3</sup> / <sub>4</sub> - 12 BSFS  | 2243358              |           |
| 1 <sup>3</sup> / <sub>4</sub> - 16 BSFS  | 2243359              |           |
| 1 <sup>7</sup> / <sub>8</sub> - 12 BSFS  | 2243360              |           |
| 1 <sup>7</sup> / <sub>8</sub> - 16 BSFS  | 2243361              |           |
| 2 - 12 BSFS                              | 2243362              |           |
| 2 - 16 BSFS                              | 2243363              |           |
| 2 <sup>1</sup> / <sub>8</sub> - 12 BSFS  | 2243365              |           |

| Whitworth-Rohrgewinde<br>Whitworth Pipe Threads        |                      | G         |
|--|----------------------|-----------|
| Nennmaß x Gangzahl<br>auf 1 Zoll<br>Nominal Size x TPI | Anlauf 1k<br>Lead 1k | Ident No. |
| G 3/4 - 14   | 2240712              |           |
| G 7/8 - 14   | 2243366              |           |
| G 1 - 11   | 2243367              |           |
| G 1 1/8 - 11   | 2243368              |           |
| G 1 1/4 - 11   | 2243369              |           |
| G 1 3/8 - 11   | 2243370              |           |
| G 1 1/2 - 11   | 2243371              |           |
| G 1 3/4 - 11   | 2243372              |           |

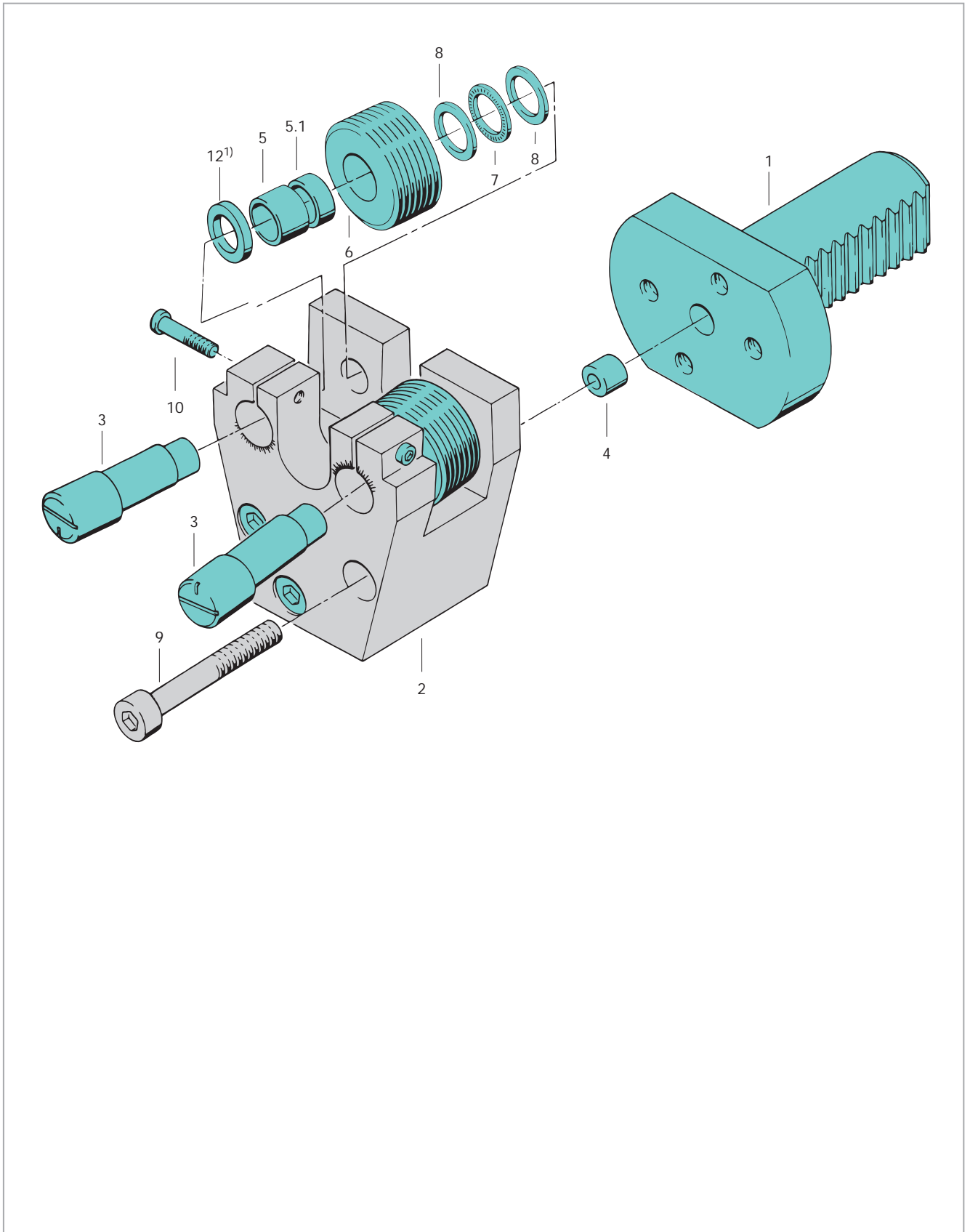
**Rändeln oder Glätten**  
Im Bereich von 26–52 mm für jeden gewünschten Durchmesser jeweils ein Rollensatz erforderlich.  
Gewicht für 1 Satz = 2 Stück Rollen je nach Gewinde-Nennmaß etwa 0,74 bis 1,67 kg.  
Rollen mit Anlauf 2k auf Anfrage.

**Knurling or burnishing**  
In the range of 26–52 mm/1.024–2.047" one set of rolls required for each diameter. Weight for 1 set = 2 rolls each depending on Nominal Thread size approximately 1.6 to 3.7 lb.  
Rolls with 2k lead on request.

**Ersatzteile für Rollköpfe AC5**  
Spare Parts for Rolling Heads AC5

| Rollkopf<br>Rolling Head |               |   | AC5       | Rollkopf<br>Rolling Head |               |   | AC5       |
|--------------------------|---------------|---|-----------|--------------------------|---------------|---|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                     | Ident No. | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description   | Ident No. |
| 2                        | 1             | Rollenhalter<br>Roll holder                       | 2169024   | 9                        | 3             | Zylinderschraube<br>Cap screw   | 2141937   |
| 3                        | 2             | Exzenterbolzen<br>Eccentric spindles              | 2166955   | 10                       | 2             | Zylinderschraube<br>Cap screw   | 2141930   |
| 4                        | 1             | Zentrierbuchse<br>Centreing bushing               | 2166961   | 12                       | 2             | Scheibe.<br>Nur bei Verwendung<br>von Rändel- bzw.<br>Glättrollen<br>Washer.<br>Only when using<br>knurling rolls and<br>burnishing rolls | 2166954   |
| 5                        | 2             | Hartmetall-Laufbuchse<br>Carbide bushing          | 2167324   |                          |               |   |           |
| 5.1                      | 2             | Hartmetall-Laufbuchse<br>Carbide bushing          | 2167374   |                          |               |   |           |
| 7                        | 2             | Axial-Nadelkäfig<br>Thrust needle<br>bearing cage | 2167376   |                          |               |   |           |
| 8                        | 4             | Axial-Scheibe<br>Thrust bearing race              | 2167377   |                          |               |   |           |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!



<sup>1)</sup> Teil 12 darf beim Gewinderollen **nicht** verwendet werden!

<sup>1)</sup> Part no. 12 must **not** be used when rolling threads

### für Rechtsgewinde

- Schaftaufnahmen siehe Seite 244
- Rollen-Schrägstellung = 0° 40'
- Gewicht ohne Rollen = ca. 10,5 kg

### for right-hand threads

- Shank adaptor see page 244
- inclined position of rolls = 0° 40'
- weight without rolls = approx. 23 lb

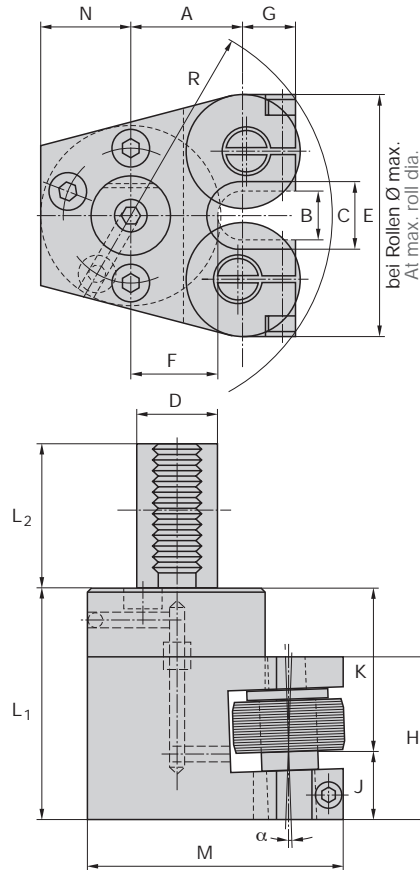
### für Linksgewinde

- Typ AC6L
- Baumaß wie für Rechtsgewinde-Rollkopf

### for left-hand threads

- Type AC6L
- Component dimension as for right-hand thread rolling head

Schaft- bis Werkstückmitte  
(Maß A = ... mm nur bei Standardrollkopf)  
Shank center to workpiece center  
(dimension A = ... mm/inch only with the  
standard rolling head)



Schaftaufnahme nach DIN 69 880 oder  
des Maschinentypes entsprechend  
Shank adaptor to DIN 69 880 or according  
to machine type

### Baumaße in mm

### Dimension in inches

| Dimension in inches     |        |                         |        |                         |        |        |        |        |        |                |                         | AC6       |
|-------------------------|--------|-------------------------|--------|-------------------------|--------|--------|--------|--------|--------|----------------|-------------------------|-----------|
| A                       | B      | C                       | D      | E                       | F      | G      | H      | J      | K      | L <sub>1</sub> | L <sub>2</sub> (D = 30) | Ident No. |
| 110                     | 77     | 88                      | 30     | 203                     | 71,5   | 33     | 78     | 28     | 75     | 103            | 55                      | 2169021   |
| 4.331"                  | 3.031" | 3.465"                  | 1.181" | 7.992"                  | 2.815" | 1.299" | 3.071" | 1.102" | 2.953" | 4.055"         | 2.165"                  |           |
|                         |        |                         | 40     |                         |        |        |        |        |        |                |                         |           |
|                         |        |                         | 1.575" |                         |        |        |        |        |        |                |                         |           |
|                         |        |                         | 50     |                         |        |        |        |        |        |                |                         |           |
|                         |        |                         | 1.968" |                         |        |        |        |        |        |                |                         |           |
|                         |        |                         | 60     |                         |        |        |        |        |        |                |                         |           |
|                         |        |                         | 2.362" |                         |        |        |        |        |        |                |                         |           |
| L <sub>2</sub> (D = 40) |        | L <sub>2</sub> (D = 50) |        | L <sub>2</sub> (D = 60) |        | M      | N      | R      | α      |                |                         |           |
| 63                      |        | 78                      |        | 94                      |        | 183    | 40     | 175    | 0° 40' |                |                         |           |
| 2.480"                  |        | 3.071"                  |        | 3.701"                  |        | 7.205" | 1.575" | 6.890" |        |                |                         |           |



für Rechts- und Linksgewinde  
for right-hand and left-hand threads



**Metrisches ISO-Feingewinde M**  
Metric ISO Fine Pitch Threads

| Nennmaß x Steigung<br>mm | Anlauf 1k<br>Lead 1k |
|--------------------------|----------------------|
| Nominal Size x Pitch     | Ident No.            |
| M 45 x 1,5               | 2243432              |
| M 45 x 2                 | 2243433              |
| M 48 x 1,5               | 2243434              |
| M 48 x 2                 | 2243435              |
| M 50 x 1,5               | 2243436              |
| M 50 x 2                 | 2243437              |
| M 52 x 1,5               | 2243438              |
| M 52 x 2                 | 2243439              |
| M 55 x 1,5               | 2243440              |
| M 55 x 2                 | 2243441              |
| M 56 x 1,5               | 2243442              |
| M 56 x 2                 | 2243443              |
| M 58 x 1,5               | 2243444              |
| M 58 x 2                 | 2243445              |
| M 60 x 1,5               | 2243000              |
| M 60 x 2                 | 2243446              |
| M 62 x 1,5               | 2243447              |
| M 62 x 2                 | 2243448              |
| M 64 x 1,5               | 2243449              |
| M 64 x 2                 | 2243450              |
| M 64 x 3 <sup>1)</sup>   | 2243451              |
| M 65 x 1,5               | 2243452              |
| M 65 x 2                 | 2243453              |
| M 65 x 3 <sup>1)</sup>   | 2243454              |
| M 68 x 1,5               | 2243455              |
| M 68 x 2                 | 2243456              |
| M 68 x 3 <sup>1)</sup>   | 2243457              |
| M 70 x 1,5               | 2243458              |
| M 70 x 2                 | 2243459              |
| M 70 x 3 <sup>1)</sup>   | 2243460              |
| M 72 x 1,5               | 2243461              |
| M 72 x 2                 | 2243462              |
| M 72 x 3 <sup>1)</sup>   | 2243463              |

**Unified-Gewinde UN**  
Unified Threads

| Nennmaß x Gangzahl<br>auf 1 Zoll        | Anlauf 1k<br>Lead 1k |
|---|----------------------|
| Nominal Size x TPI                      | Ident No.            |
| 1 <sup>3</sup> / <sub>4</sub> - 12 UN   | 2243493              |
| 1 <sup>3</sup> / <sub>4</sub> - 16 UN   | 2243494              |
| 1 <sup>3</sup> / <sub>4</sub> - 20 UN   | 2243495              |
| 1 <sup>13</sup> / <sub>16</sub> - 12 UN | 2243496              |
| 1 <sup>13</sup> / <sub>16</sub> - 16 UN | 2243497              |
| 1 <sup>13</sup> / <sub>16</sub> - 20 UN | 2243498              |
| 1 <sup>7</sup> / <sub>8</sub> - 12 UN   | 2243499              |
| 1 <sup>7</sup> / <sub>8</sub> - 16 UN   | 2243500              |
| 1 <sup>7</sup> / <sub>8</sub> - 20 UN   | 2243501              |
| 1 <sup>15</sup> / <sub>16</sub> - 12 UN | 2243502              |
| 1 <sup>15</sup> / <sub>16</sub> - 16 UN | 2243503              |
| 1 <sup>15</sup> / <sub>16</sub> - 20 UN | 2243504              |
| 2 - 12 UN                               | 2243505              |
| 2 - 16 UN                               | 2243506              |
| 2 - 20 UN                               | 2243507              |
| 2 <sup>1</sup> / <sub>8</sub> - 12 UN   | 2243508              |
| 2 <sup>1</sup> / <sub>8</sub> - 16 UN   | 2243509              |
| 2 <sup>1</sup> / <sub>8</sub> - 20 UN   | 2243510              |
| 2 <sup>1</sup> / <sub>4</sub> - 12 UN   | 2243511              |
| 2 <sup>1</sup> / <sub>4</sub> - 16 UN   | 2243512              |
| 2 <sup>1</sup> / <sub>4</sub> - 20 UN   | 2243513              |
| 2 <sup>3</sup> / <sub>8</sub> - 12 UN   | 2243514              |
| 2 <sup>3</sup> / <sub>8</sub> - 16 UN   | 2243515              |
| 2 <sup>3</sup> / <sub>8</sub> - 20 UN   | 2243516              |
| 2 <sup>1</sup> / <sub>2</sub> - 12 UN   | 2243518              |
| 2 <sup>1</sup> / <sub>2</sub> - 16 UN   | 2243519              |
| 2 <sup>1</sup> / <sub>2</sub> - 20 UN   | 2243520              |
| 2 <sup>5</sup> / <sub>8</sub> - 12 UN   | 2243521              |
| 2 <sup>5</sup> / <sub>8</sub> - 16 UN   | 2243522              |
| 2 <sup>5</sup> / <sub>8</sub> - 20 UN   | 2243523              |
| 2 <sup>3</sup> / <sub>4</sub> - 12 UN   | 2243525              |
| 2 <sup>3</sup> / <sub>4</sub> - 16 UN   | 2243526              |
| 2 <sup>3</sup> / <sub>4</sub> - 20 UN   | 2243527              |

**Whitworth-Rohrgewinde G**  
Whitworth Pipe Threads

| Nennmaß x Gangzahl<br>auf 1 Zoll     | Anlauf 1k<br>Lead 1k |
|--------------------------------------|----------------------|
| Nominal Size x TPI                   | Ident No.            |
| G 1 <sup>1</sup> / <sub>2</sub> - 11 | 2243488              |
| G 1 <sup>3</sup> / <sub>4</sub> - 11 | 2243489              |
| G 2 - 11                             | 2243490              |
| G 2 <sup>1</sup> / <sub>4</sub> - 11 | 2243491              |
| G 2 <sup>1</sup> / <sub>2</sub> - 11 | 2243492              |

**Whitworth-Feingewinde BSF**  
Whitworth Fine Pitch Threads

| Nennmaß x Gangzahl<br>auf 1 Zoll        | Anlauf 1k<br>Lead 1k |
|---|----------------------|
| Nominal Size x TPI                      | Ident No.            |
| 1 <sup>3</sup> / <sub>4</sub> - 12 BSFS | 2243464              |
| 1 <sup>3</sup> / <sub>4</sub> - 16 BSFS | 2243465              |
| 1 <sup>3</sup> / <sub>4</sub> - 20 BSFS | 2243466              |
| 1 <sup>7</sup> / <sub>8</sub> - 12 BSFS | 2243467              |
| 1 <sup>7</sup> / <sub>8</sub> - 16 BSFS | 2243468              |
| 1 <sup>7</sup> / <sub>8</sub> - 20 BSFS | 2243469              |
| 2 - 12 BSFS                             | 2243470              |
| 2 - 16 BSFS                             | 2243471              |
| 2 - 20 BSFS                             | 2243472              |
| 2 <sup>1</sup> / <sub>8</sub> - 12 BSFS | 2243473              |
| 2 <sup>1</sup> / <sub>8</sub> - 16 BSFS | 2243474              |
| 2 <sup>1</sup> / <sub>4</sub> - 12 BSFS | 2243475              |
| 2 <sup>1</sup> / <sub>4</sub> - 16 BSFS | 2243476              |
| 2 <sup>3</sup> / <sub>8</sub> - 12 BSFS | 2243477              |
| 2 <sup>3</sup> / <sub>8</sub> - 16 BSFS | 2243478              |
| 2 <sup>1</sup> / <sub>2</sub> - 12 BSFS | 2243480              |
| 2 <sup>1</sup> / <sub>2</sub> - 16 BSFS | 2243481              |
| 2 <sup>5</sup> / <sub>8</sub> - 12 BSFS | 2243483              |
| 2 <sup>5</sup> / <sub>8</sub> - 16 BSFS | 2243484              |
| 2 <sup>3</sup> / <sub>4</sub> - 12 BSFS | 2243486              |
| 2 <sup>3</sup> / <sub>4</sub> - 16 BSFS | 2243487              |

<sup>1)</sup> nur auf Anfrage  
<sup>1)</sup> only on request

**Rändeln oder Glätten**

Im Bereich von 45–72 mm für jeden gewünschten Durchmesser jeweils ein Rollensatz erforderlich.

Gewicht für 1 Satz = 2 Stück Rollen je nach Gewinde-Nennmaß etwa 0,74 bis 1,67 kg.

Rollen mit Anlauf 2k auf Anfrage.

**Knurling or burnishing**

In the range of 45–72 mm/1.772–2.835" one set of rolls required for each diameter.

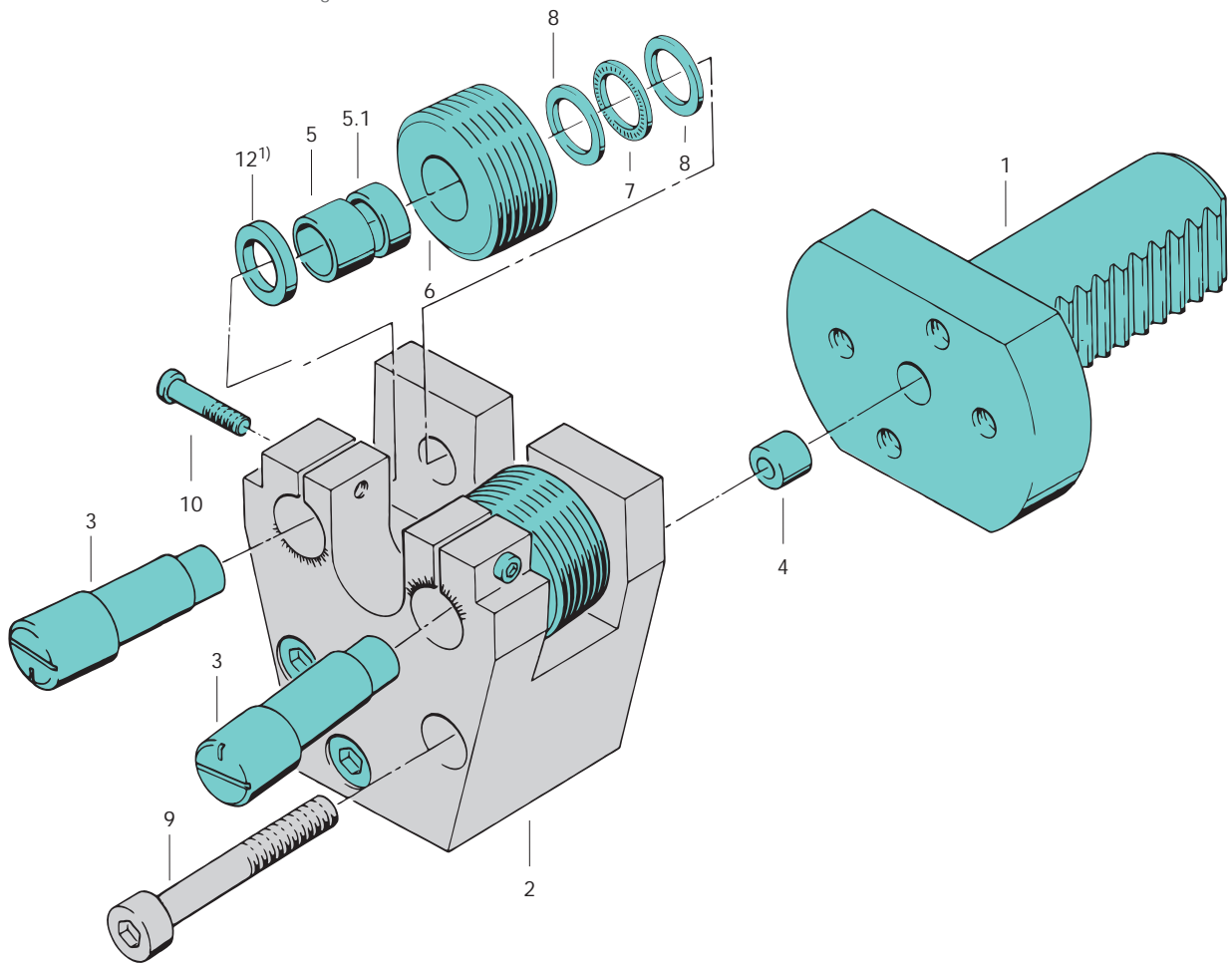
Weight for 1 set = 2 rolls each depending on Nominal Thread size approximately 1.6 to 3.7 lb.

Rolls with 2k lead on request.

| Rollkopf<br>Rolling Head |               |   | AC6       | Rollkopf<br>Rolling Head |               |   | AC6       |
|--------------------------|---------------|---|-----------|--------------------------|---------------|---|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                     | Ident No. | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description   | Ident No. |
| 2                        | 1             | Rollenhalter<br>Roll holder                       | 2169026   | 9                        | 3             | Zylinderschraube<br>Cap screw   | 2141937   |
| 3                        | 2             | Exzenterbolzen<br>Eccentric spindles              | 2166955   | 10                       | 2             | Zylinderschraube<br>Cap screw   | 2141930   |
| 4                        | 1             | Zentrierbuchse<br>Centreing bushing               | 2166961   | 12                       | 2             | Scheibe.<br>Nur bei Verwendung<br>von Rändel- bzw.<br>Glättrollen<br>Washer.<br>Only when using<br>knurling rolls and<br>burnishing rolls | 2166954   |
| 5                        | 2             | Hartmetall-Laufbuchse<br>Carbide bushing          | 2167324   |                          |               |   |           |
| 5.1                      | 2             | Hartmetall-Laufbuchse<br>Carbide bushing          | 2167374   |                          |               |   |           |
| 7                        | 2             | Axial-Nadelkäfig<br>Thrust needle<br>bearing cage | 2167376   |                          |               |   |           |
| 8                        | 4             | Axial-Scheibe<br>Thrust bearing race              | 2167377   |                          |               |   |           |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!

1) Teil 12 darf beim Gewinderollen **nicht** verwendet werden!  
1) Part no. 12 must **not** be used when rolling threads



Zur Herstellung von Rillenprofilen, von Formeinstichen, zum Verfestigungsglätten von Profilirren und dergleichen (wenn also keine Gewindesteigung vorliegt) kann der AC-Gewinde-Rollkopf auch im Tangential-Einstichverfahren eingesetzt werden. Dann ist die max. Profillänge = Rollenbreite. Dieser Rollkopf hat achsparallel gestellte Exzenterbolzen und die Typenbezeichnung **AC ... R**. Er wird nur tangential an das zu bearbeitende Werkstück bis auf ca. Achsmittle geführt und radial wieder zurückgezogen.

To generate annular profiles, for grooves, compact-burnishing (also without helix angle), the AC Rolling Head can also work grooving direction. In this method, the maximum machining is equal to the roll width. This head type has spindles center line and the designation **AC ... R**. It is feed into the workpiece center tangential returned.

### Rändeln und Glätten in tangentialer Richtung

Im Einstichverfahren können gerollt werden: Rändelungen DIN 82 (RAA, RGE), Glättungen sowie freie Formgebungen. Hierbei ist die maximale Bearbeitungsbreite = Rollenbreite.

| Rollkopf | Rollenbreite – P |
|----------|------------------|
| AC2R     | 20 mm            |
| AC3R     | 25 mm            |
| AC4R     | 30 mm            |
| AC5R     | 30 mm            |
| AC6R     | 30 mm            |

Der Weg des Revolverschlittens setzt sich beim Rändeln in tangentialer Richtung wie folgt zusammen:  
Eilgang vor ➔ Arbeitsweg ➔ schneller Rückgang

Der **Eilgang vor** ist als max. Weg so auszulegen, dass er vor Beginn des eigentlichen Arbeitsweges beendet ist.  
Der **Arbeitsweg** ist der theoretische Weg AV des Rollkopfes vom Zeitpunkt der ersten Berührung zwischen Rollen und Werkstück-Ausgangsdurchmesser bis zum Endstand „Rollen auf Werkstückmitte“. Der Arbeitsweg bei Rändelungen ist aus der Tabelle unten zu entnehmen.  
Der wirkliche Arbeitsweg sollte innerhalb von W = 30 Werkstückumdrehungen beendet sein. Je nach Werkstoff-Festigkeit und Ausspannlänge kann dieser Wert um ± 50 % variieren.

Der Vorschub errechnet sich aus folgender Formel:

$$s = \frac{AV}{W} \quad [\text{mm/U}]$$

W = Anzahl der Werkstückumdrehungen

Die Vorschubgeschwindigkeit errechnet sich aus folgender Formel:

$$V = \frac{AV \cdot n}{W} \quad [\text{mm/min}]$$

Die Rollzeit errechnet sich aus folgender Formel:

$$t_r = \frac{60 \cdot W}{n} \quad [\text{s}]$$

Der Rückweg sollte innerhalb weiterer 5 Werkstückumdrehungen erfolgen.

### Knurling and burnishing in the tangential direction

Using the tangential process, the following can be rolled: straight-knurlled portions DIN 82 (RAA, RGE), straight journals and/or profile burnishing. The maximum rolling width in this case is approximately equal to the roll width.

| Rolling Head Type | Roll width – P |
|-------------------|----------------|
| AC2R              | 0.787"         |
| AC3R              | 0.984"         |
| AC4R              | 1.181"         |
| AC5R              | 1.181"         |
| AC6R              | 1.181"         |

The travel of the turret saddle in the case of tangential knurling is made up as follows:  
quick traverse forward ➔ working feed ➔ rapid return

The **rapid forward advance** must as the max. travel be determined so that it is completed before the actual working feed commences. The **working feed** is the theoretical travel AV of the rolling head from the moment of the initial contact between the rolls and the initial workpiece diameter up to the final position rolls at workpiece center. The working feed for knurling is shown in the table below. The actual working feed should be completed within W = 30 workpiece rotations. This value may vary by ± 50 % depending on the strength of the material and the length of the unclamped portion.

The feed is calculated with the following formula:

$$s = \frac{AV}{W} \quad [\text{inch/rev.}]$$

W = number of workpiece rotations

The feed rate is calculated by using the following formula:

$$V = \frac{AV \cdot n}{W} \quad [\text{inch/min}]$$

The rolling time is calculated by using the following formula:

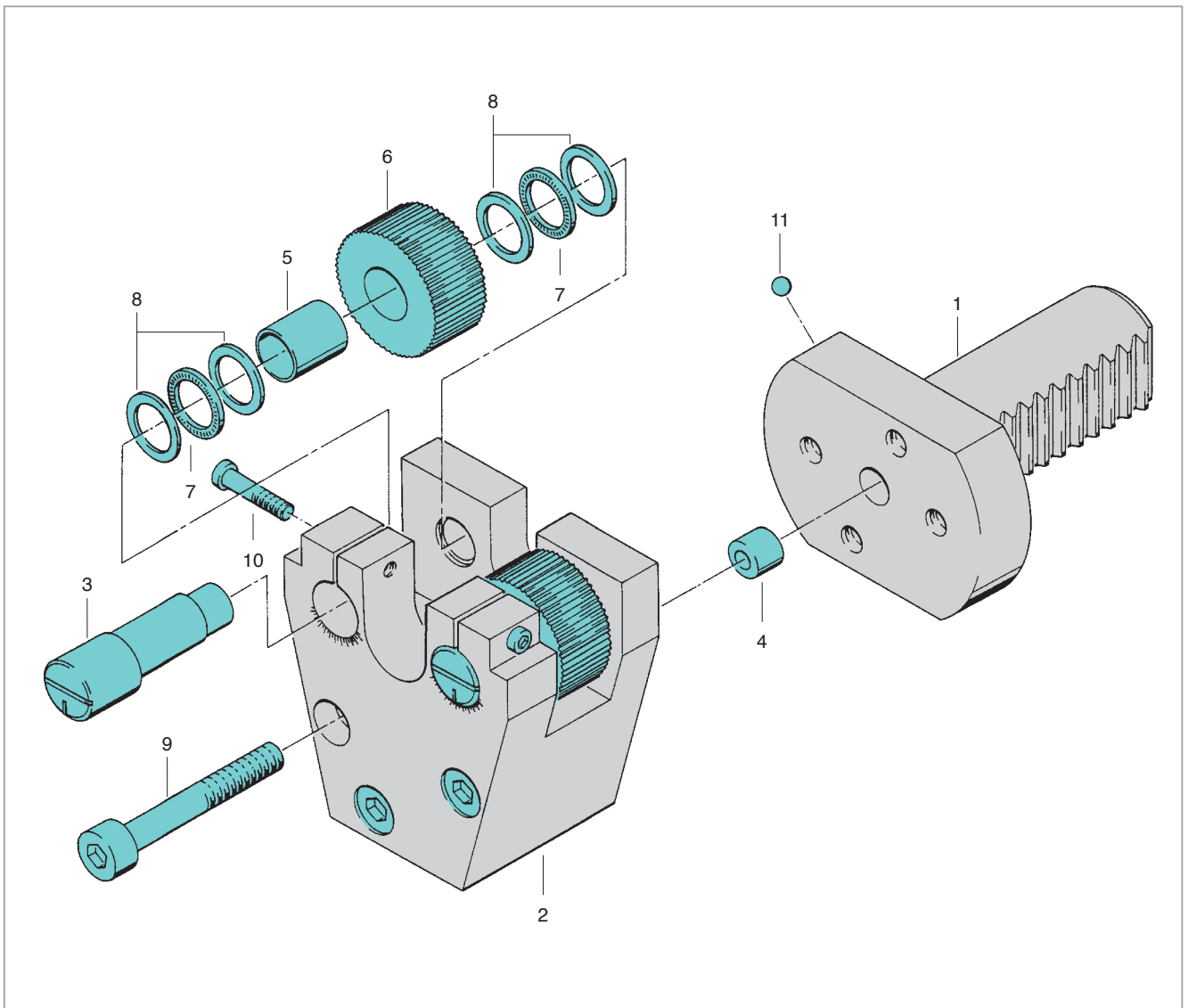
$$t_r = \frac{60 \cdot W}{n} \quad [\text{s}]$$

The return movement should take place within 5 more component rotations.

### Arbeitsweg in Abhängigkeit von Rollkopf und Rändelteilung (AV)

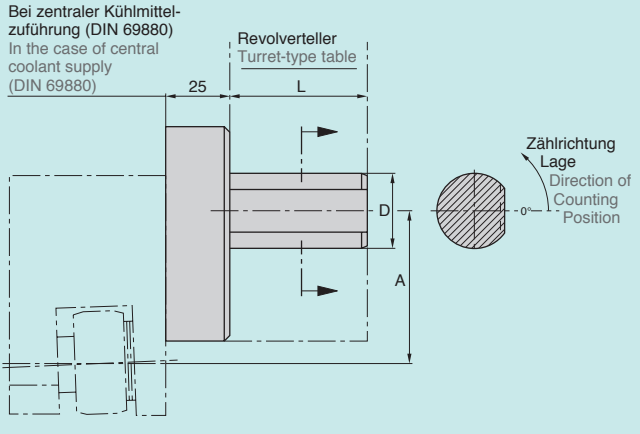
Working feed as a function of rolling head type and knurling pitch (AV)

| Rollkopf<br>Rolling Head<br>type | Rändel-Teilung t mm   inch<br>Knurling pitch t mm   inch |                |                |                |                |                |                |                |  |  |
|----------------------------------|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--|--|
|                                  | 0,5   0.02   | 0,6   0.024    | 0,8   0.031    | 1,0   0.039    | 1,2   0.047    | 1,5   0.059    | 1,6   0.063    | 2,0   0.079    |  |  |
| AC 2 R                           | 6,327   0.249  | 6,404   0.252  | 6,850   0.270  | 7,202   0.284  | 7,304   0.288  | 7,766   0.306  | 8,112   0.319  | 8,710   0.343  |  |  |
| AC 3 R                           | 7,525   0.296  | 7,617   0.300  | 8,144   0.321  | 8,559   0.337  | 8,680   0.342  | 9,226   0.363  | 9,634   0.379  | 10,338   0.407 |  |  |
| AC 4 R                           | 8,361   0.329  | 8,462   0.333  | 9,046   0.356  | 9,507   0.374  | 9,641   0.380  | 10,245   0.403 | 10,696   0.421 | 11,475   0.452 |  |  |
| AC 5 R                           | 9,478   0.373  | 9,592   0.378  | 10,253   0.404 | 10,773   0.424 | 10,925   0.430 | 11,607   0.457 | 12,117   0.477 | 12,995   0.512 |  |  |
| AC 6 R                           | 10,236   0.403   | 10,359   0.408 | 11,072   0.436 | 11,633   0.458 | 11,796   0.464 | 12,531   0.493 | 13,081   0.515 | 14,028   0.552 |  |  |



| Rollkopf<br>Rolling Head |               |  | AC2R      | AC3R      | AC4R      | AC5R      | AC6R      |
|--------------------------|---------------|--|-----------|-----------|-----------|-----------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                  | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| 2                        | 1             | Rollenhalter<br>Roll holder                    | 2166963   | 2166958   | 2166953   | 2169025   | 2169027   |
| 3                        | 2             | Exzenterbolzen<br>Eccentric pin                | 2166962   | 2166960   | 2166955   | 2166955   | 2166955   |
| 4                        | 1             | Zentrierbuchse<br>Centering bushing            | 2166961   | 2166961   | 2166961   | 2166961   | 2166961   |
| 5                        | 2             | Hartmetall-Laufbuchse<br>Carbide bushing       | 2164887   | 2165072   | 2167324   | 2167324   | 2167324   |
| 7                        | 4             | Axial-Nadelkäfig<br>Thrust needle bearing cage | 2149264   | 2167387   | 2167378   | 2167378   | 2167378   |
| 8                        | 8             | Axial-Scheibe<br>Thrust bearing race           | 2148882   | 2167388   | 2167379   | 2167379   | 2167379   |
| 9                        | 3             | Zylinderschraube<br>Cap screw                  | 2141937   | 2141937   | 2141937   | 2141937   | 2141937   |
| 10                       | 2             | Zylinderschraube<br>Cap screw                  | 2141913   | 2141914   | 2141932   | 2141930   | 2141930   |

Bei Bestellung von Einzelteilen bitte Rollkopf-Typ, Teil Nr. und Ident No. in der Stückliste angeben!  
When ordering spare parts, please state Thread Rolling Head Type, Part No. and Ident No.!



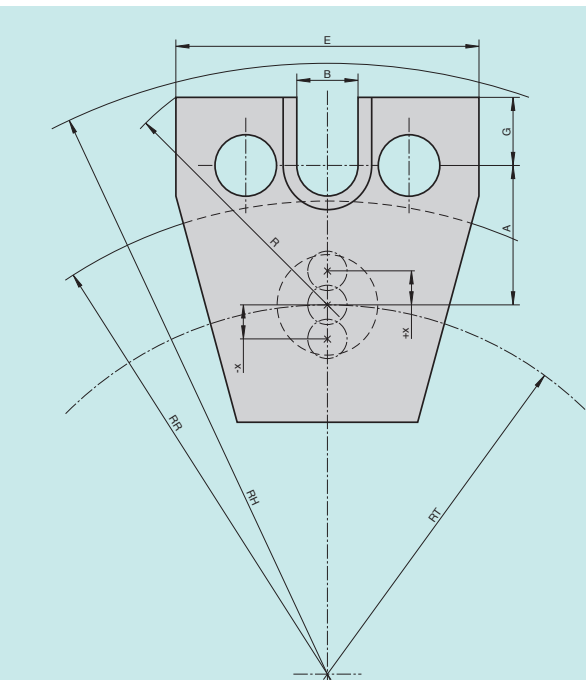
Zum Einsatz der Gewinde-Rollköpfe Typ AC auf CNC-Drehmaschinen sind Schäfte nach DIN 69 880 (VDI 3425 Bl. 2) lieferbar. Ist der Abstand von der Mitte der Schaftaufnahmebohrung bis zur Außenkante des Revolvertellers > 32,5 mm, so ist mit einer begrenzten Rolllänge (ca. 64 mm) zu rechnen. Wird eine größere Rolllänge gewünscht, so ist das genaue Maß, von Mitte Schaftaufnahmebohrung bis Außenkante Revolverteller anzugeben.

For using the thread rolling heads type AC on CNC lathes, shanks to DIN 69880 are available.

| Standardschäfte<br>Standard shanks |                |                                      |           |
|------------------------------------|----------------|--------------------------------------|-----------|
| Form<br>Form                       | D<br>mm   inch | Lage (Grad)<br>Position<br>(degrees) | Ident No. |
| DIN 69880                          | 30   1.181     | 0°                                   | 1509453   |
| DIN 69880                          | 40   1.575     | 0°                                   | 1509462   |
| DIN 69880                          | 50   1.968     | 0°                                   | 2242752   |
| Rund Round                         | 50   1.968     | -                                    | 2168599   |

Sonderschäfte werden in gleicher Weise bezeichnet.  
Special shanks are designated in the same way

**Bestimmung des Schaftversatzmaßes beim Einsatz des Rollkopfes auf dem Revolver einer CNC-Drehmaschine**  
shank adjustment when using the AC-Head on CNC-turret



- RH = Werkzeughüllkreisradius  
Tool tooth trace offset
- RR = Revolverscheibenradius  
Turret disk radius
- RT = Teilkreisradius der Revolverscheiben-  
Werkzeugaufnahme  
Pitch circle radius of the turret disk tool holder

**1. Max. möglicher Werkzeugradius**  
1. Maximum tool radius allowance

$$R_{Wmax} = \sqrt{(\sqrt{R_H^2 - (E/2)^2} - R_T)^2 + (E/2)^2}$$

Schaft ohne Versatzmaß Shank without off-set  
oder or

$$R_{Wmax} = \sqrt{(\sqrt{R_H^2 - (E/2)^2} - R_T - X)^2 + (E/2)^2}$$

Schaft mit Versatzmaß Shank with off-set  
oder or

$$R_{Wmax} = \sqrt{(\sqrt{R_H^2 - (E/2)^2} - R_T + X)^2 + (E/2)^2}$$

Schaft mit Versatzmaß Shank with off-set

**2. Schaftversatzmaß**  
2. Off-set dimension

$$X = (\sqrt{R_H^2 - (E/2)^2} - G - A - R_T) - 2$$

- Bei Minus-Wert = Schaftversatzmaß nach innen
- Bei Plus-Wert = Schaftversatzmaß nach außen
- At minus value = off-set to inside
- At plus value = off-set to outside

**3. Bedingungen für Spitzenarbeit: (Reitstockspitze)**

**3. Condition for work between centers: (tailstock center)**

$$\sqrt{R_H^2 - (E/2)^2} - R_R \geq B/2 + E$$

**4. Werkzeugradius – AC-Rollkopf**

**4. Tool radius – AC Rolling Head**

$$R = \sqrt{(A + G)^2 - (E/2)^2}$$

(A, B, E, G und R siehe Baumaße auf den Seiten 222–238)  
(A, B, E, G and R see dimensions on pages 222–238)

**Bedingungen**

Condition

$$R_{Wmax} \geq R + 2$$

$$A \geq R_R - R_T + B/2$$

$$R_{Wmax} \geq R + 2$$

Versatzmaß nach außen

Off-set to outside

$$R_{Wmax} \geq R + 2$$

Versatzmaß nach innen

Off-set to inside

**Rändeln und Glätten in axialer Richtung**

Die Rollzeit errechnet sich aus folgender Formel:

$$t_r = \frac{60 \cdot L}{n \cdot d \cdot k} \quad [s]$$

Der Andrückvorschub errechnet sich aus folgender Formel:

- s = d · k [mm/u]
- L = Rolllänge [mm]
- d = Ausgangsdurchmesser [mm]
- n = Drehzahl [min<sup>-1</sup>]
- k = Rollkopfkonstante

Der Wert für „k“ ist aus der folgenden Tabelle zu entnehmen.

| Rollkopfgröße | Rollkopfkonstante k |
|---------------|---------------------|
| AC2           | 0,16                |
| AC3           | 0,15                |
| AC4           | 0,14                |
| AC5           | 0,05                |
| AC6           | 0,04                |

**Rändeln nach DIN 82**

Rändelungen lassen sich mit Fette-Gewinde-Rollköpfen sehr wirtschaftlich herstellen.

Aus der folgenden Tabelle können die gängigen Teilungen und Zahnhöhen bei einem Lücken  $\alpha$  von 90° entnommen werden.

| Teilung t<br>mm | Zahnhöhe<br>mm |
|-----------------|----------------|
| 0,5             | 0,23           |
| 0,6             | 0,25           |
| 0,8             | 0,37           |
| 1,0             | 0,47           |
| 1,2             | 0,50           |
| 1,5             | 0,64           |
| 1,6             | 0,75           |
| 2,0             | 0,95           |

Nach DIN 82 wird bei Rändelungen der Nenn-Ø als Außen-Ø des Werkstückes angegeben.

Der Ausgangs-Ø „d“ des Werkstückes errechnet sich annähernd aus Werkstückaußen-Ø minus Zahnhöhe.

Es ist empfehlenswert beim Einsatz von Rändel- und Glättrollen zusätzlich eine Scheibe (Teil-Nr. 12) einzubauen (siehe Seiten 225, 229, 233, 237, 241).

**Knurling and burnishing in axial direction**

The Rolling Time is calculated with the following formula:

$$t_r = \frac{60 \cdot L}{n \cdot d \cdot k} \quad [sec]$$

The approach feed is calculated with the following formula:

- s = feed per rev [inch/r]
- L = Thread length [inch]
- d = Blank diameter [inch]
- n = Speed [rpm]
- k = Rolling head constant

The value for 'k' can be found in the table below.

| Rolling head size | Rolling head const. k |
|-------------------|-----------------------|
| AC2               | 0.16                  |
| AC3               | 0.15                  |
| AC4               | 0.14                  |
| AC5               | 0.05                  |
| AC6               | 0.04                  |

**Knurling to DIN 82**

Straight knurling can be done very economically with Fette Rolling Heads.

The table below shows the most common pitches and tooth depths at an included angle of 90°.

| Pitch t<br>inch | Tooth depth<br>inch |
|-----------------|---------------------|
| 0.02            | 0.009               |
| 0.024           | 0.01                |
| 0.031           | 0.015               |
| 0.039           | 0.018               |
| 0.047           | 0.02                |
| 0.059           | 0.025               |
| 0.063           | 0.03                |
| 0.079           | 0.037               |

In accordance with DIN 82, the nominal diameter is in the case of knurling given as the outside diameter of the workpiece. The blank diameter d of the workpiece is calculated approximately from the workpiece o. d. less the tooth depth.

When using knurling and burnishing rolls, it is advisable to install an additional washer (part no. 12) (see spare parts list on pages 225, 229, 233, 237, 241).

**Auswahl der Gewinde-Rollkopfgrößen**  
Selection of Thread Rolling Head Size

Zur Auswahl der Gewinde-Rollkopfgrößen nach Gewindeabmessungen dienen die Tabellen auf den Seiten 26–51. Zum Teil lassen sich gleiche Gewinde wegen Überschneidung der Arbeitsbereiche in verschiedenen Rollkopf-Größen herstellen.

Thread Rolling Head Sizes are selected according to thread dimensions by using tables shown on pages 26–51. Because of overlapping of rolling ranges, some of the thread dimensions can be rolled in various Thread Rolling Head Sizes.

Je nach Werkstückprofil und vorhandenen Spindeldrehzahlen sind folgende Rollgeschwindigkeiten zu empfehlen:

für Spitzgewinde: ca. 20–80 m/min.

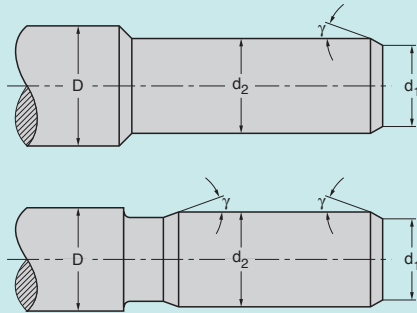
Die Rollgeschwindigkeit errechnet sich wie die Schnittgeschwindigkeit.

Depending on the workpiece profile and the available spindle speeds, the following rolling speeds can be recommended:

for V-threads: approx. 20–80 m/min. (60–240 SFM)

The rolling speed is calculated in the same way as the cutting rate.

### Vorbereitung des Werkstückes Preparation of the Components



$d_1 = \varnothing < \text{Kern-}\varnothing \text{ des zu rollenden Gewindes}$   
smaller than thread minor diameter

$d_2 = \text{ca. Flanken-}\varnothing \text{ des zu rollenden Gewindes}$   
approx. thread pitch diameter

$\gamma = \text{Anfaswinkel}$   
chamfer angle

Der Ausgangs- $\varnothing$   $d_2$  muß ca. dem theoretischen Flanken- $\varnothing$  des zu rollenden Gewindes entsprechen. Je nach Werkstoff sind Abweichungen möglich. Der ermittelte Ausgangs- $\varnothing$  ist das Größtmaß. Die Werkstücke sind unter  $\gamma = 10^\circ\text{--}25^\circ$  zur Werkstückachse anzufasen. Ist jedoch ein Freistich vorgesehen, ist entsprechend der Skizze anzufasen. Der Durchmesser  $d_1$  muß unter dem Kern- $\varnothing$  des Gewindes liegen.

The blank diameter  $d_2$  corresponds approximately to the pitch diameter of the thread to be rolled. Deviations are possible, depending on the material being rolled.

The components have to be chamfered  $\gamma = 10^\circ\text{--}25^\circ$  from the centre line of the component. When an undercut is desired, this should also be chamfered as shown. The dia.  $d_1$  must be smaller than the core dia. of the thread.

#### Toleranz des Ausgangs- $\varnothing$

Der einmal durch den Rollversuch festgelegte, genaue Ausgangs- $\varnothing$  sollte als Größtmaß angesehen werden, wenn das Gewinde an den Spitzen gerade ausgerollt ist und der Flanken- $\varnothing$  ca. beim Größtmaß der zulässigen Gewinde-Toleranz liegt. Die Toleranz des Ausgangs- $\varnothing$  ist u. a. abhängig vom Ausrollgrad des Gewindes.

Als Richtwert kann bei einem Regelgewinde in der Toleranzklasse 6 g eingesetzt werden:

**Toleranz des Ausgangs- $\varnothing \approx \text{halbe, Toleranz des Flanken-}\varnothing$ .**

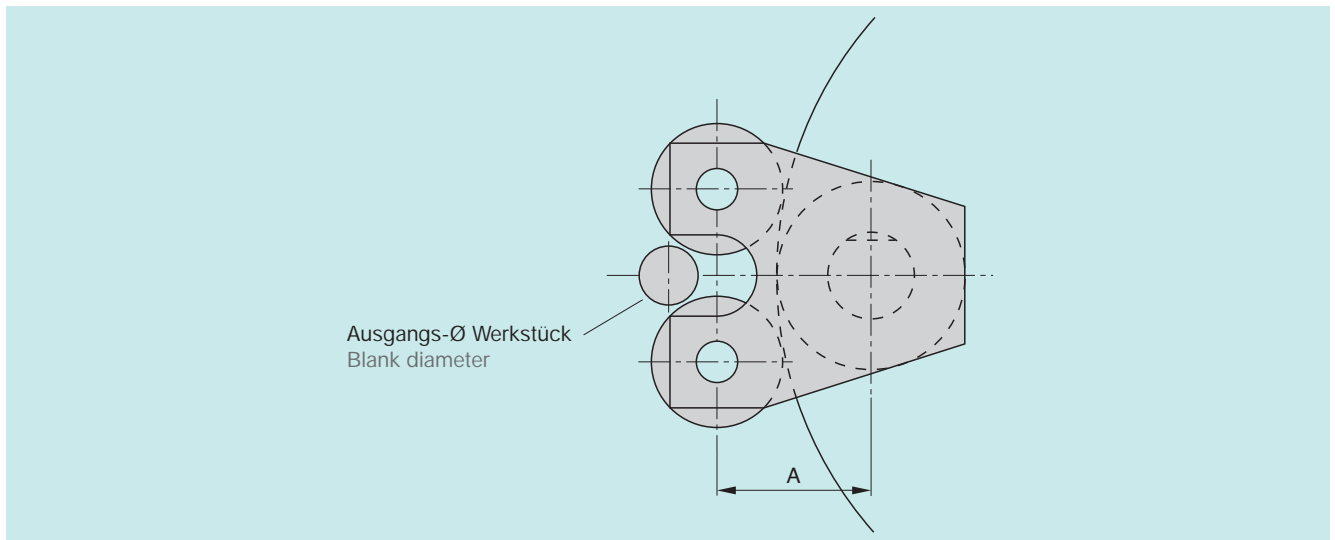
#### Tolerance of the Blank Diameter

The Blank Diameter is depends primarily upon the thread tolerance for pitch diameter. From this basic information a test rolling can be conducted in accordance with the Operating Instructions for Thread Rolling Heads and hence a blank diameter determined. This blank diameter may then be adjusted until the ideal maximum blank is arrived at to give a thread which is within the required class of tolerance.

For a Standard Type Thread, tolerance fit class 6 g (2 A) (6 g) can be used as a guide value:

**Tolerance of the Blank Diameter is half of the pitch diameter tolerance.**





**Einbau der Gewinderollen**

Zylinderschrauben (10)<sup>1)</sup> lösen und Exzenterbolzen (3) herausziehen. Sämtliche Teile dünn mit MOLYKOTE einreiben. Rollen (6) auf Hartmetallbuchse (5) setzen und so in den Rachen des Rollenhalters (2) einsetzen, daß entweder die Zahlenseite oder die Buchstaben-seite der Rollen zur Vorderseite (dickere Armseite) zeigt. Die Axial-Nadelkäfige (7) und die Axial-Scheiben (8) sind hinter die Rollen (dünnere Armseite) zu legen. Exzenterbolzen (3) einsetzen. Die Markierung auf der Stirnseite des Exzenterbolzens (3) sollte danach auf der äußersten Skalenteilung (Plus) stehen. Zylinderschrauben (10) fest anziehen.

**Einstellen des Rollkopfes auf Gewinde-Ø**

Der Gewinde-Ø wird mittels der beiden Exzenterbolzen (3) eingestellt. Zylinderschrauben (10) lösen, Endmaß oder ähnliches, welches dem Kern-Ø des Gewindes entspricht, zwischen die Rollen (6) halten und die Exzenterbolzen der Skaleneinteilung auf der Vorderseite des Rollenhalters (2) entsprechend gleichmäßig solange verdrehen, bis das Endmaß fest zwischen den Rollen liegt. Zylinderschrauben (10) fest anziehen.

Werden so mit dem eingestellten Rollkopf die gewünschten Gewindedemaße noch nicht erreicht, d. h. fallen die gerollten Gewinde im Flanken-Ø um ein geringes zu groß aus, so sind die Exzenterbolzen gleichmäßig nachzustellen. (Skalenteilung = 0,025 mm.) Ein gerolltes Gewinde darf nicht nochmals gerollt werden.

**Einstellen**

Wird der Rollkopf auf einem Revolver mit Schaftaufnahme nach DIN 69 880 aufgenommen, so ist er durch die richtige Lage der Verzahnung am Schaft des Rollkopfes zentrisch ausgerichtet. Kleine Ungenauigkeiten sind durch Lösen der Zylinderschrauben (9) und durch Verdrehen des Rollenhalters (2) auszugleichen. Bei Rundschäften wird der gesamte Rollkopf verdreht und dann geklemmt.

Zum zentrischen Einrichten wird der Rollkopf gegen den Ausgangs-Ø des Werkstückes gefahren. Der Rollkopf bzw. der Rollenhalter wird solange verdreht, bis beide Rollen gleichzeitig den Ausgangs-Ø berühren.

**Zur Programmierung der Werkstückmitte zur Rollenmitte ist das Maß „A“ (siehe Baumaße für Rollkopf) zu beachten.**

**Installation of the thread rolls**

Loosen cap screws, part 10<sup>1)</sup>, and pull out eccentric pins, part 3. Coat all parts thinly with MOLYKOTE, Place rolls, part 6, onto carbide bushing, part 5, and insert into the mouth of the roll holder, part 2, in such a way that either the number side or the letter side of the rolls lies towards the front side (thicker arm side). The thrust needle cages, part 7, and the thrust bearing races, part 8, must be placed behind the rolls (thinner arm side). Insert eccentric pins, part 3. The marking on the face of the eccentric pin, part 3, should then be on the outermost scale division (plus). Firmly tighten cap screws, part 10.

**Setting the rolling head to the thread diameter**

The thread diameter is set by means of two eccentric pins, part 3. Loosen cap screws, part 10, hold gauge block or similar corresponding to the root diameter of the thread between the rolls, part 6, and turn the eccentric pins of the scale division on the front side of the roll holder, part 2, evenly as required until the gauge block is firm between the rolls. Firmly tighten the cap screws, part 10. If required thread is not yet to size the eccentric pins must be evenly reset. (Scale division = 0.001".) A rolled thread must not be rolled again.

**Setting up the rolling head**

If the rolling head is mounted on a VDI turret, it is centered by the correct position of the teeth on the shank of the rolling head. Slight inaccuracies must be corrected by loosening the cap screws, part 9, and turning the roll holder, part 2. In the case of round shank the entire rolling head is turned and then clamped. For centering, the rolling head is moved against the initial diameter of the workpiece. The rolling head or the roll holder is turned until both rolls touch the initial diameter simultaneously.

**For programming the workpiece center to the roll center the measurement "A" (see roll head dimensions) must be noted.**

<sup>1)</sup> Diese Zahlen entsprechen der Ersatzteil-Nr. auf der Seite 225 229, 233, 237, 241, 243.

<sup>1)</sup> These numbers correspond to the spare part no. on page 225 229, 233, 237, 241, 243.

Mit den Fette-Axial-Gewinde-Rollköpfen können nicht nur die in dieser Druckschrift angeführten genormten Standard-Gewinde gerollt werden, sondern auch alle übrigen Gewinde jeder Art soweit sie vom Durchmesser her dem jeweiligen Gewinde-Rollkopf entsprechen und mit ihrem Steigungswinkel in einem bestimmten Bereich zur Rollen-Schrägstellung des Rollkopfes liegen.

Metrische-, UN-, BS-, BA- und ähnliche Gewinde, auch wenn sie nicht genormt sind, können in einem bestimmten Axial-Gewinde-Rollkopf gerollt werden, wenn ihr Steigungswinkel

### NICHT MEHR ALS $\pm 30\%$

von der Rollen-Schrägstellung des Rollkopfes abweicht. In Grenzfällen fragen Sie bitte bei uns an, ebenso für andere Gewindeformen, bei denen die Verhältnisse evtl. recht abweichend liegen können.

Aus nachstehender Tabelle ersehen Sie die Rollen-Schrägstellung der Standard-Gewinde-Rollköpfe.

Das Nomogramm dient zur Wechselseitigen Ermittlung von Flanken- $\emptyset$  D, Steigung P und Steigungswinkel  $\alpha$  zu rollender Gewinde, unter Voraussetzung, dass zwei Daten bekannt sind.

Die Unbekannte ergibt sich aus den Schnittpunkten der beiden Bekannten. So kann für einen bekannten Flanken- $\emptyset$  und eine bekannte Steigung der dazugehörige Steigungswinkel sofort ermittelt werden.

Fette Axial Thread Rolling Heads are capable of rolling not only the Standard Series and Semi-Special Threads as shown in the tables for each Head size, but also a wide variety of diameter/pitch combinations as long as the Thread Lead Angle is within the limits shown.

Metric, UN, BS, BA and similar type thread forms can be rolled, even if they are not standard series, by the axial type Rolling Head so long as the lead angle of the component thread

### DOES NOT VARY MORE THAN $\pm 30\%$

of the helix angle in the Head. In borderline cases please contact us, as well as for acme, trapezoidal, radius, and other forms that may approach the limits of a particular size head.

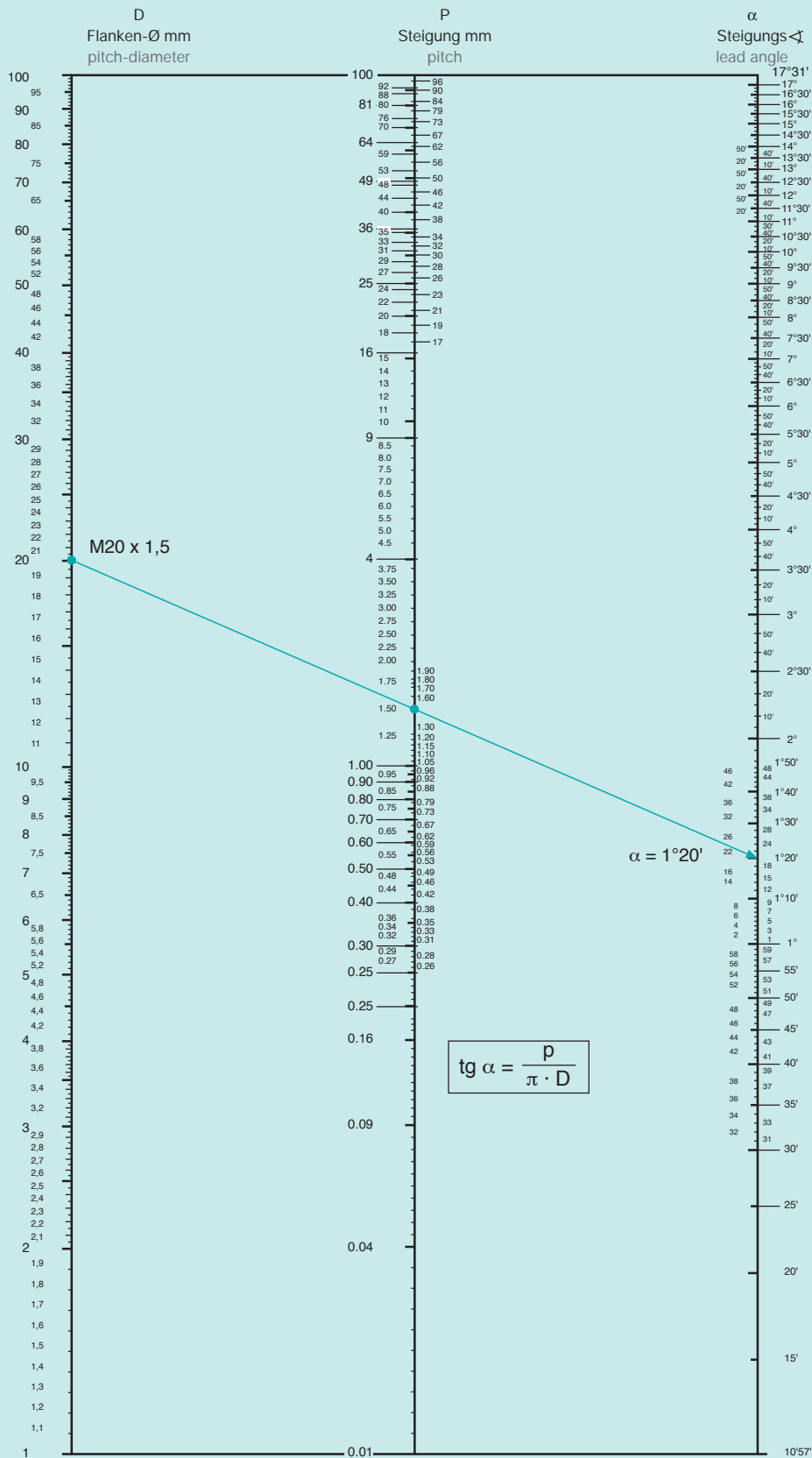
The table below shows the helix angle for each standard Rolling Head, and the respective allowable part lead angle for the component to be rolled.

The nomogram is used to determine any one of the flank diameter D, pitch P or lead angle  $\alpha$  of a thread that is to be rolled, given that two of these variables are known.

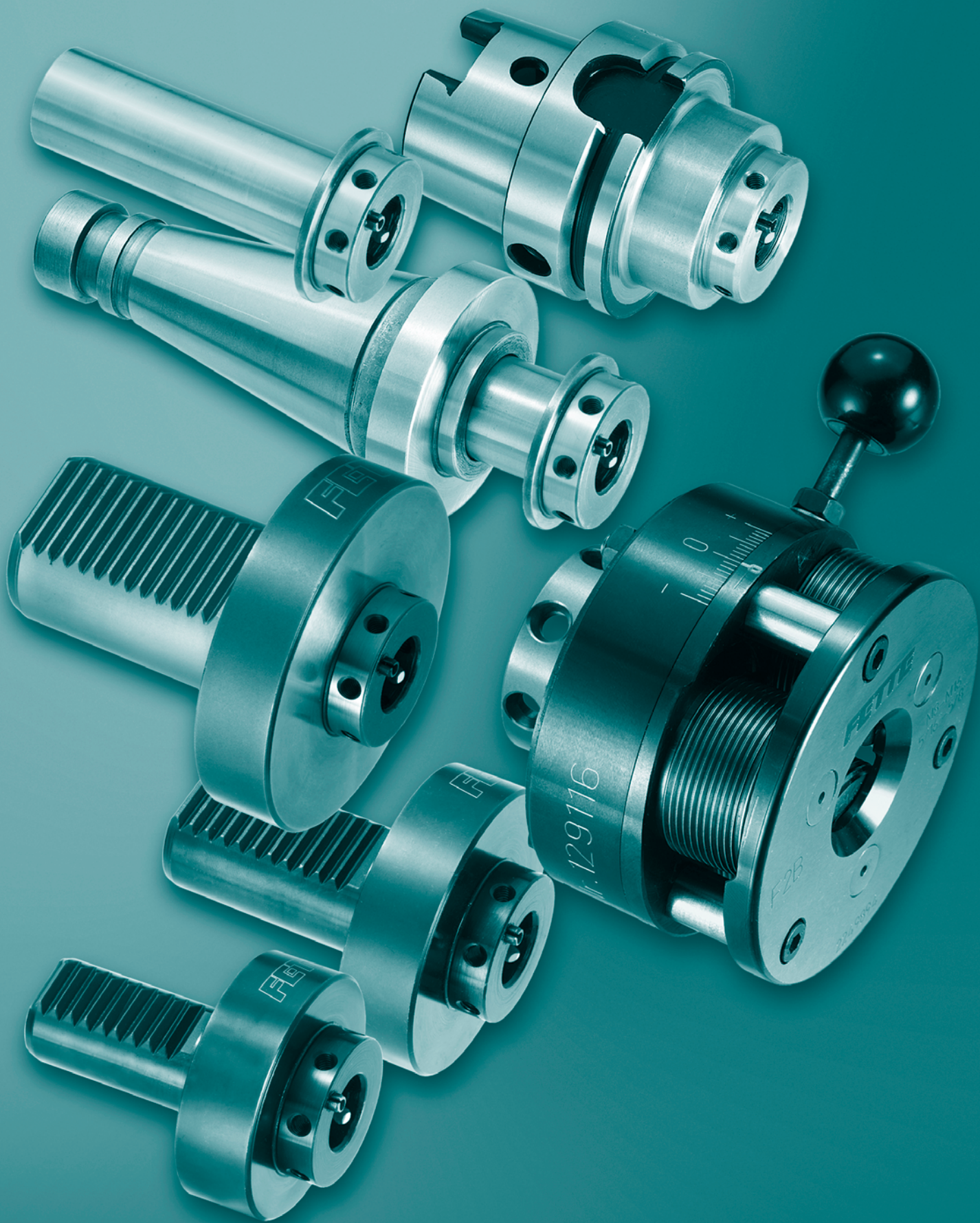
The unknown variable is given by the intersection of the two known variables. It is possible in this way to determine the associated lead angle immediately when the flank diameter and pitch are known.

| Rollkopf<br>Head Size | Rollen-Schrägstellung<br>Angle in Head |
|-----------------------|--|
| 0                     | 4°                                     |
| 001                   | 4°                                     |
| 01                    | 3°30'                                  |
| 1                     | 3°30'                                  |
| 12                    | 1°50'                                  |
| 1223                  | 3°                                     |
| 2                     | 3°                                     |
| 23                    | 1°25'                                  |
| 233400                | 1°15'                                  |
| 3                     | 2°40'                                  |
| 32                    | 2°40'                                  |
| 34                    | 1°15'                                  |
| 4                     | 2°30'                                  |
| 45                    | 1°10'                                  |
| 5                     | 2°30'                                  |
| 56                    | 1°                                     |
| 6A                    | 2°                                     |
| 6B                    | 2°                                     |
| 6700                  | 0°40'                                  |
| 700                   | 1°40'                                  |
| 7800                  | 0°35'                                  |
| 8                     | 1°20'                                  |
| 96                    | 1°30'                                  |
| 11600                 | 0°25'                                  |
| 12600                 | 0°30'                                  |
| AC2                   | 3°                                     |
| AC3                   | 2° 40'                                 |
| AC4                   | 2° 30'                                 |
| AC5                   | 1°                                     |
| AC6                   | 0° 40'                                 |

Beispiel Example



| Axial-Probleme<br>Axial Problems  | Mögliche Ursachen und Lösungen<br>Probable cause and Solutions  |
|---|---|
| <b>1. Konische Gewinde</b><br>Tapered Threads                                 | Rohling ist bereits konisch vorgefertigt<br>Frontplatte verschlissen<br>Exzenterbolzen verschlissen, Rollkopf fluchtet nicht mit dem Werkstück (0,2 mm Fehler)<br><br>Blank diameter tapered<br>Worn Rolling Head (i. e. front plate, ecc. spindles)<br>Misalignment of head and part (0.0079 inch error)   |
| <b>2. Gewinde außerhalb der Toleranz</b><br>Thread off tolerance              | Rollkopf nicht genau eingestellt<br>Rohling nicht werkstückgerecht vorbereitet, zu groß, zu klein<br><br>Incorrect roll head setting<br>Incorrect blank diameter  |
| <b>3. Steigungsfehler</b><br>Lead error in thread                             | Rollkopf fluchtet nicht mit dem Werkstück ( $\geq 0,2$ mm Fehler)<br>Falscher Rollkopfwinkel<br><br>Misalignment ( $\geq 0.0079$ inch error)<br>Incorrect rolling head angle  |
| <b>4. Rollenbruch</b><br>Roll breakage  | Anfasung nicht rollgerecht<br>Rohlingsdurchmesser zu groß<br>Rollkopf zu klein eingestellt<br>Rollkopf fluchtet nicht mit dem Werkstück<br>Werkstoff zu hart<br>Es muss zuviel Werkstoff umgeformt werden<br>Es wird mit Überdruck gerollt<br><br>Chamfer on component part not as per recommendations<br>Blank diameter too large<br>Rolling head setting too tight<br>Misalignment<br>Material too hard<br>Too much material transforming<br>Rolled with overload |
| <b>5. Zu hoher Rollverschleiß</b><br>Extended roll wear                       | Schlecht rollbarer Werkstoff<br>Rollgeschwindigkeit nicht korrekt<br>Dehnung des Werkstoff zu gering<br>Nicht ausreichende Kühlung<br><br>Material with bad rollability<br>Examination of rolling speed<br>Material elongation factor too small<br>Roll throat too short<br>Not enough coolant liquid   |
| <b>6. Unsauberes Gewindeprofil</b><br>Thread not smooth or doublelead profile | Rolleneinbau im Rollkopf nicht korrekt<br>Die Anfasung ist nicht rollgerecht ausgeführt<br>Rollgeschwindigkeit ist zu gering oder auch zu hoch<br>Die Aufrolleistung ist zu gering oder zu hoch<br><br>Rolls incorrectly assembled in rolling head<br>Chamfer on component part not as per recommendations<br>Too much or too less power for pushing onto component part<br>Rolling speed too large or too small  |





# Radial-Gewinde

## Radial Threads

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**E-Kopf mit Rund-Schaft (Typ A02)**  
E-Head with straight shank (Type A02)



**E-Kopf mit VDI-Schaft (Typ A03)**  
E-Head with VDI shank (Type A03)



**EB-Kopf mit Flansch (Typ A00)**  
EB-Head with flange (Type A00)



Fette-Radial-Gewinde-Rollköpfe wurden in erster Linie für Kurzgewinde mit sehr kurzem Auslauf entwickelt.

Da die Rollköpfe feststehend und umlaufend eingesetzt werden können, lassen sich auch Gewinde an Werkstücken fertigen, die sich nicht drehen können.

Durch die zentrierende Eigenschaft der drei Gewinderollen sind diese Rollköpfe auch für Gewinde an längeren, einseitig gespannten Werkstücken geeignet.

Die Schnelligkeit der Gewindeherstellung durch Fette-Radial-Gewinde-Rollköpfe ist unübertroffen. Nachdem der Rollkopf in Rollposition gebracht und die Auslösung betätigt wurde, ist die Rolloperation in einer einzigen Rollenumdrehung beendet.

Mit Radial-Gewinde-Rollköpfen lassen sich nicht nur Gewinde rollen. Besonders wirtschaftlich können hergestellt werden:

- extrem kurze Gewinde (rechts, links)
- Gewinde mit sehr kurzem Auslauf
- konische Gewinde
- Rändel nach DIN 82
- Beschriftungen
- Glättungen
- Sicken und andere Formungen

Die Radial-Gewinde-Rollköpfe gibt es in verschiedenen Typen:

- Typ E, mit Standard-Auslösung
- Typ EB, wie Typ E, jedoch mit durchgehender Mittelbohrung, für das Profilieren in allen Bereichen des Werkstückes
- Typ EW, Auslösung durch das Werkstück automatisch

Alle Typen gibt es auch in gewichtsreduzierter Form aus Titan (Gewichtersparnis ca. 30%).

Fette radial thread rolling heads were primarily developed for short threads having an extremely short runout.

Since the rolling heads are suitable for stationary or rotating application it is also possible for threads to be fabricated on workpieces that cannot be rotated.

The centering effect of the three thread rollers mean that these rolling heads are also suitable for threads on longer workpieces clamped at one end.

The speed with which threads are manufactured using Fette radial thread rolling heads is unsurpassed. Once the rolling head has been put into its working position and the process has been started, the rolling operation is completed with a single turn of the roller.

Radial thread rolling heads can be used for more than just thread making. The following items can be fabricated with great economy:

- extremely short threads (right or left-handed)
- threads with very short runouts
- conical threads
- knurling in accordance with DIN 82
- labeling
- smoothing
- beading and other forming

The radial thread rolling heads are available in various types:

- type E, with standard trigger
- type EB, as type E but with a continuous central bore for profiling all parts of the workpiece
- type EW, automatic triggering by the workpiece

These types are also available in low-weight titanium versions (weight saving approx. 30%).





Radial-Gewinde-Rollköpfe der „**Type E**“ werden auf der Maschine über dem Werkstück in axialer Richtung in Rollposition gebracht. Mittels einer der beiden Auslösehebel (äußerer, innerer) wird der Rollkopf ausgelöst und der Rollvorgang startet. Nach einer Rollen-umdrehung ist das Gewinde geformt und der Rollkopf kann in axialer Richtung zurückgefahren werden. Eine externe Auslösevorrichtung (z. B. durch die Spindel) ist für Rollköpfe dieser Type zwingend erforderlich, wodurch aber die Bau-länge dieser Typen relativ kurz gehalten werden kann.

Radial-Gewinde-Rollköpfe der „**Type EB**“ funktionieren wie Type E. Sie sind besonders geeignet für Gewinde, Rändelungen oder Sicken in der Mitte eines langen Werkstücks, da das Werkstück durch die Mittelbohrung des Rollkopfs hindurchgeführt werden kann. Da diese Anwendungsfälle weniger oft vorkommen, werden Rollköpfe diesen Typs nur auf Kundenwunsch gefertigt.

Radial-Gewinde-Rollköpfe der „**Type EW**“ benötigen keine externe Auslösevorrichtung. Durch den drehbaren Innenanschlag wird der Rollkopf durch das Werkstück ausgelöst. Das Werkstück wird so lange in axialer Richtung in den Rollkopf eingeführt, bis die interne Auslösung den Rollvorgang startet. Um Relativbewegungen zwischen Rollkopf und Werkstück während des Rollvorgangs zu vermeiden, ist der vordere Teil des Rollkopfs schwimmend gelagert.

**Wichtig:** Für alle drei Typen können die gleichen Gewinderollen verwendet werden.

Alle Typen gibt es in verschiedenen Baugrößen (abhängig von Gewindegröße und Platz auf der Maschine) und verschiedenen Ausführungen (Flanschausführung, Schaftausführungen). Semi-Standard-Ausführungen, wie größere Frontplattenbohrungen, dünnere Frontplatten, und verlängerte Rollenbreiten sind vorgesehen (siehe Seite 292). Sonstige Sonderausführungen sind auf Anfrage machbar.

Fette-Radial-Gewinde-Rollköpfe umfassen einen Arbeitsbereich bis Ø 45 mm. Die Aufteilung des Arbeitsbereichs zeigen nachfolgende Tabellen. **Für Linksgewinde wird derselbe Rollkopf benutzt wie für Rechtsgewinde**, es müssen jedoch spezielle Linksgewinderollen verwendet werden. Die Gewindelänge, einschließlich des Gewindeauslaufs, kann nicht länger als die Rollenbreite sein.

“**Type E**” radial thread rolling heads are brought into rolling position on the machine over the workpiece in an axial direction. The rolling head is released, and the rolling process started, by means of one of the two trigger levers (external, internal). The thread has been formed after one rolling rotation, and the rolling head can be drawn back in an axial direction. An external trigger mechanism (e.g. by means of the spindle) is essential for rolling heads of this type, and this keeps the physical length of these types relatively short.

“**Type EB**” radial thread rolling heads operate in the same way as type E. They are particularly suitable for threads, knurling or beading in the middle of a long workpiece, since the workpiece can be passed through the central bore of the rolling head. Because these applications are only required relatively rarely, rolling heads of these types are only manufactured in response to customers' requests.

Radial thread rolling heads of “**type EW**” do not need an external trigger mechanism. The workpiece triggers the rolling head by means of the rotating internal stop. The workpiece is inserted axially into the rolling head until the internal trigger mechanism initiates the rolling procedure. In order to avoid relative movements of the rolling head and the workpiece during the rolling procedure, the front part of the rolling head is mounted on floating bearings.

**Important:** the same thread rollers can be used for all three types.

All of these types are available in different sizes (depending on the thread dimensions and the space on the machine) and in a number of versions (flange version, shank versions). Semi-standard versions, such as larger front plate holes, thinner front plates and increased roller widths are available (see page 292). Other special versions can be made by request.

Fette radial thread rolling heads cover a working range of up to 45 mm diameter. The way in which this range is divided is shown in the following tables. **The same rolling head can be used for left-handed threads as for right-handed threads**, but special left-handed thread rollers must be used. The thread length, including the thread run-out, cannot be longer than the width of the roller.

**EW-Titan mit Sk40**  
 EW-Titanium with tapered shank SK40



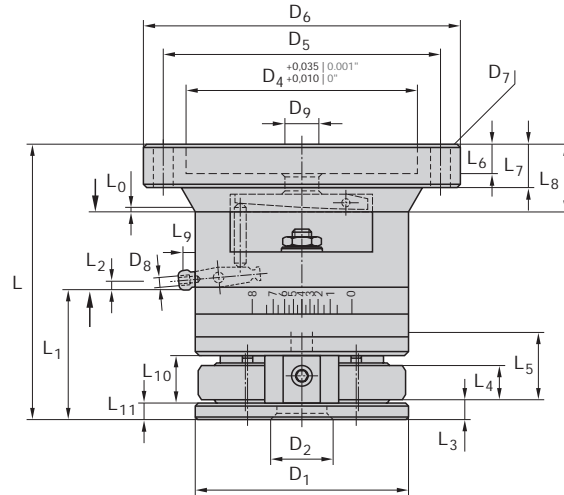
| Arbeitsbereiche<br>Capacity Ranges          |  |                         |  |   |  |   |  |   |      |  |
|---|--|-------------------------|--|---|--|---|--|---|------|--|
| Rollkopf-<br>Typ<br>Rolling<br>Head<br>Type | zylindrische Gewinde<br>Straight Threads |                         |  |   |  | konische Gewinde<br>Taper Threads               |  |   |      |  |
|   | Regelgewinde<br>Standard Thread          |                         | Außen-Ø<br>Major-Ø<br>mm   inch<br>min.-max. | Fein-<br>gewinde<br>max. Steigung<br>min. Gang / "<br>Fine Thread<br>max. pitch<br>min. TPI | Rollen-<br>breite<br>Roll width<br>mm   inch | Norm<br>Standard                                | min.   |   | max. |  |
|   | mm   inch<br>min.                        | mm   inch<br>max.       |  |   |  |   |  |   |      |  |
| E 8   | M 3 x 0,5<br>1/8 - 40                    | M 10 x 1,5<br>3/8 - 16  | 3 - 10<br>1/8 - 3/8                          | 1,5   16  | 11,6   0.46                                  | DIN 158<br>DIN 2999<br>DIN 3858<br>ANSI B1.20.1 | M 6 x 1 keg. taper<br>R <sup>1/16</sup> - 28<br>R <sup>1/8</sup> - 28<br>1/16 - 27 NPT(NPTF)   | M 10 x 1 keg. taper<br>R <sup>1/8</sup> - 28<br>R <sup>1/8</sup> - 28<br>1/8 - 27 NPT(NPTF)         |      |  |
| E 10<br>EB 10<br>EW 10                      | M 8 x 1,25<br>5/16 - 22                  | M 10 x 1,5<br>3/8 - 16  | 8 - 14<br>3/8 - 9/16                         | 1,5   16  | 19,6   0.77                                  | DIN 158<br>DIN 2999<br>DIN 3858<br>ANSI B1.20.1 | M 8 x 1 keg. taper<br>R <sup>1/16</sup> - 28<br>R <sup>1/8</sup> - 28<br>1/16 - 27 NPT(NPTF)   | M 14 x 1,5 keg. taper<br>R <sup>1/4</sup> - 19<br>R <sup>1/4</sup> - 19<br>1/4 - 18 NPT(NPTF)       |      |  |
| E 13<br>EB 13<br>EW 13                      | M 10 x 1,5<br>7/16 - 14                  | M 12 x 1,75<br>1/2 - 12 | 10 - 18<br>7/16 - 11/16                      | 1,5   16  | 24,6   0.97                                  | DIN 158<br>DIN 2999<br>DIN 3858<br>ANSI B1.20.1 | M 10 x 1 keg. taper<br>R <sup>1/8</sup> - 28<br>R <sup>1/8</sup> - 28<br>1/8 - 27 NPT(NPTF)    | M 18 x 1,5 keg. taper<br>R <sup>3/8</sup> - 19<br>R <sup>3/8</sup> - 19<br>3/8 - 18 NPT(NPTF)       |      |  |
| E 16<br>EB 16<br>EW 16                      | M 12 x 1,75<br>1/2 - 12                  | M 16 x 2<br>5/8 - 11    | 12 - 22<br>1/2 - 7/8                         | 2,0   13  | 29,6   1.17                                  | DIN 158<br>DIN 2999<br>DIN 3858<br>ANSI B1.20.1 | M 12 x 1,25 keg. taper<br>R <sup>1/4</sup> - 19<br>R <sup>1/4</sup> - 19<br>1/4 - 18 NPT(NPTF) | M 22 x 1,5 keg. taper<br>R <sup>1/2</sup> - 14<br>R <sup>1/2</sup> - 14<br>1/2 - 14 NPT(NPTF)       |      |  |
| E 23<br>EB 23<br>EW 23                      | M 16 x 2<br>5/8 - 11                     | M 16 x 2<br>5/8 - 11    | 16 - 30<br>5/8 - 13/16                       | 2,0   12  | 34,6   1.36                                  | DIN 158<br>DIN 2999<br>DIN 3858<br>ANSI B1.20.1 | M 16 x 1,5 keg. taper<br>R <sup>3/8</sup> - 19<br>R <sup>3/8</sup> - 19<br>3/8 - 18 NPT(NPTF)  | M 30 x 2 keg. taper<br>R <sup>3/4</sup> - 14<br>R <sup>3/4</sup> - 14<br>3/4 - 14 NPT(NPTF)         |      |  |
| E 30<br>EB 30<br>EW 30                      |  |                         | 22 - 45<br>13/16 - 13/4                      | 2,0   12  | 39,6   1.56                                  | DIN 158<br>DIN 2999<br>DIN 3858<br>ANSI B1.20.1 | M 22 x 1,5 keg. taper<br>R <sup>3/4</sup> - 14<br>R <sup>3/4</sup> - 14<br>3/4 - 14 NPT(NPTF)  | M 42 x 2 keg. taper<br>R <sup>1 1/4</sup> - 11<br>R <sup>1 1/4</sup> - 11<br>1 1/4 - 11.5 NPT(NPTF) |      |  |

Artikel-Nr. für gängige Rechtsgewinde in Ausführungsart „A“ für die verschiedenen Rollkopfgrößen sind auf den Seiten 289–291 angegeben. Durchmesser und Steigungen, die in der Tabelle nicht enthalten sind auf Anfrage.

A list of Ident No. for the standard right-hand thread rolls version "A" is shown for different head sizes, on pages 289–291.

Please inquire dimensions and pitches not shown in attached table individually.

Ausführung mit Flansch  
 Version with flange



- L<sub>0</sub> = Schaltweg innen
- L<sub>0</sub> = Internal trip lever movement
- L<sub>2</sub> = Schaltweg außen
- L<sub>2</sub> = External trip lever movement
- D<sub>7</sub> = 4 x am Umfang
- D<sub>7</sub> = 4 x on circumference

| Rollkopf-Typ<br>Rolling Head Type         | E8A00            |              |
|---|------------------|--------------|
| D <sub>1</sub>                            | 64               | 2.52"        |
| D <sub>2</sub> min/max <sup>1)</sup>      | 15/22            | 0.591/0.866" |
| D <sub>3</sub>                            | 3                | 0.118"       |
| D <sub>4</sub>                            | 70               | 2.756"       |
| D <sub>5</sub>                            | 95               | 3.74"        |
| D <sub>6</sub>                            | 125              | 4.921"       |
| D <sub>7</sub>                            | 11               | 0.433"       |
| D <sub>8</sub>                            | M3               |              |
| D <sub>9</sub>                            | 10,5             | 0.413"       |
| L <sub>0</sub>                            | 0,5              | 0.02"        |
| L   | 83,1             | 3.272"       |
| L <sub>1</sub>                            | 39,5             | 1.555"       |
| L <sub>2</sub>                            | 2,2              | 0.087"       |
| L <sub>3</sub>                            | 5,2              | 0.205"       |
| L <sub>4</sub> max.                       | 11,6             | 0.457"       |
| L <sub>5</sub>                            | 30,4             | 1.197"       |
| L <sub>6</sub>                            | 8,5              | 0.335"       |
| L <sub>7</sub>                            | 12,5             | 0.492"       |
| L <sub>8</sub>                            | 20               | 0.787"       |
| L <sub>9</sub>                            | 3,6              | 0.142"       |
| L <sub>10</sub>                           | 15               | 0.591"       |
| L <sub>11</sub>                           | 5                | 0.197"       |
| <b>Gewicht (kg)</b><br><b>Weight (kg)</b> |                  |              |
| <b>Rollkopf Head</b>                      | 2                |              |
| <b>Rollen Rolls</b>                       | 0,1              |              |
| <b>Gesamt Total</b>                       | 2,1              |              |
| <b>Rollkopf</b><br><b>Rolling Head</b>    | <b>Ident No.</b> |              |
|   | 1551101          |              |

<sup>1)</sup> Im Regelfall D<sub>2min</sub>.  
<sup>1)</sup> In general D<sub>2min</sub>.

| Rollkopf<br>Rolling Head |               |   | E8A00     | Rollkopf<br>Rolling Head |               |   | E8A00                          |
|--------------------------|---------------|---|-----------|--------------------------|---------------|---|--------------------------------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description   | Ident No. | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                       | Ident No.                      |
| 1                        | 1             | Federgehäuse<br>Spring housing  | 2173498   | 19                       | 2             | Zylinderstift<br>Pin                                | 2141231                        |
| 2                        | 1             | Getriebeplatte<br>Drive gear plate                                    | 2173499   | 20                       | 1             | Druckfeder, stark<br>Pressure spring, heavy         | 2173520                        |
| 3                        | 1             | Deckplatte<br>Cover plate   | 2173500   | 21                       | 1             | Druckfeder, schwach<br>Pressure spring, light       | 2127419                        |
| 4                        | 1             | Frontplatte<br>Front plate  | 2173501   | 22                       | 2             | Gewinderolle<br>Thread roll                         | siehe Einzelfall<br>individual |
| 5                        | 2             | Synchronzahnrad<br>mit DU-Buchse<br>Synchronized gear<br>with bushing | 2173502   | 23                       | 1             | innerer Auslösehebel<br>Internal trip release lever | 2173521                        |
|                          |               |   |           | 24                       | 1             | Stift<br>Pin  | 2141229                        |
| 6                        | 1             | Mittelzahnrad<br>Centre gear  | 2173503   | 25                       | 1             | DU-Buchse<br>Bushing                                | 2148853                        |
| 7                        | 2             | Verstellzahnrad<br>Adjusting gear                                     | 2173504   | 26                       | 2             | Sechskantmutter<br>Hexagon nut                      | 2148393                        |
| 8                        | 1             | Zahnkranz<br>Gear rim   | 2173505   | 29                       | 4             | Spannhülse<br>Stud                                  | 2142561                        |
| 9                        | 2             | Exzenterbolzen<br>Eccentric spindle                                   | 2173506   | 30                       | 1             | Stift<br>Pin  | 2142649                        |
| 10                       | 1             | äußerer Auslösehebel<br>External trip release lever                   | 2173507   | 31                       | 1             | Stift<br>Pin  | 2173526                        |
| 11                       | 2             | Distanzbolzen<br>Spacer pin   | 2173508   | 32                       | 4             | Zylinderschraube<br>Cap screw                       | 2142016                        |
| 12                       | 2             | Mitnehmerscheibe<br>Drive plate                                       | 2173509   | 33                       | 2             | Zylinderschraube<br>Cap screw                       | 2141881                        |
| 13                       | 2             | Kupplungsbolzen<br>Coupling pin                                       | 2173510   | 34                       | 1             | DU-Buchse<br>Bushing                                | 2148884                        |
| 15                       | 2             | Laufbuchse<br>Bushing   | 2173512   | 35                       | 2             | DU-Buchse s. lfd. Nr. 5<br>Bushing – see part no. 5 | 2148865                        |
| 16                       | 4             | Passfeder<br>Fitting key  | 2173511   | 40                       | 1             | Flansch<br>Flange                                   | 2173528                        |
| 17                       | 1             | Zugfedersatz (2 Stück)<br>Tension spring set (2 pieces)               | 2173516   | 41                       | 2             | Scheibe<br>Washer                                   | 2141464                        |
| 18                       | 1             | Anschlag<br>Clutch stop   | 2173519   |                          |               |   |                                |

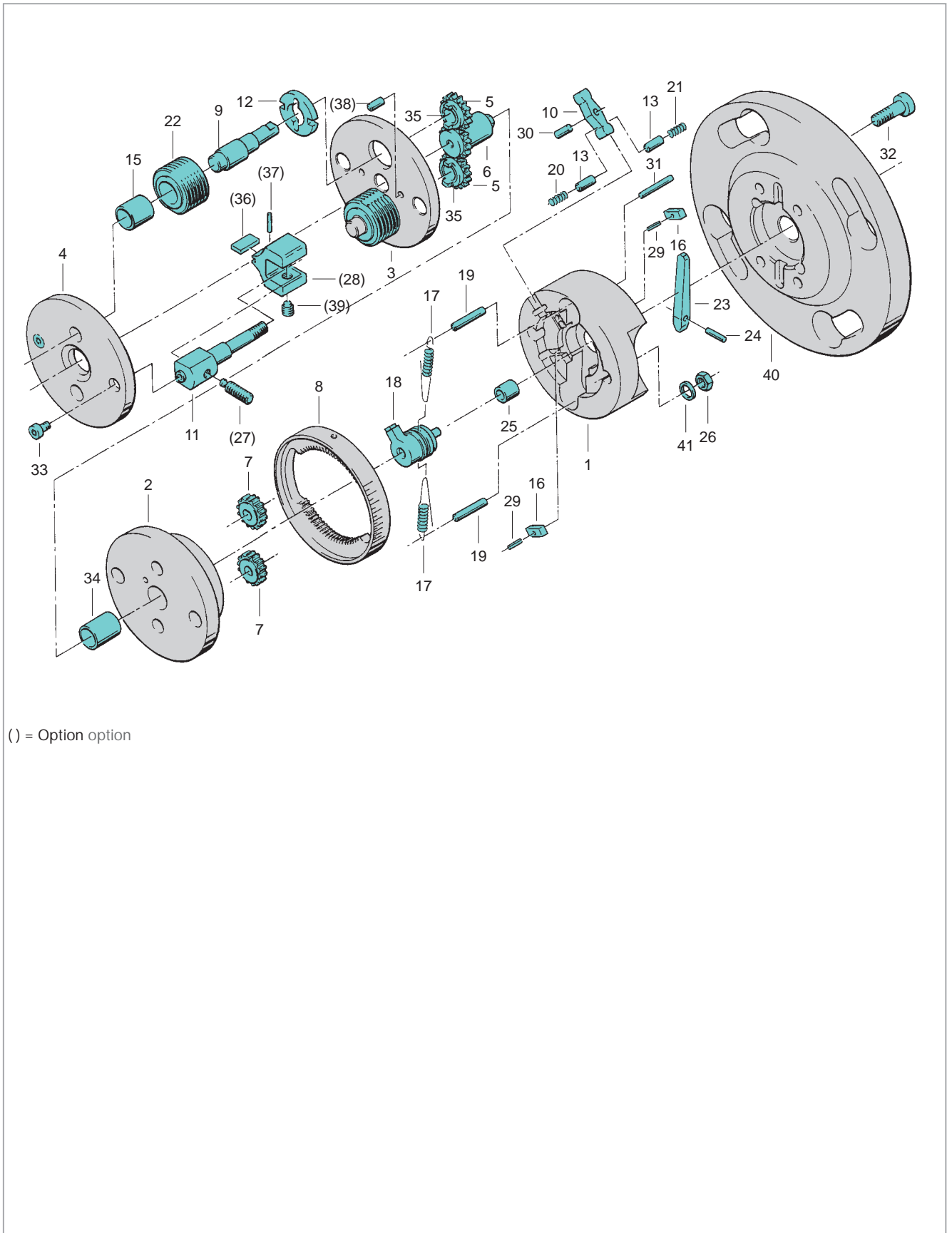
Bei Bestellung von Rollköpfen, Ersatzteilen und Gewinderollen gleicher, bereits gelieferter Ausführungen, unbedingt aufsignierte Bezeichnung, Teil Nr. und Ident No. angeben!

Important! When ordering rolling head spare parts and thread rolls identical to those already supplied, it is essential to give the Type, size, Part No. and Ident No.

| Führungsstück <sup>1)</sup> |               |   |                |
|-----------------------------|---------------|---|----------------|
| Guide piece                 |               |   |                |
| Teil Nr.<br>Part No.        | Stück<br>Qty. | Bennennung<br>Part description                                    | Ident No.      |
|                             |               | <b>Führungsstück komplett<sup>1)</sup></b><br>Guide piece         | <b>2170134</b> |
| 27                          | 1             | Gewindestift<br>Set screw   | 2173522        |
| 28                          | 1             | Führungsstück<br>mit Hartmetallplatte<br>Guide piece with carbide | 2173523        |
| 36                          | 1             | Hartmetallplatte s. lfd. Nr. 28<br>Carbide plate – see part 28    | 2173525        |
| 37                          | 1             | Zylinderstift<br>Pin  | 2142644        |
| 38                          | 1             | Zylinderstift<br>Pin  | 2142658        |
| 39                          | 1             | Gewindestift<br>Set screw   | 2148366        |

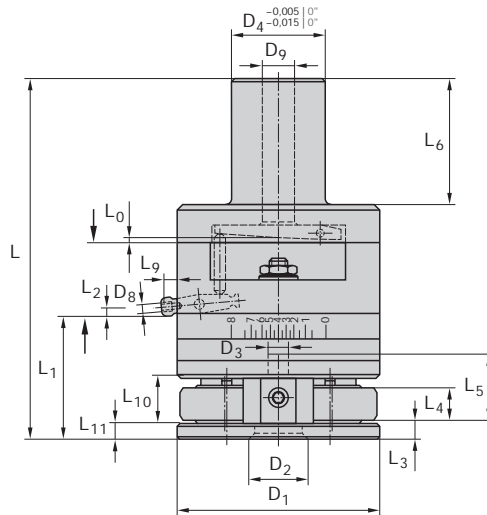
**Bei Bestellung von Rollköpfen, Ersatzteilen und Gewinderollen gleicher, bereits gelieferter Ausführungen, unbedingt aufsignierte Bezeichnung, Teil Nr. und Ident No. angeben!**  
**Important! When ordering rolling head spare parts and thread rolls identical to those already supplied, it is essential to give the Type, size, Part No. and Ident No.**

<sup>1)</sup> Bei Bedarf bitte zusätzlich bestellen.  
Pro Rollkopf werden 2 Stück benötigt.  
<sup>1)</sup> Please order additionally as required.  
Two are required for each rolling head.



( ) = Option option

Ausführung mit Zylinderschaft  
 Version with straight shank



L<sub>0</sub> = Schaltweg innen  
 L<sub>0</sub> = Internal trip lever movement  
 L<sub>2</sub> = Schaltweg außen  
 L<sub>2</sub> = External trip lever movement

| Rollkopf-Typ<br>Rolling Head Type                              | E8A01            |                  |
|--|------------------|------------------|
| D <sub>1</sub>   | 64               | 2.52"            |
| D <sub>2</sub> min/max <sup>1)</sup>                           | 15/22            | 0.591/0.866"     |
| D <sub>3</sub>   | 3                | 0.118"           |
| D <sub>4</sub>   | 20, 25, 30       | 3/4", 1", 1 1/4" |
| D <sub>8</sub>   | M3               |                  |
| D <sub>9</sub>   | 10,5             | 0.413"           |
| L <sub>0</sub>   | 0,5              | 0.02"            |
| L  | 115,6            | 4.551"           |
| L <sub>1</sub>   | 39,5             | 1.555"           |
| L <sub>2</sub>   | 2,2              | 0.087"           |
| L <sub>3</sub>   | 5,2              | 0.205"           |
| L <sub>4</sub> max   | 11,6             | 0.457"           |
| L <sub>5</sub>   | 30,4             | 1.197"           |
| L <sub>6</sub>   | 40               | 1.575"           |
| L <sub>9</sub>   | 3,6              | 0.142"           |
| L <sub>10</sub>  | 15               | 0.591"           |
| L <sub>11</sub>  | 5                | 0.197"           |
| <b>Gewicht (kg)</b>  |                  |                  |
| <b>Weight (kg)</b>   |                  |                  |
| Rollkopf Head  | 1,6              |                  |
| Rollen Rolls   | 0,1              |                  |
| Gesamt Total   | 1,7              |                  |
| Rollkopf E8A01 mit Schaft-Ø<br>Rolling Head E8A01 with Shank-Ø | <b>Ident No.</b> |                  |
| 20   | 2173300          |                  |
| 25   | 2173301          |                  |
| 30   | 2173302          |                  |
| 3/4"   | 2173303          |                  |
| 1"   | 2173304          |                  |
| 1 1/4"   | 2173305          |                  |

<sup>1)</sup> Im Regelfall D<sub>2min</sub>.

<sup>1)</sup> In general D<sub>2min</sub>.



| Rollkopf<br>Rolling Head |               |   | E8A01                      | Rollkopf<br>Rolling Head |               |   | E8A01                                     |
|--------------------------|---------------|---|----------------------------|--------------------------|---------------|---|---|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description   | Ident No.                  | Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                       | Ident No.                                 |
| 1                        | 1             | Federgehäuse<br>Spring housing  | 2173498                    | 18                       | 1             | Anschlag<br>Clutch stop                             | 2173519                                   |
| 2                        | 1             | Getriebeplatte<br>Drive gear plate                                    | 2173499                    | 19                       | 2             | Zylinderstift<br>Pin                                | 2141231                                   |
| 3                        | 1             | Deckplatte<br>Cover plate   | 2173500                    | 20                       | 1             | Druckfeder, stark<br>Pressure spring, heavy         | 2173520                                   |
| 4                        | 1             | Frontplatte<br>Front plate  | 2173501                    | 21                       | 1             | Druckfeder, schwach<br>Pressure spring, light       | 2127419                                   |
| 5                        | 2             | Synchronzahnrad<br>mit DU-Buchse<br>Synchronized gear<br>with bushing | 2173502                    | 22                       | 2             | Gewinderolle<br>Thread roll                         | siehe Einzelfall<br>individual<br>2173521 |
|                          |               |   |                            | 23                       | 1             | innerer Auslösehebel<br>Internal trip release lever |   |
| 6                        | 1             | Mittelzahnrad<br>Centre gear  | 2173503                    | 24                       | 1             | Stift<br>Pin  | 2141229                                   |
| 7                        | 2             | Verstellzahnrad<br>Adjusting gear                                     | 2173504                    | 25                       | 1             | DU-Buchse<br>Bushing                                | 2148853                                   |
| 8                        | 1             | Zahnkranz<br>Gear rim   | 2173505                    | 26                       | 2             | Sechskantmutter<br>Hexagon nut                      | 2148393                                   |
| 9                        | 2             | Exzenterbolzen<br>Eccentric spindle                                   | 2173506                    | 29                       | 4             | Stiftschraube<br>Stud                               | 2142561                                   |
| 10                       | 1             | äußerer Auslösehebel<br>External trip release lever                   | 2173507                    | 30                       | 1             | Spannstift<br>Pin                                   | 2142649                                   |
| 11                       | 2             | Distanzbolzen<br>Spacer pin   | 2173508                    | 31                       | 1             | Zylinderstift<br>Pin                                | 2173526                                   |
| 12                       | 2             | Mitnehmerscheibe<br>Drive plate                                       | 2173509                    | 32                       | 4             | Zylinderschraube<br>Cap screw                       | 2142016                                   |
| 13                       | 2             | Kupplungsbolzen<br>Coupling pin                                       | 2173510                    | 33                       | 2             | Zylinderschraube<br>Cap screw                       | 2141881                                   |
| 14 <sup>1)</sup>         | 1             | Schaft<br>Shank   | siehe Tabelle<br>see table | 34                       | 1             | DU-Buchse<br>Bushing                                | 2148884                                   |
| 15                       | 2             | Laufbuchse<br>Bushing   | 2173512                    | 35                       | 2             | DU-Buchse s. lfd. Nr. 5<br>Bushing – see part no. 5 | 2148865                                   |
| 16                       | 4             | Passfeder<br>Fitting key  | 2173511                    | 41                       | 2             | Scheibe<br>Washer                                   | 2141464                                   |
| 17                       | 1             | Zugfedersatz (2 Stück)<br>Tension spring set (2 pieces)               | 2173516                    |                          |               |   |   |

<sup>1)</sup> Schäfte für lfd. Nr. 14

<sup>1)</sup> Shanks for part no. 14.

**Bei Bestellung von Rollköpfen, Ersatzteilen und Gewinderollen gleicher, bereits gelieferter Ausführungen, unbedingt aufsignierte Bezeichnung, Teil Nr. und Ident No. angeben!**

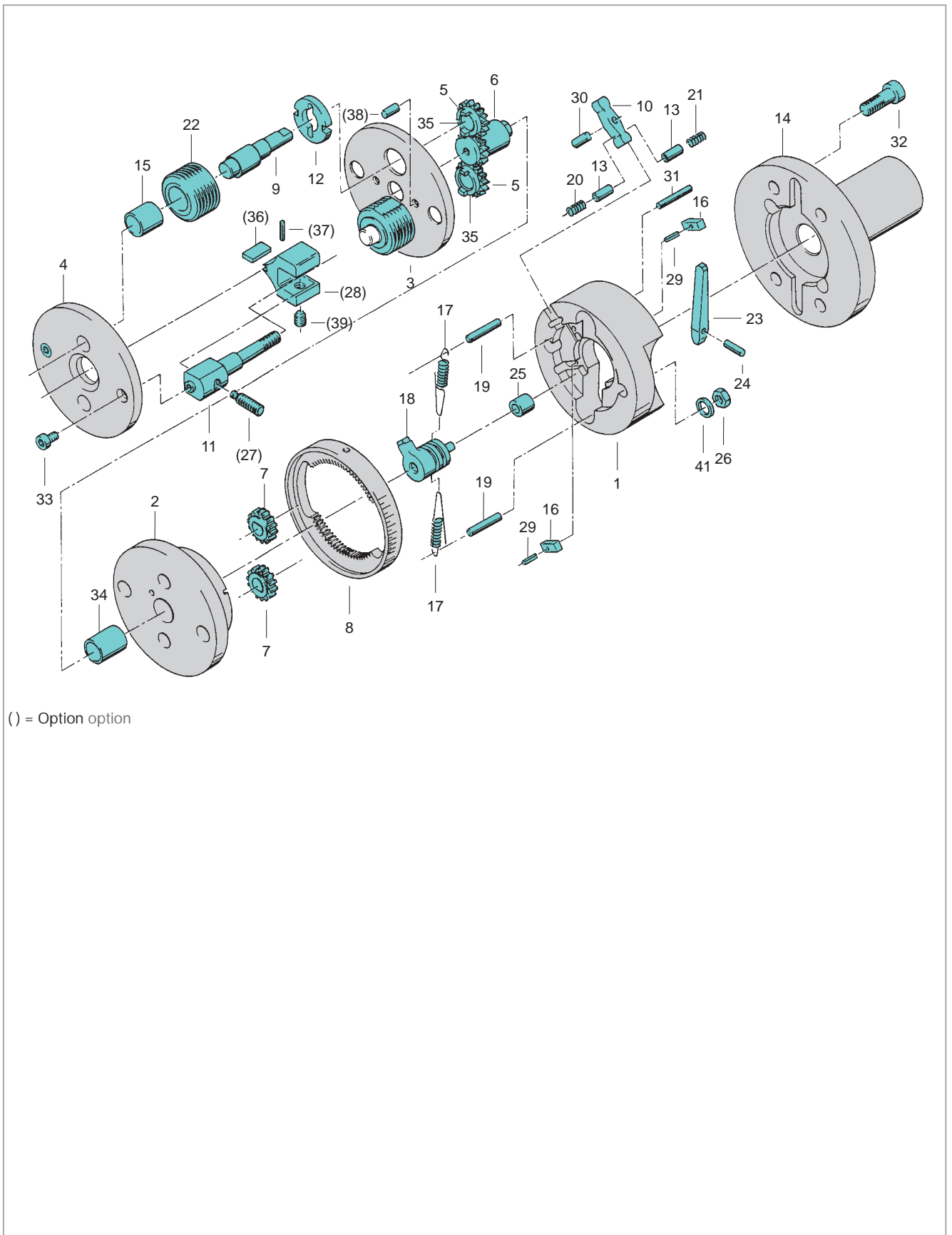
**Important! When ordering rolling head spare parts and thread rolls identical to those already supplied, it is essential to give the Type, size, Part No. and Ident No.**

| Führungsstück <sup>1)</sup><br>Guide piece |               |   |                |
|--|---------------|---|----------------|
| Teil Nr.<br>Part No.                       | Stück<br>Qty. | Bennennung<br>Part description                                    | Ident No.      |
|  |               | <b>Führungsstück komplett <sup>1)</sup></b><br>Guide piece        | <b>2170134</b> |
| 27   | 1             | Gewindestift<br>Set screw   | 2173522        |
| 28   | 1             | Führungsstück<br>mit Hartmetallplatte<br>Guide piece with carbide | 2173523        |
| 36   | 1             | Hartmetallplatte s. lfd. Nr. 28<br>Carbide plate – see part 28    | 2173525        |
| 37   | 1             | Zylinderstift<br>Pin  | 2142644        |
| 38   | 1             | Zylinderstift<br>Pin  | 2142658        |
| 39   | 1             | Gewindestift<br>Set screw   | 2148366        |

**Bei Bestellung von Rollköpfen, Ersatzteilen und Gewinderollen gleicher, bereits gelieferter Ausführungen, unbedingt aufsignierte Bezeichnung, Teil Nr. und Ident No. angeben!**  
**Important! When ordering rolling head spare parts and thread rolls identical to those already supplied, it is essential to give the Type, size, Part No. and Ident No.**

<sup>1)</sup> Bei Bedarf bitte zusätzlich bestellen.  
Pro Rollkopf werden 2 Stück benötigt.  
<sup>1)</sup> Please order additionally as required.  
Two are required for each rolling head.

| Rollkopf<br>Rolling Head | E8A01     |
|--------------------------|-----------|
| Schaft-Ø<br>Shank-Ø      | Ident No. |
| 20                       | 2173351   |
| 25                       | 2173532   |
| 30                       | 2173533   |
| 3/4"                     | 2173534   |
| 1"                       | 2173535   |
| 1 1/4"                   | 2173536   |

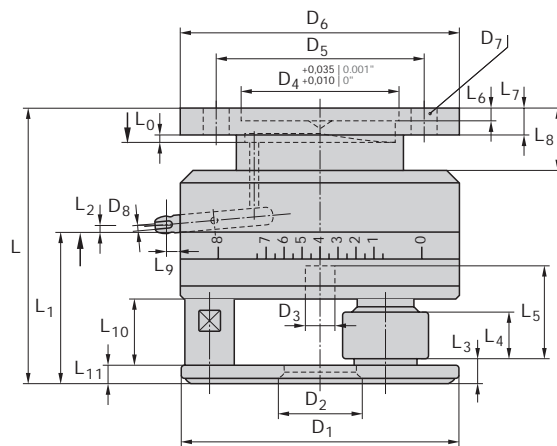


( ) = Option option

E10A00  
E13A00  
E16A00  
E23A00  
E30A00

Ausführung mit Flansch  
Version with flange

L<sub>0</sub> = Schaltweg innen  
L<sub>0</sub> = Internal trip lever movement  
L<sub>2</sub> = Schaltweg außen  
L<sub>2</sub> = External trip lever movement  
D<sub>7</sub> = 4 x am Umfang  
D<sub>7</sub> = 4 x on circumference



| Rollkopf-Typ<br>Rolling Head Type    | E10A00    |              | E13A00    |             | E16A00    |              | E23A00    |              | E30A00    |             |
|--------------------------------------|-----------|--------------|-----------|-------------|-----------|--------------|-----------|--------------|-----------|-------------|
| D <sub>1</sub>                       | 100       | 3.937"       | 125       | 4.921"      | 140       | 5.512"       | 170       | 6.693"       | 230       | 9.055"      |
| D <sub>2</sub> min/max <sup>1)</sup> | 26/30     | 1.024/1.181" | 32/41     | 1.26/1.614" | 40,5/50   | 1.594/1.968" | 50/66     | 1.968/2.598" | 68/80     | 2.677/3.15" |
| D <sub>3</sub>                       | 9         | 0.354"       | 12        | 0.472"      | 18        | 0.709"       | 25        | 0.984"       | 32        | 1.26"       |
| D <sub>4</sub>                       | 70        | 2.756"       | 70        | 2.756"      | 92        | 3.622"       | 110       | 4.331"       | 140       | 5.512"      |
| D <sub>5</sub>                       | 95        | 3.74"        | 95        | 3.74"       | 110       | 4.331"       | 140       | 5.512"       | 170       | 6.693"      |
| D <sub>6</sub>                       | 125       | 4.921"       | 125       | 4.921"      | 140       | 5.512"       | 170       | 6.693"       | 200       | 7.874"      |
| D <sub>7</sub>                       | 11        | 0.433"       | 11        | 0.433"      | 13        | 0.512"       | 13        | 0.512"       | 13        | 0.512"      |
| D <sub>8</sub>                       | M5        |              | M5        |             | M5        |              | M5        |              | M5        |             |
| L <sub>0</sub>                       | 1,1       | 0.043"       | 1         | 0.039"      | 1,1       | 0.043"       | 1,6       | 0.063"       | 1,6       | 0.063"      |
| L                                    | 114       | 4.488"       | 123       | 4.843"      | 142       | 5.591"       | 173       | 6.811"       | 186       | 7.323"      |
| L <sub>1</sub>                       | 58,2      | 2.291"       | 67,5      | 2.657"      | 79,7      | 3.138"       | 100,7     | 3.965"       | 113       | 4.449"      |
| L <sub>2</sub>                       | 3,5       | 0.138"       | 3         | 0.118"      | 4,4       | 0.173"       | 4,5       | 0.177"       | 3,9       | 0.154"      |
| L <sub>3</sub>                       | 6,2       | 0.244"       | 8,2       | 0.323"      | 10,2      | 0.402"       | 13,2      | 0.52"        | 16,2      | 0.638"      |
| L <sub>4</sub> max.                  | 19,6      | 0.748"       | 24,6      | 0.968"      | 29,6      | 1.165"       | 34,6      | 1.362"       | 39,6      | 1.559"      |
| L <sub>5</sub>                       | 50        | 1.968"       | 51        | 2.008"      | 61        | 2.402"       | 76        | 2.992"       | 86        | 3.386"      |
| L <sub>6</sub>                       | 8,5       | 0.335"       | 8,5       | 0.335"      | 8,5       | 0.335"       | 8,5       | 0.335"       | 8,5       | 0.335"      |
| L <sub>7</sub>                       | 12,5      | 0.492"       | 12,5      | 0.492"      | 12,5      | 0.492"       | 12,5      | 0.492"       | 20        | 0.787"      |
| L <sub>8</sub>                       | 28        | 1.102"       | 28        | 1.102"      | 28        | 1.102"       | 28        | 1.102"       | 35        | 1.378"      |
| L <sub>9</sub>                       | 7,1       | 0.28"        | 7,5       | 0.295"      | 8,1       | 0.319"       | 11        | 0.433"       | 13        | 0.512"      |
| L <sub>10</sub>                      | 25        | 0.984"       | 30        | 1.181"      | 36        | 1.417"       | 43        | 1.693"       | 50        | 1.968"      |
| L <sub>11</sub>                      | 6         | 0.236"       | 8         | 0.315"      | 10        | 0.394"       | 13        | 0.512"       | 16        | 0.63"       |
| <b>Gewicht (kg)</b>                  |           |              |           |             |           |              |           |              |           |             |
| <b>Weight (kg)</b>                   |           |              |           |             |           |              |           |              |           |             |
| Rollkopf Head                        | 4,3       |              | 6,8       |             | 9,9       |              | 18,8      |              | 35,3      |             |
| Rollen Rolls                         | 0,4       |              | 0,8       |             | 1,5       |              | 3,2       |              | 5,6       |             |
| Gesamt Total                         | 4,7       |              | 7,6       |             | 11,4      |              | 22        |              | 40,9      |             |
| Rollkopf<br>Rolling Head             | Ident No. |              | Ident No. |             | Ident No. |              | Ident No. |              | Ident No. |             |
|                                      | 1551600   |              | 1552208   |             | 1552609   |              | 1553207   |              | 1553608   |             |

<sup>1)</sup> Im Regelfall D<sub>2min</sub>.

<sup>1)</sup> In general D<sub>2min</sub>.

| Rollkopf<br>Rolling Head |               |   | E10A00                         | E13A00    | E16A00    | E23A00    | E30A00    |
|--------------------------|---------------|---|--------------------------------|-----------|-----------|-----------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                                   | Ident No.                      | Ident No. | Ident No. | Ident No. | Ident No. |
| 1                        | 1             | Flansch<br>Flange   | 2173659                        | 2173694   | 2173729   | 2173761   | 2173790   |
| 2                        | 1             | Getriebeplatte<br>Drive gear plate                              | 2173660                        | 2173695   | 2173730   | 2173762   | 2173791   |
| 3                        | 1             | Deckplatte<br>Cover plate                                       | 2173661                        | 2173696   | 2173731   | 2173763   | 2173792   |
| 4                        | 1             | Frontplatte<br>Front plate                                      | 2173662                        | 2173697   | 2173732   | 2173764   | 2173793   |
| 5                        | 3             | Synchronzahnrad mit DU-Buchse<br>Synchronized gear with bushing | 2173663                        | 2173698   | 2173733   | 2173765   | 2173794   |
| 6                        | 1             | Mittelzahnrad<br>Centre gear                                    | 2173664                        | 2173699   | 2173734   | 2173766   | 2173795   |
| 7                        | 3             | Verstellzahnrad<br>Adjusting gear                               | 2173665                        | 2173700   | 2173735   | 2173767   | 2173796   |
| 8                        | 1             | Zahnkranz<br>Gear rim   | 2173666                        | 2173701   | 2173736   | 2173768   | 2173797   |
| 9                        | 3             | Exzenterbolzen<br>Eccentric spindle                             | 2173667                        | 2173702   | 2173737   | 2173769   | 2173798   |
| 10                       | 1             | äußerer Auslösehebel<br>External trip release lever             | 2173668                        | 2173703   | 2173738   | 2173770   | 2173799   |
| 11                       | 3             | Distanzbolzen<br>Spacer pin                                     | 2173669                        | 2173704   | 2173739   | 2173771   | 2173800   |
| 12                       | 3             | Mitnehmerscheibe<br>Drive plate                                 | 2173670                        | 2173705   | 2173740   | 2173772   | 2173801   |
| 13                       | 2             | Kupplungsbolzen<br>Coupling pin                                 | 2173671                        | 2173671   | 2173741   | 2173773   | 2173802   |
| 15                       | 3             | Laufbuchse<br>Bushing   | 2173672                        | 2173706   | 2173742   | 2173774   | 2173803   |
| 16                       | 2             | Passfeder<br>Fitting key  | 2173673                        | 2173673   | 2173743   | 2173775   | 2173804   |
| 17                       | 1             | Zugfedersatz (3 Stück)<br>Tension spring set (3 pieces)         | 2173674                        | 2173707   | 2173744   | 2173776   | 2173805   |
| 18                       | 1             | Anschlag<br>Clutch stop   | 2173678                        | 2173711   | 2173748   | 2173780   | 2173809   |
| 19                       | 3             | Zylinderstift<br>Pin  | 2141260                        | 2141260   | 2141261   | 2141309   | 2141308   |
| 20                       | 1             | Druckfeder, stark<br>Pressure spring, heavy                     | 2173679                        | 2173679   | 2173749   | 2127402   | 2173810   |
| 21                       | 2             | Druckfeder, schwach <sup>1)</sup><br>Pressure spring, light     | 2127414                        | 2127414   | 2127416   | 2127401   | 2127398   |
| 22                       | 3             | Gewinderolle<br>Thread roll                                     | siehe Einzelfall<br>individual |           |           |           |           |
| 23                       | 1             | innerer Auslösehebel<br>Internal trip release lever             | 2173680                        | 2173712   | 2173750   | 2173781   | 2173811   |
| 24                       | 1             | Zylinderschraube<br>Cap screw                                   | 2173681                        | 2173713   | 2173751   | 2173751   | 2173751   |
| 25                       | 1             | DU-Buchse<br>Bushing  | 2148851                        | 2148851   | 2148865   | 2148865   | 2148865   |
| 26                       | 2             | Sechskantmutter<br>Hexagon nut                                  | 2142394                        | 2142394   | 2148398   | 2148398   | 2148399   |
| 27                       | 2             | Scheibe<br>Washer   | 2173682                        | 2173714   | 2173752   | 2173752   | 2173812   |
| 28                       | 2             | Stiftschraube<br>Stud   | 2148824                        | 2148841   | 2167020   | 2148839   | 2148827   |
| 29                       | 2             | Spannstift<br>Pin   | 2142576                        | 2142576   | 2142576   | 2142576   | 2148848   |
| 30                       | 1             | Zylinderstift<br>Pin  | 2142678                        | 2142678   | 2142678   | 2142691   | 2142691   |

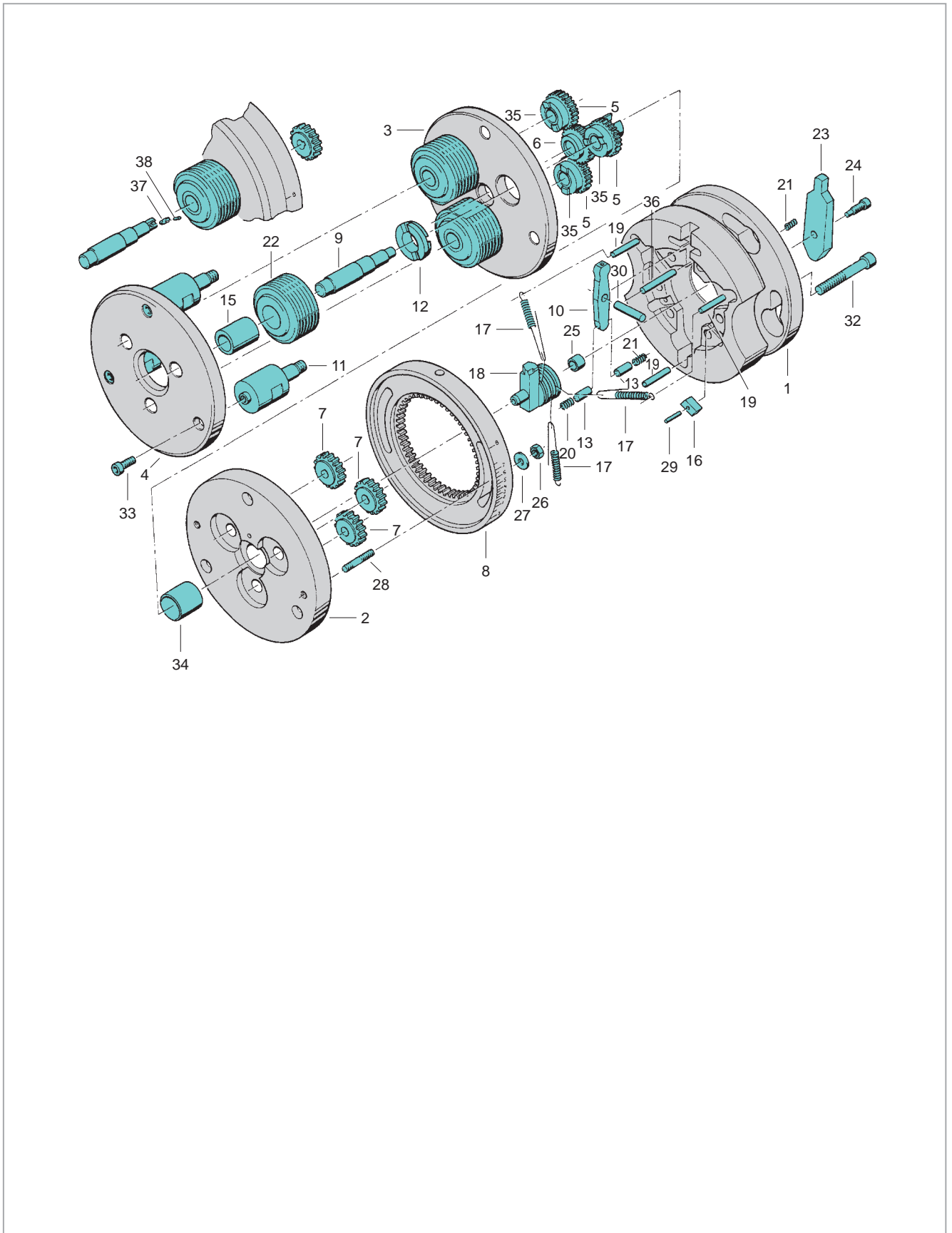
| Rollkopf<br>Rolling Head |               |   | E10A00    | E13A00    | E16A00    | E23A00    | E30A00    |
|--------------------------|---------------|---|-----------|-----------|-----------|-----------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Bennennung<br>Part description                              | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| 32                       | 6             | Zylinderschraube<br>Cap screw                               | 2148362   | 2148362   | 2142034   | 2142036   | 2142052   |
| 33                       | 3             | Zylinderschraube<br>Cap screw                               | 2142992   | 2143007   | 2143155   | 2143017   | 2143053   |
| 34                       | 1             | DU-Buchse<br>Bushing  | 2148858   | 2148856   | 2148861   | 2148866   | 2148863   |
| 35                       | 3             | DU-Buchse s. lfd. Nr. 5<br>Bushing – included in part no. 5 | 2148865   | 2148854   | 2148857   | 2148862   | 2148860   |
| 36                       | 1             | Druckstift<br>Pin   | 2178549   | 2178549   | 2178547   | 2178546   | 2148812   |
| 37                       | 3             | Passfeder<br>Fitting key                                    | -         | -         | -         | -         | 2165595   |
| 38                       | 3             | Zylinderstift<br>Pin  | -         | -         | -         | -         | 2141237   |

<sup>1)</sup> Für E30A00 nur 1 Druckfeder.

<sup>1)</sup> For E30A00 only one pressure spring.

**Bei Bestellung von Rollköpfen, Ersatzteilen und Gewinderollen gleicher, bereits gelieferter Ausführungen, unbedingt aufsignierte Bezeichnung, Teil Nr. und Ident No. angeben!**

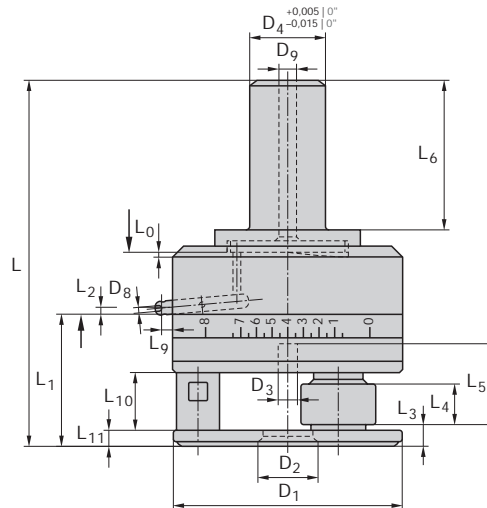
**Important! When ordering rolling head spare parts and thread rolls identical to those already supplied, it is essential to give the Type, size, Part No. and Ident No.**



E10A01  
E13A01  
E16A01  
E23A01  
E30A01

Ausführung mit Zylinderschaft  
Version with straight shank

L<sub>0</sub> = Schaltweg innen  
L<sub>0</sub> = Internal trip lever movement  
L<sub>2</sub> = Schaltweg außen  
L<sub>2</sub> = External trip lever movement



| Rollkopf-Typ<br>Rolling Head Type    | E10A01                           |              | E13A01                    |             | E16A01                    |              | E23A01                    |              | E30A01                    |             |
|--------------------------------------|----------------------------------|--------------|---------------------------|-------------|---------------------------|--------------|---------------------------|--------------|---------------------------|-------------|
| D <sub>1</sub>                       | 100                              | 3.937"       | 125                       | 4.921"      | 140                       | 5.512"       | 170                       | 6.693"       | 230                       | 9.055"      |
| D <sub>2</sub> min/max <sup>1)</sup> | 26/30                            | 1.024/1.181" | 32/41                     | 1.26/1.614" | 40,5/50                   | 1.594/1.968" | 50/66                     | 1.968/2.598" | 68/80                     | 2.677/3.15" |
| D <sub>3</sub>                       | 9                                | 0.354"       | 12                        | 0.472"      | 18                        | 0.709"       | 25                        | 0.984"       | 32                        | 1.26"       |
| D <sub>4</sub> mm<br>inch            | 20, 25, 30, 32<br>3/4, 1, 1 1/4" |              | 30, 40<br>1 1/4, 1 1/2"   |             | 40, 50<br>1 1/2, 2"       |              | 50, 60<br>2, 2 1/2"       |              | 80<br>3"                  |             |
| D <sub>8</sub>                       | M5                               |              | M5                        |             | M5                        |              | M5                        |              | M5                        |             |
| D <sub>9</sub>                       | 12,5                             | 0.492"       | 12,5                      | 0.492"      | 12,5                      | 0.492"       | 12,5                      | 0.492"       | 12,5                      | 0.492"      |
| L <sub>0</sub>                       | 1,1                              | 0.043"       | 1                         | 0.039"      | 1,1                       | 0.043"       | 1,6                       | 0.063"       | 1,6                       | 0.063"      |
| L                                    | 164,6                            | 6.48"        | 193,6                     | 7.622"      | 212,5                     | 8.366"       | 261,5                     | 10.295"      | 307,5                     | 12.106"     |
| L <sub>1</sub>                       | 58,2                             | 2.291"       | 67,5                      | 2.657"      | 79,7                      | 3.138"       | 100,7                     | 3.965"       | 113                       | 4.449"      |
| L <sub>2</sub>                       | 3,5                              | 0.138"       | 3                         | 0.118"      | 4,4                       | 0.173"       | 4,5                       | 0.177"       | 3,9                       | 0.154"      |
| L <sub>3</sub>                       | 6,2                              | 0.244"       | 8,2                       | 0.323"      | 10,2                      | 0.402"       | 13,2                      | 0.52"        | 16,2                      | 0.638"      |
| L <sub>4</sub> max.                  | 19,6                             | 0.772"       | 24,6                      | 0.968"      | 29,6                      | 1.165"       | 34,6                      | 1.362"       | 39,6                      | 1.559"      |
| L <sub>5</sub>                       | 50                               | 1.968"       | 51                        | 2.008"      | 61                        | 2.402"       | 76                        | 2.992"       | 86                        | 3.386"      |
| L <sub>6</sub>                       | 60                               | 2.362"       | 80                        | 3.15"       | 80                        | 3.15"        | 100                       | 3.937"       | 120                       | 4.724"      |
| L <sub>9</sub>                       | 7,1                              | 0.28"        | 7,5                       | 0.295"      | 8,1                       | 0.319"       | 11                        | 0.433"       | 13                        | 0.512"      |
| L <sub>10</sub>                      | 25                               | 0.984"       | 30                        | 1.181"      | 36                        | 1.417"       | 43                        | 1.693"       | 50                        | 1.968"      |
| L <sub>11</sub>                      | 6                                | 0.236"       | 8                         | 0.315"      | 10                        | 0.394"       | 13                        | 0.512"       | 16                        | 0.63"       |
| Gewicht (kg)<br>Weight (kg)          | Schaft-Ø 30<br>Shank-Ø 30        |              | Schaft-Ø 40<br>Shank-Ø 40 |             | Schaft-Ø 50<br>Shank-Ø 50 |              | Schaft-Ø 60<br>Shank-Ø 60 |              | Schaft-Ø 80<br>Shank-Ø 80 |             |
| Rollkopf Head                        | 4,2                              |              | 7,4                       |             | 10,9                      |              | 20                        |              | 41,9                      |             |
| Rollen Rolls                         | 0,4                              |              | 0,8                       |             | 1,5                       |              | 3,2                       |              | 5,6                       |             |
| Gesamt Total                         | 4,6                              |              | 8,2                       |             | 12,4                      |              | 23,2                      |              | 47,5                      |             |
| Rollkopf m. Schaft-Ø<br>Shank-Ø      | Ident No.                        | Ident No.    | Ident No.                 | Ident No.   | Ident No.                 | Ident No.    | Ident No.                 | Ident No.    | Ident No.                 | Ident No.   |
| 20 mm                                | 2173308                          | -            | -                         | -           | -                         | -            | -                         | -            | -                         | -           |
| 25 mm                                | 2173309                          | -            | -                         | -           | -                         | -            | -                         | -            | -                         | -           |
| 30 mm                                | 2173310                          | 2173316      | -                         | -           | -                         | -            | -                         | -            | -                         | -           |
| 32 mm                                | 2173311                          | -            | -                         | -           | -                         | -            | -                         | -            | -                         | -           |
| 40 mm                                | -                                | 2173317      | 2173322                   | -           | -                         | -            | -                         | -            | -                         | -           |
| 50 mm                                | -                                | -            | 2173323                   | 2173328     | -                         | -            | -                         | -            | -                         | -           |
| 60 mm                                | -                                | -            | -                         | 2173329     | -                         | -            | -                         | -            | -                         | -           |
| 80 mm                                | -                                | -            | -                         | -           | -                         | -            | -                         | -            | 2173334                   | -           |
| 3/4"                                 | 2173312                          | -            | -                         | -           | -                         | -            | -                         | -            | -                         | -           |
| 1"                                   | 2173313                          | -            | -                         | -           | -                         | -            | -                         | -            | -                         | -           |
| 1 1/4"                               | 2173314                          | 2173318      | -                         | -           | -                         | -            | -                         | -            | -                         | -           |
| 1 1/2"                               | -                                | 2173319      | 2173324                   | -           | -                         | -            | -                         | -            | -                         | -           |
| 2"                                   | -                                | -            | 2173325                   | 2173330     | -                         | -            | -                         | -            | -                         | -           |
| 2 1/2"                               | -                                | -            | -                         | 2173331     | -                         | -            | -                         | -            | -                         | -           |
| 3"                                   | -                                | -            | -                         | -           | -                         | -            | -                         | -            | 2173335                   | -           |

<sup>1)</sup> Im Regelfall D<sub>2min</sub>.

<sup>1)</sup> In general D<sub>2min</sub>.



| Rollkopf<br>Rolling Head |               |   | E10A01                         | E13A01    | E16A01    | E23A01    | E30A01    |  |
|--------------------------|---------------|---|--------------------------------|-----------|-----------|-----------|-----------|--|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                                   | Ident No.                      | Ident No. | Ident No. | Ident No. | Ident No. |  |
| 2                        | 1             | Getriebeplatte<br>Drive gear plate                              | 2173660                        | 2173695   | 2173730   | 2173762   | 2173791   |  |
| 3                        | 1             | Deckplatte<br>Cover plate                                       | 2173661                        | 2173696   | 2173731   | 2173763   | 2173792   |  |
| 4                        | 1             | Frontplatte<br>Front plate                                      | 2173662                        | 2173697   | 2173732   | 2173764   | 2173793   |  |
| 5                        | 3             | Synchronzahnrad mit DU-Buchse<br>Synchronized gear with bushing | 2173663                        | 2173698   | 2173733   | 2173765   | 2173794   |  |
| 6                        | 1             | Mittelzahnrad<br>Centre gear                                    | 2173664                        | 2173699   | 2173734   | 2173766   | 2173795   |  |
| 7                        | 3             | Verstellzahnrad<br>Adjusting gear                               | 2173665                        | 2173700   | 2173735   | 2173767   | 2173796   |  |
| 8                        | 1             | Zahnkranz<br>Gear rim   | 2173666                        | 2173701   | 2173736   | 2173768   | 2173797   |  |
| 9                        | 3             | Exzenterbolzen<br>Eccentric spindle                             | 2173667                        | 2173702   | 2173737   | 2173769   | 2173798   |  |
| 10                       | 1             | äußerer Auslösehebel<br>External trip release lever             | 2173668                        | 2173703   | 2173738   | 2173770   | 2173799   |  |
| 11                       | 3             | Distanzbolzen<br>Spacer pin                                     | 2173669                        | 2173704   | 2173739   | 2173771   | 2173800   |  |
| 12                       | 3             | Mitnehmerscheibe<br>Drive plate                                 | 2173670                        | 2173705   | 2173740   | 2173772   | 2173801   |  |
| 13                       | 2             | Kupplungsbolzen<br>Coupling pin                                 | 2173671                        | 2173671   | 2173741   | 2173773   | 2173802   |  |
| 15                       | 3             | Laufbuchse<br>Bushing   | 2173672                        | 2173706   | 2173742   | 2173774   | 2173803   |  |
| 16                       | 4             | Passfeder<br>Fitting key  | 2173673                        | 2173673   | 2173743   | 2173775   | 2173804   |  |
| 17                       | 1             | Zugfedersatz (3 Stück)<br>Tension spring set (3 pieces)         | 2173674                        | 2173707   | 2173744   | 2173776   | 2173805   |  |
| 18                       | 1             | Anschlag<br>Clutch stop   | 2173678                        | 2173711   | 2173748   | 2173780   | 2173809   |  |
| 19                       | 3             | Zylinderstift<br>Pin  | 2141260                        | 2141260   | 2141261   | 2141309   | 2141308   |  |
| 20                       | 1             | Druckfeder, stark<br>Pressure spring, heavy                     | 2173679                        | 2173679   | 2173749   | 2127402   | 2173810   |  |
| 21                       | 1             | Druckfeder, schwach<br>Pressure spring, light                   | 2127414                        | 2127414   | 2127416   | 2127401   | 2127398   |  |
| 22                       | 3             | Gewinderolle<br>Thread roll                                     | siehe Einzelfall<br>individual |           |           |           |           |  |
| 25                       | 1             | DU-Buchse<br>Bushing  | 2148851                        | 2148851   | 2148865   | 2148865   | 2148865   |  |
| 26                       | 2             | Sechskantmutter<br>Hexagon nut                                  | 2142394                        | 2142394   | 2148398   | 2148398   | 2148399   |  |
| 27                       | 2             | Scheibe<br>Washer   | 2173682                        | 2173714   | 2173752   | 2173752   | 2173812   |  |
| 28                       | 2             | Stiftschraube<br>Stud   | 2148824                        | 2148841   | 2167020   | 2148839   | 2148827   |  |
| 29                       | 4             | Spannstift<br>Pin   | 2142576                        | 2142576   | 2142576   | 2142576   | 2148848   |  |
| 30                       | 1             | Zylinderstift<br>Pin  | 2142678                        | 2142678   | 2142678   | 2142691   | 2142691   |  |
| 32                       | 6             | Zylinderschraube<br>Cap screw                                   | 2148362                        | 2148362   | 2142034   | 2142036   | 2141974   |  |
| 33                       | 3             | Zylinderschraube<br>Cap screw                                   | 2142992                        | 2143007   | 2143155   | 2143017   | 2143053   |  |
| 34                       | 1             | DU-Buchse<br>Bushing  | 2148858                        | 2148856   | 2148861   | 2148866   | 2148863   |  |

| Rollkopf<br>Rolling Head |               |   | E10A01                     | E13A01    | E16A01    | E23A01    | E30A01    |  |
|--------------------------|---------------|---|----------------------------|-----------|-----------|-----------|-----------|--|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                             | Ident No.                  | Ident No. | Ident No. | Ident No. | Ident No. |  |
| 35                       | 3             | DU-Buchse s.lfd.Nr. 5<br>Bushing – included in part no. 5 | 2148865                    | 2148854   | 2148857   | 2148862   | 2148860   |  |
| 37                       | 3             | Passfeder<br>Fitting key                                  | -                          | -         | -         | -         | 2165595   |  |
| 38                       | 3             | Zylinderstift<br>Pin                                      | -                          | -         | -         | -         | 2141237   |  |
| 41                       | 1             | Schaft <sup>1)</sup><br>Shank                             | siehe Tabelle<br>see table |           |           |           |           |  |
| 42                       | 1             | Federgehäuse<br>Spring housing                            | 2173690                    | 2173716   | 2173757   | 2173786   | 2173815   |  |
| 43                       | 1             | innerer Auslösehebel<br>Internal trip release lever       | 2173691                    | 2173717   | 2173758   | 2173787   | 2173816   |  |
| 44                       | 1             | Druckstift<br>Pin   | 2178550                    | 2178550   | 2178548   | 2178547   | 2148812   |  |
| 48                       | 1             | Zylinderstift<br>Pin                                      | 2148819                    | 2148869   | 2148869   | 2148869   | 2142678   |  |

<sup>1)</sup> Teil Nr. der Schaft-Ø für lfd Nr. 41

<sup>1)</sup> Ident No. for shank-Ø for part no. 41

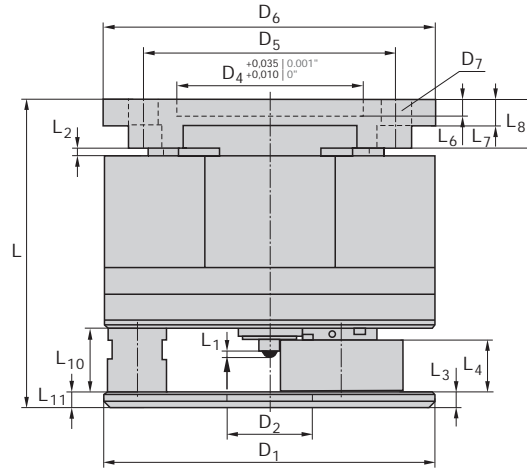
| Rollkopf<br>Rolling Head | E10A01    | E13A01    | E16A01    | E23A01    | E30A01    |
|--------------------------|-----------|-----------|-----------|-----------|-----------|
| Schaft-Ø<br>Shank-Ø      | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| 20 mm                    | 2173683   | -         | -         | -         | -         |
| 25 mm                    | 2173684   | -         | -         | -         | -         |
| 30 mm                    | 2173685   | 2173715   | -         | -         | -         |
| 32 mm                    | 2173686   | -         | -         | -         | -         |
| 40 mm                    | -         | 2173720   | 2173753   | -         | -         |
| 50 mm                    | -         | -         | 2173754   | 2173782   | -         |
| 60 mm                    | -         | -         | -         | 2173783   | -         |
| 80 mm                    | -         | -         | -         | -         | 2173813   |
| 3/4"                     | 2173687   | -         | -         | -         | -         |
| 1"                       | 2173688   | -         | -         | -         | -         |
| 1 1/4"                   | 2173689   | 2173721   | -         | -         | -         |
| 1 1/2"                   | -         | 2173722   | 2173755   | -         | -         |
| 2"                       | -         | -         | 2173756   | 2173784   | -         |
| 2 1/2"                   | -         | -         | -         | 2173785   | -         |
| 3"                       | -         | -         | -         | -         | 2173814   |

Bei Bestellung von Rollköpfen, Ersatzteilen und Gewinderollen gleicher, bereits gelieferter Ausführungen, unbedingt aufsignierte Bezeichnung, Teil Nr. und Ident No. angeben!

Important! When ordering rolling head spare parts and thread rolls identical to those already supplied, it is essential to give the Type, size, Part No. and Ident No.



EW10A00  
EW13A00  
EW16A00  
EW23A00



L<sub>1</sub> = Schaltweg  
L<sub>1</sub> = Trip lever movement  
L<sub>2</sub> = Hub  
L<sub>2</sub> = Stroke  
D<sub>7</sub> = 4 x am Umfang  
D<sub>7</sub> = 4 x at the perimeter



| Rollkopf-Typ<br>Rolling Head Type    | EW10A00          |              | EW13A00          |             | EW16A00          |              | EW23A00          |              |
|--------------------------------------|------------------|--------------|------------------|-------------|------------------|--------------|------------------|--------------|
| D <sub>1</sub>                       | 100              | 3.937"       | 125              | 4.921"      | 140              | 5.512"       | 170              | 6.693"       |
| D <sub>2</sub> min/max <sup>1)</sup> | 26/30            | 1.024/1.181" | 32/41            | 1.26/1.614" | 40,5/50          | 1.594/1.968" | 50/66            | 1.968/2.598" |
| D <sub>4</sub>                       | 70               | 2.756"       | 70               | 2.756"      | 92               | 3.622"       | 110              | 4.330"       |
| D <sub>5</sub>                       | 95               | 3.740"       | 95               | 3.740"      | 110              | 4.330"       | 140              | 5.512"       |
| D <sub>6</sub>                       | 125              | 4.921"       | 125              | 4.921"      | 140              | 5.512"       | 170              | 6.693"       |
| D <sub>7</sub>                       | 11               | 0.433"       | 11               | 0.433"      | 13               | 0.512"       | 13               | 0.512"       |
| L                                    | 144              | 5.669"       | 152              | 5.984"      | 174              | 6.850"       | 199              | 7.835"       |
| L <sub>1</sub> ca.                   | 2                | 0.079"       | 2                | 0.079"      | 3,5              | 0.138"       | 2,5              | 0.098"       |
| L <sub>2</sub> max.                  | 3,5              | 0.138"       | 3,5              | 0.138"      | 5                | 0.197"       | 4                | 0.157"       |
| L <sub>3</sub>                       | 6,2              | 0.244"       | 8,2              | 0.323"      | 10,2             | 0.402"       | 13,2             | 0.519"       |
| L <sub>4</sub> max.                  | 19,6             | 0.772"       | 24,6             | 0.968"      | 29,6             | 1.165"       | 34,6             | 1.362"       |
| L <sub>6</sub>                       | 8,5              | 0.335"       | 8,5              | 0.335"      | 8,5              | 0.335"       | 8,5              | 0.335"       |
| L <sub>7</sub>                       | 12,5             | 0.492"       | 12,5             | 0.492"      | 12,5             | 0.492"       | 12,5             | 0.492"       |
| L <sub>8</sub>                       | 35,5             | 1.398"       | 24               | 0.945"      | 24               | 0.945"       | 26               | 1.024"       |
| L <sub>10</sub>                      | 25               | 0.984"       | 30               | 1.181"      | 36               | 1.417"       | 43               | 1.693"       |
| L <sub>11</sub>                      | 6                | 0.236"       | 8                | 0.315"      | 10               | 0.394"       | 13               | 0.512"       |
| <b>Gewicht (kg)</b><br>Weight (kg)   |                  |              |                  |             |                  |              |                  |              |
| <b>Rollkopf Head</b>                 | 6                |              | 9,5              |             | 13,7             |              | 23,6             |              |
| <b>Rollen Rolls</b>                  | 0,4              |              | 0,8              |             | 1,5              |              | 3,2              |              |
| <b>Gesamt Total</b>                  | 6,4              |              | 10,3             |             | 15,2             |              | 26,8             |              |
| <b>Rollkopf</b><br>Rolling Head      | <b>Ident No.</b> |              | <b>Ident No.</b> |             | <b>Ident No.</b> |              | <b>Ident No.</b> |              |
|                                      | 2170882          |              | 2170884          |             | 2170886          |              | 2170888          |              |

<sup>1)</sup> Im Regelfall D<sub>2min</sub>.

<sup>1)</sup> In general D<sub>2min</sub>.

| Rollkopf<br>Rolling Head |               |   | EW10A00                        | EW13A00   | EW16A00   | EW23A00   |
|--------------------------|---------------|---|--------------------------------|-----------|-----------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                                   | Ident No.                      | Ident No. | Ident No. | Ident No. |
| 1                        | 1             | Federgehäuse<br>Spring housing                                  | 2173027                        | 2173062   | 2170611   | 2173091   |
| 2                        | 1             | Getriebeplatte<br>Drive gear plate                              | 2173660                        | 2173695   | 2173730   | 2173762   |
| 3                        | 1             | Deckplatte<br>Cover plate                                       | 2173190                        | 2173059   | 2173731   | 2173086   |
| 4                        | 1             | Frontplatte<br>Front plate                                      | 2173662                        | 2173697   | 2173732   | 2173764   |
| 5                        | 3             | Synchronzahnrad mit DU-Buchse<br>Synchronized gear with bushing | 2173663                        | 2173698   | 2173733   | 2173765   |
| 6                        | 1             | Mittelzahnrad<br>Centre gear                                    | 2178068                        | 2173060   | 2173734   | 2173766   |
| 7                        | 3             | Verstellzahnrad<br>Adjusting gear                               | 2173665                        | 2173700   | 2173735   | 2173767   |
| 8                        | 1             | Zahnkranz<br>Gear rim   | 2173666                        | 2173701   | 2173736   | 2173768   |
| 9                        | 3             | Exzenterbolzen<br>Eccentric spindle                             | 2173667                        | 2173702   | 2173737   | 2173769   |
| 10                       | 1             | äußerer Auslösehebel<br>External trip release lever             | 2173196                        | 2173215   | 2173213   | 2173214   |
| 11                       | 3             | Distanzbolzen<br>Spacer pin                                     | 2173669                        | 2173704   | 2173739   | 2173771   |
| 12                       | 3             | Mitnehmerscheibe<br>Drive plate                                 | 2173670                        | 2173705   | 2173740   | 2173772   |
| 13                       | 2             | Kupplungsbolzen<br>Coupling pin                                 | 2173671                        | 2173671   | 2173741   | 2173773   |
| 15                       | 3             | Laufbuchse<br>Bushing   | 2173672                        | 2173706   | 2173742   | 2173774   |
| 16                       | 2             | Passfeder<br>Fitting key  | 2173673                        | 2173673   | 2173743   | 2173775   |
| 17                       | 1             | Zugfedersatz<br>Tension spring set                              | 2173674                        | 2173707   | 2173744   | 2173776   |
| 18                       | 1             | Anschlag<br>Clutch stop   | 2173678                        | 2173711   | 2173748   | 2173780   |
| 19                       | 3             | Zylinderstift<br>Pin  | 2141260                        | 2141260   | 2141261   | 2141309   |
| 20                       | 1             | Druckfeder, stark<br>Pressure spring, heavy                     | 2173679                        | 2173679   | 2173749   | 2127402   |
| 21                       | 1             | Druckfeder, schwach<br>Pressure spring, light                   | 2127414                        | 2127414   | 2127416   | 2127401   |
| 22                       | 3             | Gewinderolle<br>Thread roll                                     | siehe Einzelfall<br>individual |           |           |           |
| 23                       | 1             | Innerer Auslösehebel<br>Inner trip lever                        | 2173680                        | 2173712   | 2173750   | 2173781   |
| 24                       | 1             | Zylinderschraube<br>Cap screw                                   | 2173681                        | 2173713   | 2170620   | 2173751   |
| 25                       | 1             | DU-Buchse<br>Bushing  | 2148851                        | 2148851   | 2148865   | 2148865   |
| 26                       | 2             | Sechskantmutter<br>Hexagon nut                                  | 2142394                        | 2142394   | 2148398   | 2148398   |
| 27                       | 2             | Scheibe<br>Washer   | 2173682                        | 2173714   | 2173752   | 2173752   |
| 28                       | 2             | Stiftschraube<br>Stud   | 2148824                        | 2148841   | 2167020   | 2148839   |
| 29                       | 4             | Spannhülse<br>Pin   | 2142576                        | 2142576   | 2142576   | 2142576   |
| 30                       | 1             | Zylinderstift<br>Pin  | 2142678                        | 2142678   | 2142678   | 2142691   |

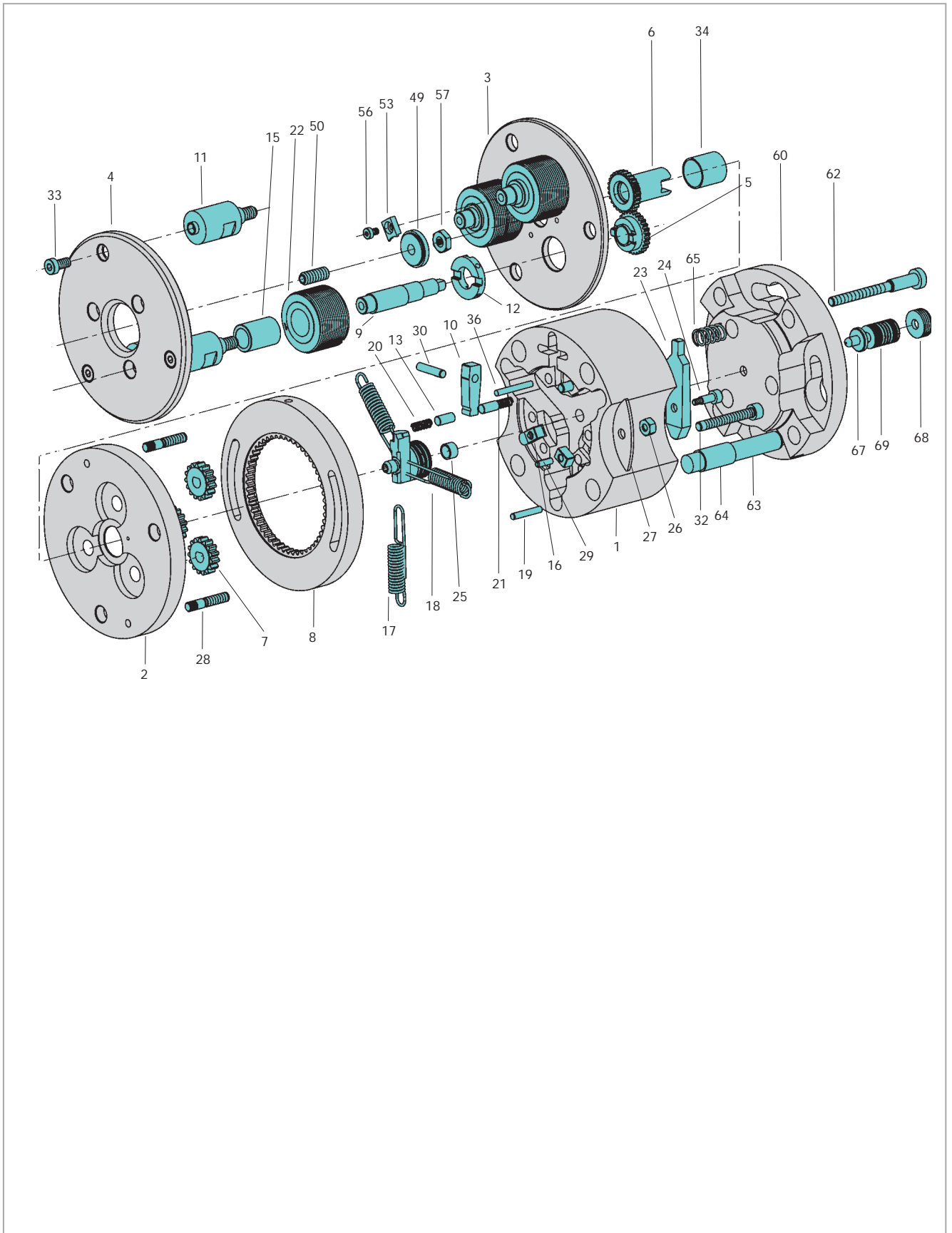
| Rollkopf<br>Rolling Head |               |  | EW10A00   | EW13A00   | EW16A00   | EW23A00   |
|--------------------------|---------------|--|-----------|-----------|-----------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                  | Ident No. | Ident No. | Ident No. | Ident No. |
| 32                       | 3             | Zylinderschraube<br>Cap screw                  | 2148362   | 2148362   | 2141932   | 2142035   |
| 33                       | 3             | Zylinderschraube<br>Cap screw                  | 2142992   | 2143007   | 2143155   | 2143017   |
| 34                       | 1             | DU-Buchse<br>Bushing                           | 2148858   | 2148856   | 2148861   | 2148866   |
| 36                       | 1             | Druckstift<br>Pressure pin                     | 2178549   | 2178549   | 2178548   | 2173102   |
| 49                       | 1             | Anschlagbuchse<br>Bushing                      | 2173191   | 2173057   | 2170473   | 2173088   |
| 50                       | 1             | Kugeldruckschraube<br>Ball screw               | 2173026   | 2173055   | 2173020   | 2173085   |
| 51                       | 1             | Kugeldruckschraube <sup>1)</sup><br>Ball screw | -         | 2173056   | -         | -         |
| 51                       | 1             | Laufbuchse <sup>1)</sup><br>Bushing            | 2173192   | -         | -         | -         |
| 53                       | 1             | Halteleiste<br>Fillet                          | 2173179   | 2173058   | 2170957   | 2173089   |
| 56                       | 1             | Senkschraube<br>Countersunk screw              | -         | 2142990   | 2143245   | 2141882   |
| 56                       | 3             | Zylinderschraube<br>Cap screw                  | 2173025   | -         | -         | -         |
| 57                       | 1             | Kontermutter<br>Counter nut                    | 2141675   | 2141676   | 2170958   | 2142398   |
| 60                       | 1             | Mitnehmer<br>Tappet                            | 2173112   | 2173111   | 2170658   | 2173143   |
| 61                       | 1             | Druckplatte <sup>1)</sup><br>Pressure plate    | -         | -         | 2170614   | -         |
| 62                       | 3             | Distanzschraube<br>Distance screw              | 2173028   | 2173028   | 2170615   | 2173093   |
| 63                       | 4             | Zylinderstift<br>Pin                           | 2142735   | 2170616   | 2170616   | 2173094   |
| 64                       | 8             | DU-Buchse<br>Bushing                           | -         | 2170621   | 2170621   | -         |
| 64                       | 12            | DU-Buchse<br>Bushing                           | 2173032   | -         | -         | 2148856   |
| 65                       | 3             | Druckfeder<br>Pressure spring                  | 2173033   | 2173033   | 2170623   | 2173096   |
| 67                       | 1             | Druckbolzen<br>Bolt                            | 2173031   | 2173065   | 2170617   | 2173097   |
| 68                       | 1             | Spannschraube<br>Clamping screw                | 2170869   | 2173066   | 2170618   | 2173098   |
| 69                       | 21            | Tellerfeder<br>Spring                          | 2170870   | -         | -         | -         |
| 69                       | 16            | Tellerfeder<br>Spring                          | -         | 21730667  | -         | -         |
| 69                       | 18            | Tellerfeder<br>Spring                          | -         | -         | 2170622   | -         |
| 69                       | 8             | Tellerfeder<br>Spring                          | -         | -         | -         | 2173099   |

<sup>1)</sup> Nicht dargestellt

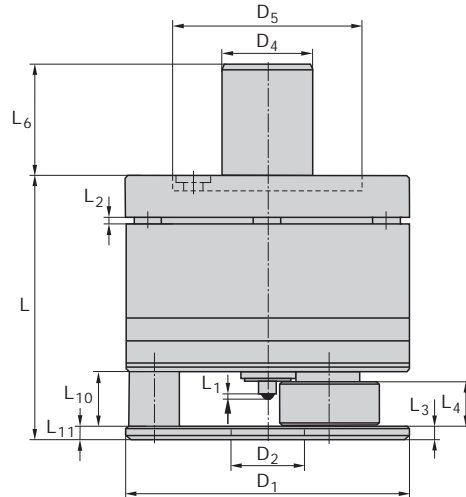
<sup>1)</sup> Not shown in the sketch

**Bei Bestellung von Rollköpfen, Ersatzteilen und Gewinderollen gleicher, bereits gelieferter Ausführungen, unbedingt aufsignierte Bezeichnung, Teil Nr. und Ident No. angeben!**

**Important! When ordering rolling head spare parts and thread rolls identical to those already supplied, it is essential to give the Type, size, Part No. and Ident No.**



EW10A01  
EW13A01  
EW16A01  
EW23A01



L<sub>1</sub> = Schaltweg  
L<sub>1</sub> = Trip lever movement  
L<sub>2</sub> = Hub  
L<sub>2</sub> = Stroke

| Rollkopf-Typ<br>Rolling Head Type        | EW10A01          |              | EW13A01          |             | EW16A01          |                | EW23A01          |              |
|--|------------------|--------------|------------------|-------------|------------------|----------------|------------------|--------------|
| D <sub>1</sub>                           | 100              | 3.937"       | 125              | 4.921"      | 140              | 5.512"         | 170              | 6.693"       |
| D <sub>2</sub> min/max <sup>1)</sup>     | 26/30            | 1.024/1.181" | 32/41            | 1.26/1.614" | 40,5/50          | 1.594/1.968"   | 50/66            | 1.968/2.598" |
| D <sub>4</sub>                           | 20, 25, 30       | 3/4", 1"     | 25, 30, 40       | 1", 1 1/4"  | 25, 30, 40, 50   | 1 1/4", 1 1/2" | 40, 50           | 1 1/2", 2"   |
| D <sub>5</sub>                           | 68               | 2.677"       | 83               | 3.268"      | 92               | 3.622"         | 110              | 4.330"       |
| L  | 145              | 5.709"       | 153              | 6.023"      | 175              | 6.889"         | 200              | 7.874"       |
| L <sub>1</sub> ca.                       | 2                | 0.079"       | 2                | 0.079"      | 3,5              | 0.138"         | 2,5              | 0.098"       |
| L <sub>2</sub> max.                      | 3,5              | 0.138"       | 3,5              | 0.138"      | 5                | 0.197"         | 4                | 0.157"       |
| L <sub>3</sub>                           | 6,2              | 0.244"       | 8,2              | 0.323"      | 10,2             | 0.413"         | 13,2             | 0.519"       |
| L <sub>4</sub> max.                      | 19,6             | 0.772"       | 24,6             | 0.968"      | 29,6             | 1.165"         | 34,6             | 1.362"       |
| L <sub>6</sub>                           | 60               | 2.362"       | 80               | 3.149"      | 80               | 3.149"         | 80               | 3.149"       |
| L <sub>10</sub>                          | 25               | 0.984"       | 30               | 1.181"      | 36               | 1.417"         | 43               | 1.693"       |
| L <sub>11</sub>                          | 6                | 0.236"       | 8                | 0.315"      | 10               | 0.394"         | 13               | 0.512"       |
| <b>Gewicht (kg)<br/>Weight (kg)</b>      |                  |              |                  |             |                  |                |                  |              |
| Rollkopf Head                            | 6,8              |              | 11               |             | 16               |                | 27               |              |
| Rollen Rolls                             | 0,4              |              | 0,8              |             | 1,5              |                | 3,2              |              |
| Gesamt Total                             | 7,2              |              | 11,8             |             | 17,5             |                | 30,2             |              |
| <b>Rollkopf mit Schaft-Ø<br/>Shank-Ø</b> | <b>Ident No.</b> |              | <b>Ident No.</b> |             | <b>Ident No.</b> |                | <b>Ident No.</b> |              |
| 20 mm                                    | 2172509          |              | -                |             | -                |                | -                |              |
| 25 mm                                    | 2173035          |              | 2171913          |             | 2407332          |                | -                |              |
| 30 mm                                    | 2170883          |              | 2170885          |             | 2408888          |                | -                |              |
| 40 mm                                    | -                |              | 4053395          |             | 2170887          |                | 2170889          |              |
| 50 mm                                    | -                |              | -                |             | 2170980          |                | 2172323          |              |
| 3/4"                                     | 2171506          |              | -                |             | -                |                | -                |              |
| 1"                                       | 2172589          |              | 2408896          |             | -                |                | -                |              |
| 1 1/4"                                   | 2173138          |              | 2173140          |             | 2408805          |                | -                |              |
| 1 1/2"                                   | -                |              | -                |             | 2408890          |                | 2408892          |              |
| 2"                                       | -                |              | -                |             | -                |                | 2408894          |              |

<sup>1)</sup> Im Regelfall D<sub>2min</sub>.

<sup>1)</sup> In general D<sub>2min</sub>.



| Rollkopf<br>Rolling Head |               |   | EW10A01                        | EW13A01   | EW16A01   | EW23A01   |
|--------------------------|---------------|---|--------------------------------|-----------|-----------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                                   | Ident No.                      | Ident No. | Ident No. | Ident No. |
| 1                        | 1             | Federgehäuse<br>Spring housing                                  | 2173027                        | 2173062   | 2170611   | 2173091   |
| 2                        | 1             | Getriebeplatte<br>Drive gear plate                              | 2173660                        | 2173695   | 2173730   | 2173762   |
| 3                        | 1             | Deckplatte<br>Cover plate                                       | 2173190                        | 2173059   | 2173731   | 2173086   |
| 4                        | 1             | Frontplatte<br>Front plate                                      | 2173662                        | 2173697   | 2173732   | 2173764   |
| 5                        | 3             | Synchronzahnrad mit DU-Buchse<br>Synchronized gear with bushing | 2173663                        | 2173698   | 2173733   | 2173765   |
| 6                        | 1             | Mittelzahnrad<br>Centre gear                                    | 2178068                        | 2173060   | 2173734   | 2173766   |
| 7                        | 3             | Verstellzahnrad<br>Adjusting gear                               | 2173665                        | 2173700   | 2173735   | 2173767   |
| 8                        | 1             | Zahnkranz<br>Gear rim   | 2173666                        | 2173701   | 2173736   | 2173768   |
| 9                        | 3             | Exzenterbolzen<br>Eccentric spindle                             | 2173667                        | 2173702   | 2173737   | 2173769   |
| 10                       | 1             | äußerer Auslösehebel<br>External trip release lever             | 2173196                        | 2173215   | 2173213   | 2173214   |
| 11                       | 3             | Distanzbolzen<br>Spacer pin                                     | 2173669                        | 2173704   | 2173739   | 2173771   |
| 12                       | 3             | Mitnehmerscheibe<br>Drive plate                                 | 2173670                        | 2173705   | 2173740   | 2173772   |
| 13                       | 2             | Kupplungsbolzen<br>Coupling pin                                 | 2173671                        | 2173671   | 2173741   | 2173773   |
| 15                       | 3             | Laufbuchse<br>Bushing   | 2173672                        | 2173706   | 2173742   | 2173774   |
| 16                       | 4             | Passfeder<br>Fitting key  | 2173673                        | 2173673   | 2173743   | 2173775   |
| 17                       | 1             | Zugfedersatz<br>Tension spring set                              | 2173674                        | 2173707   | 2173744   | 2173776   |
| 18                       | 1             | Anschlag<br>Clutch stop   | 2173678                        | 2173711   | 2173748   | 2173780   |
| 19                       | 3             | Zylinderstift<br>Pin  | 2141260                        | 2141260   | 2141261   | 2141309   |
| 20                       | 1             | Druckfeder, stark<br>Pressure spring, heavy                     | 2173679                        | 2173679   | 2173749   | 2127402   |
| 21                       | 2             | Druckfeder, schwach<br>Pressure spring, light                   | 2177414                        | 2127414   | 2127416   | 2127401   |
| 22                       | 3             | Gewinderolle<br>Thread roll                                     | siehe Einzelfall<br>individual |           |           |           |
| 23                       | 1             | Innerer Auslösehebel<br>Inner trip lever                        | 2173680                        | 2173712   | 2173750   | 2173781   |
| 24                       | 1             | Zylinderschraube<br>Cap screw                                   | 2173681                        | 2173713   | 2170620   | 2173751   |
| 25                       | 1             | DU-Buchse<br>Bushing  | 2148851                        | 2148851   | 2148865   | 2148865   |
| 26                       | 2             | Sechskantmutter<br>Hexagon nut                                  | 2142394                        | 2142394   | 2148398   | 2148398   |
| 27                       | 2             | Scheibe<br>Washer   | 2173682                        | 2173714   | 2173752   | 2173752   |
| 28                       | 2             | Stiftschraube<br>Stud   | 2148824                        | 2148841   | 2167020   | 2148839   |
| 29                       | 4             | Spannhülse<br>Pin   | 2142576                        | 2142576   | 2142576   | 2142576   |
| 30                       | 1             | Zylinderstift<br>Pin  | 2142678                        | 2142678   | 2142678   | 2142691   |

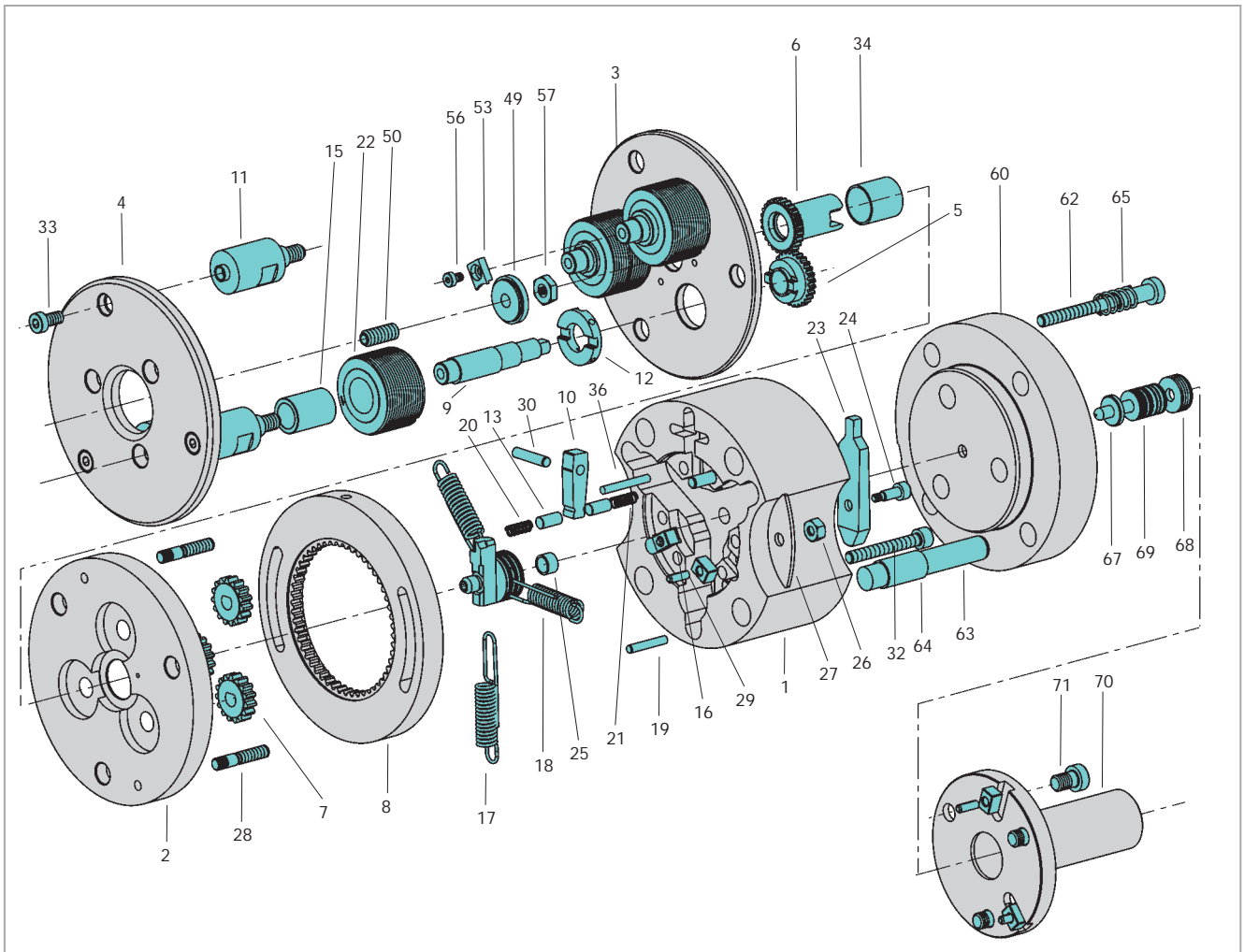
| Rollkopf<br>Rolling Head |               |  | EW10A01                    | EW13A01   | EW16A01   | EW23A01   |
|--------------------------|---------------|--|----------------------------|-----------|-----------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                  | Ident No.                  | Ident No. | Ident No. | Ident No. |
| 32                       | 3             | Zylinderschraube<br>Cap screw                  | 2148362                    | 2148362   | 2141932   | 2142035   |
| 33                       | 3             | Zylinderschraube<br>Cap screw                  | 2142992                    | 2143007   | 2143155   | 2143017   |
| 34                       | 1             | DU-Buchse<br>Bushing                           | 2148858                    | 2148856   | 2148861   | 2148866   |
| 36                       | 1             | Druckstift<br>Pressure pin                     | 2178549                    | 2178549   | 2178548   | 2173102   |
| 49                       | 1             | Anschlagbuchse<br>Bushing                      | 2173191                    | 2173057   | 2170473   | 2173088   |
| 50                       | 1             | Kugeldruckschraube<br>Ball screw               | 2173026                    | 2173055   | 2173020   | 2173085   |
| 51                       | 1             | Kugeldruckschraube <sup>1)</sup><br>Ball screw | -                          | 2173056   | -         | -         |
| 51                       | 1             | Laufbuchse <sup>1)</sup><br>Bushing            | 2173193                    | -         | -         | -         |
| 53                       | 1             | Halteleiste<br>Fillet                          | 2173179                    | 2173058   | 2170957   | 2173089   |
| 56                       | 1             | Senkschraube<br>Countersunk screw              | -                          | 2142990   | 2143245   | 2141882   |
| 56                       | 3             | Zylinderschraube<br>Cap screw                  | 2173025                    | -         | -         | -         |
| 57                       | 1             | Kontermutter<br>Counter nut                    | 2141675                    | 2141676   | 2170958   | 2142398   |
| 60                       | 1             | Mitnehmer<br>Tappet                            | 2173112                    | 2173111   | 2170658   | 2173143   |
| 61                       | 1             | Druckplatte <sup>1)</sup><br>Pressure plate    | -                          | -         | 2170614   | -         |
| 62                       | 3             | Distanzschraube<br>Distance screw              | 2173028                    | 2173028   | 2170615   | 2173093   |
| 63                       | 4             | Zylinderstift<br>Pin                           | 2142735                    | 2170616   | 2170616   | 2173094   |
| 64                       | 8             | DU-Buchse<br>Bushing                           | -                          | 2170621   | 2170621   | -         |
| 64                       | 12            | DU-Buchse<br>Bushing                           | 2173032                    | -         | -         | 2148856   |
| 65                       | 3             | Druckfeder<br>Pressure spring                  | 2173033                    | 2173033   | 2170623   | 2173096   |
| 67                       | 1             | Druckbolzen<br>Bolt                            | 2173031                    | 2173065   | 2170617   | 2173097   |
| 68                       | 1             | Spannschraube<br>Clamping screw                | 2170869                    | 2173066   | 2170618   | 2173098   |
| 69                       | 21            | Tellerfeder<br>Spring                          | 2170870                    | -         | -         | -         |
| 69                       | 16            | Tellerfeder<br>Spring                          | -                          | 2173067   | -         | -         |
| 69                       | 18            | Tellerfeder<br>Spring                          | -                          | -         | 2170622   | -         |
| 69                       | 8             | Tellerfeder<br>Spring                          | -                          | -         | -         | 2173099   |
| 70                       | 1             | Schaft<br>Shank                                | siehe Tabelle<br>see table |           |           |           |
| 71                       | 3             | Zylinderschraube<br>Cap screw                  | 2143015                    | 2143015   | 2143015   | 2143015   |

<sup>1)</sup> Nicht dargestellt

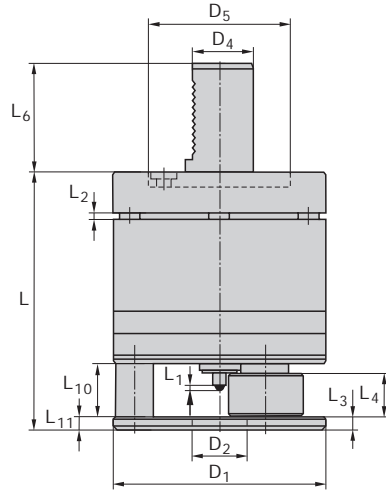
<sup>1)</sup> Not shown in the sketch

| Rollkopf<br>Rolling Head | EW10A01   | EW13A01   | EW16A01   | EW23A01   |
|--------------------------|-----------|-----------|-----------|-----------|
| Schaft-Ø<br>Shank-Ø      | Ident No. | Ident No. | Ident No. | Ident No. |
| 20 mm                    | 2171734   | -         | -         | -         |
| 25 mm                    | 2173030   | 2171914   | 2407333   | -         |
| 30 mm                    | 2173036   | 2173116   | 2408889   | -         |
| 40 mm                    | -         | 2408102   | 2170982   | 2173142   |
| 50 mm                    | -         | -         | 2170981   | 2172324   |
| 3/4"                     | 2171507   | -         | -         | -         |
| 1"                       | 2172585   | 2408897   | -         | -         |
| 1 1/4"                   | 2173139   | 2173141   | 2408361   | -         |
| 1 1/2"                   | -         | 2408777   | 2408891   | 2408893   |
| 2"                       | -         | -         | -         | 2408895   |

Bei Bestellung von Rollköpfen, Ersatzteilen und Gewinderollen gleicher, bereits gelieferter Ausführungen, unbedingt aufsignierte Bezeichnung, Teil Nr. und Ident No. angeben!  
 Important! When ordering rolling head spare parts and thread rolls identical to those already supplied, it is essential to give the Type, size, Part No. and Ident No.



EW10A03  
EW13A03  
EW16A03  
EW23A03



L<sub>1</sub> = Schaltweg  
L<sub>1</sub> = Trip lever movement  
L<sub>2</sub> = Hub  
L<sub>2</sub> = Stroke

| Rollkopf-Typ<br>Rolling Head Type              | EW10A03          |              | EW13A03          |               | EW16A03          |                | EW23A03          |               |
|--|------------------|--------------|------------------|---------------|------------------|----------------|------------------|---------------|
| D <sub>1</sub>                                 | 100              | 3.937"       | 125              | 4.921"        | 140              | 5.512"         | 170              | 6.693"        |
| D <sub>2</sub> min/max <sup>1)</sup>           | 26/30            | 1.024/1.181" | 32/41            | 1.26/1.614"   | 40,5/50          | 1.594/1.968"   | 50/66            | 1.968/2.598"  |
| D <sub>4</sub>                                 | 30               | 1.181"       | 30, 40           | 1", 1 1/4"    | 30, 40           | 1 1/4", 1 1/2" | 30, 40           | 1 1/2", 2"    |
| D <sub>5</sub> <sup>2)</sup>                   | 68               | 2.677"       | 68, 83           | 2.677/ 3.268" | 68, 83           | 2.677/ 3.268"  | 68, 83           | 2.677/ 3.268" |
| L  | 145              | 5.709"       | 153              | 6.023"        | 175              | 6.889"         | 200              | 7.874"        |
| L <sub>1</sub> ca.                             | 2                | 0.079"       | 2                | 0.079"        | 3,5              | 0.138"         | 2,5              | 0.098"        |
| L <sub>2</sub> max.                            | 3,5              | 0.138"       | 3,5              | 0.138"        | 5                | 0.197"         | 4                | 0.157"        |
| L <sub>3</sub>                                 | 6,2              | 0.244"       | 8,2              | 0.323"        | 10,2             | 0.413"         | 13,2             | 0.519"        |
| L <sub>4</sub> max.                            | 19,6             | 0.772"       | 24,6             | 0.968"        | 29,6             | 1.165"         | 34,6             | 1.362"        |
| L <sub>6</sub> <sup>2)</sup>                   | 55               | 2.165"       | 55, 63           | 2.165/2.480"  | 55, 63           | 2.165/2.480"   | 55, 63           | 2.165/2.480"  |
| L <sub>10</sub>                                | 25               | 0.984"       | 30               | 1.181"        | 36               | 1.417"         | 43               | 1.693"        |
| L <sub>11</sub>                                | 6                | 0.236"       | 8                | 0.315"        | 10               | 0.394"         | 13               | 0.512"        |
| <b>Gewicht (kg)</b><br><b>Weight (kg)</b>      |                  |              |                  |               |                  |                |                  |               |
| Rollkopf Head                                  | 6,8              |              | 11               |               | 16               |                | 27               |               |
| Rollen Rolls                                   | 0,4              |              | 0,8              |               | 1,5              |                | 3,2              |               |
| Gesamt Total                                   | 7,2              |              | 11,8             |               | 17,5             |                | 30,2             |               |
| <b>Rollkopf mit Schaft-Ø</b><br><b>Shank-Ø</b> |                  |              |                  |               |                  |                |                  |               |
|  | <b>Ident No.</b> |              | <b>Ident No.</b> |               | <b>Ident No.</b> |                | <b>Ident No.</b> |               |
| 30 mm  | 2171627          |              | 2401243          |               | 2170973          |                | 2170585          |               |
| 40 mm  | -                |              | 2407283          |               | 2172326          |                | 2408886          |               |

<sup>1)</sup> Im Regelfall D<sub>2min</sub>.

<sup>1)</sup> In general D<sub>2min</sub>.

<sup>2)</sup> abhängig vom Schaftdurchmesser D<sub>4</sub>

<sup>2)</sup> depending on shank diameter

| Rollkopf<br>Rolling Head |               |   | EW10A03                        | EW13A03   | EW16A03   | EW23A03   |
|--------------------------|---------------|---|--------------------------------|-----------|-----------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                                   | Ident No.                      | Ident No. | Ident No. | Ident No. |
| 1                        | 1             | Federgehäuse<br>Spring housing                                  | 2173027                        | 2173062   | 2170611   | 2173091   |
| 2                        | 1             | Getriebeplatte<br>Drive gear plate                              | 2173660                        | 2173695   | 2173730   | 2173762   |
| 3                        | 1             | Deckplatte<br>Cover plate                                       | 2173190                        | 2173059   | 2173731   | 2173086   |
| 4                        | 1             | Frontplatte<br>Front plate                                      | 2173662                        | 2173697   | 2173732   | 2173764   |
| 5                        | 3             | Synchronzahnrad mit DU-Buchse<br>Synchronized gear with bushing | 2173663                        | 2173698   | 2173733   | 2173765   |
| 6                        | 1             | Mittelzahnrad<br>Centre gear                                    | 2178068                        | 2173060   | 2173734   | 2173766   |
| 7                        | 3             | Verstellzahnrad<br>Adjusting gear                               | 2173665                        | 2173700   | 2173735   | 2173767   |
| 8                        | 1             | Zahnkranz<br>Gear rim   | 2173666                        | 2173701   | 2173736   | 2173768   |
| 9                        | 3             | Exzenterbolzen<br>Eccentric spindle                             | 2173667                        | 2173702   | 2173737   | 2173769   |
| 10                       | 1             | äußerer Auslösehebel<br>External trip release lever             | 2173196                        | 2173215   | 2173213   | 2173214   |
| 11                       | 3             | Distanzbolzen<br>Spacer pin                                     | 2173669                        | 2173704   | 2173739   | 2173771   |
| 12                       | 3             | Mitnehmerscheibe<br>Drive plate                                 | 2173670                        | 2173705   | 2173740   | 2173772   |
| 13                       | 2             | Kupplungsbolzen<br>Coupling pin                                 | 2173671                        | 2173671   | 2173741   | 2173773   |
| 15                       | 3             | Laufbuchse<br>Bushing   | 2173672                        | 2173706   | 2173742   | 2173774   |
| 16                       | 4             | Passfeder<br>Fitting key  | 2173673                        | 2173673   | 2173743   | 2173775   |
| 17                       | 1             | Zugfedersatz<br>Tension spring set                              | 2173674                        | 2173707   | 2173744   | 2173776   |
| 18                       | 1             | Anschlag<br>Clutch stop   | 2173678                        | 2173711   | 2173748   | 2173780   |
| 19                       | 3             | Zylinderstift<br>Pin  | 2141260                        | 2141260   | 2141261   | 2141309   |
| 20                       | 1             | Druckfeder, stark<br>Pressure spring, heavy                     | 2173679                        | 2173679   | 2173749   | 2127402   |
| 21                       | 2             | Druckfeder, schwach<br>Pressure spring, light                   | 2177414                        | 2127414   | 2127416   | 2127401   |
| 22                       | 3             | Gewinderolle<br>Thread roll                                     | siehe Einzelfall<br>individual |           |           |           |
| 23                       | 1             | Innerer Auslösehebel<br>Inner trip lever                        | 2173680                        | 2173712   | 2173750   | 2173781   |
| 24                       | 1             | Zylinderschraube<br>Cap screw                                   | 2173681                        | 2173713   | 2170620   | 2173751   |
| 25                       | 1             | DU-Buchse<br>Bushing  | 2148851                        | 2148851   | 2148865   | 2148865   |
| 26                       | 2             | Sechskantmutter<br>Hexagon nut                                  | 2142394                        | 2142394   | 2148398   | 2148398   |
| 27                       | 2             | Scheibe<br>Washer   | 2173682                        | 2173714   | 2173752   | 2173752   |
| 28                       | 2             | Stiftschraube<br>Stud   | 2148824                        | 2148841   | 2167020   | 2148839   |
| 29                       | 4             | Spannhülse<br>Pin   | 2142576                        | 2142576   | 2142576   | 2142576   |
| 30                       | 1             | Zylinderstift<br>Pin  | 2142678                        | 2142678   | 2142678   | 2142691   |

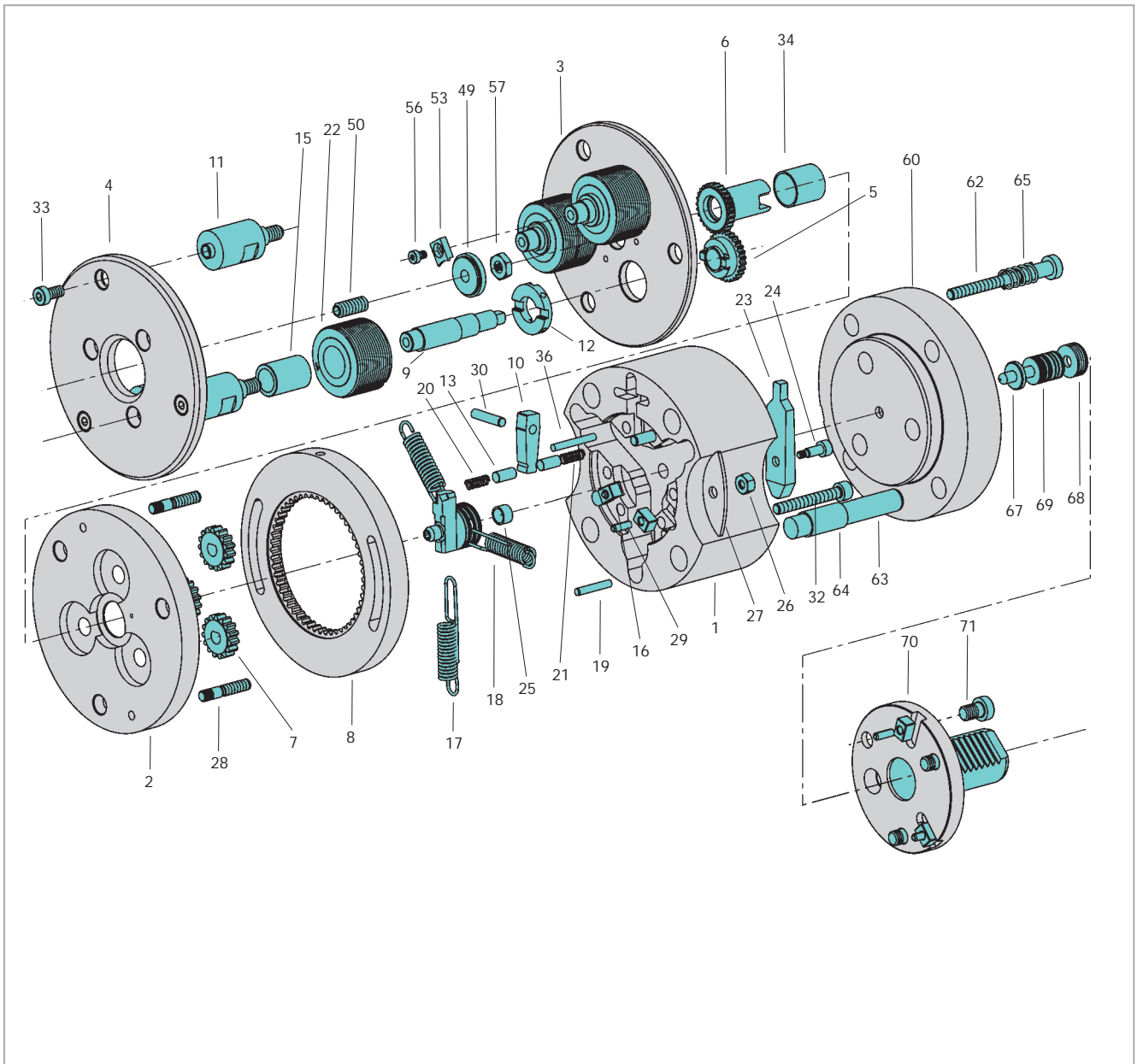
| Rollkopf<br>Rolling Head |               |  | EW10A03                    | EW13A03   | EW16A03   | EW23A03   |
|--------------------------|---------------|--|----------------------------|-----------|-----------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description                  | Ident No.                  | Ident No. | Ident No. | Ident No. |
| 32                       | 3             | Zylinderschraube<br>Cap screw                  | 2148362                    | 2148362   | 2141932   | 2142035   |
| 33                       | 3             | Zylinderschraube<br>Cap screw                  | 2142992                    | 2143007   | 2143155   | 2143017   |
| 34                       | 1             | DU-Buchse<br>Bushing                           | 2148858                    | 2148856   | 2148861   | 2148866   |
| 36                       | 1             | Druckstift<br>Pressure pin                     | 2178549                    | 2178549   | 2178548   | 2173102   |
| 49                       | 1             | Anschlagbuchse<br>Bushing                      | 2173191                    | 2173057   | 2170473   | 2173088   |
| 50                       | 1             | Kugeldruckschraube<br>Ball screw               | 2173026                    | 2173055   | 2173020   | 2173085   |
| 51                       | 1             | Kugeldruckschraube <sup>1)</sup><br>Ball screw | -                          | 2173056   | -         | -         |
| 51                       | 1             | Laufbuchse <sup>1)</sup><br>Bushing            | 2173193                    | -         | -         | -         |
| 53                       | 1             | Halteleiste<br>Fillet                          | 2173179                    | 2173058   | 2170957   | 2173089   |
| 56                       | 1             | Senkschraube<br>Countersunk screw              | -                          | 2142990   | 2143245   | 2141882   |
| 56                       | 3             | Zylinderschraube<br>Cap screw                  | 2173025                    | -         | -         | -         |
| 57                       | 1             | Kontermutter<br>Counter nut                    | 2141675                    | 2141676   | 2170958   | 2142398   |
| 60                       | 1             | Mitnehmer<br>Tappet                            | 2173112                    | 2173111   | 2170658   | 2173143   |
| 61                       | 1             | Druckplatte <sup>1)</sup><br>Pressure plate    | -                          | -         | 2170614   | -         |
| 62                       | 3             | Distanzschraube<br>Distance screw              | 2173028                    | 2173028   | 2170615   | 2173093   |
| 63                       | 4             | Zylinderstift<br>Pin                           | 2142735                    | 2170616   | 2170616   | 2173094   |
| 64                       | 8             | DU-Buchse<br>Bushing                           | -                          | 2170621   | 2170621   | -         |
| 64                       | 12            | DU-Buchse<br>Bushing                           | 2173032                    | -         | -         | 2148856   |
| 65                       | 3             | Druckfeder<br>Pressure spring                  | 2173033                    | 2173033   | 2170623   | 2173096   |
| 67                       | 1             | Druckbolzen<br>Bolt                            | 2173031                    | 2173065   | 2170617   | 2173097   |
| 68                       | 1             | Spannschraube<br>Clamping screw                | 2170869                    | 2173066   | 2170618   | 2173098   |
| 69                       | 21            | Tellerfeder<br>Spring                          | 2170870                    | -         | -         | -         |
| 69                       | 16            | Tellerfeder<br>Spring                          | -                          | 2173067   | -         | -         |
| 69                       | 18            | Tellerfeder<br>Spring                          | -                          | -         | 2170622   | -         |
| 69                       | 8             | Tellerfeder<br>Spring                          | -                          | -         | -         | 2173099   |
| 70                       | 1             | Schaft<br>Shank                                | siehe Tabelle<br>see table |           |           |           |
| 71                       | 3             | Zylinderschraube<br>Cap screw                  | 2143015                    | 2143015   | 2143015   | 2143015   |

<sup>1)</sup> Nicht dargestellt

<sup>1)</sup> Not shown in the sketch

| Rollkopf<br>Rolling Head | EW10A03   | EW13A03   | EW16A03   | EW23A03   |
|--------------------------|-----------|-----------|-----------|-----------|
| Schaft-Ø<br>Shank-Ø      | Ident No. | Ident No. | Ident No. | Ident No. |
| VDI-30                   | 2173151   | 2401244   | 2170619   | 2172228   |
| VDI-40                   | -         | 2407284   | 2173002   | 2408887   |

Bei Bestellung von Rollköpfen, Ersatzteilen und Gewinderollen gleicher, bereits gelieferter Ausführungen, unbedingt aufsignierte Bezeichnung, Teil Nr. und Ident No. angeben!  
 Important! When ordering rolling head spare parts and thread rolls identical to those already supplied, it is essential to give the Type, size, Part No. and Ident No.



Gewindeabmessungen, Ident No. der Gewinderollen  
für zylindrische Werkstück-Rechtsgewinde Ausführung „A“  
Thread Sizes, Ident No. for Thread Rolls  
for straight Right-Hand Threads Version „A“

| Metrisches ISO-Gewinde, DIN 13<br>Metric ISO Thread, DIN 13    |               |                     |                     |                     |                     |                     |
|--|---------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Rollkopf-Typen in<br>Ausführungsart<br>Head Types and Versions | E8            | E10<br>EB10<br>EW10 | E13<br>EB13<br>EW13 | E16<br>EB16<br>EW16 | E23<br>EB23<br>EW23 | E30<br>EB30<br>EW30 |
| Rollenbreite (mm   inch)<br>Roll width (mm   inch)             | 11,6   0.457" | 19,6   0.772"       | 24,6   0.968"       | 29,6   1.165"       | 34,6   1.362"       | 39,6   1.559"       |
| Rollenausführungsart<br>Roll version                           | A             | A                   | A                   | A                   | A                   | A                   |
| Gewindeabmessung<br>Thread Size                                | Ident No.     | Ident No.           | Ident No.           | Ident No.           | Ident No.           | Ident No.           |
| M 3 x 0.5  | 1551218       |                     |                     |                     |                     |                     |
| M 3.5 x 0.6  | 2175931       |                     |                     |                     |                     |                     |
| M 4 x 0.7  | 1551227       |                     |                     |                     |                     |                     |
| M 4 x 0.5  | 2174548       |                     |                     |                     |                     |                     |
| M 5 x 0.8  | 1551236       |                     |                     |                     |                     |                     |
| M 5 x 0.5  | 2174001       |                     |                     |                     |                     |                     |
| M 6 x 1  | 1551254       |                     |                     |                     |                     |                     |
| M 6 x 0.75   | 1551245       |                     |                     |                     |                     |                     |
| M 6 x 0.5  | 2175873       |                     |                     |                     |                     |                     |
| M 8 x 1.25   | 1551263       | 1551673             |                     |                     |                     |                     |
| M 8 x 1  | 2174324       | 1551664             |                     |                     |                     |                     |
| M 8 x 0.75   | 2175162       | 2180424             |                     |                     |                     |                     |
| M 8 x 0.5  | 2180399       | 1551655             |                     |                     |                     |                     |
| M 10 x 1.5   | 1551272       | 1551691             | 1552280             |                     |                     |                     |
| M 10 x 1.25  | 2180400       | 2175709             | 1552271             |                     |                     |                     |
| M 10 x 1   | 2173983       | 1551682             | 1552262             |                     |                     |                     |
| M 10 x 0.75  | 2173999       | 2180425             | 2180456             |                     |                     |                     |
| M 12 x 1.75  |               |                     | 1552315             | 1552681             |                     |                     |
| M 12 x 1.5   |               | 1551708             | 1552306             | 1552672             |                     |                     |
| M 12 x 1.25  |               | 2176645             | 2176092             | 2174568             |                     |                     |
| M 12 x 1   |               | 2173405             | 1552299             | 1552663             |                     |                     |
| M 14 x 2   |               |                     |                     | 2173386             |                     |                     |
| M 14 x 1.5   |               | 1551717             | 1552333             | 1552690             |                     |                     |
| M 14 x 1.25  |               | 2180427             | 2180454             | 2175803             |                     |                     |
| M 14 x 1   |               | 2180426             | 1552324             | 2180482             |                     |                     |
| M 15 x 1.5   |               |                     | 2180455             | 2180481             |                     |                     |
| M 15 x 1   |               |                     | 2180450             | 2180485             |                     |                     |
| M 16 x 2   |               |                     |                     | 1552743             | 1553412             |                     |
| M 16 x 1.5   |               |                     | 1552342             | 1552734             | 1553261             |                     |
| M 16 x 1   |               |                     | 2180451             | 1552716             | 2180522             |                     |
| M 17 x 1   |               |                     | 2180452             | 2180484             | 2180523             |                     |
| M 18 x 2   |               |                     |                     | 2180487             | 2180524             |                     |
| M 18 x 1.5   |               |                     | 2176053             | 2175157             | 2174483             |                     |
| M 18 x 1   |               |                     | 2180453             | 2180483             | 1553270             |                     |
| M 20 x 2   |               |                     |                     | 1552805             | 2180525             |                     |
| M 20 x 1.5   |               |                     |                     | 1552770             | 2176584             |                     |
| M 20 x 1   |               |                     |                     | 1552761             | 2180526             |                     |
| M 22 x 2   |               |                     |                     | 2180488             | 2180528             | 2180582             |
| M 22 x 1.5   |               |                     |                     | 2175766             | 2176989             | 2180574             |
| M 22 x 1   |               |                     |                     | 2180486             | 2180529             | 2180583             |
| M 24 x 2   |               |                     |                     |                     | 2176203             | 2180585             |
| M 24 x 1.5   |               |                     |                     |                     | 1553289             | 2175253             |
| M 24 x 1   |               |                     |                     |                     | 2175938             | 2180586             |
| M 25 x 1.5   |               |                     |                     |                     | 2180530             | 2180587             |
| M 26 x 1.5   |               |                     |                     |                     | 1553305             | 2180575             |
| M 27 x 2   |               |                     |                     |                     | 2180531             | 2180589             |
| M 27 x 1.5   |               |                     |                     |                     | 2176168             | 2180576             |
| M 28 x 1.5   |               |                     |                     |                     | 1553314             | 2180590             |

Linksgewinde und Ausführungsart „B“ auf Anfrage  
Left-Hand Thread rolls and Version „B“ rolls on request



Gewindeabmessungen, Ident No. der Gewinderollen  
für zylindrische Werkstück-Rechtsgewinde Ausführung „A“  
Thread Sizes, Ident No. for Thread Rolls  
for straight Right-Hand Threads Version „A“

| Metrisches ISO-Gewinde, DIN 13<br>Metric ISO Thread, DIN 13    |               |                     |                     |                     |                     |                     |
|--|---------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Rollkopf-Typen in<br>Ausführungsart<br>Head Types and Versions | E8            | E10<br>EB10<br>EW10 | E13<br>EB13<br>EW13 | E16<br>EB16<br>EW16 | E23<br>EB23<br>EW23 | E30<br>EB30<br>EW30 |
| Rollenbreite (mm   inch)<br>Roll width (mm   inch)             | 11,6   0.457" | 19,6   0.772"       | 24,6   0.968"       | 29,6   1.165"       | 34,6   1.362"       | 39,6   1.559"       |
| Rollenausführungsart<br>Roll version                           | A             | A                   | A                   | A                   | A                   | A                   |
| Gewindeabmessung<br>Thread Size                                | Ident No.     | Ident No.           | Ident No.           | Ident No.           | Ident No.           | Ident No.           |
| M 30 x 2   |               |                     |                     |                     | 2180532             | 2180578             |
| M 30 x 1.5   |               |                     |                     |                     | 1553323             | 2180577             |
| M 32 x 1.5   |               |                     |                     |                     |                     | 2180591             |
| M 33 x 2   |               |                     |                     |                     |                     | 2180592             |
| M 33 x 1.5   |               |                     |                     |                     |                     | 2180593             |
| M 35 x 1.5   |               |                     |                     |                     |                     | 2180579             |
| M 36 x 2   |               |                     |                     |                     |                     | 2180594             |
| M 36 x 1.5   |               |                     |                     |                     |                     | 2180595             |
| M 38 x 1.5   |               |                     |                     |                     |                     | 2180580             |
| M 39 x 2   |               |                     |                     |                     |                     | 2180596             |
| M 40 x 1.5   |               |                     |                     |                     |                     | 2180581             |
| M 42 x 2   |               |                     |                     |                     |                     | 2180597             |
| M 42 x 1.5   |               |                     |                     |                     |                     | 1553680             |
| M 45 x 2   |               |                     |                     |                     |                     | 2180598             |
| M 45 x 1.5   |               |                     |                     |                     |                     | 1553699             |

| Unified-Schraubengewinde ANSI B1.1<br>Unified Thread ANSI B1.1 |               |                     |                     |                     |                     |                     |
|--|---------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Rollkopf-Typen in<br>Ausführungsart<br>Head Types and Versions | E8            | E10<br>EB10<br>EW10 | E13<br>EB13<br>EW13 | E16<br>EB16<br>EW16 | E23<br>EB23<br>EW23 | E30<br>EB30<br>EW30 |
| Rollenbreite (mm   inch)<br>Roll width (mm   inch)             | 11,6   0.457" | 19,6   0.772"       | 24,6   0.968"       | 29,6   1.165"       | 34,6   1.362"       | 39,6   1.559"       |
| Rollenausführungsart<br>Roll version                           | A             | A                   | A                   | A                   | A                   | A                   |
| Gewindeabmessung<br>Thread Size                                | Ident No.     | Ident No.           | Ident No.           | Ident No.           | Ident No.           | Ident No.           |
| 5 – 40 UNC   | 2180406       |                     |                     |                     |                     |                     |
| 5 – 44 UNF   | 2180407       |                     |                     |                     |                     |                     |
| 6 – 32 UNC   | 2176098       |                     |                     |                     |                     |                     |
| 6 – 40 UNF   | 2180408       |                     |                     |                     |                     |                     |
| 8 – 32 UNC   | 2176099       |                     |                     |                     |                     |                     |
| 8 – 36 UNF   | 2180409       |                     |                     |                     |                     |                     |
| 10 – 24 UNC  | 2176932       |                     |                     |                     |                     |                     |
| 10 – 32 UNF  | 2176946       |                     |                     |                     |                     |                     |
| 12 – 24 UNC  | 2176942       |                     |                     |                     |                     |                     |
| 12 – 28 UNEF   | 2180410       |                     |                     |                     |                     |                     |
| 1/4 – 20 UNC   | 1551334       |                     |                     |                     |                     |                     |
| 1/4 – 28 UNF   | 1551352       |                     |                     |                     |                     |                     |
| 1/4 – 32 UNEF  | 2180411       |                     |                     |                     |                     |                     |
| 5/16 – 18 UNC  | 1551343       |                     |                     |                     |                     |                     |
| 5/16 – 24 UNF  | 1551361       | 2174620             |                     |                     |                     |                     |
| 5/16 – 32 UNEF   | 2174485       | 2176868             |                     |                     |                     |                     |
| 3/8 – 16 UNC   | 2180412       | 2173564             |                     |                     |                     |                     |
| 3/8 – 24 UNF   | 2176378       | 1551913             |                     |                     |                     |                     |
| 3/8 – 32 UNEF  | 2176100       | 2174576             |                     |                     |                     |                     |
| 7/16 – 14 UNC  |               |                     | 2175769             |                     |                     |                     |
| 7/16 – 20 UNF  |               | 1551904             | 2174467             |                     |                     |                     |
| 7/16 – 28 UNEF   |               | 2180433             | 2180462             |                     |                     |                     |
| 1/2 – 13 UNC   |               |                     | 2180463             | 2180497             |                     |                     |

Gewindeabmessungen, Ident No. der Gewinderollen  
für zylindrische Werkstück-Rechtsgewinde Ausführung „A“  
Thread Sizes, Ident No. for Thread Rolls  
for straight Right-Hand Threads Version „A“

| Unified-Schraubengewinde ANSI B1.1                             |               |                     |                     |                     |                     |                     |
|--|---------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Unified Thread ANSI B1.1                                       |               |                     |                     |                     |                     |                     |
| Rollkopf-Typen in<br>Ausführungsart<br>Head Types and Versions | E8            | E10<br>EB10<br>EW10 | E13<br>EB13<br>EW13 | E16<br>EB16<br>EW16 | E23<br>EB23<br>EW23 | E30<br>EB30<br>EW30 |
| Rollenbreite (mm   inch)<br>Roll width (mm   inch)             | 11,6   0.457" | 19,6   0.772"       | 24,6   0.968"       | 29,6   1.165"       | 34,6   1.362"       | 39,6   1.559"       |
| Rollenausführungsart<br>Roll version                           | A             | A                   | A                   | A                   | A                   | A                   |
| Gewindeabmessung<br>Thread Size                                | Ident No.     | Ident No.           | Ident No.           | Ident No.           | Ident No.           | Ident No.           |
| 1/2 - 20 UNF   |               | 1551922             | 2176472             | 1552903             |                     |                     |
| 1/2 - 28 UNEF  |               | 2175547             | 2180464             | 2173818             |                     |                     |
| 9/16 - 12 UNC  |               |                     |                     | 2180498             |                     |                     |
| 9/16 - 18 UNF  |               | 1551931             | 2175206             | 2175489             |                     |                     |
| 9/16 - 24 UNEF   |               | 2180434             | 2180465             | 2180499             |                     |                     |
| 5/8 - 11 UNC   |               |                     |                     | 2180500             | 2180543             |                     |
| 5/8 - 18 UNF   |               |                     | 1552404             | 1552912             | 2175188             |                     |
| 5/8 - 24 UNEF  |               |                     | 2180466             | 2176211             | 2180544             |                     |
| 11/16 - 24 UNEF  |               |                     | 2180467             | 2180501             | 2180545             |                     |
| 3/4 - 16 UNF   |               |                     |                     | 1552921             | 2180541             |                     |
| 3/4 - 20 UNEF  |               |                     |                     | 2174465             | 2180542             |                     |
| 13/16 - 20 UNEF  |               |                     |                     | 2180502             | 2180547             | 2180606             |
| 7/8 - 14 UNF   |               |                     |                     | 1552930             | 2175083             | 2180608             |
| 7/8 - 20 UNEF  |               |                     |                     | 2174954             | 2180548             | 2180609             |
| 15/16 - 20 UNEF  |               |                     |                     |                     | 2180549             | 2180610             |
| 1 - 12 UNF   |               |                     |                     |                     | 2175029             | 2180612             |
| 1 - 20 UNEF  |               |                     |                     |                     | 2180550             | 2180613             |
| 11/16 - 18 UNEF  |               |                     |                     |                     | 2180551             | 2180614             |
| 11/8 - 12 UNF  |               |                     |                     |                     | 2176377             | 1553902             |
| 11/8 - 18 UNEF   |               |                     |                     |                     | 1553403             | 2180615             |
| 13/16 - 18 UNEF  |               |                     |                     |                     | 2180552             | 2180616             |
| 11/4 - 12 UNF  |               |                     |                     |                     |                     | 2180617             |
| 11/4 - 18 UNEF   |               |                     |                     |                     |                     | 2180618             |
| 15/16 - 18 UNEF  |               |                     |                     |                     |                     | 2180603             |
| 13/8 - 12 UNF  |               |                     |                     |                     |                     | 2180604             |
| 13/8 - 18 UNEF   |               |                     |                     |                     |                     | 2180619             |
| 17/16 - 18 UNEF  |               |                     |                     |                     |                     | 2180620             |
| 11/2 - 12 UNF  |               |                     |                     |                     |                     | 1553911             |
| 11/2 - 18 UNEF   |               |                     |                     |                     |                     | 2180621             |
| 19/16 - 18 UNEF  |               |                     |                     |                     |                     | 2180622             |
| 15/8 - 18 UNEF   |               |                     |                     |                     |                     | 2180605             |
| 111/16 - 18 UNEF   |               |                     |                     |                     |                     | 2180623             |

Gewindeabmessungen, Ident No. der Gewinderollen  
für zylindrische Werkstück-Rechtsgewinde Ausführung „A“  
Thread Sizes, Ident No. for Thread Rolls  
for straight Right-Hand Threads Version „A“

| Whitworth-Gewinde B.S.84<br>Whitworth Thread B.S.84            |               |                     |                     |                     |                     |                     |
|--|---------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Rollkopf-Typen in<br>Ausführungsart<br>Head Types and Versions | E8            | E10<br>EB10<br>EW10 | E13<br>EB13<br>EW13 | E16<br>EB16<br>EW16 | E23<br>EB23<br>EW23 | E30<br>EB30<br>EW30 |
| Rollenbreite (mm   inch)<br>Roll width (mm   inch)             | 11,6   0.457" | 19,6   0.772"       | 24,6   0.968"       | 29,6   1.165"       | 34,6   1.362"       | 39,6   1.559"       |
| Rollenausführungsart<br>Roll version                           | A             | A                   | A                   | A                   | A                   | A                   |
| Gewindeabmessung<br>Thread Size                                | Ident No.     | Ident No.           | Ident No.           | Ident No.           | Ident No.           | Ident No.           |
| 1/8 – 40 BSW   | 2180401       |                     |                     |                     |                     |                     |
| 3/16 – 24 BSW  | 2180402       |                     |                     |                     |                     |                     |
| 3/16 – 32 BSF  | 2180403       |                     |                     |                     |                     |                     |
| 1/4 – 20 BSW   | 1551290       |                     |                     |                     |                     |                     |
| 1/4 – 26 BSF   | 1551316       |                     |                     |                     |                     |                     |
| 5/16 – 18 BSW  | 1551307       | 2180428             |                     |                     |                     |                     |
| 5/16 – 22 BSF  | 1551325       | 2180429             |                     |                     |                     |                     |
| 3/8 – 16 BSW   | 2180404       | 2180430             |                     |                     |                     |                     |
| 3/8 – 20 BSF   | 2180405       | 1551753             |                     |                     |                     |                     |
| 7/16 – 14 BSW  |               |                     | 2180457             |                     |                     |                     |
| 7/16 – 18 BSF  |               | 2180431             | 2180458             |                     |                     |                     |
| 1/2 – 12 BSW   |               |                     | 2180459             | 2180490             |                     |                     |
| 1/2 – 16 BSF   |               | 1551762             | 2180460             | 2180491             |                     |                     |
| 9/16 – 12 BSW  |               |                     |                     | 2180492             |                     |                     |
| 9/16 – 16 BSF  |               | 2180432             | 2180461             | 2180493             |                     |                     |
| 5/8 – 11 BSW   |               |                     |                     | 2180494             | 2180533             |                     |
| 5/8 – 14 BSF   |               |                     |                     | 2180495             | 2180534             |                     |
| 11/16 – 11 BSW   |               |                     |                     |                     | 2180535             |                     |
| 11/16 – 14 BSF   |               |                     |                     | 2180496             | 2180536             |                     |
| 3/4 – 10 BSW   |               |                     |                     |                     | 2180537             |                     |
| 3/4 – 12 BSF   |               |                     |                     |                     | 2180538             |                     |
| 13/16 – 12 BSF   |               |                     |                     |                     | 2180539             | 2180599             |
| 7/8 – 9 BSW  |               |                     |                     |                     |                     | 1553751             |
| 7/8 – 11 BSF   |               |                     |                     |                     | 2180540             | 2180600             |
| 1 – 8 BSW  |               |                     |                     |                     |                     | 2180601             |
| 1 – 10 BSF   |               |                     |                     |                     |                     | 2180602             |

| Whitworth-Rohrgewinde, zylindrisch DIN ISO 228<br>Whitworth Pipe Thread, parallel DIN ISO 228 |               |                     |                     |                     |                     |                     |
|---|---------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Rollkopf-Typen in<br>Ausführungsart<br>Head Types and Versions                                | E8            | E10<br>EB10<br>EW10 | E13<br>EB13<br>EW13 | E16<br>EB16<br>EW16 | E23<br>EB23<br>EW23 | E30<br>EB30<br>EW30 |
| Rollenbreite (mm   inch)<br>Roll width (mm   inch)  | 11,6   0.457" | 19,6   0.772"       | 24,6   0.968"       | 29,6   1.165"       | 34,6   1.362"       | 39,6   1.559"       |
| Rollenausführungsart<br>Roll version  | A             | A                   | A                   | A                   | A                   | A                   |
| Gewindeabmessung<br>Thread Size   | Ident No.     | Ident No.           | Ident No.           | Ident No.           | Ident No.           | Ident No.           |
| G 1/8 – 28  | 2180413       | 1551860             | 2176907             |                     |                     |                     |
| G 1/4 – 19  |               | 1551879             | 2176414             | 2180489             |                     |                     |
| G 3/8 – 19  |               |                     | 2173584             | 1552869             | 2180554             |                     |
| G 1/2 – 14  |               |                     |                     | 1552878             | 2180553             |                     |
| G 5/8 – 14  |               |                     |                     |                     | 2180555             |                     |
| G 3/4 – 14  |               |                     |                     |                     | 2175465             | 2180624             |
| G 7/8 – 14  |               |                     |                     |                     |                     | 2180625             |
| G 1 – 11  |               |                     |                     |                     |                     | 2175283             |
| G 1 1/8 – 11  |               |                     |                     |                     |                     | 2180626             |
| G 1 1/4 – 11  |               |                     |                     |                     |                     | 1553822             |

Gewindeabmessungen, Ident No. der Gewinderollen  
für kegelige Werkstück-Rechtsgewinde Ausführung „A“  
Thread Sizes, Ident No. for Thread Rolls  
for parallel Right-Hand Threads Version „A“

| Whitworth-Rohrgewinde, kegelig, DIN 2999<br>Whitworth Pipe thread, tapered, DIN 2999 |  |           |   |                     |   |                     |   |                     |   |                     |   |                     |   |
|--|--|-----------|---|---------------------|---|---------------------|---|---------------------|---|---------------------|---|---------------------|---|
| Rollkopf-Typen in Ausführungsart<br>Head Types and Versions                          |  | E8        |   | E10<br>EB10<br>EW10 |   | E13<br>EB13<br>EW13 |   | E16<br>EB16<br>EW16 |   | E23<br>EB23<br>EW23 |   | E30<br>EB30<br>EW30 |   |
| Rollenausführungsart<br>Roll version   |  | A         |   | A                   |   | A                   |   | A                   |   | A                   |   | A                   |   |
| Gewindeabmessung<br>Thread Size  |  | Ident No. | Rollenbreite<br>Roll width<br>mm   inch | Ident No.           | Rollenbreite<br>Roll width<br>mm   inch | Ident No.           | Rollenbreite<br>Roll width<br>mm   inch | Ident No.           | Rollenbreite<br>Roll width<br>mm   inch | Ident No.           | Rollenbreite<br>Roll width<br>mm   inch | Ident No.           | Rollenbreite<br>Roll width<br>mm   inch |
| R 1/16 - 28  |  | 2180418   | 9 0.354                                 | 2180442             | 9 0.354                                 |                     |   |                     |   |                     |   |                     |   |
| R 1/8 - 28   |  | 2180419   | 9 0.354                                 | 2180443             | 9 0.354                                 | 2174802             | 9 0.354                                 |                     |   |                     |   |                     |   |
| R 1/4 - 19   |  |           |   | 2180444             | 14 0.551                                | 2174803             | 14 0.551                                | 2170503             | 14 0.551                                |                     |   |                     |   |
| R 3/8 - 19   |  |           |   |                     |   | 2174804             | 14 0.551                                | 2180504             | 14 0.551                                | 2180565             | 14 0.551                                |                     |   |
| R 1/2 - 14   |  |           |   |                     |   |                     |   | 2180505             | 19 0.748                                | 2180564             | 19 0.748                                |                     |   |
| R 3/4 - 14   |  |           |   |                     |   |                     |   |                     |   | 2180566             | 20 0.787                                | 2180643             | 20 0.787                                |
| R 1 - 11   |  |           |   |                     |   |                     |   |                     |   |                     |   | 2180644             | 24 0.945                                |
| R 1 1/4 - 11   |  |           |   |                     |   |                     |   |                     |   |                     |   | 2180645             | 26 1.024                                |

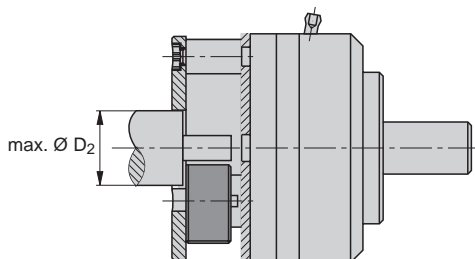
| Whitworth-Rohrgewinde, kegelig, DIN 3858 - Regelgewinde<br>Whitworth Pipe thread, tapered, DIN 3858 |  |           |   |                     |   |                     |   |                     |   |                     |   |                     |   |
|---|--|-----------|---|---------------------|---|---------------------|---|---------------------|---|---------------------|---|---------------------|---|
| Rollkopf-Typen in Ausführungsart<br>Head Types and Versions   |  | E8        |   | E10<br>EB10<br>EW10 |   | E13<br>EB13<br>EW13 |   | E16<br>EB16<br>EW16 |   | E23<br>EB23<br>EW23 |   | E30<br>EB30<br>EW30 |   |
| Rollenausführungsart<br>Roll version  |  | A         |   | A                   |   | A                   |   | A                   |   | A                   |   | A                   |   |
| Gewindeabmessung<br>Thread Size   |  | Ident No. | Rollenbreite<br>Roll width<br>mm   inch | Ident No.           | Rollenbreite<br>Roll width<br>mm   inch | Ident No.           | Rollenbreite<br>Roll width<br>mm   inch | Ident No.           | Rollenbreite<br>Roll width<br>mm   inch | Ident No.           | Rollenbreite<br>Roll width<br>mm   inch | Ident No.           | Rollenbreite<br>Roll width<br>mm   inch |
| R 1/8 - 28  |  | 2180420   | 8 0.315                                 | 2180445             | 8 0.315                                 | 2180476             | 8 0.315                                 |                     |   |                     |   |                     |   |
| R 1/4 - 19  |  |           |   | 2180446             | 12 0.472                                | 2180477             | 12 0.472                                | 2180506             | 12 0.472                                |                     |   |                     |   |
| R 3/8 - 19  |  |           |   |                     |   | 2180478             | 12 0.472                                | 2180507             | 12 0.472                                | 2180567             | 12 0.472                                |                     |   |
| R 1/2 - 14  |  |           |   |                     |   |                     |   | 2180508             | 16 0.630                                | 2180568             | 16 0.630                                |                     |   |
| R 3/4 - 14  |  |           |   |                     |   |                     |   |                     |   | 2180569             | 17 0.669                                | 2180646             | 17 0.669                                |
| R 1 - 11  |  |           |   |                     |   |                     |   |                     |   |                     |   | 2180647             | 20 0.787                                |
| R 1 1/4 - 11  |  |           |   |                     |   |                     |   |                     |   |                     |   | 2180648             | 21 0.827                                |

Gewindeabmessungen, Ident No. der Gewinderollen  
für kegelige Werkstück-Rechtsgewinde Ausführung „A“  
Thread Sizes, Ident No. for Thread Rolls  
for parallel Right-Hand Threads Version „A“

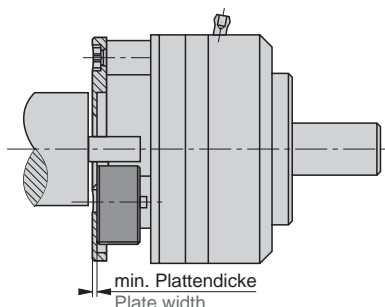
| Amerikanisches Rohrgewinde, kegelig, ANSI B1.20.1<br>American Pipe thread, tapered, ANSI B1.20.1 |           |   |                     |   |                     |   |                     |   |                     |   |                     |   |
|--|-----------|---|---------------------|---|---------------------|---|---------------------|---|---------------------|---|---------------------|---|
| Rollkopf-Typen in Ausführungsart<br>Head Types and Versions                                      | E8        |   | E10<br>EB10<br>EW10 |   | E13<br>EB13<br>EW13 |   | E16<br>EB16<br>EW16 |   | E23<br>EB23<br>EW23 |   | E30<br>EB30<br>EW30 |   |
| Rollenausführungsart<br>Roll version   | A         |   | A                   |   | A                   |   | A                   |   | A                   |   | A                   |   |
| Gewindeabmessung<br>Thread Size  | Ident No. | Rollenbreite<br>Roll width<br>mm   inch | Ident No.           | Rollenbreite<br>Roll width<br>mm   inch | Ident No.           | Rollenbreite<br>Roll width<br>mm   inch | Ident No.           | Rollenbreite<br>Roll width<br>mm   inch | Ident No.           | Rollenbreite<br>Roll width<br>mm   inch | Ident No.           | Rollenbreite<br>Roll width<br>mm   inch |
| 1/16 – 27 NPT  | 2175099   | 10 0.394                                | 2176581             | 10 0.394                                |                     |   |                     |   |                     |   |                     |   |
| 1/8 – 27 NPT   | 2180421   | 10 0.394                                | 2174750             | 10 0.394                                | 1552413             | 10 0.394                                |                     |   |                     |   |                     |   |
| 1/4 – 18 NPT   |           |   | 1552002             | 15 0.591                                | 1552422             | 15 0.591                                | 2174570             | 15 0.591                                |                     |   |                     |   |
| 3/8 – 18 NPT   |           |   |                     |   | 1552431             | 15 0.591                                | 2174569             | 15 0.591                                | 2180570             | 15 0.591                                |                     |   |
| 1/4 – 14 NPT   |           |   |                     |   |                     |   | 1552985             | 19 0.748                                | 2173898             | 19 0.748                                |                     |   |
| 3/4 – 14 NPT   |           |   |                     |   |                     |   |                     |   | 2174813             | 20 0.787                                | 2180649             | 20 0.787                                |
| 1 – 11.5 NPT   |           |   |                     |   |                     |   |                     |   |                     |   | 2180650             | 24 0.945                                |
| 1 1/4 – 11.5 NPT   |           |   |                     |   |                     |   |                     |   |                     |   | 2180651             | 25 0.984                                |

| Amerikanisches Rohrgewinde, kegelig, ANSI B1.20.4<br>American Pipe thread, tapered dry-seal, ANSI B1.20.4 |           |   |                     |   |                     |   |                     |   |                     |   |                     |   |
|---|-----------|---|---------------------|---|---------------------|---|---------------------|---|---------------------|---|---------------------|---|
| Rollkopf-Typen in Ausführungsart<br>Head Types and Versions   | E8        |   | E10<br>EB10<br>EW10 |   | E13<br>EB13<br>EW13 |   | E16<br>EB16<br>EW16 |   | E23<br>EB23<br>EW23 |   | E30<br>EB30<br>EW30 |   |
| Rollenausführungsart<br>Roll version  | A         |   | A                   |   | A                   |   | A                   |   | A                   |   | A                   |   |
| Gewindeabmessung<br>Thread Size   | Ident No. | Rollenbreite<br>Roll width<br>mm   inch | Ident No.           | Rollenbreite<br>Roll width<br>mm   inch | Ident No.           | Rollenbreite<br>Roll width<br>mm   inch | Ident No.           | Rollenbreite<br>Roll width<br>mm   inch | Ident No.           | Rollenbreite<br>Roll width<br>mm   inch | Ident No.           | Rollenbreite<br>Roll width<br>mm   inch |
| 1/16 – 27 NPTF  | 2180422   | 10 0.394                                | 2180447             | 10 0.394                                |                     |   |                     |   |                     |   |                     |   |
| 1/8 – 27 NPTF   | 2180423   | 10 0.394                                | 2180448             | 10 0.394                                | 2180479             | 10 0.394                                |                     |   |                     |   |                     |   |
| 1/4 – 18 NPTF   |           |   | 2180449             | 15 0.591                                | 2180480             | 15 0.591                                | 2180509             | 15 0.591                                |                     |   |                     |   |
| 3/8 – 18 NPTF   |           |   |                     |   | 2176082             | 15 0.591                                | 2180510             | 15 0.591                                | 2180571             | 15 0.591                                |                     |   |
| 1/2 – 14 NPT  |           |   |                     |   |                     |   | 1552994             | 19 0.748                                | 2180572             | 19 0.748                                |                     |   |
| 3/4 – 14 NPTF   |           |   |                     |   |                     |   |                     |   | 2180573             | 20 0.787                                | 2180652             | 20 0.787                                |
| 1 – 11.5 NPTF   |           |   |                     |   |                     |   |                     |   |                     |   | 2180653             | 24 0.945                                |
| 1 1/4 – 11.5 NPTF   |           |   |                     |   |                     |   |                     |   |                     |   | 2180654             | 25 0.984                                |

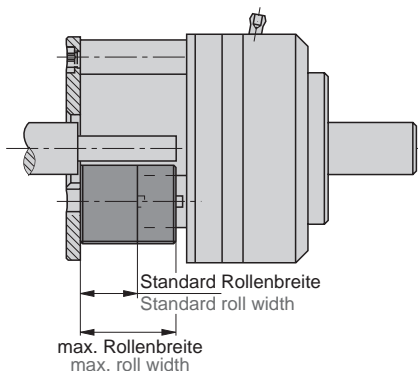
### Vergrößerte Frontplattenbohrung Enlarged Front Plate Bore



### Dünnere Frontplattenausführung Thin Front Plate Version



### Verlängerte Rollenbreite Extended Roll Cage for longer threads



Der Bund-Ø des Werkstückes kann je nach Arbeitsfall größer sein als die Frontplattenbohrung  $D_2$  in Standardausführung. Die max. möglichen Frontplattenbohrungs-Ø können für die verschiedenen Typen aus der Tabelle entnommen werden.

In some cases the shoulder diameter of the component is larger than the standard front plate bore diameter  $D_2$ . The maximum front plate bore diameter for the different types is shown in the following table.

| Rollkopf-Typ<br>Head Type                   | E8     | E10          | E13          | E16          | E23          | E30          |
|---|--------|--------------|--------------|--------------|--------------|--------------|
|   |        | EB10<br>EW10 | EB13<br>EW13 | EB16<br>EW16 | EB23<br>EW23 | EB30<br>EW30 |
| <b>Sonderausführung<br/>Special Version</b> | 22     | 30           | 41           | 50           | 66           | 80           |
| <b>max. Ø <math>D_2</math></b>              | 0.866" | 1.181"       | 1.614"       | 1.968"       | 2.598"       | 3.15"        |
| <b>Standard</b>                             | 15     | 26           | 32           | 40,5         | 50           | 68           |
| <b>Ø <math>D_2</math></b>                   | 0.591" | 1.024"       | 1.26"        | 1.594"       | 1.968"       | 2.677"       |

Für größere Werkstückbund-Ø als die max. Frontplattenbohrung besteht die Möglichkeit, den Rollkopf mit einer dünneren Frontplatte zu versehen. In der Tabelle sind die min. Frontplattendicken für die verschiedenen Typen aufgeführt.  
Gewindeauslauf: Frontplattendicke + 1 x Steigung.

It is possible to supply the rolling head with a thin front plate, when the component shoulder diameter is larger than the maximum front plate bore permissible. The minimum front plate width for the different types is shown in the following table.  
Thread run-out = front plate width + (1 x pitch).

| Rollkopf-Typ<br>Head Type                    | E8     | E10          | E13          | E16          | E23          | E30          |
|--|--------|--------------|--------------|--------------|--------------|--------------|
|  |        | EB10<br>EW10 | EB13<br>EW13 | EB16<br>EW16 | EB23<br>EW23 | EB30<br>EW30 |
| <b>Plattendicke<br/>Plate width Special</b>  | 2,0    | 2,0          | 2,0          | 2,5          | 2,5          | 3,0          |
|  | 0.079" | 0.079"       | 0.079"       | 0.098"       | 0.098"       | 0.118"       |
| <b>Plattendicke<br/>Plate width Standard</b> | 5,0    | 6,0          | 8,0          | 10,0         | 13,0         | 16,0         |
|  | 0.197" | 0.236"       | 0.315"       | 0.394"       | 0.512"       | 0.63"        |

Die größte rollbare Gewindelänge entspricht der Rollenbreite. Je nach vorliegendem Arbeitsfall kann die Rollenbreite in Abhängigkeit vom Werkstück-Ø, Gewindelänge, Steigung und Werkstoff-Festigkeit verlängert werden.  
Haben Werkstücke lang vorgelagerte Zapfen, so ist die verlängerte Rollkopfausführung auch mit Standardrollen zu nutzen (siehe gestrichelte Linie).

The largest thread length possible to be rolled is equal to the roll width. In special cases, depending on component diameter, thread length, pitch and material strength, the roll width can be increased. It is also possible to roll with the elongated rolling head with standard rolls, if the thread to be rolled is too far from the end of the component. Special drive plates are required.

| Rollkopf-Typ<br>Head Type                    | E8                        | E10          | E13          | E16          | E23          | E30          |
|--|---------------------------|--------------|--------------|--------------|--------------|--------------|
|  |                           | EB10<br>EW10 | EB13<br>EW13 | EB16<br>EW16 | EB23<br>EW23 | EB30<br>EW30 |
| <b>Plattendicke<br/>Plate width Special</b>  | auf Anfrage<br>on request |              |              |              |              |              |
| <b>Plattendicke<br/>Plate width Standard</b> | 11,6                      | 19,6         | 24,6         | 29,6         | 34,6         | 39,6         |
|  | 0.457"                    | 0.772"       | 0.968"       | 1.165"       | 1.362"       | 1.559"       |

Bei **umlaufendem Werkstück** muss die Werkzeugmaschine eine Einrichtung haben, mit der der Rollkopf in die Arbeitsstellung gebracht werden kann, sei es von Hand, sei es maschinell, z. B. Revolver, Längsschlitten oder Reitstockpinole.

Bei **umlaufendem Rollkopf** muss die Werkzeugmaschine eine Einrichtung haben, mit der das festgespannte Werkstück in die Arbeitsstellung gebracht werden kann, sei es von Hand oder maschinell, z. B. zentrisch spannender Schraubstock auf einem Längsschlitten.

Die Spindel der Werkzeugmaschine, auf die der Rollkopf Typ E aufgenommen werden soll, muss eine Hohlspindel sein, damit der innere Auslösehebel (23<sup>1)</sup> bzw. 43) erreicht werden kann, der sich im Zentrum des Rollkopfes an der Flansch- bzw. Schaftseite befindet (nur Typ E).

Bei vollautomatischen Maschinen ist es ratsam, eine Kontrolleinrichtung vorzusehen, die gewährleistet, dass der Rollvorgang nur dann erfolgen darf, wenn die Rollen im Rollkopf in Ausgangsstellung stehen.

Man kann die Kontrolleinrichtung auch dahingehend betrachten, dass die axiale Zufuhrbewegung des Rollkopfes zum Werkstück im bestimmten Vorschubeffekt durchgeführt wird. Hierbei werden die Rollen durch den Reibungseffekt mit dem Werkstück auch in Ausgangsstellung gebracht. Vorschub ca. 1 x Steigung des zu rollenden Gewindes.

**Erläuterung:** Die Rollen werden grundsätzlich nur in Ausgangsstellung gebracht, wenn ein Rollvorgang erfolgte.

Wird die Auslösung der Rollen im Rollkopf vorgenommen ohne Rollvorgang, dann stehen die Rollen nicht in Ausgangsstellung. Die Rollen müssen von Hand in Ausgangsstellung gebracht werden. Mögliche Kontrolleinrichtungsarten: z. B. Abtastung ob Werkstück vorhanden, Kontrolle ob Rollen in Ausgangsstellung stehen, über Leistungsaufnahme Kontrolle, ob Leistung aufgenommen wurde.

#### Rollgeschwindigkeit

Die Rollgeschwindigkeit sollte zwischen 20 und 30 m/min gewählt werden. Die niedrige Rollgeschwindigkeit sollte bei großen Umformleistungen, also bei großer Steigung, großer Gewindelänge und hoher Werkstofffestigkeit sowie bei umlaufenden Rollköpfen angestrebt werden. Wenn der Rollkopf feststehend verwendet wird, sind auch noch höhere Rollgeschwindigkeiten als bei kleineren Umformleistungen möglich.

Die **Drehzahl** des umlaufenden Rollkopfes kann nicht in jedem Fall so hoch gewählt werden, dass eine Rollgeschwindigkeit von 60 m/min erreicht wird. Besonders bei kleineren Durchmesser würde die Drehzahl dann so hoch werden, dass die Auslösung des Rollvorganges nicht mehr gewährleistet wäre.

In einem solchen Fall muss auf eine niedrigere Drehzahl übergegangen werden. Genaue maximale Drehzahlen können nicht angegeben werden, da die inneren Reibungskräfte nicht nur von den durch die Drehzahl erzeugten Fliehkräften, sondern auch von dem Schmierzustand und dem Verschmutzungsgrad abhängig sind.

When the **component rotates**, the machine must have a device which moves the rolling head, either manually or mechanically, into the rolling position, e. g. longitudinal slide, tailstock sleeve or turret.

When the **rolling head rotates** the machine must have a device which moves the clamped component, or the head either manually or mechanically, into the rolling position e. g. a device on a longitudinal slide which clamps the piece.

The machine spindle which carries the rolling head type E must be hollow so that the internal trip release lever (#23<sup>1)</sup> or 43), which is located in the center of the rolling head on the flange or shank side, can be reached.

For fully automatic machines it is advisable to provide a checking device to be sure the rolling operation takes place only after the rolls have been placed in their starting position in the rolling head. It is also possible to provide the checking, by using the traveling feed effect from the head reaching the component. In this way, the rolls will be placed in their starting position due to the friction with the component. The axial feed shall be approx. 1 x the pitch of the thread to be rolled.

**Explanation:** Basically the rolls are returned to their starting position only after a rolling operation has been completed.

In the event that the head is activated with no component in place the rolls will not return to their starting position. They must be returned manually.

Possible precautions to be taken: Scanning to see if a component is in place, or to see if the rolls are in their proper position, check via output supply to see if power has been consumed.

Another means of preventing possible damage if the rolls are not in their normal starting position is to feed the rolling head over the component at approximately the pitch of the thread being made. Then, as the end of the component touches the side of the rolls the friction will cause them to rotate to their starting position.

The **rolling speed** should be between 20 and 30 m/min (60 and 90 SFM). Wherever possible, the low rolling speed should be used in case of large volume of forming, for rolling of coarse pitch threads, long thread length and material with high tensile strength. When the rolling head operates non-rotating, higher rolling speeds than 90 SFM can be used if the volume of forming is low.

The **revolutions per minute** of the rotating head cannot in all cases be high enough to give a rolling speed of 60 m/min (180 SFM). In case of small diameter threads especially, the rpm would be so high that tripping of the rolling operations could not be guaranteed.

If this happens, a lower rate of rpm must be selected. Exact maximum rpm cannot be given, because the internal frictional forces are dependent not only on the centrifugal force generated by the rpm, but also on the state of lubrication.

<sup>1)</sup> Diese Zahlen entsprechen den Ersatzteil-Nr. auf den Seiten 261, 265, 269, 271, 273, 281, 285.

<sup>1)</sup> These figures correspond to the part numbers on the list of spare parts (see pages 261, 265, 269, 271, 273, 281, 285).

### Kraftbedarf

Beim Gewinderollen mit Radial-Gewinde-Rollköpfen wird das Gewinde in seiner gesamten Länge mit nur einer Gewinderollen-umdrehung erzeugt. Dazu wird kurzzeitig ein hohes Drehmoment benötigt.  
Der erforderliche Kraftbedarf kann anhand der Formel auf Seite 450 ermittelt werden.  
Sollte es sich herausstellen, dass das zur Verfügung stehende Drehmoment nicht ausreicht und eine andere Maschine mit höherer Leistung nicht eingesetzt werden kann, so kann das zur Verfügung stehende Drehmoment durch Verringern der Drehzahl durch eine andere Getriebeuntersetzung erhöht werden. Da das hohe Drehmoment nur kurzzeitig benötigt wird, genügt häufig schon eine Vergrößerung der Schwungmasse der Spindel.  
Auf eine ausreichende **Werkstückspannung** ist besonders zu achten. Das beim Radialrollen auftretende hohe Drehmoment erfordert auch hohe Spannkraft. Ein hydraulisch betätigtes Spannfutter ist zu empfehlen.

### Power requirement

When radial rolling attachments are used for thread rolling, the total length of thread is produced in only one revolution of the thread rolls. High torque is required for only a short while.  
The necessary power can be determined from the formula on page 450.  
If it is found that the torque available is insufficient, and it is not possible to use a more powerful machine, the torque available can be increased by using a different gear ratio to reduce the rpm. Since the high torque is required only for a short while, it can often be obtained by increasing the centrifugal force of the spindle.  
Particular attention must be given to adequate **clamping of the component**. The high torque incidental to radial thread rolling requires heavy clamping force. A hydraulically operated chuck is recommended.

### Rollzeit Rolling Time

#### METRIC

1. Wenn mit Drehzahl gerechnet wird By using spindle speed:

$$t_r = \frac{60}{n} \cdot \left( \frac{K}{d_v} - 1 \right) \quad [\text{s} \mid \text{sec}]$$

2. Wenn mit Rollgeschwindigkeit gerechnet wird:

By using rolling speed:

$$t_r = \frac{0,188}{v} \cdot (K - d_v) \quad [\text{s} \mid \text{sec}]$$

$d_v$  = Ausgangs-Ø oder Flanken-Ø Werkstück [mm]  
Blank or pitch diameter

$n$  = Maschinendrehzahl [min<sup>-1</sup>]  
Machine spindle revolution

$$n = \frac{1000 \cdot v}{d_v \cdot \pi} \quad [\text{min}^{-1}]$$

$v$  = Rollgeschwindigkeit Rolling speed [m/min]

$$v = \frac{d_v \cdot \pi \cdot n}{1000} \quad [\text{m/min}]$$

$K$  = Rollkopfkonstante (siehe unten) [mm]  
rolling head factor (see below)

#### INCH

1. Wenn mit Drehzahl gerechnet wird By using spindle speed:

$$t_r = \frac{60}{n} \cdot \left( \frac{K}{d_v} - 1 \right) \quad [\text{s} \mid \text{sec}]$$

2. Wenn mit Rollgeschwindigkeit gerechnet wird:

By using rolling speed:

$$t_r = \frac{15.7}{v} \cdot (K - d_v) \quad [\text{s} \mid \text{sec}]$$

$d_v$  = Ausgangs-Ø oder Flanken-Ø Werkstück [inch]  
Blank or pitch diameter

$n$  = Maschinendrehzahl [RPM]  
Machine spindle revolution

$$n = \frac{12 \cdot v}{d_v \cdot \pi} \quad [\text{RPM}]$$

$v$  = Rollgeschwindigkeit Rolling speed [m/min]

$$v = \frac{d_v \cdot \pi \cdot n}{12} \quad [\text{SFM}]$$

$K$  = Rollkopfkonstante (siehe unten) [inch]  
rolling head factor (see below)

#### Beispiel Example

|                                       |                       |
|---------------------------------------|-----------------------|
| Gewinde-Ø Thread-Ø                    | M 16 x 1,5            |
| Rollkopf-Typ Head Type                | E 16                  |
| Flanken-Ø Werkstück Pitch-Ø Workpiece | 15,03 mm              |
| Rollgeschwindigkeit Rolling speed     | 20 m/min              |
| Drehzahl Revolution                   | 424 min <sup>-1</sup> |

$$t_r = \frac{60}{424} \cdot \left( \frac{66}{15,03} - 1 \right) = 0,48 \text{ s} \mid \text{sec}$$

oder or

$$t_r = \frac{0,188}{20} \cdot (66 - 15,03) = 0,48 \text{ s} \mid \text{sec}$$

#### Beispiel Example

|                                       |             |
|---------------------------------------|-------------|
| Gewinde-Ø Thread-Ø                    | M 16 x 1,5  |
| Rollkopf-Typ Head Type                | E 16        |
| Flanken-Ø Werkstück Pitch-Ø Workpiece | 0.5917 inch |
| Rollgeschwindigkeit Rolling speed     | 65.68 SFM   |
| Drehzahl Revolution                   | 424 RPM     |

$$t_r = \frac{60}{424} \cdot \left( \frac{2.598}{0.5917} - 1 \right) = 0.48 \text{ s} \mid \text{sec}$$

oder or

$$t_r = \frac{15.7}{65.68} \cdot (2.598 - 0.5917) = 0.48 \text{ s} \mid \text{sec}$$

#### Rollkopfkonstante Rolling head factor

| Rollkopf-Typ Rolling Head Type | E 8        | E 10        | E 13        | E 16        | E 23        | E 30         |
|--------------------------------|------------|-------------|-------------|-------------|-------------|--------------|
| K                              | 32   1.26" | 42   1.654" | 54   2.126" | 66   2.598" | 90   3.543" | 120   4.724" |



Das Radial-Gewinderollverfahren ist bei allen metallischen **Werkstoffen** anwendbar, deren Bruchdehnung  $\delta \geq 8\%$  ist. Die Festigkeit  $\sigma_B$  sollte ca. 1000 N/mm<sup>2</sup> nicht überschreiten. Wenn die Eigenschaften des Materials in der Nähe der obengenannten Grenzwerte liegen, ist die Rollbarkeit von der Umformleistung abhängig. Bei sehr kleiner Umformleistung können diese Werte überschritten werden. Die Rollbarkeit des Werkstoffes muss überprüft werden.

Die größte rollbare **Gewindelänge** entspricht der Rollenbreite abzüglich pro Rollenseite 1 x Gewindeteilung als Auslauffase. Die Rollenbreite ist aus den Tabellen, Seiten 258 bis 282, Maß L<sub>4</sub> zu ersehen. Kleinere Gewindelängen benötigen in der Regel keine anderen Gewinderollen.

Der **Bunddurchmesser** des Werkstückes muss kleiner sein als die Frontplattenbohrung, die aus den Tabellen, Seiten 258 bis 282, Maß D<sub>2</sub>, für die jeweiligen Kopfgrößen zu entnehmen ist.

Ein **vorgelagerter Zapfen** darf bei Typ E einschließlich der Gewindelänge das Maß L<sub>5</sub> aus den Tabellen, Seiten 258 bis 282, und einen Durchmesser von D<sub>3</sub> nicht überschreiten und muss kleiner als der Gewindekern-Ø sein.

Der **Werkstück-Ausgangs-Ø** entspricht im allgemeinen dem Flanken-Ø des zu rollenden Gewindes. Abweichungen nach oben oder unten können einerseits durch das Fließverhalten des Werkstoffes und andererseits wegen unterschiedlicher Toleranzlage des Gewindes notwendig werden.

Der Werkstück-Außen-Ø sollte nach dem Rollen möglichst nicht pressblank sein, es darf kein Überdruck auftreten.

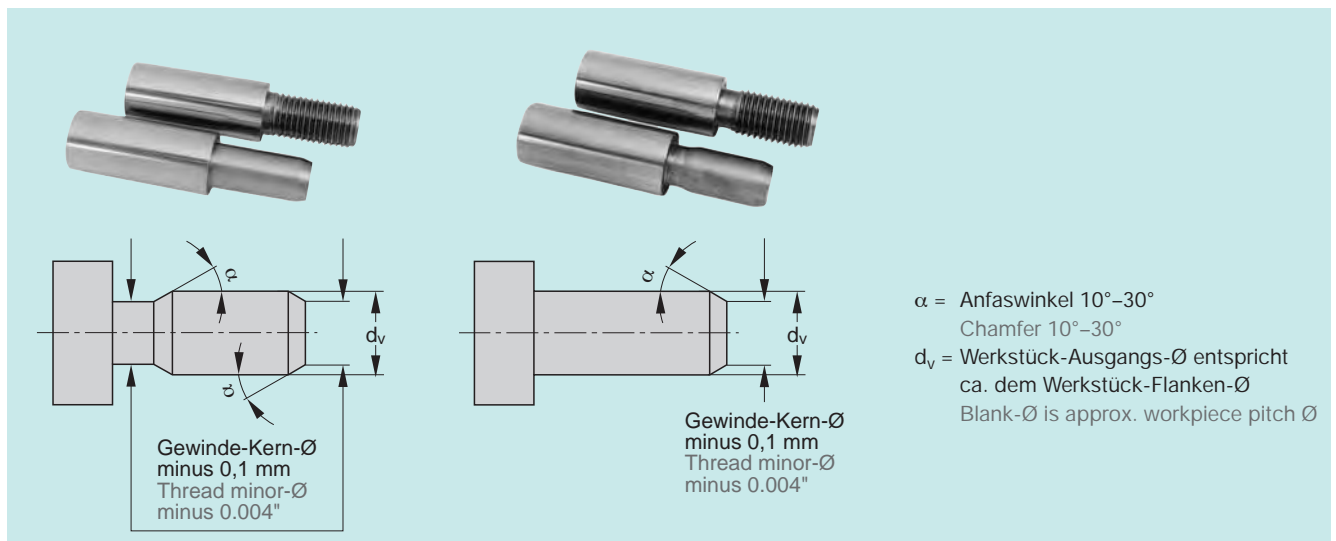
The radial thread-rolling method can be used for all metals with an elongation of  $d \geq 8\%$ . The tensile strength  $d_b$  should not exceed approximately 145.000 PSI. When the material properties approximate the above limit values, the rollability depends on the volume of forming. Where this is very low, these limit values may be exceeded. The material rollability has to be proofed.

The longest **length of thread** which can be rolled corresponds to the width of the rolls, less 0.5 to 1 x pitch for the runout. The width of rolls is shown in tables pages 258 up to 282, dimension L<sub>4</sub>. As a rule, shorter thread length does not necessitate the use of narrower thread rolls.

The **diameter of the shoulder** of the component must be smaller than the bore of the front plate, which is shown for the various sizes of rolling attachments in tables pages 258 up to 282 dimension D<sub>2</sub>.

The length of any **pilot located in front**, including the threaded length, must not exceed dimension L<sub>5</sub> in tables pages 258 up to 282 and the diameter must not exceed dimension D<sub>3</sub> and must be smaller than the root diameter of the thread to be rolled.

In general, the **blank diameter** corresponds to the pitch diameter of the thread to be rolled. It may be necessary to deviate both ways from this size because of the flowing properties of the material on one hand and the variable position of the tolerance zone of the thread on the other. After rolling, the major diameter should not, if possible, have a burnished finish – there must be no indication of overrolling.



Die Bezeichnung der Rollköpfe beginnt mit der Type, gefolgt von der Rollkopfgröße.

Die Fette-Radial-Gewinde-Rollköpfe sind standardmäßig für rechtsdrehende Spindeln ausgelegt. Sie erhalten die Kennzeichnung „A“. Rollköpfe für linksdrehende Spindeln erhalten den Buchstaben „B“.

Die Rollköpfe können mit verschiedenen Aufnahmen geliefert werden:

Ausführung mit Flansch (Kennzeichnung „00“)

Ausführung mit Zylinderschaft (Kennzeichnung „01“)

Ausführung mit VDI-Schaft (Kennzeichnung „03“)

Die Ausführung mit Morsekegel (Kennzeichnung „02“) wird nur noch auf speziellen Kundenwunsch geliefert.

### Beispiel:

|                         |                |
|-------------------------|----------------|
| Typ:                    | EW             |
| Größe:                  | 23             |
| rechtsdrehende Spindel: | A              |
| Ausführung:             | VDI-Schaft-Ø30 |
| Bezeichnung:            | EW 23 A03-Ø30  |

Ist die genaue Bezeichnung nicht angegeben, wird die Flanschausführung in Drehrichtung „A“ geliefert, also  
E 16 A 00

**Für Linksgewinde wird derselbe Rollkopf benutzt wie für Rechtsgewinde.** Linksgewinde kann auch bei rechtsdrehender Spindel hergestellt werden. Die Gewinderollen (22)<sup>1)</sup> müssen allerdings für Linksgewinde ausgelegt sein. Einbau der Rollen wie für Rechtsgewinde im Uhrzeigersinn, also 1-2-3.

The identifying code for the rolling head begins with the type, followed by the rolling head size.

The standard design of the Fette radial thread rolling heads is for right handed spindles. They are identified as "A". Rolling heads for spindles that rotate to the left are given the letter "B".

The rolling heads can be supplied with various seatings:

Version with flange (identifier "00")

Version with straight shank (identifier "01")

Version with the VDI shank (identifier "03")

The version with the morse taper (identifier "02") is only supplied in response to specific customer requests.

### Example:

|                        |                        |
|------------------------|------------------------|
| Type:                  | EW                     |
| Size:                  | 23                     |
| Right-turning spindle: | A                      |
| Version:               | VDI shank, diameter 30 |
| Identifying code:      | EW 23 A03-Ø30          |

If the exact identification is not given, we shall supply the flanged version suitable for direction of rotation "A", that is  
E 16 A 00

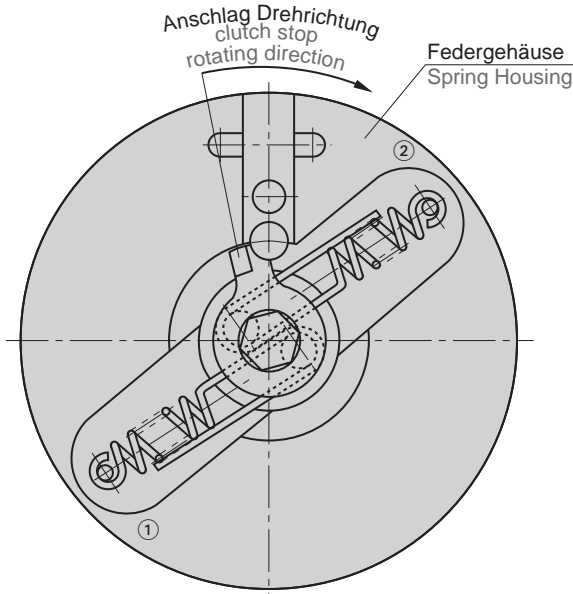
**For left-hand threads the same rolling head is used as for right-hand threads.** Left-hand threads can also be produced with the spindle rotating clockwise. The thread rolls (#22)<sup>1)</sup> must, however, be designed for left-hand threads.

Assembly of the rolls is the same as for right-hand threads, in a clockwise direction, thus 1-2-3.

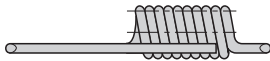
<sup>1)</sup> Diese Zahlen entsprechen den Ersatzteil-Nr. auf den Seiten 261, 265, 269, 271, 273, 281, 285.

<sup>1)</sup> These figures correspond to the part numbers on the list of spare parts (see pages 261, 265, 269, 271, 273, 281, 285).

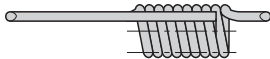
**Rollkopf E 8 (2 Rollen im Satz)**  
**Rolling Head E 8 (2 rolls per set)**



① Federaufhängung unten  
 Spring offset down

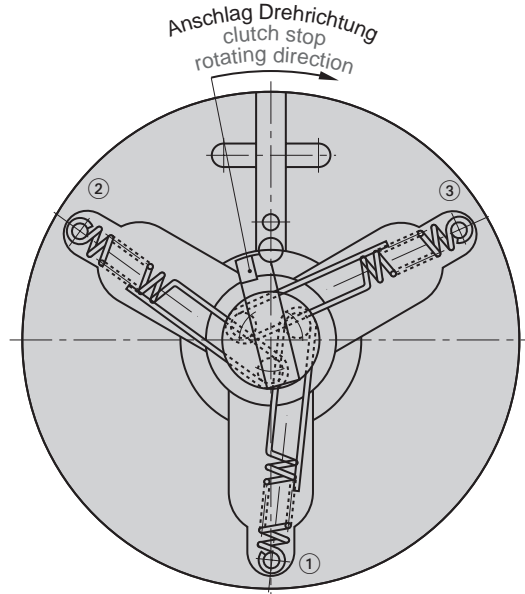


② Federaufhängung oben  
 Spring offset up

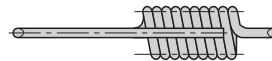


Position der Federenden.  
 Position of spring ends.

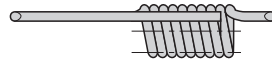
**Rollkopf E 10 – E 30 (3 Rollen im Satz)**  
**Rolling Head E 10 – E 30 (3 rolls per set)**



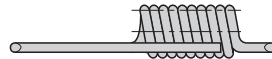
① Federaufhängung mittig  
 Spring suspension centered



② Federaufhängung oben  
 Spring offset up



③ Federaufhängung unten  
 Spring offset down



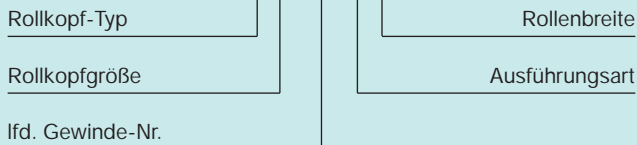
Für jede **Gewindeabmessung** ist ein Satz Gewinderollen (22)<sup>1)</sup> nötig. Ein Satz besteht aus drei unterschiedlichen Gewinderollen. Sie sind mit den Nummern 1, 2 und 3 gekennzeichnet. Die **Lage der Gewinderollen** im Rollkopf ist vorgeschrieben. Die Rollen sind in der Reihenfolge 1–2–3 im Uhrzeigersinn, gegen Vorderkante Frontplatte gesehen, einzubauen. Dieses gilt für Rechts- und Linksgewinde. Es ist wichtig, dass ein zusammengehöriger Satz eingebaut wird. Die **Drehrichtung** der Maschinenspindel bestimmt beim Rollkopf die Ausführungsart „A“ oder „B“. Die Gewinderollen (22) werden ebenfalls danach unterschieden. Es dürfen beispielsweise Gewinderollen (22) mit der Bezeichnung „A“ nur in die Rollköpfe der Ausführung „A“ eingebaut werden. Die **Bezeichnung der Gewinderollen** (22) besteht aus der Gewindebezeichnung, der Rollkopfgröße, der Ausführungsart, der Rollennummer und der Artikel-Nr.

One set of thread rolls (#22)<sup>1)</sup> is required for each **size of thread**. A set consists of three different rolls. They are marked 1, 2 and 3. The **location of the rolls** in the rolling attachment is specified. The rolls must be assembled in sequence 1–2–3 clockwise. It is important that a matching set be assembled. The **direction of rotation** of the machine spindle determines whether rolling head “A” or “B” is to be used. This also determines the type of thread rolls (#22) to be used. For example, thread rolls (#22) marked “A” can only be assembled in a version “A” rolling head. The **identification marking of the thread rolls** (#22) consists of the thread identification, the size of rolling head, the type of rolling head and the roll number.

### Beispiel für M 12 x 1,75 in Rollkopftypen E 16 A 00, E 16 A 01, E 16 A 02

Gewinde-Code-Nr.

E 16-001-A 29



#### Arbeitsbeispiel:

Gewindeabmessung M 12 x 1,75 Rollkopf-Typ E 16 A 00  
(E 16 A 01, E 16 A 02)

#### Bestellbeispiel:

1 Satz Gewinderollen für Gewinde M 12 x 1,75  
für Rollkopf-Typ E 16 A 00 (E 16 A 01, E 16 A 02)  
Artikel-Nr. 1552681 (siehe Seite 286)  
(Artikel-Nr. nur, falls bekannt)

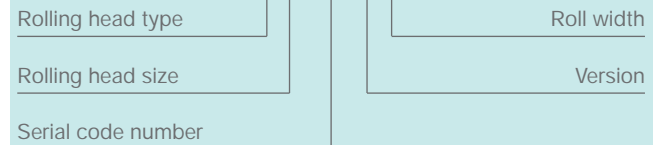
#### Hinweis:

Grundsätzlich wird jede Rolle für zylindrische Gewinde im Regelfall mit voller Rollenbreite geliefert. Der Gewindeauslauf der Rolle beträgt pro Seite 1 x Steigung.

### Example for M 12 x 1.75 on rolling head types E 16 A 00, E 16 A 01, E 16 A 02

Thread roll code number

E 16-001-A 29



#### Example:

Thread size M 12 x 1.75 Rolling head type E 16 A 00  
(E 16 A 01, E 16 A 02)

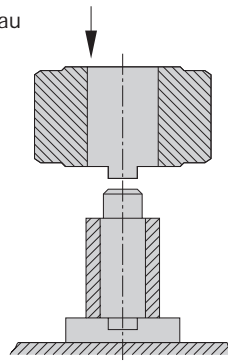
#### Ordering example:

1 set thread rolls for thread M 12 x 1.75 for head type E 16 A 00  
(E 16 A 01, E 16 A 02)  
Ident No. 1552681 (see page 286)  
(Ident No. only if known)

#### Note:

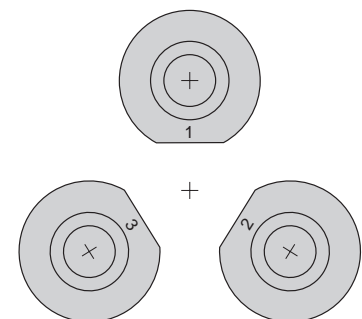
In general, each roll for parallel thread is delivered with full length. The lead of the roll on each side is approx. 1 x pitch.

Ansichtsrichtung beim Rolleneinbau  
View, when assembling the rolls



**Einbaufolge:**  
1–2–3 im Uhrzeigersinn  
in Ansichtsrichtung  
für Rechts- und Links-  
gewinde

Sequence of assembly:  
1–2–3 clockwise, when  
viewed from front, for  
right-hand and left-hand  
threads



<sup>1)</sup> Diese Zahlen entsprechen den Ersatzteil-Nr. auf den Seiten 261, 265, 269, 271, 273, 281, 285.

<sup>1)</sup> These figures correspond to the part numbers on the list of spare parts (see pages 261, 265, 269, 271, 273, 281, 285).

### Spannen des Rollkopfes

Der Rollkopf ist nur dann betriebsbereit, wenn das Federwerk gespannt und die Kupplung eingerastet ist. In diesem Zustand stehen die Mitnehmersnasen der Synchronzahnräder (5)<sup>1)</sup> radial und bei aufgesteckten Mitnehmerscheiben (12) deren Nuten zur Mitnahme der Gewinderollen (22) tangential. Sie lassen sich auch nicht in Rollendrehrichtung verdrehen. (Rollendrehrichtung ist unterschiedlich bei Ausführung „A“ und „B“.) Ist dieser gespannte Zustand nicht vorhanden, so ist er durch Drehen der Mitnehmersnasen oder einer Mitnehmerscheibe in Rollendrehrichtung oder mit Hilfe des Sechskantstiftschlüssels in Verbindung mit dem Innensechskant im Zentrum des Rollkopfes durch Drehen in Uhrzeigerrichtung bei Ausführung „A“ (bei „B“ entgegengesetzt) bis zum Einrasten der Kupplung herzustellen. Im Arbeitseinsatz wird dieser Zustand durch das Gewinderollen immer selbsttätig wiederhergestellt.

### Einbau der Gewinderollen

Der Einbau der Gewinderollen (22) soll stets im gespannten Zustand des Rollkopfes geschehen. Nach Lösen der drei Zylinderschrauben (33) kann die Frontplatte (4) abgehoben werden. Die Nuten der aufgesteckten Mitnehmerscheiben (12) müssen jetzt tangential stehen. Der Satz Gewinderollen (22), bestehend aus Nr. 1, 2 und 3 der gleichen Ausführungsart wie der Rollkopf (z. B. Rollen E 16 A für Rollkopf E 16 A), wird im Uhrzeigersinn so auf die mit Laufbuchsen (15) versehenen Exzenterbolzen (9) gesteckt, dass die Abflachung zur Mitte zeigt. Nach Aufsetzen und Verschrauben der Frontplatte (4) ist der Rollkopf einsatzbereit.

### Flanken-Ø

Der Abstand der Gewinderollen (22) lässt sich nach Lösen der Sechskantmutter (26) durch Verdrehen des Zahnkranzes (8) verändern. Zur Voreinstellung ist die 0-Stellung zu wählen. Durch unterschiedliche Auffederung des Rollkopfes, aufgrund der verschiedenen Festigkeiten der zu rollenden Werkstoffe, kann ein Nachjustieren nötig sein.

Wird das Kleinmaß des **Außen-Ø** nicht erreicht, obwohl der Flankendurchmesser innerhalb seiner Toleranz liegt, dann ist der Ausgangs-Ø zu klein gewählt worden. Da ein zu großer Ausgangs-Ø zu Schäden an Gewinderollen und Rollkopf führen kann, ist der richtige Ausgangs-Ø durch einige Proberollungen zu ermitteln.

### Loading

The rolling head is ready for operation only when the spring is loaded and the clutch engaged. When this is the case, the engaging lugs of the synchronized gears (#5)<sup>1)</sup> are radially positioned, and with driving plates (#12) assembled, the slots of the plates which drive the thread-rolling dies (#22) are positioned tangentially. They cannot be turned in the direction of rotation of the rolls. (Direction of rotation is different in versions "A" and "B".) If the rolling head is not spring-loaded as described, then it must be loaded by turning the engaging lugs or a driving plate in the direction of rotation of the rolls. Alternatively, the hexagon socket-head screw (#31) in the center of the rolling head must be turned with an Allen wrench, clockwise in the case of version "A", (the opposite way for "B"), until the clutch engages. When the head is in use, this condition is re-established automatically by the action of thread rolls.

### Assembly of the thread rolls

Thread rolls (#22) should always be assembled with the rolling head in loaded condition. After loosening the three front plate screws (#33), the front plate (#4) can be taken off. The slots of the driving plates (#12) must now be positioned tangentially. The set of thread rolls (#22), consisting of numbers 1, 2, and 3 of the same version as the rolling head (e. g. rolls E 16 A for rolling head E 16 A), are assembled with the eccentric shafts (#9) with bushings fitted (#15) and turned clockwise until the flats of the rolls face the center. When the front plate (#4) has been assembled and screwed down, the rolling head is ready for operation.

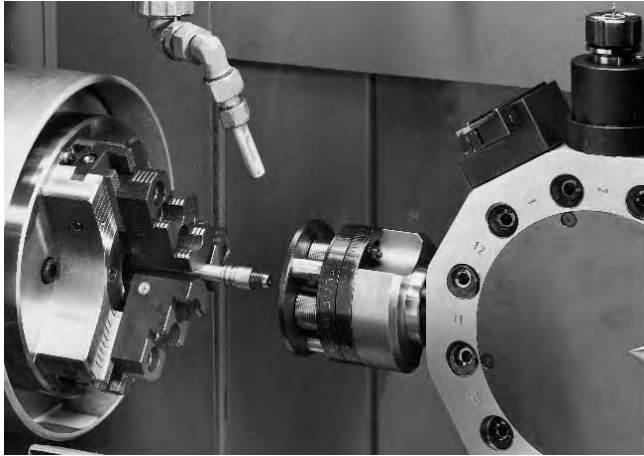
### Pitch diameter

The distance between the thread rolls (#22) can be changed by loosening the hexagon nuts (#26) and turning the gear rim (#8). Initially the 0-position should be selected. It may be necessary, because of variation in spring-action of the rolling head caused by the different tensile strengths of the material being rolled, to adjust the distance.

If the lower limit of the **major diameter** is not reached although the pitch diameter is within the given tolerance, then the blank diameter selected is too small. Since a blank diameter selected which is too large may cause damage to the thread rolls and rolling head, the correct blank diameter should be determined by staging several trial rolling operations.

<sup>1)</sup> Diese Zahlen entsprechen den Ersatzteil-Nr. auf den Seiten 261, 265, 269, 271, 273, 281, 285.

<sup>1)</sup> These figures correspond to the part numbers on the list of spare parts (see pages 261, 265, 269, 271, 273, 281, 285).



**Rollkopf feststehend, Werkstück umlaufend (Typ E, EB)**

**Aufnahme des Rollkopfes:** Zunächst wird der Rollkopf beispielsweise auf dem Revolver einer Drehmaschine aufgebaut. Die Mitte des Rollkopfes muss genau mit der Spindelachse der Drehmaschine übereinstimmen.

Sodann wird die **vorderste Stellung des Revolvers** festgelegt. Damit ist die Lage des Gewindes auf dem Werkstück bestimmt. Es ist zweckmäßig, diese Stellung bei Verwendung eines Längsschlittens durch einen Festanschlag zu fixieren, wenn das **Auslösen des Rollvorganges von Hand** erfolgen soll. Bei **selbsttätiger Auslösung** ist ein Festanschlag in Höhe des Auslösehebels (10)<sup>1)</sup> so anzubringen, dass in vorderster Stellung die Kupplung durch Anschlagen des Auslösehebels (10) an den Festanschlag soeben ausgelöst worden ist. Der Schaltweg ist aus den Tabellen, Seiten 258–282, Maß L<sub>2</sub> zu ersehen.

Ist der Rollkopf ausgelöst worden, ohne ein Werkstück zu rollen, muss er wieder durch Drehen, z. B. an einer Gewinderolle, oder mit Hilfe des Sechskantschlüssels in Verbindung mit dem Innensechskant im Zentrum des Rollkopfes durch Drehen in Uhrzeigerichtung bei Ausführung „A“ (bei „B“ entgegengesetzt) gespannt werden.

**Non-rotating rolling head, rotating component (Type E, EB)**

**Mounting the rolling head:** The rolling head is mounted, for example, on the longitudinal slide of a lathe. The centre of the rolling head must be exactly in line with the spindle center line of the lathe.

The **furthest position of the longitudinal slide** is now determined. This locates the position of the thread on the component. If the **rolling operation is started by hand**, it is of advantage if this position of the slide is located by means of a fixed stop. Where the **rolling operation is started automatically**, an additional fixed stop must be mounted at the same level as the trip release lever (#10)<sup>1)</sup> in such a way that at the point of furthest advance of the slide, the clutch is disengaged by the trip release lever (#10) pushing the fixed stop.

If the rolling head is tripped without rolling component, it must be reset again, e. g. by turning one of the thread rolls.

<sup>1)</sup> Diese Zahlen entsprechen den Ersatzteil-Nr. auf den Seiten 261, 265, 269, 271, 273, 281, 285.

<sup>1)</sup> These figures correspond to the part numbers on the list of spare parts (see pages 261, 265, 269, 271, 273, 281, 285).



| Rollkopf-typen<br>Rolling head types | Auslösekraft bei max. Rollgeschwindigkeit 30 m/min<br>Tripping power at max. rolling speed of 30 m/min (90 SFM) |
|--------------------------------------|---|
| E 8, E 10, E 13                      | approx. 200 N   |
| E 16, E 23                           | approx. 400 N   |
| E 30                                 | approx. 600 N   |

Rollkopf umlaufend, Werkstück feststehend (Typ E)

**Aufnahme des Rollkopfes:** Zunächst wird der Rollkopf beispielsweise auf die Hohlspindel einer Drehmaschine angeflanscht. Die Achse des auf dem Längsschlitten festgespannten Werkstückes muss genau mit der Spindelachse übereinstimmen. Dann wird die **vorderste Stellung des Längsschlittens** festgelegt. Damit ist die Lage des Gewindes auf dem Werkstück bestimmt. Es ist zweckmäßig, diese Stellung des Schlittens durch einen Festanschlag zu fixieren.

**Das Auslösen des Rollvorganges** kann bei umlaufendem Rollkopf nur durch den inneren Auslösehebel (23, 43) vorgenommen werden, der durch eine durch die Hohlspindel hindurch geführte Druckstange gedrückt werden muss. Der Schaltweg des inneren Auslösehebels ist aus den Tabellen, Seite 266, 270, Maß L<sub>0</sub> zu ersehen.

Der Schaltvorgang kann pneumatisch oder mechanisch erfolgen (siehe Abbildung).

Ist der Rollkopf ausgelöst worden, ohne ein Werkstück zu rollen, muss er wieder gespannt werden. Dazu muss die Spindel stillgelegt werden.

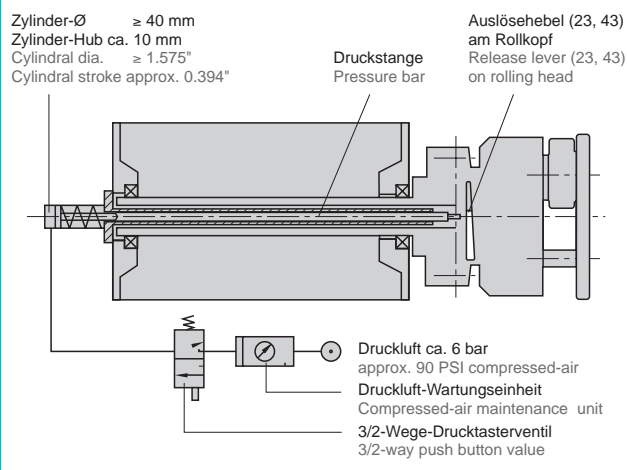
Rotating rolling head, non rotating component (Type E)

**Mounting the rolling head:** The rolling head is first mounted by flange, for example, to the hollow spindle of a lathe. The center line of the component, which is clamped on the longitudinal slide, must be exactly in line with the spindle center line.

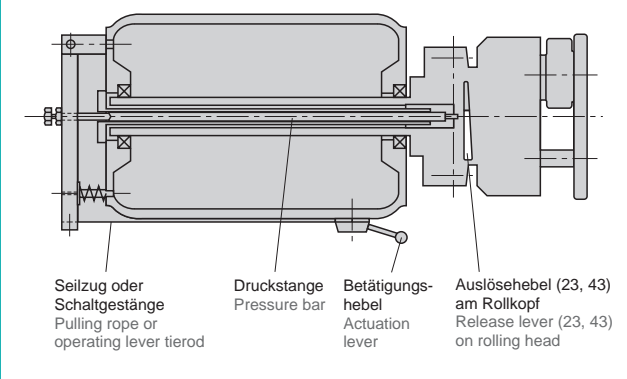
The **furthest advance position of the longitudinal slide** is determined next, which locates the position of the thread on the component. It is advisable to locate this position of the slide by means of a fixed stop. With the rolling head rotating, the **rolling operation** can only be **started** by means of the internal trip release lever (#23, 43), which must be pushed by a rod passing through the hollow spindle. Internal trip lever see tables 266, 270 dimension L<sub>0</sub>. The actuating process can be done pneumatically or mechanically (see also Fig.).

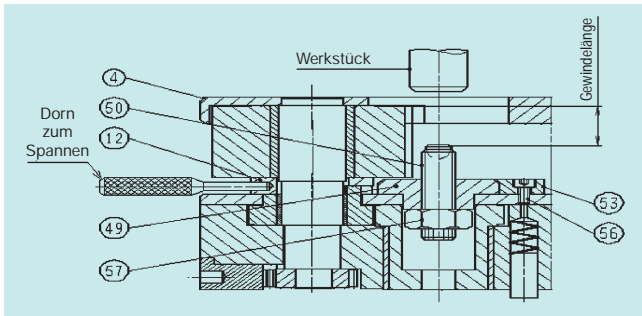
If the rolling head is tripped without rolling a component, it must be reset again. To do this, the spindle must be stopped.

Beispiel einer pneumatischen Auslösevorrichtung  
Example of Pneumatic Actuating Unit



Beispiel einer mechanischen Auslösevorrichtung  
Example of a Mechanical Actuating Unit





**Rollkopf umlaufend und feststehend (Typ EW)**

**Aufnahme des Rollkopfs:** Der Rollkopf kann auf einem Revolver, einem Längsschlitten oder einer Spindel aufgenommen werden. Die Mitte des Rollkopfs muss genau mit der Werkstückachse übereinstimmen.

**Die Auslösung der Type EW** erfolgt über den drehbaren Innenanschlag. Durch diesen Anschlag wird auch die zu rollende Gewindelänge bestimmt.

Daher muss die Gewindelänge vor dem ersten Rollvorgang eingestellt werden:

1. Ermitteln der eingestellten Gewindelänge:
  - 1.1. Spannen des Rollkopfes durch Verdrehen einer Mitnehmerscheibe (12). Dazu einen Dorn in eines der Löcher am Umfang der Mitnehmerscheibe stecken und die Scheibe verdrehen, bis die Rollen einrasten (der Rollkopf ist gespannt!)
  - 1.2. Die eingestellte Gewindelänge zwischen Oberkante der Rolle und der Anschlagsschraube (50) mit Messschieber messen.
2. Die Differenz der eingestellten Gewindelänge zur gewünschten Gewindelänge ist das Maß, um das die Anschlagsschraube (50) verstellt werden muss.
3. Hierzu müssen die drei Zylinderschrauben gelöst werden, mit der die Frontplatte (4) befestigt ist. Diese kann nun, ebenso wie die Gewinderollen abgenommen werden.
4. Nun lassen sich die drei Befestigungsschrauben (56) lösen, so daß der Haltering (53) und der Anschlag (49, 50, 57) ausgebaut werden können. Nach dem Lösen der Kontermutter (57) lässt sich die Anschlagsschraube (50) um das unter Punkt 2. ermittelte Maß verdrehen.
5. Kontermutter (57) wieder festziehen, Anschlag (49, 50, 57) einsetzen und mit Halteleiste (53) und Schraube (56) befestigen. Beim einsetzen der Rollen darauf achten, dass diese entsprechend ihrer Beschriftung (1, 2, 3) im Uhrzeigersinn eingebaut werden.
6. Frontplatte (4) wieder aufsetzen und mit den drei Zylinderschrauben festschrauben.

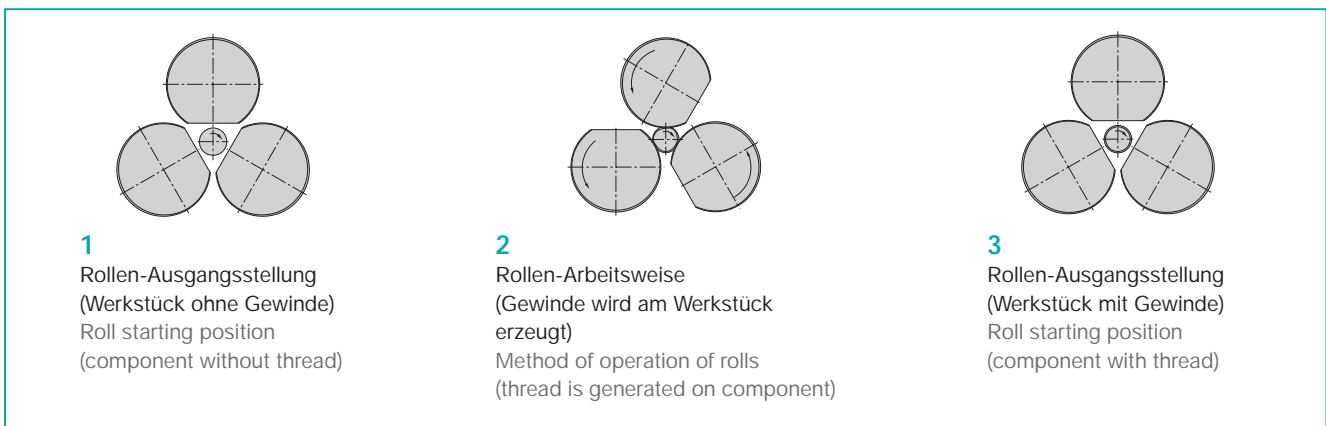
**Rotating and stationary rolling head (type EW)**

**Rolling head seating:** The rolling head can be mounted on a turret, a saddle carriage or a spindle. The center of the rolling head must be aligned accurately with the axis of the workpiece.

**The type EW** an is triggered by the rotating internal stop. This stop also determines the length of thread to be rolled. For this reason, the thread length must be adjusted before the first rolling process:

1. Determining the set thread length:
  - 1.1. Clamp the rolling head by turning the driving plate (#12). To do this, insert a rod into one of the holes at the periphery of the driving plate, and turn the plate until the rollers latch into place. (The rolling head is now clamped!)
  - 1.2. Use a caliper gauge to measure the set thread length between the upper edge of the roller and the stop screw (#50).
2. The difference between the set thread length and the desired thread length is the distance by which the stop screw (#50) must be moved.
3. To do this, it is necessary to release the three cheese-head screws with which the front plate (#4) is fastened. This can now be removed, as can the thread rollers.
4. The three fastening screws (#56) can now be undone, so that the holder (#53) and the stop mechanism (#49, 50, 57) can be dismantled. After the locknut (#57) has been undone, move the stop screw (#50) by the distance determined under Point 2.
5. Tighten the locknut (#57) again, insert the stop mechanism (#49, 50, 57) and fasten it with the fastening strip (#53) and bolt (#56). When inserting the rollers, make sure that they are fitted clockwise in accordance with their labeling (1, 2, 3).
6. Replace the front plate (#4) and fix it in place with the three cheese-head screws.

**Der Rollvorgang  
Thread-Rolling Operation**





**Umlaufender Rollkopf (Typ E)**

1. Sind der Rollkopf und die Maschine gemäß der Beschreibung eingerichtet, kann der Rollvorgang beginnen. Das festgespannte Werkstück wird bei sich drehendem Rollkopf durch den Längsschlitten in die Position zum Rollkopf gefahren, an der das Gewinde entstehen soll.
2. Zur **Auslösung** des Rollvorganges wird mit der durch die Hohlspindel geführten Druckstange der innere Auslösehebel (23, 43) betätigt und dadurch die Kupplung gelöst. Das Federwerk dreht die Gewinderollen bis zur Berührung mit dem Werkstück. Der Rollvorgang beginnt. Durch den Reibschluss zwischen den Gewinderollen und dem festgespannten Werkstück werden die Gewinderollen weitergedreht und das Federwerk wieder gespannt.
3. **Nach Beendigung des Rollvorganges** rastet die Kupplung wieder ein. Die Gewinderollen haben das Werkstück wieder freigegeben. Der Längsschlitten kann nun zurückgezogen werden. Der ganze Rollvorgang dauert je nach Gewindegröße und Rollkopf-Typ nur einige Werkstückumdrehungen, jedoch immer nur **eine** Gewinderollenumdrehung.

**Feststehender Rollkopf (Typ E, EB)**

1. Sind der Rollkopf und die Maschine gemäß vorstehender Beschreibung eingerichtet, kann der Rollvorgang beginnen. Der Rollkopf wird bei sich drehendem Werkstück durch den Längsschlitten in die Position zum Werkstück gefahren, an der das Gewinde entstehen soll.
2. Bei **selbsttätiger Auslösung** schlägt der äußere Auslösehebel (10)<sup>1)</sup> an den Festanschlag und löst die Kupplung. Das Federwerk dreht die Gewinderollen (22) bis zur Berührung mit dem Werkstück. Der Rollvorgang beginnt. Durch den Reibschluss zwischen Werkstück und Gewinderollen werden die Gewinderollen weitergedreht und das Federwerk wieder gespannt. Bei **Auslösung von Hand** wird nach dem Vorfahren des Längsschlittens in die vorderste Stellung der äußere Auslösehebel (10) von Hand betätigt. Der Rollvorgang verläuft dann wie bei selbsttätiger Auslösung. Zur besseren Betätigung kann der äußere Auslösehebel durch einen einschraubbaren Kugelgriff verlängert werden.
3. **Nach Beendigung des Rollvorganges** rastet die Kupplung wieder ein. Die Gewinderollen haben das Werkstück wieder freigegeben. Der Längsschlitten kann nun zurückgezogen werden. Der ganze Rollvorgang dauert je nach Gewindegröße und Rollkopf-Typ nur einige Werkstückumdrehungen, jedoch immer nur **eine** Gewinderollenumdrehung.

**Rollkopf umlaufend und feststehend (Typ EW)**

1. Sind der rollkopf und die Maschine gemäß Beschreibung eingerichtet, kann der Rollvorgang beginnen.
2. **Zur Auslösung** werden Rollkopf und Werkstück axial aufeinander zugefahren, bis das Werkstück den inneren Auslösehebel berührt. Vom Berühren des Anschlags mit dem Werkstück bis zum Auslösen des Rollkopfs ist ein Auslöseweg  $L_1$  (siehe Tabelle Seiten 266, 270) erforderlich. Der Auslöseweg  $L_1$  darf niemals größer als der max. Hub  $L_2$  (siehe Tabelle auf Seiten 266, 270) eingestellt werden. Durch das Verfahren um den Auslöseweg wird die Kupplung im Rollkopf gelöst. Das Federwerk dreht die Gewinderollen bis zur Berührung mit dem Werkstück. Der Rollvorgang beginnt. Durch den Reibschluss zwischen Gewinderollen und Werkstück werden die Gewinderollen weitergedreht und das Federwerk wieder gespannt.
3. **Nach Beendigung des Rollvorganges** rastet die Kupplung wieder ein. Die Gewinderollen haben das Werkstück wieder freigegeben. Das Werkstück kann nun in axialer Richtung aus dem Rollkopf gefahren werden. Der ganze Rollvorgang dauert je nach Gewindegröße nur einige Werkstückumdrehungen, jedoch immer nur **eine** Gewinderollenumdrehung.

**Rotating Rolling Head (Type E)**

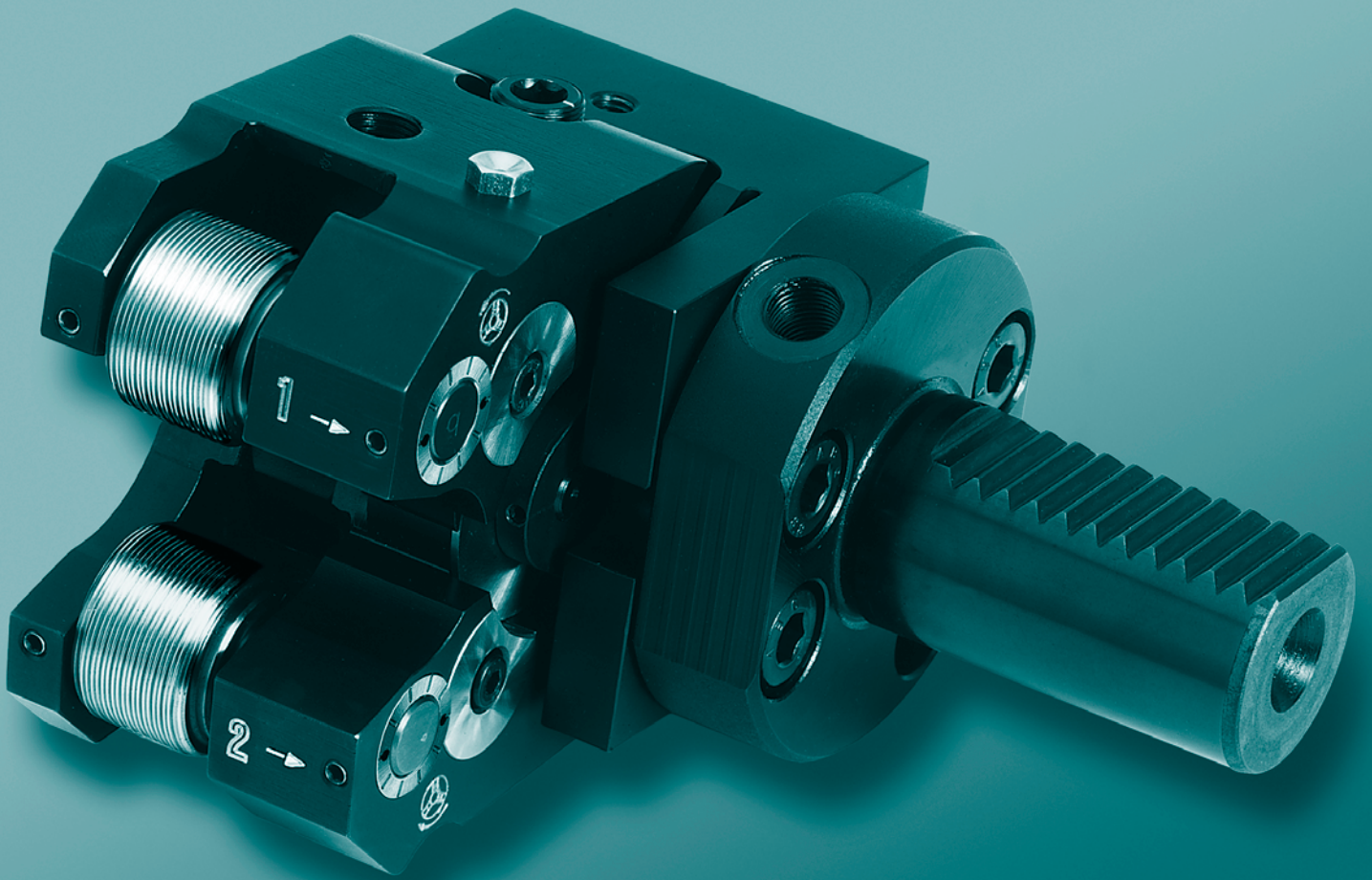
1. When the rolling head and machine have been set as described, the rolling process can be started. With the rolling head rotating, the clamped component is moved into threading position.
2. To **start** the rolling operation, the internal trip release lever (#23, 43) is actuated by the pushrod which passes through the hollow spindle. This releases the clutch. The spring turns the thread rolls until they are in contact with the component. The rolling operation starts. Frictional contact between the component and the thread-rolls (#22) causes the latter to rotate and the spring is thereby loaded again.
3. **When the rolling operation is completed**, the clutch again engages. The thread rolls have released the component. The longitudinal slide can be retracted. The whole rolling operation lasts for only a few revolutions of the component, the number of revolutions depending on the size of the thread and type of rolling head being used, but in all cases the thread rolls revolve only once.

**Non-rotating Rolling Head (Type E, EB)**

1. When the rolling head and machine have been set as described above, the thread-rolling operation can be started. If the component rotates, the rolling head is moved into threading position.
2. When the rolling operation is **tripped automatically**, the external trip release lever (#10)<sup>1)</sup> comes up against the fixed stop and releases the clutch. The spring turns the thread rolls (#22) until they are in contact with the component. The rolling operation starts. Frictional contact between component and rolls turns the rolls still further and the spring is thereby loaded again. When the rolling operation is **started by hand**, the longitudinal slide is advanced to its furthest position and the external trip release lever (#10) is then operated by hand. Rolling then proceeds in the same way as for automatic tripping. To facilitate handling of the outside external trip release lever, a ball-type knob can be attached.
3. **When the rolling operation is completed**, the clutch again engages. The thread rolls have released the component. The longitudinal slide can be retracted. The whole rolling operation lasts for only a few revolutions of the component, the number of revolutions depending on the size of the thread and type of rolling head being used, but in all cases the thread rolls revolve only **once**.

**Rotating and stationary rolling head (type EW)**

1. Rolling can begin when the rolling head and the machine have been set up in accordance with the description.
2. **The process** is initiated by bringing the rolling head and work-piece together axially until the work piece touches the internal triggering lever. A triggering distance  $L_1$  (see table on pages 266, 270) is required from the initial contact between the stop and the workpiece to triggering the rolling head. The triggering distance  $L_1$  must never be set to a value greater than the maximum stroke  $L_2$  (see table on pages 266, 270). When the triggering distance has been covered, the coupling in the rolling head is triggered. The spring mechanism turns the thread rollers until they contact the workpiece. The rolling process begins. The frictional connection between the thread rollers and the work-piece turns the thread rollers further on, and the spring mechanism is tightened again.
3. The coupling latches into place again **when the rolling procedure has been finished**. The thread rollers have released the workpiece once more. The workpiece can now be removed from the rolling head in an axial direction. Depending on the size of the thread, the entire rolling procedure only requires a few rotations of the workpiece, and only ever **one** thread roller rotation.



# Tangential-Gewinde

## Tangential Threads

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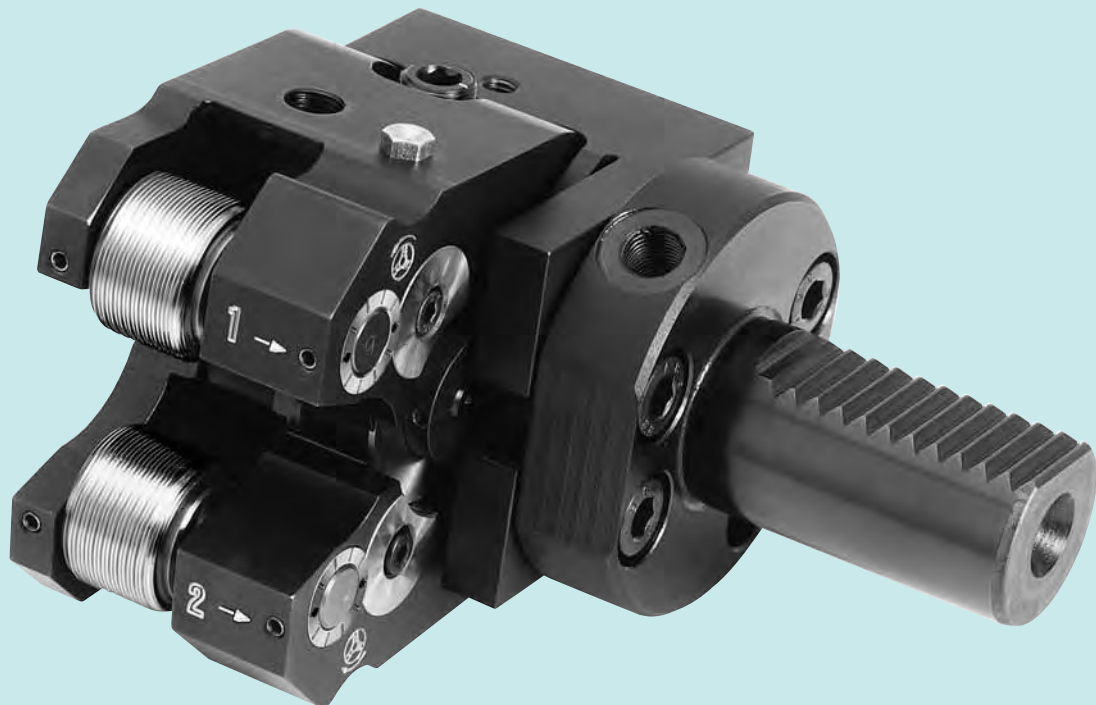
### Mit folgenden Vorteilen:

- Symmetrische Rolleneinstellung dank einer mittig angeordneten Einstellschraube
- Ein optimaler Rollenantrieb gewährleistet immer korrekte Rollen-anordnung
- Voreinstellung außerhalb der Werkzeugmaschine
- Verbesserte Ausführung der Federplatte
- Auch für schnelldrehende Revolver geeignet
- Erhöhte Steifigkeit durch Hartmetall-Achsen
- Konstruktionslänge um 20 % verkürzt, so können auch kleine Werkzeugmaschinen eingesetzt werden
- Einfacher Einbau

### With detailed competitive advantages:

- Symmetrical roll adjustment due to a central setting screw
- An optimal roll drive always ensures a proper roll assembly
- Pre-adjustment outside the machine tool
- Improved spring plate design
- Also suitable for quick-rotating turrets
- Increased rigidity due to carbide axles
- Construction length reduced by 20%, allowing usage of smaller machine tools, as well
- Simple assembly

**T220F** mit Feineinstellung zur genauen Kontrolle des Axialspiels  
with fine adjustment for controlled axial lead



Schnell

Kompakt

Robust

Flexibel

Langlebig

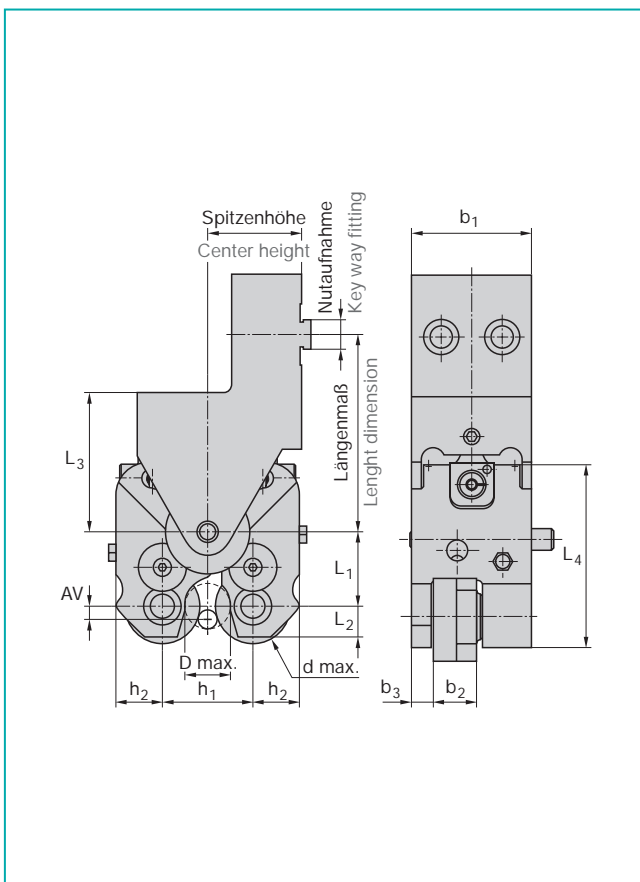
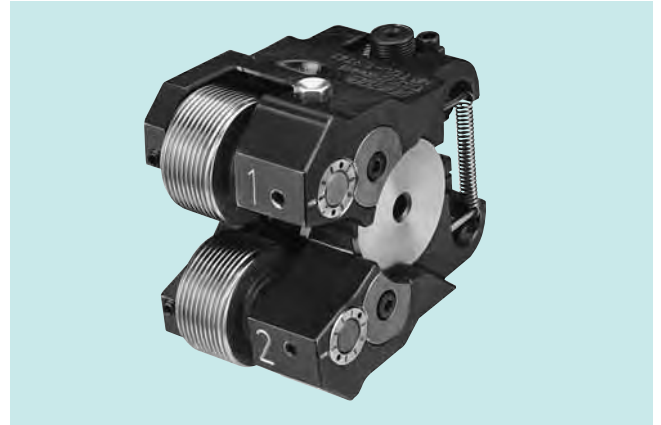
Fast

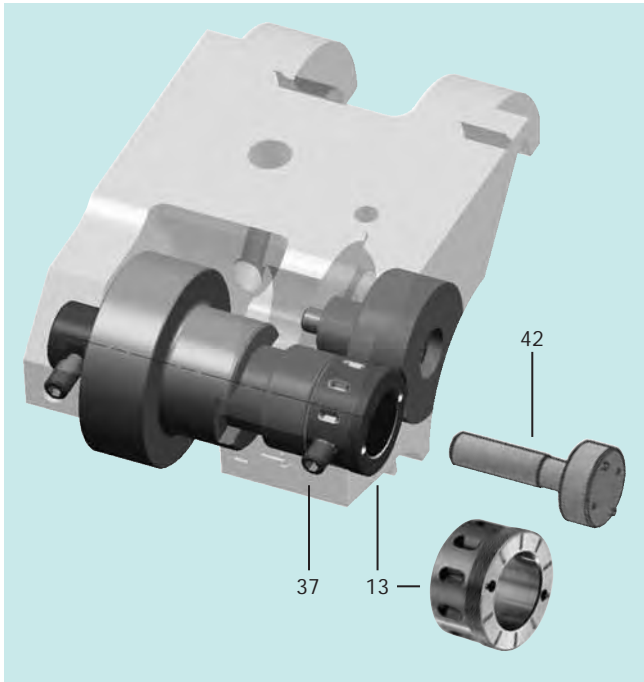
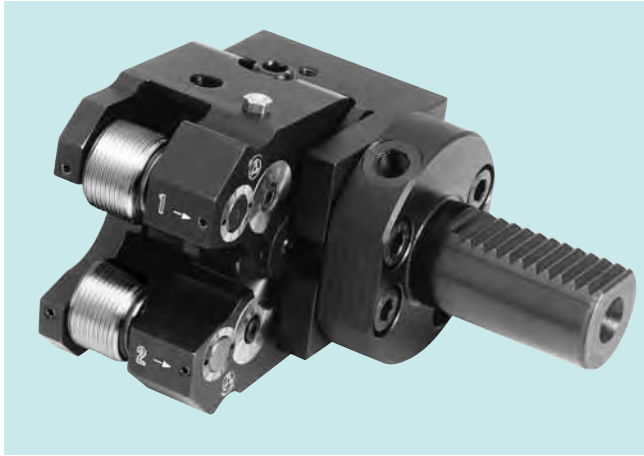
Compact

Solid

Flexibel

Long-lasting





**Einstellung des axialen Rollenspiels**

Gerade bei Feingewinden ist es besonders wichtig, das axiale Rollenspiel unter Kontrolle zu behalten.

Bei feinsten Gewindesteigungen besteht die Gefahr der Spanbildung während des Rollprozesses. Mit der Fette-Feineinstellung für Tangential-Rollköpfe wird dieses Rollenspiel auf 0,05 mm reduziert und Spanbildung verhindert. Die Feineinstellung des axialen Rollenspiels kann auch an vorhandenen Tangential-Rollköpfen nachgerüstet werden.

**Einfache Einstellung des axialen Rollenspiels:**

Klemmschraube (37) lösen. Schlüssel (42) auf Buchse (13) aufsetzen und im Uhrzeigersinn verdrehen bis die Gewinderolle fest sitzt. Dann die Buchse (13) gegen den Uhrzeigersinn zurückdrehen, bis die Klemmschraube (37) in die nächste Nute der Buchse (13) eingreifen kann. Klemmschraube (37) festziehen. Prüfen ob sich die Gewinderolle jetzt wieder leicht drehen lässt.

Das Axialspiel der Gewinderolle ist jetzt mit **max. 0,05** eingestellt. Einstellmöglichkeiten: Gewindesteigung = 0,5 mm. 10 Nuten mit je 0,05 mm.

**Adjustment of the axial roll allowance**

Especially for fine threads, it is particularly important to keep the axial roll allowance under control.

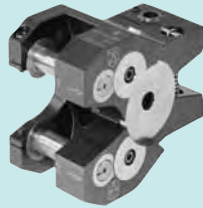
In the case of ultra-fine thread pitches, there is a risk of chip formation during the rolling process. The Fette fine adjustment for tangential rolling heads reduces this roll allowance to 0.05 mm and thus prevents chip formation.

The new designed equipment for reducing the axial allowance can also be retrofitted to existing tangential rolling heads.

**Simple adjustment of the axial roller play:**

Loosen clamping screw (37). Place key (42) on bushing (13) and turn clockwise until thread roll sits firmly. Then turn bushing (13) back counter-clockwise until the clamping screw (37) engages in the next groove of the bushing (13). Tighten clamping screw (37). Check that the thread roll now turns again easily. The axial play of the thread roll is now adjusted with **max. 0.05**. Adjustment possibilities: thread pitch = 0.5 mm. 10 grooves 0.05 mm each.

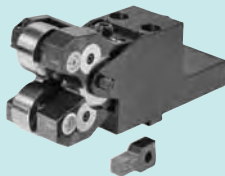
**1**  
**Tangential-Gewinde-Rollkopf**  
Fette tangential side rolling attachment (standard design version)



**2**  
**Tangential-Gewinderollen und Einstelllehre**  
(für jede Gewindeabmessung sind ein Rollensatz und eine Einstelllehre erforderlich)  
Fette tangential thread rolls and setting gauge (each thread size requires one set of rolls, and one setting gauge)



**3**  
**Tangential-Gewinde-Rollkopf-Ausrüstung, komplett**  
Fette tangential side rolling equipment complete



**4**  
**Tangential-Rollkopfhalter für Querschlittenaufnahme**  
Fette tangential side rolling attachment holder (may vary in configuration)



**5**  
**Tangential-Rollkopfhalter für Revolveraufnahme VDI**  
Tangential Rolling Head Holder for indexing revolving turrets with DIN 69 880 mounting



**6**  
**Tangential-Rollkopfhalter in verschiedenen Ausführungen**  
Tangential rolling head holder in various versions



Auf Drehmaschinen mit gesteuertem Vorschub, wie kurvengesteuerte oder hydraulische Mehrspindler, sowie CNC-Drehautomaten kann die große Wirtschaftlichkeit des Rollverfahrens auch mit Fette-Tangential-Gewinde-Rollköpfen Anwendung finden, insbesondere für folgende Gewinde und Anwendungen (Bedingung ist ein umlaufend angetriebenes Werkstück):

- Gewinde hinter einem Bund
- extrem kurze Gewinde
- Gewinde mit sehr kurzem Auslauf (ca. 1 x Steigung)
- konische Gewinde
- Rändel nach DIN 82
- Glätten
- Formen

Die mit einem Fette-Tangential-Gewinderollkopf gerollten Gewinde weisen alle Vorteile der spanlosen Gewindeherstellung auf. Fette-Tangential-Gewinde-Rollköpfe gibt es in 7 Baugrößen, die jeweils einen großen Arbeitsbereich haben. Es ist zu empfehlen, den größten auf der Maschine passenden Rollkopf-Typ zu verwenden. Dieses hat den Vorteil, dass der gesamte Arbeitsbereich der Maschine erfasst werden kann. Auch erreicht man dadurch größere Gewindelängen, max. Werkstückbund-Ø sowie größte Wirtschaftlichkeit des Rollkopfes.

Fette tangential rolling attachments complete the Fette range of tools for the cold forming of various profiles.

By using lathe type machine tools with automatic, power infeed – as with controlled or hydraulic automatics, hydraulically operated copy lathe, NC/CNC lathes, etc. – it is now possible to feed from the side of the part and obtain all of the advantages of the rolling method. Fette tangential type rolling attachments are especially suited to produce the following threads and profiles:

- Thread rolled behind a shoulder
- Extremely short thread lengths
- Threads with a very short runout (approx. 1/2 – 1 x pitch)
- Tapered threads
- Straight Knurls DIN 82
- Burnishing
- Forming

The component must rotate for this application. Fette tangential side rolling attachments are available in 6 sizes covering a wide range of diameters. It is recommended that the largest rolling attachment that can be adapted on the machine always be used, thereby offering the advantage that the entire work range of the machine can be utilized. Longer threads, maximum component shoulder diameters, and a higher efficiency of the rolling attachment will be attained that way.

Fette-Tangential-Gewinde-Rollköpfe wurden in erster Linie zum Rollen hinter einem Bund-Ø entwickelt. Die Arbeitsweise erfolgt also im Einstichverfahren. Tangential-Gewinde-Rollköpfe können auf allen Drehmaschinen aufgenommen werden, die eine automatische Zustellung haben. Der Tangential-Gewinde-Rollkopf wird in einem Rollkopfhalter (Adapter) aufgenommen. Dieser ist der jeweiligen Werkzeugaufnahme der Maschine angepasst. Vor dem Einsatz eines Tangential-Gewinde-Rollkopfes ist zu überprüfen, ob die Aufnahme des Rollkopfes auf dem Drehautomaten erfolgen kann (siehe Einsatzmöglichkeiten der Tangential-Rollköpfe auf Drehautomaten Seite 377), und es ist abzuklären, ob evtl. Werkstück-Bund-Ø keine Kollision mit dem Rollkopf haben (siehe max. zulässige Bund-Ø Seite 377).

**Für Linksgewinde wird derselbe Rollkopf benutzt wie für Rechtsgewinde. Die Gewinderollen müssen dann für Linksgewinde ausgelegt sein.**

Fette-Tangential-Gewinde-Rollköpfe Typ „T“ umfassen einen Arbeitsbereich bis 64 mm.

Die Aufteilung der Arbeitsbereiche zeigen nebenstehende Tabellen. Die Gewindelänge, einschließlich des Gewindeauslaufes, kann nicht größer als die Rollenbreite sein.

Für kleinere Gewindelängen können, wenn erforderlich, abgesetzte Gewinderollen geliefert werden besonders dann, wenn hinter einem Bund-Ø gerollt wird.

Bitte gewünschte Rollenbreite angeben.

Fette Tangential Side Rolling Attachments were originally developed to roll threads behind a shoulder. The process requires the rolls to be plunged, at a controlled rate, into the rotating component. Tangential Side Rolling Attachments may be mounted in any machine tool having a cross slide or turret with a controlled feed stroke. The attachment is mounted in a holder that has been designed for a specific machine tool. There must be clearance between the attachment and machine tool, as well as between the arms of the attachment and any shoulder on the component. Refer to page 377 for holder-machine tool applications, and page 377 for component shoulder clearances.

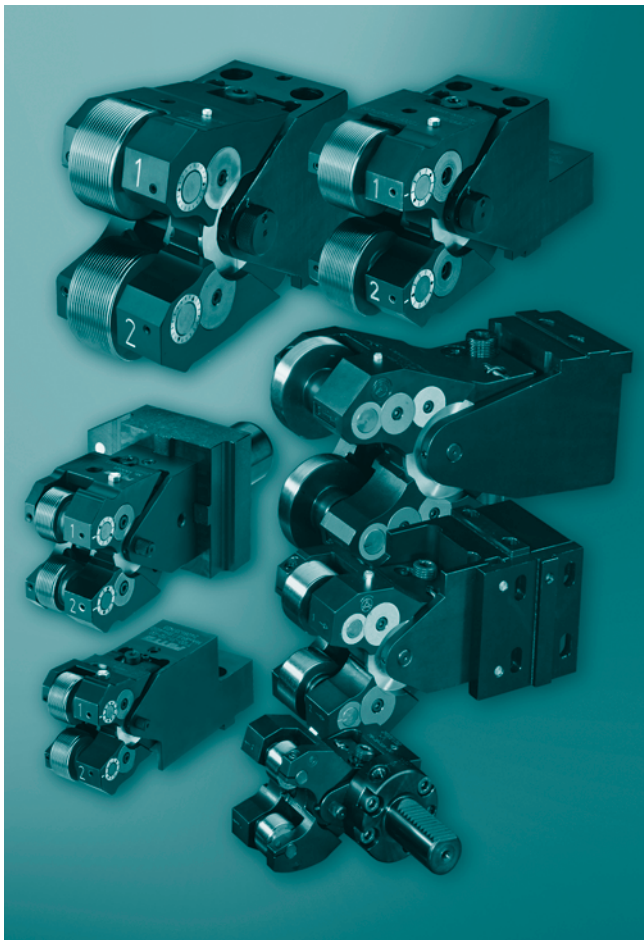
**For left-hand threads, the same attachment can be used as for right-hand threads. Left-hand threads require left-hand rolls.**

Fette-Tangential Side Rolling Attachments, Type T, have a capacity range to 2.52".

Capacity ranges are shown in the adjoining table.

The thread length including thread run-out can not exceed the width of the roll.

For shorter threads, rolls can be supplied with a recess for additional clearance. Roll width must be specified.





| Arbeitsbereiche<br>Capacity Range T 18, T 27, T 42, T 120 F, T 160 F, T 220 F, T 350 F |   |             |   |   |  |  |   |  |
|--|---|-------------|---|---|--|--|---|--|
| Rollkopf<br>Type   | zylindrische Gewinde<br>Cylindrical threads |             |   |   | konische Gewinde<br>Taper threads                |  |   | zul. Bund-Ø und<br>Arbeitswege<br>Tolerance for<br>Shoulder dia.<br>and cam rise   |
|  | Außen-Ø<br>Major Diameter<br>mm   inch      |             | max. Steigung<br>min. Gang/"<br>max. Pitch<br>min TPI | Rollenbreite<br>Roll<br>width<br>max. <sup>1)</sup> | Norm<br>Standard                                 | min.   | max.  |  |
| T 120 F  | 1,6   1/16                                  | 14   9/16   | 1,5   16  | 15,5   0.6102                                       | DIN 158<br>DIN 2999<br>DIN 3858<br>ANSI B 1.20.1 | M 6 x 1 keg. taper<br>R 1/16 - 28<br>R 1/8 - 28<br>1/16 -27 NPT (NPTF) | M 14 x 1.5 keg. taper<br>R 1/4 - 19<br>R 1/4 - 19<br>1/4 - 18 NPT (NPTF)      | Bei Metrisch (DIN 158)- u. Whitworth (DIN 2999; DIN 3858) -Profil sind Bund-Ø und Arbeitswege mit zylindrischen Gewinden gleicher Abmessung identisch, NPT- u. NPTF (ANSI B 1.20.1) Gewinde siehe Internet<br>With metric (DIN 158) and Whitworth (DIN 2999, DIN 3858) profiles the shoulder dia. and cam rise with cylindrical threads are dimensionally identical, NPT, NPTF see internet. |
| T 160 F  | 2   5/64                                    | 16   5/8    | 1,75   16   | 18,5   0.7283                                       | DIN 158<br>DIN 2999<br>DIN 3858<br>ANSI B 1.20.1 | M 6 x 1 keg. taper<br>R 1/16 - 28<br>R 1/8 - 28<br>1/16 -27 NPT (NPTF) | M 16 x 1.5 keg. taper<br>R 3/8 - 19<br>R 3/8 - 19<br>3/8 - 18 NPT (NPTF)      |  |
| T 18   | 2   5/64                                    | 30   1 3/16 | 2   12  | 21,5   0.8465                                       | DIN 158<br>DIN 2999<br>DIN 3858<br>ANSI B 1.20.1 | M 6 x 1 keg. taper<br>R 1/16 - 28<br>R 1/8 - 28<br>1/16 -27 NPT (NPTF) | M 30 x 1.5 keg. taper<br>R 3/4 - 14<br>R 3/4 - 14<br>1/2-14 NPT (NPTF)        |  |
| T 220 F  | 2   5/64                                    | 36   1 3/8  | 2,5   10  | 26   1.0236   | DIN 158<br>DIN 2999<br>DIN 3858<br>ANSI B 1.20.1 | M 6 x 1 keg. taper<br>R 1/16 - 28<br>R 1/8 - 28<br>1/16 -27 NPT (NPTF) | M 36 x 1.5 keg. taper<br>R 3/4 - 14<br>R 3/4 - 14<br>3/4-14 NPT (NPTF)        |  |
| T 27   | 2   5/64                                    | 42   1 5/8  | 2,5   10  | 31   1.2205   | DIN 158<br>DIN 2999<br>DIN 3858<br>ANSI B 1.20.1 | M 6 x 1 keg. taper<br>R 1/16 - 28<br>R 1/8 - 28<br>1/16 -27 NPT (NPTF) | M 42 x 2 keg. taper<br>R 1 1/4 - 11<br>R 1 1/4 - 11<br>1-11.5 NPT (NPTF)      |  |
| T 350 F  | 5   13/64                                   | 52   2 1/8  | 3   9   | 36   1.417  | DIN 158<br>DIN 2999<br>DIN 3858<br>ANSI B 1.20.1 | M 6 x 1 keg. taper<br>R 1/16 - 28<br>R 1/8 - 28<br>1/16 -27 NPT (NPTF) | M 52 x 2 keg. taper<br>R 1 1/2 - 11<br>R 1 1/2 - 11<br>1 1/2 -11.5 NPT (NPTF) |  |
| T 42   | 5   13/64                                   | 64   2 1/2  | 3   8   | 40,5   1.5945                                       | DIN 158<br>DIN 2999<br>DIN 3858<br>ANSI B 1.20.1 | M 6 x 1 keg. taper<br>R 1/16 - 28<br>R 1/8 - 28<br>1/16 -27 NPT (NPTF) | M 60 x 2 keg. taper<br>R 2 - 11<br>R 2 - 11<br>2-11.5 NPT (NPTF)              |  |

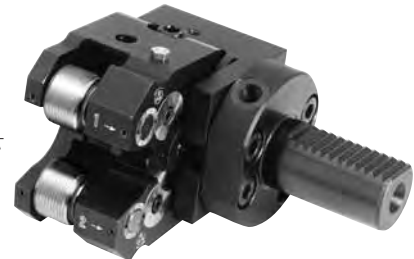
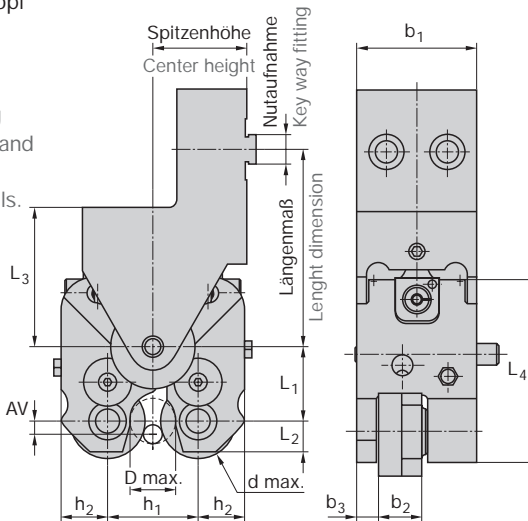
<sup>1)</sup> Max. zu rollende Gewindelänge siehe Seite 391.

<sup>1)</sup> Max. thread length to be rolled see page 391.

Artikel-Nr. für gängige Rechtsgewinde in den verschiedenen Rollenbreiten für Ausführung „A“ sind auf den Seiten 328–374 angegeben.  
Ident No. for standard right-hand threads in various roll width for design "A" are given on pages 328–374.

Für Linksgewinde wird derselbe Rollkopf benutzt wie für Rechtsgewinde.  
 Die Gewinderollen müssen für Linksgewinde ausgelegt sein.  
 For left-hand threads, the same rolling attachment can be used as for right-hand threads.  
 Left-hand threads require left-hand rolls.

$D_{max}$  = max. zulässiger Werkstückbund-Ø, siehe Internet.  
 max. shoulder diameter (Internet or Fette representative)  
 $A_v$  = Arbeitsvorschub, siehe Internet  
 Operating feed (manual, Internet or Fette representative)



Die Angaben für den Rollkopfhalter entsprechen einem Halter für Querschlittenaufnahme. Baumaße für andere Rollkopfhalteraufnahmen sind der jeweiligen Drehmaschine angepasst.  
 Dimensions above refer to cross slide mounted holder.  
 Dimensions for other tool holder are adapted to the respective machine.

| Baumaße<br>Dimensions  | Rollkopf-Typ<br>Rolling Attachment |              |                  |              |                  |              |                  |              |
|--|------------------------------------|--------------|------------------|--------------|------------------|--------------|------------------|--------------|
|  | T120F                              |              | T160F            |              | T220F            |              | T350F            |              |
| mm   inch  |                                    |              |                  |              |                  |              |                  |              |
| $b_1$  | 43                                 | 1.693"       | 50               | 1.969"       | 70               | 2.756"       | 99               | 3.898"       |
| $b_2$ max.   | 15,5                               | 0.61"        | 18,5             | 0.728"       | 26               | 1.024"       | 36               | 1.417"       |
| $b_3$  | 7,2                                | 0.283"       | 8,5              | 0.335"       | 13,3             | 0.524"       | 18               | 0.709"       |
| $L_1$ min/max.   | 23,2/27,6                          | 0.913/1.087" | 28,2/33,4        | 1.110/1.315" | 37,2/46,9        | 1.465/1.846" | 61,2/73,3        | 2.409/2.887" |
| $L_2$  | 10                                 | 0.394"       | 13               | 0.512"       | 17               | 0.670"       | 27               | 1.063"       |
| $L_3$ min.   | 50                                 | 1.969"       | 53               | 2.087"       | 74               | 2.913"       | 110              | 4.331"       |
| $L_4$  | 66                                 | 2.598"       | 75,2             | 2.961"       | 107,5            | 4.232"       | 169,5            | 6.673"       |
| $h_1$ min/max.   | 26,5/40                            | 1.043/1.575" | 32/48            | 1.260/1.890" | 48/74,4          | 1.890/2.929" | 68/105,5         | 2.677/4.155" |
| $h_2$  | 16,3                               | 0.641"       | 19,9             | 0.783"       | 23,5             | 0.925"       | 39,7             | 1.563"       |
| $d$ max.   | 31,5                               | 1.24"        | 37,5             | 1.476"       | 53               | 2.087"       | 80               | 3.149"       |
| <b>Gewicht (kg   lb)</b><br><b>Weight (kg   lb)</b>                      |                                    |              |                  |              |                  |              |                  |              |
| <b>Rollkopf</b><br>Rolling Attachment                                    | 0,65                               | 1.43         | 1,3              | 2.86         | 3,2              | 7.04         | 12,5             | 6.25         |
| <b>Rollkopf-Halter</b><br>Rolling Attachment Holder                      | 0,75                               | 1.65         | 1,7              | 3.74         | 4,3              | 9.46         | 7,0              | 3.5          |
| <b>Rollen</b><br>(1 Satz = 2 Stück)<br>Thread Roll<br>(1 Set = 2 Pieces) | 0,17                               | 0.37         | 0,3              | 0.66         | 0,85             | 1.87         | 2,6              | 2.3          |
| <b>Gesamt</b><br>Total   | 1,57                               | 3.45         | 3,3              | 7.26         | 8,35             | 18.37        | 22,1             | 11.05        |
|  | <b>Ident No.</b>                   |              | <b>Ident No.</b> |              | <b>Ident No.</b> |              | <b>Ident No.</b> |              |
|  | 2408491                            |              | 2408423          |              | 2407499          |              | 2408020          |              |

| Rollkopf<br>Rolling Head |               |  | T120F                          | T160F     | T220F     | T350F     |
|--------------------------|---------------|--|--------------------------------|-----------|-----------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Benennung<br>Part description  | Ident No.                      | Ident No. | Ident No. | Ident No. |
| 1 <sup>1)</sup>          | 1             | Scharnier-Oberteil<br>Upper arm  | 2401302                        | 2172710   | 2172146   | 2408023   |
| 2 <sup>1)</sup>          | 1             | Scharnier-Unterteil mit Steckkerbstift<br>Lower arm with pin   |                                |           |           |           |
| 3                        | 2             | Achse<br>Shaft   | 2401305                        | 2172305   | 2172149   | 2408026   |
| 4                        | 1             | Buchse<br>Centre shaft   | 2173414                        | 2170305   | 2172150   | 2408027   |
| 5                        | 1             | Buchse mit Steckkerbstift<br>Bushing   | 2408655                        | 2408464   | 2407438   | 2408028   |
| 6                        | 1             | Buchse<br>Bushing  | 2408656                        | 2408465   | 2407439   | 2408029   |
| 7                        | 2             | Lagerbuchse<br>Bearing Bushing   | 2173417                        | 2170308   | 2172153   | 2408030   |
| 8                        | 2             | Ritzel<br>Pinion   | 2401306                        | 2170309   | 2172154   | 2408031   |
| 9                        | 2             | Zugfeder<br>Tension spring   | 2401307                        | 2172731   | 2172155   | 2430696   |
| 10                       | 2             | Zahnrad mit DU-Buchse<br>Gear with bushing   | 2173420                        | 2170310   | 2172156   | 2408032   |
| 11                       | 1             | Zahnradatz mit Spiralfeder<br>(Teile 11, 12, 16)<br>Gear with coil spring<br>(see part no. 11, 12, 16) | 2174927                        | 2170311   | 2172157   | 2408033   |
| 13                       | 2             | Buchse<br>Bushing  | 2408647                        | 2408466   | 2407382   | 2408037   |
| 15                       | 2             | Scheibe<br>Thrust washer   | 2173425                        | 2170316   | 2172161   | 2408038   |
| 16                       | 1             | Spiralfeder (s. lfd. Nr. 11)<br>Balance spring (see part no. 11)                                       | 2173426                        | 2170317   | 2172162   | 2408035   |
| 18                       | 2             | Gewinderolle<br>Thread rolls   | siehe Einzelfall<br>individual |           |           |           |
| 21                       | 2             | Trichter-Schmiernippel<br>Grease nipple  | 2149168                        | 2149168   | 2149168   | 2149168   |
| 24                       | 2             | Zylinderschraube<br>Cap screw  | 2141877                        | 2141885   | 2141899   | 2141915   |
| 25                       | 2             | Gewindestift<br>Set screw  | 2142157                        | 2142157   | 2142159   | 2142175   |
| 26                       | 4             | Steckkerbstift bzw. Spannhülse<br>Straight pin resp. clamping sleeve                                   | 2400230                        | 2142565   | 2213197   | 2408042   |
| 27                       | 1             | Gewindestift<br>Set screw  | 2142118                        | 2148369   | 2148369   | 2142130   |
| 28                       | 2             | Zylinderschraube<br>Locking screw  | 2141877                        | 2141878   | 2408449   | 2141904   |
| 29 L                     | 1             | Verstellachse Linksgewinde<br>Spindle nut (LH)   | 2401308                        | 2170323   | 2172163   | 2408039   |
| 29 R                     | 1             | Verstellachse Rechtsgewinde<br>Spindle nut (RH)  | 2401309                        | 2170322   | 2172164   | 2408040   |
| 30                       | 1             | Spindel<br>Spindle   | 2401310                        | 2172827   | 2404015   | 2408041   |
| 33                       | 2             | Steckkerbstift (s. lfd. Nr. 2 und 5)<br>DIN 1474 pin (see part no. 2, 5)                               | 2148843                        | 2148843   | 2148843   | 2148842   |
| 34                       | 2             | Sicherungsring<br>Centering ring   | -                              | 2172080   | 2172778   | 2408044   |
| 35                       | 2             | Sicherungsscheibe<br>Lock washer   | 2149270                        | 2149269   | 2149271   | 2149274   |
| 36                       | 1             | Prüflehre<br>Reference gage  | 2401311                        | 2170320   | 2172166   | 2408045   |

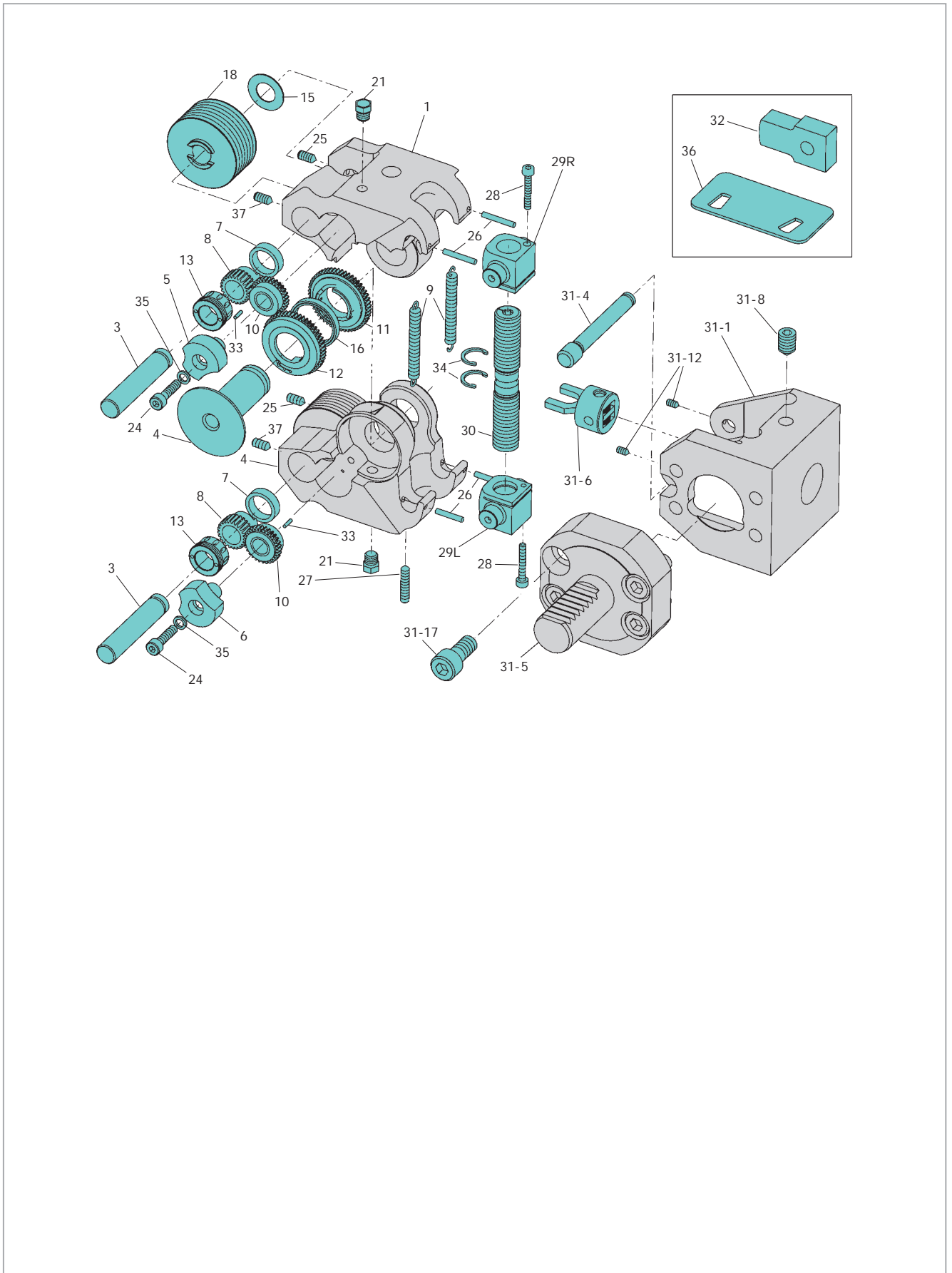
| Rollkopf<br>Rolling Head |               |  | T120F   | T160F     | T220F     | T350F     |
|--------------------------|---------------|--|---|-----------|-----------|-----------|
| Teil Nr.<br>Part No.     | Stück<br>Qty. | Bennennung<br>Part description                           | Ident No.   | Ident No. | Ident No. | Ident No. |
| 37                       | 2             | Gewindestift<br>Set screw                                | 2142114   | 2142115   | 2142119   | 2142127   |
| 31                       |               | Rollkopfhalter komplett<br>Attachment Holder complete    | abhängig vom Maschinentyp<br>depending on type of machine |           |           |           |
| 31-1                     | 1             | Grundkörper<br>Basic housing                             | siehe Einzelfall<br>individual                            |           |           |           |
| 31-4                     | 1             | Bolzen<br>Bolt   | siehe Einzelfall<br>individual                            |           |           |           |
| 31-5                     | 1             | Zum Beispiel: Schaft VDI –<br>For Example VDI-shank      | siehe Einzelfall<br>individual                            |           |           |           |
| 31-6                     | 1             | Federblechhalter komplett<br>Spring clip holder complete | 2401352   | 2172817   | 2404011   | 2408695   |
| 31-8                     | 1             | Gewindestift<br>Set screw                                | 2142173   | 2142138   | 2142138   | 2142094   |
| 31-12                    | 2             | Gewindestift<br>Set screw                                | 2142112   | 2142112   | 2142112   | 2142129   |
| 31-17                    | **            | Zylinderschrauben<br>Cap screw                           | siehe Einzelfall<br>individual                            |           |           |           |
| 32                       | 1             | Einstellehre<br>Setting gauge                            | siehe Einzelfall<br>individual                            |           |           |           |

<sup>1)</sup> Nur paarweise liefer- und einsetzbar.

<sup>1)</sup> Be available only as a pair.

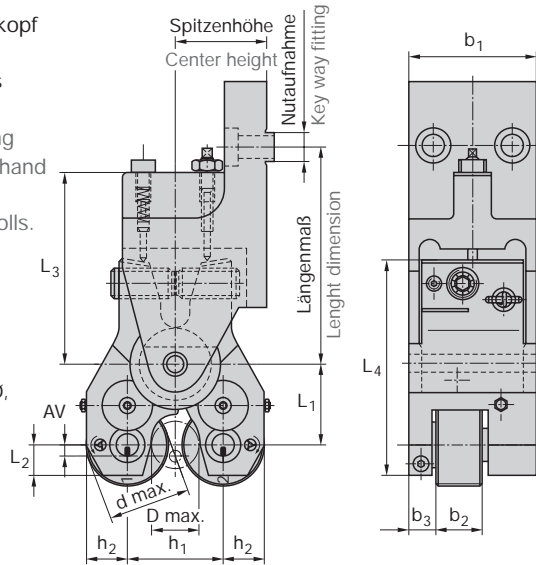
Bei Bestellung von Rollköpfen, Ersatzteilen, Rollkopfhaltern und Gewinderollen gleicher, bereits gelieferter Ausführungen, unbedingt aufsignierte Bezeichnung und Ident No. angeben!

When ordering rolling attachment, spare parts, rolling attachment holders, setting gauges and thread rolls of the same type as previously supplied, it is absolutely necessary to state the marking on this attachment, size and Ident no.



Für Linksgewinde wird derselbe Rollkopf benutzt wie für Rechtsgewinde.  
Die Gewinderollen müssen allerdings für Linksgewinde ausgelegt sein.  
For left-hand threads, the same rolling attachment can be used as for right-hand threads.  
Left-hand threads require left-hand rolls.

$D_{max}$  = max. zulässiger Werkstückbund-Ø, siehe Internet  
max. shoulder diameter, please refer to internet  
 $A_v$  = Arbeitsvorschub, siehe Internet  
Operating feed, please note Internet



Die Angaben für den Rollkopfhalter entsprechen einem Halter für Querschlitzenaufnahme. Baumaße für andere Rollkopfhalteraufnahmen sind der jeweiligen Maschine angepasst.  
Dimensions above refer to cross slide mounted holder.  
Dimensions for other tool holder are adapted to the respective machine.

| Baumaße<br>Dimensions  | Rollkopf-Typ<br>Rolling Attachment |              |                             |              |
|--|------------------------------------|--------------|-----------------------------|--------------|
|  | T18                                |              | T27                         |              |
| mm   inch  |                                    |              |                             |              |
| $b_1$  | 58                                 | 2.283"       | 83                          | 3.268"       |
| $b_2$  | 21,5                               | 0.846"       | 31                          | 1.22"        |
| $b_3$  | 11,1                               | 0.437"       | 15,8                        | 0.622"       |
| $L_1$ min/max.   | 30,1/37,8                          | 1.185/1.488" | 43,1/53,5                   | 1.697/2.106" |
| $L_2$  | 14                                 | 0.551"       | 20                          | 0.787"       |
| $L_3$ min.   | 100                                | 3.937"       | 124                         | 4.882"       |
| $h_1$ min/max.   | 40,5/61                            | 1.594/2.402" | 59,5/87                     | 2.343/3.425" |
| $h_2$  | 19,8                               | 0.78"        | 28                          | 1.102"       |
| $d$ max.   | 44                                 | 1.732"       | 63                          | 2.48"        |
| $L_4$  | 97,5                               | 3.839"       | 140                         | 5.512"       |
| <b>Gewicht (kg   lb)</b><br>Weight (kg   lb)                             |                                    |              |                             |              |
| <b>Rollkopf</b><br>Rolling Attachment                                    | 1,7                                | 3.74         | 4,9                         | 10.78        |
| <b>Rollkopf-Halter</b><br>Rolling Attachment Holder                      | 2,4                                | 5.28         | 4,2                         | 9.24         |
| <b>Rollen</b><br>(1 Satz = 2 Stück)<br>Thread Roll<br>(1 Set = 2 Pieces) | 0,45                               | 1.0          | 1,4                         | 3.08         |
| <b>Einstellehre</b><br>Setting gage                                      | 0,1                                | 0.22         | 0,2                         | 0.44         |
| <b>Gesamt</b><br>Total   | 4,65                               | 10.23        | 10,7                        | 23.54        |
|  | <b>Ident No.</b><br>1533006        |              | <b>Ident No.</b><br>1540007 |              |

| Rollkopf<br>Rolling Attachment |               |   | T18   | T27       |
|--------------------------------|---------------|---|---|-----------|
| Teil Nr.<br>Part No.           | Stück<br>Qty. | Benennung<br>Part description                                   | Ident No.   | Ident No. |
| 1 <sup>1)</sup>                | 1             | Scharnier-Oberteil<br>Upper arm                                 | 2174924   | 2174881   |
| 2 <sup>1)</sup>                | 1             | Scharnier-Unterteil<br>Lower arm                                |   |           |
| 3                              | 2             | Achse<br>Shaft  | 2173433   | 2143453   |
| 4                              | 1             | Buchse<br>Centre shaft  | 2173434   | 2173454   |
| 5                              | 1             | Buchse mit Steckkerbstift<br>Bushing                            | 2143435   | 2173455   |
| 6                              | 1             | Buchse<br>Bushing   | 2173436   | 2173456   |
| 7                              | 2             | Lagerbuchse<br>Bearing Bushing                                  | 2173437   | 2173457   |
| 8                              | 2             | Ritzel<br>Pinion  | 2173438   | 2173458   |
| 9                              | 1             | Zugfeder<br>Tension spring                                      | 2173439   | 2173459   |
| 10                             | 2             | Zahnrad mit DU-Buchse<br>Gear with bushing                      | 2173440   | 2173460   |
| 11 <sup>1)</sup>               | 1             | Zahnradatz mit Spiralfeder<br>Gear with coil spring             | 2174925   | 2174825   |
| 12 <sup>1)</sup>               | 1             | Zahnradatz mit Spiralfeder<br>Gear with coil spring             |   |           |
| 13                             | 2             | Buchse<br>Bushing   | 2173443   | 2173463   |
| 14                             | 2             | Platte<br>Plate   | 2173444   | 2173464   |
| 15                             | 2             | Scheibe<br>Thrust washer  | 2173445   | 2173465   |
| 16                             | 1             | Spiralfeder (s. lfd. Nr. 11, 12)<br>Spring                      | 2173446   | 2173466   |
| 17                             | 4             | Laufbuchse<br>Bushing   | 2173447   | 2173467   |
| 18                             | 2             | Gewinderolle<br>Thread rolls                                    | siehe Einzelfall<br>individual                            |           |
| 20                             | 4             | Senkschraube<br>Flat head screw                                 | 2143237   | 2143244   |
| 21                             | 2             | Trichter-Schmiernippel<br>Grease nipple                         | 2149168   | 2149168   |
| 22                             | 2             | DU-Buchse (s. lfd. Nr. 10)<br>Bearing bushing (see part no. 10) | 2148865   | 2148854   |
| 24                             | 2             | Zylinderschraube<br>Cap screw                                   | 2127376   | 2148742   |
| 25                             | 2             | Zylinderschraube<br>Cap screw                                   | 2142013   | 2142021   |
| 26                             | 2             | Zylinderstift<br>Straight pin                                   | 2141245   | 2141258   |
| 27                             | 1             | Gewindestift<br>Set screw                                       | 2148369   | 2142132   |
| 28                             | 2             | Gewindestift<br>Locking screw                                   | 2148366   | 2142172   |
| 30                             | 2             | Gewindestift<br>Adjustment set screw                            | 2173449   | 2173468   |
| 31                             | 1             | Rollkopfhalter komplett<br>Attachment Holder complete           | abhängig vom Maschinentyp<br>depending on type of machine |           |
| 31-1                           | 1             | Grundkörper<br>Basic housing                                    | siehe Einzelfall<br>individual                            |           |

| Rollkopf<br>Rolling Attachment |               |   | T18       | T27                            |
|--------------------------------|---------------|---|-----------|--------------------------------|
| Teil Nr.<br>Part No.           | Stück<br>Qty. | Benennung<br>Part description   | Ident No. | Ident No.                      |
| 31-2                           | 1             | Federbolzen<br>Spring-loaded bolt                                       | 2174493   | 2174615                        |
| 31-3                           | 1             | Anschlagbolzen<br>Stop bolt   | 2174494   | 2174494                        |
| 31-4                           | 1             | Bolzen<br>Bolt  | 2174495   | 2174616                        |
|                                |               | Bolzen<br>Bolt  | 2174563   | 2174581                        |
| 31-6                           | 1             | Klemmbolzen<br>Locking bolt   |           | siehe Einzelfall<br>individual |
| 31-7                           | 1             | Federblech<br>Spring clip   |           | siehe Einzelfall<br>individual |
| 31-8                           | 1             | Gewindestift<br>Set screw   |           | siehe Einzelfall<br>individual |
| 31-9                           | 1             | Zylinderschraube<br>Cap screw   | 2143187   | 2148736                        |
| 31-10                          | 1             | Druckfeder<br>Thrust spring   | 2174496   | 2174617                        |
| 31-11                          | 1             | Sechskantmutter<br>Hexagon nut  | 2148399   | 2148399                        |
| 31-12                          | 2             | Gewindestift<br>Set screw   | 2142113   | 2142122                        |
| 31-13                          | 1             | Zylinderschraube<br>Cap screw   | 2148875   | 2148875                        |
| 32                             | 1             | Einstellehre<br>Setting gage  |           | siehe Einzelfall<br>individual |
| 33                             | 2             | Steckkerbstift (s. lfd. Nr. 2 und 5)<br>Slotted pin (see part no. 2, 5) | 2148843   | 2148842                        |
| 35                             | 2             | Sicherungsscheibe<br>Schnorr circlip                                    | 2149269   | 2149274                        |
| 36                             | 1             | Prüflehre<br>Sheet metal gage   | 2173450   | 2173469                        |
| 41                             | 2             | Klemmscheibe<br>Locking block   | 2175329   | 2175733                        |

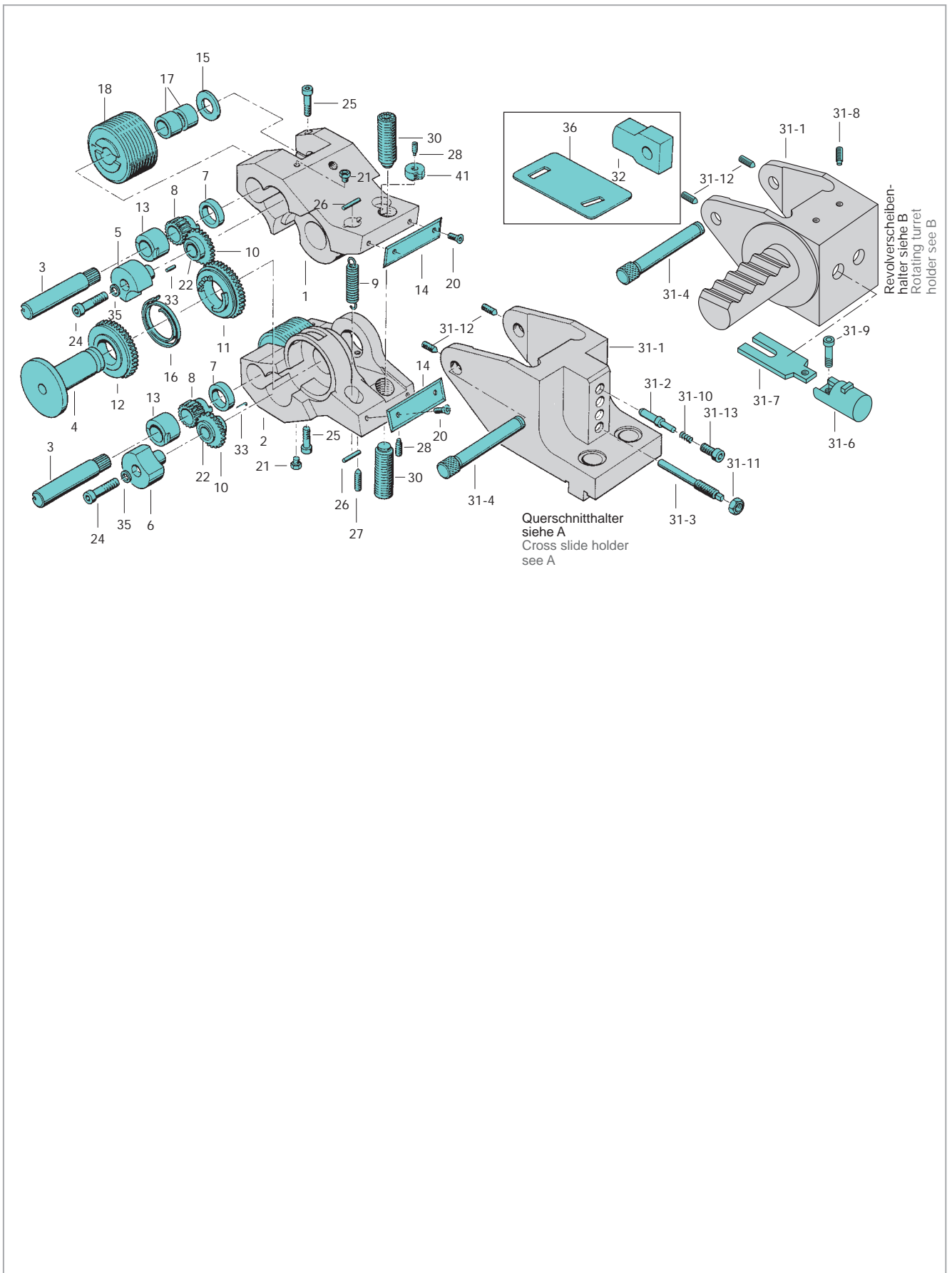
<sup>1)</sup> Nur paarweise liefer- und einsetzbar; A gilt nur für Querschlitzenhalter, B gilt nur für Revolverscheibenhalter.

<sup>1)</sup> Be available only as a pair; A stands onla for cross slide holder, B stands only for indexing turret holder.

**Bei Bestellung von Rollköpfen, Ersatzteilen, Rollkopfhaltern und Gewinderollen gleicher, bereits gelieferter Ausführungen, unbedingt aufsignierte Bezeichnung und Ident No. angeben!**

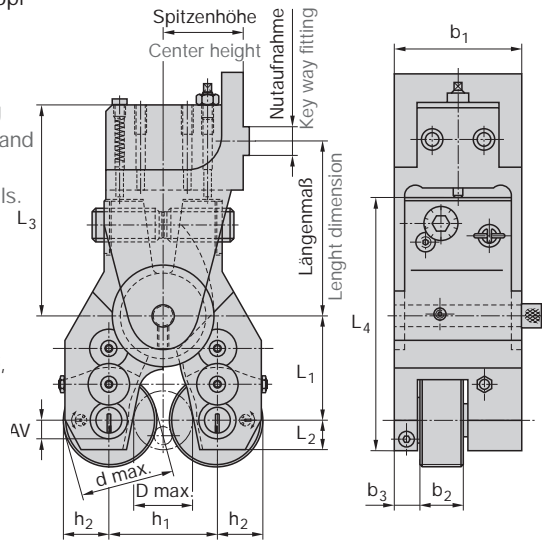
When ordering rolling attachment, spare parts, rolling attachment holders, setting gauges and thread rolls of the same type as previously supplied, it is absolutely necessary to state the marking on this attachment, size and Ident no.





Für Linksgewinde wird derselbe Rollkopf benutzt wie für Rechtsgewinde.  
Die Gewinderollen müssen allerdings für Linksgewinde ausgelegt sein.  
For left-hand threads, the same rolling attachment can be used as for right-hand threads.  
Left-hand threads require left-hand rolls.

$D_{max}$  = max. zulässiger Werkstückbund-Ø, siehe Internet  
max. shoulder diameter, please refer to the internet  
 $A_v$  = Arbeitsvorschub, siehe Internet  
Operating feed, please note the internet



Die Angaben für den Rollkopfhalter entsprechen einem Halter für Querschlittenaufnahme. Baumaße für andere Rollkopfhalteraufnahmen sind der jeweiligen Drehmaschine angepasst.  
Dimensions above refer to cross slide mounted holder.  
Dimensions for other tool holder are adapted to the respective machine.

| Baumaße<br>Dimensions  | Rollkopf-Typ<br>Rolling Attachment |              |
|--|------------------------------------|--------------|
|  | T42                                |              |
| mm   inch  |                                    |              |
| $b_1$  | 112                                | 4.409"       |
| $b_2$  | 40,5                               | 1.594"       |
| $b_3$  | 21                                 | 0.827"       |
| $L_1$ min/max.   | 80,5/94                            | 3.169/3.701" |
| $L_2$  | 26                                 | 1.024"       |
| $L_3$ min.   | 180                                | 7.087"       |
| $h_1$ min/max.   | 80/126                             | 3.150/4.961" |
| $h_2$  | 39                                 | 1.535"       |
| $d$ max.   | 90                                 | 3.543"       |
| $L_4$  | 217                                | 8.543"       |
| <b>Gewicht (kg   lb)</b><br>Weight (kg   lb)                             |                                    |              |
| <b>Rollkopf</b><br>Rolling Attachment                                    | 15,1                               | 33.22        |
| <b>Rollkopf-Halter</b><br>Rolling Attachment<br>Holder                   | 7,4                                | 16.28        |
| <b>Rollen</b><br>(1 Satz = 2 Stück)<br>Thread Roll<br>(1 Set = 2 Pieces) | 3,9                                | 8.58         |
| <b>Einstellehre</b><br>Setting gage                                      | 0,6                                | 1.32         |
| <b>Gesamt</b><br>Total   | 27                                 | 59.4         |
|  | <b>Ident No.</b>                   |              |
|  | 1546001                            |              |

| Rollkopf<br>Rolling Attachment |               |   | T42                            | Rollkopf<br>Rolling Attachment |               |   | T42  |
|--------------------------------|---------------|---|--------------------------------|--------------------------------|---------------|---|--|
| Teil Nr.<br>Part No.           | Stück<br>Qty. | Benennung<br>Part description                       | Ident No.                      | Teil Nr.<br>Part No.           | Stück<br>Qty. | Benennung<br>Part description                         | Ident No.  |
| 1 <sup>1)</sup>                | 1             | Scharnier-Oberteil<br>Upper arm                     | 2174882                        | 24                             | 4             | Zylinderschraube<br>Cap screw                         | 2148361  |
| 2 <sup>1)</sup>                | 1             | Scharnier-Unterteil<br>Lower arm                    |                                | 25                             | 2             | Zylinderschraube<br>Cap screw                         | 2142030  |
| 3                              | 2             | Achse<br>Shaft                                      | 2173473                        | 26                             | 2             | Zylinderstift<br>Straight pin                         | 2141276  |
| 4                              | 1             | Buchse<br>Centre shaft                              | 2173474                        | 27                             | 1             | Gewindestift<br>Set screw                             | 2142142  |
| 5                              | 1             | Buchse<br>Bushing                                   | 2173475                        | 28                             | 2             | Gewindestift<br>Set screw                             | 2148365  |
| 6                              | 1             | Buchse mit Steckkerbstift<br>Bushing                | 2173476                        | 29                             | 4             | Senkschraube<br>Countersunk screw                     | 2143258  |
| 7                              | 2             | Buchse<br>Bearing Bushing                           | 2173477                        | 30                             | 4             | HM-Buchse<br>Carbide bushing                          | 2173489  |
| 8                              | 2             | Ritzel<br>Pinion                                    | 2173478                        | 31                             | 1             | Rollkopfhalter komplett<br>Attachment Holder complete | abhängig vom<br>Maschinentyp<br>see mounting<br>on machine |
| 9                              | 1             | Zugfeder<br>Tension spring                          | 2173479                        |                                |               | 31-1  | 1  |
| 10                             | 4             | Zahnrad mit DU-Buchse<br>Gear                       | 2173480                        | 31-2                           | 1             | Federbolzen<br>Spring-loaded bolt                     | A 2174556  |
| 11 <sup>1)</sup>               | 1             | Zahnrad mit Spiralfeder<br>Gear with coil spring    | 2174883                        | 31-3                           | 1             | Anschlagbolzen<br>Stop bolt                           | A 2174557  |
| 12 <sup>1)</sup>               | 1             | Zahnrad mit Spiralfeder<br>Gear with coil spring    |                                | 31-4                           | 1             | Bolzen<br>Bolt  | A, B 2174558   |
| 13                             | 2             | Buchse<br>Bushing                                   | 2173483                        | 31-6                           | 1             | Klemmbolzen<br>Spring clip holder                     | B siehe Einzelfall<br>individual                           |
| 14                             | 2             | Gewindestift<br>Set screw                           | 2173484                        | 31-7                           | 1             | Federblech<br>Spring clip                             | B siehe Einzelfall<br>individual                           |
| 16                             | 1             | Spiralfeder (s. lfd. Nr. 11, 12)<br>Spring          | 2173485                        | 31-8                           | 1             | Gewindestift<br>Set screw                             | B siehe Einzelfall<br>individual                           |
| 17                             | 2             | Lagerbuchse<br>Bearing bushing                      | 2173486                        | 31-9                           | 1             | Zylinderschraube<br>Cap screw                         | B 2141910  |
| 18                             | 2             | Gewinderolle<br>Thread rolls                        | siehe Einzelfall<br>individual | 31-10                          | 1             | Druckfeder<br>Thrust spring                           | A 2174560  |
| 20                             | 2             | Platte<br>Plate                                     | 2173487                        | 31-11                          | 1             | Sechskantmutter<br>Hexagon nut                        | A 2148399  |
| 21                             | 2             | Trichter-Schmiernippel<br>Grease nipple             | 2149168                        | 31-12                          | 2             | Gewindestift<br>Set screw                             | A, B 2142138   |
| 22                             | 4             | Buchse (s. lfd Nr. 10)<br>Bushing (see part no. 10) | 2148855                        |                                |               |   |  |

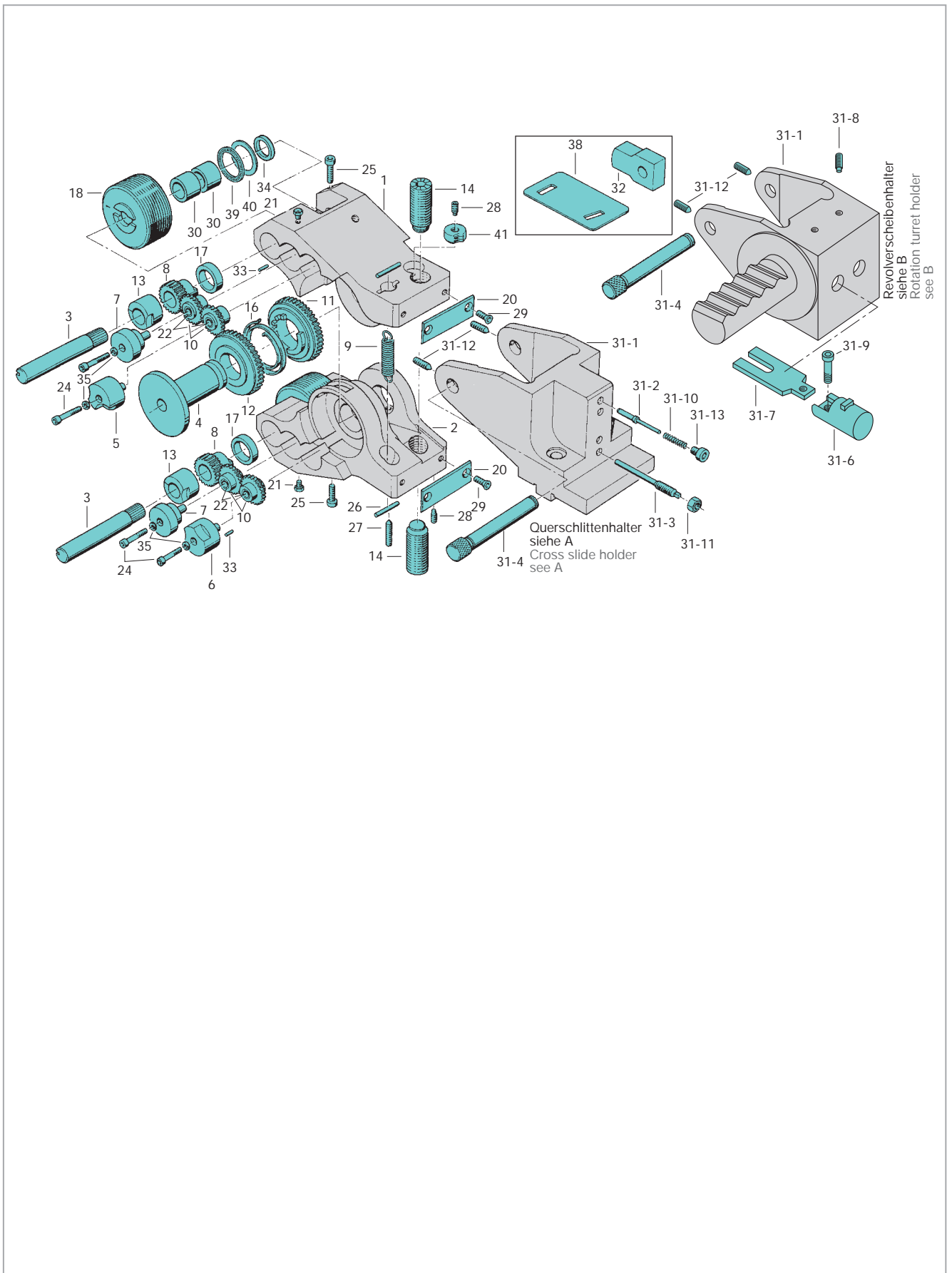
<sup>1)</sup> Nur paarweise liefer- und einsetzbar; A gilt nur für Querschlitzenhalter, B gilt nur für Revolverscheibenhalter.

<sup>1)</sup> Be available only as a pair; A stands onla for cross slide holder, B stands only for indexing turret holder.

| Rollkopf<br>Rolling Attachment |               |  | T42                            | Rollkopf<br>Rolling Attachment |               |                                   | T42       |
|--------------------------------|---------------|--|--------------------------------|--------------------------------|---------------|-----------------------------------|-----------|
| Teil Nr.<br>Part No.           | Stück<br>Qty. | Benennung<br>Part description  | Ident No.                      | Teil Nr.<br>Part No.           | Stück<br>Qty. | Benennung<br>Part description     | Ident No. |
| 31-13                          | 1             | Zylinderschraube A<br>Cap screw                                      | 2148875                        | 38                             | 1             | Prüflehre<br>Sheet metal gage     | 2173491   |
| 32                             | 1             | Einstellehre<br>Setting gage   | siehe Einzelfall<br>individual | 39                             | 2             | Axial-Nadelkranz<br>Axial bearing | 2147418   |
| 33                             | 2             | Steckkerbstift (s. lfd. Nr. 1, 6)<br>Slotted pin (see part no. 1, 6) | 2173490                        | 40                             | 2             | Axial-Scheibe<br>Axial sliver     | 2127374   |
| 34                             | 2             | Zentrierscheibe<br>Centering ring                                    | 2170703                        | 41                             | 2             | Klemmscheibe<br>Locking block     | 2175608   |
| 35                             | 4             | Sicherungsscheibe<br>Lock washer                                     | 2149274                        |                                |               |                                   |           |

Bei Bestellung von Rollköpfen, Ersatzteilen, Rollkopfhaltern und Gewinderollen gleicher, bereits gelieferter Ausführungen, unbedingt aufsignierte Bezeichnung und Ident No. angeben!

When ordering rolling attachment, spare parts, rolling attachment holders, setting gauges and thread rolls of the same type as previously supplied, it is absolutely necessary to state the marking on this attachment, size and Ident no.



### Gewinderollen

Für jede Gewindeabmessung ist ein Satz Gewinderollen nötig. Ein Satz besteht aus 2 unterschiedlichen Gewinderollen. Sie sind mit den Nummern 1 und 2 gekennzeichnet.

Die Lage der Gewinderollen im Rollkopf ist vorgeschrieben. Der Rollkopf ist an der Stirnseite mit 1 auf der oberen und mit 2 auf der unteren Stirnseite beschriftet. Rolle 1 ist da einzubauen, wo auch die 1 am Rollkopf signiert ist. Es ist beim Einbau der Rolle darauf zu achten, dass die Zahl 1 auf der Rolle zum Kopffüßeren hinzeigt. Rolle 2 ist in der mit 2 beschrifteten Rollkopfseite einzubauen. Die Zahl 2 auf der Rolle muss ebenfalls zum Kopffüßeren liegen. Es müssen die Zahlen 1 und 2 auf der Rolle beide zum Kopffüßeren hinzeigen.

Weitere Angaben zum Einbau der Gewinderollen siehe Seite 380 unter Punkt 1.

Die Drehrichtung der Maschinenspindel ist ohne Bedeutung. Sie kann links- oder rechtslaufend sein. Beim Einsatz des Rollkopfes ist darauf zu achten, dass die Rolle zuerst das Werkstück berührt, die mit der auf dem Rollkopf signierten Pfeilrichtung gleichen Dreh-sinn hat, siehe auch Seite 380 Punkt 5.

Die Beschriftung der Rollen besteht aus der Gewindeabmessung, der Kopfgröße, der Code-Nr., der Rollenbreite, der Rollenausführung und der Artikel-Nr.

### Einstellehren

Zu jeder Gewindeabmessung gehört eine Einstellehre. Die Einstellehre hat 2 Aufgaben:

1. Es wird nach dem Einbau der Gewinderollen im Rollkopf der Achsabstand der Rollen eingestellt. Das in der Regel abgesetzte Breitenmaß der Lehre entspricht dem Kern-Ø des Gewindes. Dieses Maß muss stramm zwischen den Rollen eingestellt werden, siehe Seite 380 Punkt 2.
2. Es wird die Länge des Querhubes eingestellt. Der Rollkopfhalter ist im Querschlitten (Revolver) eingespannt. Die Einstellehre wird auf dem Bolzen des Rollkopfhalters geschoben. Der Querschlitten muss soweit zur Werkstückmitte verfahren werden, bis die Vorderkante der Lehre den Werkstück-Vordreh-Ø berührt. Dieses ist dann der Endpunkt des Querhubes, siehe auch Seite 380 Punkt 4.

### Thread rolls

One set of rolls is needed for each thread size. One set has two different rolls. They are marked with the number 1 and 2. The rolls have a defined position on the rolling attachment. The rolling attachments are marked on the front end, with the number 1 on the upper side and number 2 on the lower side. The roll number 1 has to be mounted where the number 1 is marked on the attachment. Attention has to be paid that the roll is mounted with the marked number looking towards the out-side of the attachment. The same has to be done with roll number 2. Both marked numbers have to look to the outer side of the attachment.

Further information about rolls mounting see page 380 point 1.

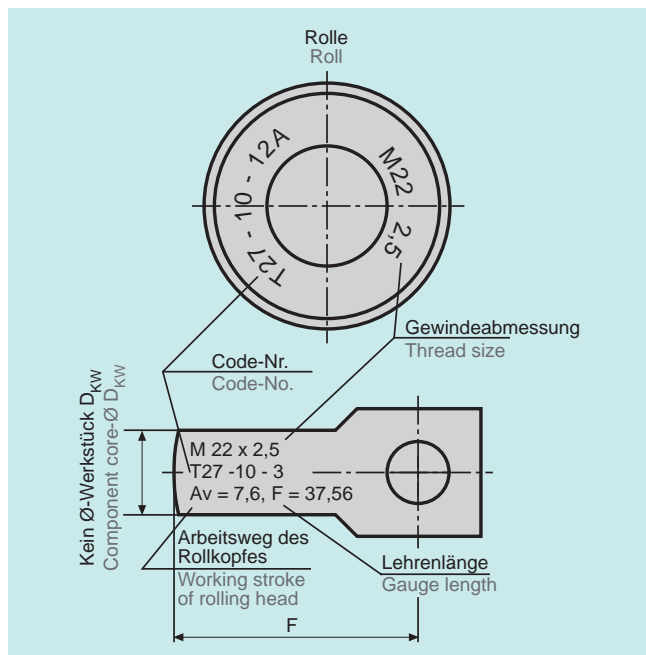
The direction of spindle rotation is not important, being possible to be right-handed or left-handed. Attention has to be paid by using the attachment, that the component rotates in the same direction as marked with an arrow in the position of the roll which touches the component first, see also page 380 point 5.

The marking in the roll consists of the thread size, attachment size, code no., roll width, roll style and Ident No.

### Setting Gauges

There is a setting gauge for each thread size. The setting gauge has two tasks:

1. The distance of the axles are set-up after mounting the rolls on the attachment. In general the width of the recessed part of the gauge is equivalent to the minor diameter of the thread. This dimension has to be set up tight between the rolls, see page 380 point 2.  
Please check when using the setting gauge that the marking of attachment size and serial code-no. are identical to the marking of attachment size and serial code no. on the rolls.
2. The length of the stroke is set. The attachment holder is mounted on the slide (turret). The gauge is mounted on the pin of the attachment holder. The slide has to be advanced towards the component direction, until the tip of the gauge touches the blank diameter. This position is the end of the work-stroke, see also page 380 point 4.

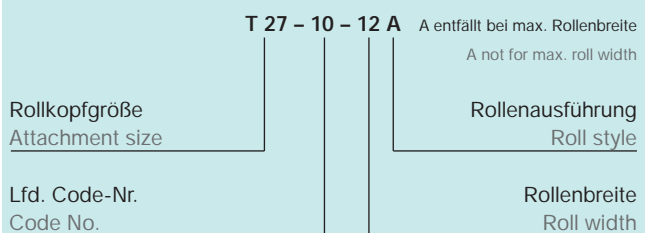


### Rollen-Code-Schlüssel:

(Beispiel für M 22 x 2,5 in Rollkopf T 27)

#### Roll-Key-Code:

(Example for M 22 x 2.5 on attachment Type T 27)



### Rollenbreite max. für Max. width rolls

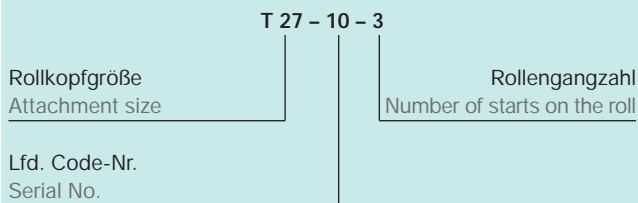
|         |           |        |
|---------|-----------|--------|
| T 120 F | = 15,5 mm | 0.61"  |
| T 160 F | = 18,5 mm | 0.728" |
| T 18    | = 21,5 mm | 0.846" |
| T 220 F | = 26,0 mm | 1.024" |
| T 27    | = 31,0 mm | 1.22"  |
| T 350F  | = 36,0 mm | 1.417" |
| T 42    | = 40,5 mm | 1.594" |

### Einstellehren-Code-Schlüssel:

(Beispiel für M 22 x 2,5 in Rollkopf T 27)

### Setting Gauges-Key-Code:

(Example for M 22 x 2.5 on attachment Type T 27)



Es ist darauf zu achten, dass beim Gebrauch einer Einstellehre die Bezeichnung der Kopfgröße und lfd. Code-Nr. mit der Rollenbezeichnung von Kopfgröße und lfd. Code-Nr. identisch sein muss.

Please check when using the setting gauge, that the marking of attachment size and serial code no. are identical to the marking of attachment size and serial code no. on the rolls.

Es ist zu empfehlen, die Rollenbreiten in den angegebenen Maßen zu bestellen, da sonst mit längeren Lieferzeiten gerechnet werden muss. Sonderwünsche auf Anfrage.

It is recommended to order the roll widths in the dimensions shown. Special requirements upon request.

| Normalausführung der Rollenbreiten<br>Standard roll width design |                              |       |       |       |       |       |      |       |       |       |       |       |       |       |      |       |       |       |       |
|--|------------------------------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|
| Rollkopf<br>Head   | Rollenbreiten<br>Roll Widths |       |       |       |       |       |      |       |       |       |       |       |       |       |      |       |       |       |       |
|  | mm                           |       |       |       |       |       |      |       |       | inch  |       |       |       |       |      |       |       |       |       |
| T120F  | 4                            | 6     | 8     | 10    | 12    | 14    | 15,5 |       |       |       |       |       |       |       |      |       |       |       |       |
|  | 0.157                        | 0.236 | 0.315 | 0.394 | 0.472 | 0.551 | 0.61 |       |       |       |       |       |       |       |      |       |       |       |       |
| T160F  |                              | 6     | 8     | 10    | 12    | 14    | 16   | 18,5  |       |       |       |       |       |       |      |       |       |       |       |
|  |                              | 0.236 | 0.315 | 0.394 | 0.472 | 0.551 | 0.63 | 0.728 |       |       |       |       |       |       |      |       |       |       |       |
| T18  |                              | 6     | 8     | 10    | 12    | 14    | 16   | 18    | 21,5  |       |       |       |       |       |      |       |       |       |       |
|  |                              | 0.236 | 0.315 | 0.394 | 0.472 | 0.551 | 0.63 | 0.709 | 0.846 |       |       |       |       |       |      |       |       |       |       |
| T220F  |                              |       | 8     | 10    | 12    | 14    | 16   | 18    | 20    | 22    | 24    | 26    |       |       |      |       |       |       |       |
|  |                              |       | 0.315 | 0.394 | 0.472 | 0.551 | 0.63 | 0.709 | 0.787 | 0.866 | 0.945 | 1.024 |       |       |      |       |       |       |       |
| T27  |                              |       | 8     | 10    | 12    | 14    | 16   | 18    | 20    | 22    | 24    | 26    | 28    | 31    |      |       |       |       |       |
|  |                              |       | 0.315 | 0.394 | 0.472 | 0.551 | 0.63 | 0.709 | 0.787 | 0.866 | 0.945 | 1.024 | 1.102 | 1.22  |      |       |       |       |       |
| T350F  |                              |       | 8     | 10    | 12    | 14    | 16   | 18    | 20    | 22    | 24    | 26    | 28    | 30    | 32   | 34    | 36    |       |       |
|  |                              |       | 0.315 | 0.394 | 0.472 | 0.551 | 0.63 | 0.709 | 0.787 | 0.866 | 0.945 | 1.024 | 1.102 | 1.181 | 1.26 | 1.339 | 1.417 |       |       |
| T42  |                              |       |       | 10    | 12    | 14    | 16   | 18    | 20    | 22    | 24    | 26    | 28    | 30    | 32   | 34    | 36    | 38    | 40,5  |
|  |                              |       |       | 0.394 | 0.472 | 0.551 | 0.63 | 0.709 | 0.787 | 0.866 | 0.945 | 1.024 | 1.102 | 1.181 | 1.26 | 1.339 | 1.417 | 1.496 | 1.594 |

### Bestellbeispiel für Gewinderollen und Einstellehre

Es werden Gewinderollen und Einstellehre für das Gewinde M 10 x 1,5 für Rollkopfgröße T 18 mit Rollenbreite 14 mm in Ausführung „A“ gebraucht. Auf den max. Bund-Ø ist zu achten. Siehe Internet.

### Bei Neubestellung:

Rollkopf T 18  
 Gewinderolle für M 10 x 1,5  
 Rollenbreite 14 mm  
 Ausführung A  
 Einstellehre für M 10 x 1,5  
 Art.-Nr. der Rollen siehe Seiten 328–374

**Bei Nachbestellung** von bereits gelieferten Gewinderollen bzw. Einstellehren ist unbedingt die aufsignierte Bezeichnung anzugeben.

Z. B.: Gewinderollen für M 10 x 1,5 nach Code-Nr. T 18-05-14 A.  
 Art.-Nr. 1536646  
 Einstellehre für M 10 x 1,5 nach Code-Nr. T 18-05-5.  
 Art.-Nr. 1534835

### Example for ordering Thread Rolls and Setting Gauges

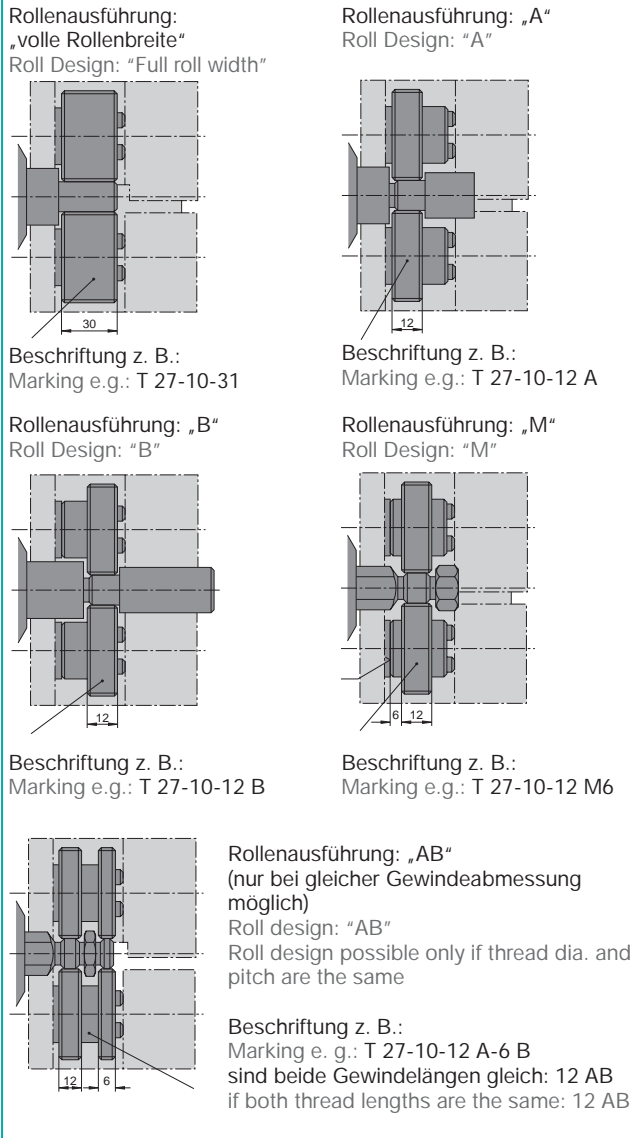
Required are Thread Rolls for M 10 x 1.5 for Attachment Size T 18 with roll width 0.551 inch, design "A". Attention should be paid to max. shoulder-Ø. See Internet.

### When ordering new:

Attachment Type T 18  
 Thread Roll for M 10 x 1.5  
 Roll width 0.551"  
 Design A  
 Setting Gauge for M 10 x 1.5  
 Ident No. see pages 328–374

**When reordering** previously delivered Rolls or Setting Gauges, the engraved marking must definitely be stated.

E. g.: Thread Rolls for M 10x1.5 as per Code No. T 18-05-14 A.  
 Ident No. 1536646  
 Setting Gauge for M 10 x 1.5 as per Code No. T 18-05-5.  
 Ident No. 1534835



**Rollenausführung**

Je nach vorliegendem Arbeitsfall können Rollen in verschiedener Ausführung zum Einsatz kommen. Der Regelfall ist die Ausführung „A“. Der min. Rollenauslauf beträgt auf jeder Seite der Gewinderolle ca. 1 x Steigung bzw. bei mehrgängigen Gewinden ca. 1 x Teilung. Die Rollenbreite muss also min. 2 x Steigung länger sein als die schraubbare Gewindelänge am Werkstück. Es ist zu empfehlen, auf die in der Tabelle „Normalausführung der Rollenbreiten“ (Seiten 311, 325) angegebenen Rollenbreiten aufzurunden.

**Ist die Rollenbreite ohne Bedeutung** (Beispiel: vorgelagerter Zapfen, oder man rollt vor einem Bund-Ø), so ist es ratsam, **die min. und max. Rollenbreite anzugeben**. Dieses hat den Vorteil, dass die Rollenlieferung evtl. aus dem jeweils vorhandenen Lagerbestand erfolgen kann. Der Tangential-Gewinde-Rollkopf kann auch mit seiner breiten Armseite (Getriebeseite) zur Spindel liegend, eingesetzt werden. Der Mindestabstand von Vorderkante Werkstückspannung bis Gewinderollenanfang ist auf Seite 375 unter Maß  $b_3$  bzw. Maß  $b_6$  min. angegeben.

Für **jede** Gewindeabmessung sind ein Rollensatz und eine Einstelllehre erforderlich. Die ersten beiden Zahlengruppen der Code-Nummern müssen gleich sein.

Rollenausführung: „volle Rollenbreite“  
Roll design: Full width roll



Rollenausführung: „A“  
Roll design: "A"



Rollenausführung: „B“  
Roll design: "B"



Rollenausführung: „M“  
Roll design: "M"



Rollenausführung: „AB“  
Roll design: "AB"



**Design of Rolls**

Depending on the type of component, rolls of various design configurations can be used (normally design "A" is used). The maximum roll runout on each side can be about 1 x pitch, or in the case of multiple start threads about 1 x lead. The width of rolls must therefore be at least 2 x pitch longer than the effective thread length on the component. It is recommended to round-off to the roll widths shown on pages 311, 325.

**If the roll width is unimportant** (Example: journal portion in front, or in front of a shoulder diameter) it would be advisable to **indicate the minimum and the maximum width of the roll**, as it would facilitate delivery from stock. The tangential side rolling attachment can also be used with its wide arm side towards the spindle. The minimum distance from front edge of clamped component to start of thread roll is shown on page 375 under " $b_3$ ", respectively, " $b_6$ ". One set of rolls and one setting gauge are required for every size of thread to be rolled. The first two number groups need to be the same.



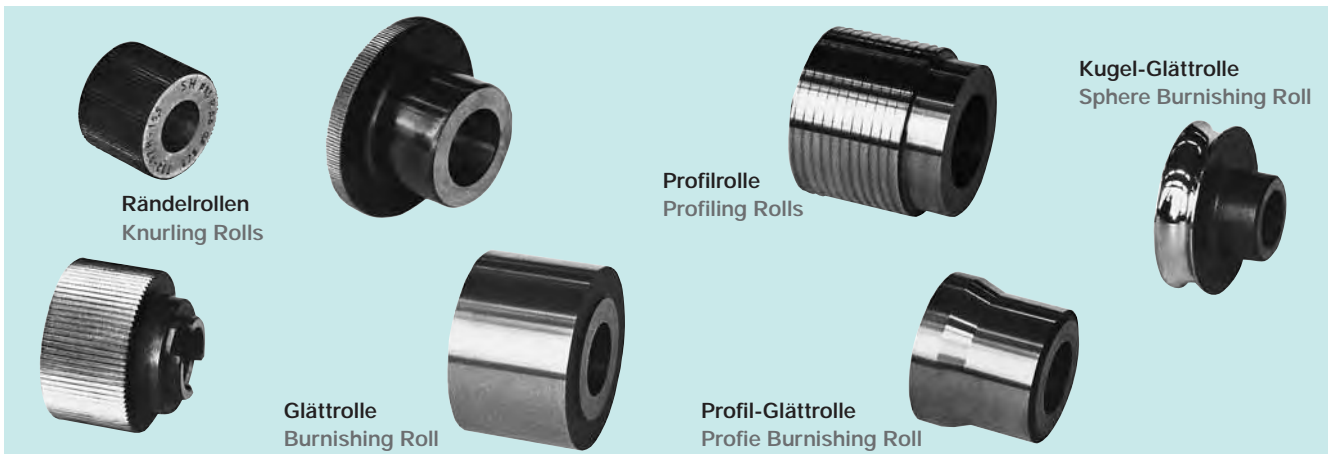
|   |  |   |   |   |
|---|--|---|---|---|
| <p>Rollenausführung: „A“<br/>Roll Design: "A"</p> <p>Beschriftung z. B.:<br/>Marking e.g.:<br/>T 27-100-12 A</p>    | <p>Rollenausführung: „B“<br/>Roll Design: "B"</p> <p>Beschriftung z. B.:<br/>Marking e.g.:<br/>T 27-100-12 B</p>   | <p>Rollenausführung: „M“<br/>Roll Design: "M"</p> <p>Beschriftung z. B.:<br/>Marking e.g.:<br/>T 27-100-12 M</p>  | <p>Rollenausführung: „AV“<br/>Roll Design: "AV"</p> <p>Beschriftung z. B.:<br/>Marking e.g.:<br/>T 27-100-12 AV</p>   | <p>Rollenausführung: „BV“<br/>Roll Design: "BV"</p> <p>Beschriftung z. B.:<br/>Marking e.g.:<br/>T 27-100-12 BV</p> |
| <p>Rollenausführung: „MV“<br/>Roll Design: "MV"</p> <p>Beschriftung z. B.:<br/>Marking e.g.:<br/>T 27-100-12 MV</p> | <p>Rollenausführung: „ABV“<br/>nur bei gleicher Gewindeabmessung möglich<br/>Roll design: "ABV"<br/>possible only if thread dia. and pitch are the same</p> <p>Beschriftung z. B.:<br/>Marking e.g.: T 27-100-12 A-10 BV<br/>sind beide Gewindelängen gleich: 12 ABV<br/>if both thread lengths are the same: 12 ABV</p> | <p>Rollenausführung: „AB“<br/>nur bei gleicher Gewindeabmessung möglich<br/>Roll design: "AB"<br/>possible only if thread dia. and pitch are the same</p> <p>Beschriftung z. B.:<br/>Marking e.g.: T 27-100-12 A-10 B<br/>sind beide Gewindelängen gleich: 12 AB<br/>if both thread lengths are the same: 12 AB</p> | <p>Rollenausführung: „AVBV“<br/>nur bei gleicher Gewindeabmessung möglich<br/>Roll design: "AVBV"<br/>possible only if thread dia. and pitch are the same</p> <p>Beschriftung z. B.:<br/>Marking e.g.: T 27-100-12 AV-10 BV<br/>sind beide Gewindelängen gleich: 12 AVBV<br/>if both thread lengths are the same: 12 AVBV</p> |   |

Für konische Gewinde ist die Normblatt-Nr. mit Angabe Regel- oder Kurzausführung, und für Gewinde von der Norm abweichend ist die Lage der Messebene (a) anzugeben. Max. Rollenauslauf 1 x Steigung bzw. bei mehrgängigen Gewinden 1 x Teilung.

Außer den auf Seite 326 gezeigten Rollenausführungen zur Herstellung von Gewinden können im Tangential-Gewinde-Rollkopf auch Rollen eingesetzt werden für Rändelungen, Glättungen und Oberflächenprofilierungen.

For Standard Taper Threads the DIN or ANSI-No. with effective thread length should be stated. Information on Standard or Short Design is to be stated, and for threads which deviate from Standard, the location of the gage length ( $l_1$ ) is to be stated. Max. roll runoff 1 x pitch and in case of multiple start threads 1 x lead.

In addition to the roll design versions for threads, as shown on page 326 roll designs for knurling, burnishing and surface profiling work can be used on the tangential side rolling attachment.



| Metrisches ISO-Gewinde DIN 13 |           |           |           |           |           |    |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|----|
| Metric ISO Threads DIN 13     |           |           |           |           |           |    |
| Rollkopf                      | T120F     |           |           |           |           |    |
| Rolling Head                  |           |           |           |           |           |    |
| Rollenbreiten                 | 6         | 8         | 10        | 12        | 15,5      |    |
| Roll width                    | 0.236"    | 0.315"    | 0.394"    | 0.472"    | 0.610"    |    |
| Gewinde-<br>abmessung         |           |           |           |           |           |    |
| Thread size                   | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z  |
| M 2 x 0,4*                    | 2401647   | 2401648   | 2401649   | 2401650   | 2401651   | 19 |
| M 2,2 x 0,45*                 | 2401652   | 2401653   | 2401654   | 2401655   | 2401656   | 18 |
| M 2,5 x 0,45*                 | 2401657   | 2401658   | 2401659   | 2401660   | 2401661   | 15 |
| M 3 x 0,5*                    | 2401662   | 2401663   | 2401664   | 2401665   | 2401666   | 12 |
| M 3,5 x 0,6*                  | 2401667   | 2401668   | 2401669   | 2401670   | 2401671   | 10 |
| M 3,5 x 0,5                   | 2401672   | 2401673   | 2401674   | 2401675   | 2401676   | 10 |
| M 4 x 0,7*                    | 2401677   | 2401678   | 2401679   | 2401680   | 2401681   | 9  |
| M 4 x 0,5                     | 2401682   | 2401683   | 2401684   | 2401685   | 2401686   | 9  |
| M 4,5 x 0,75*                 | 2401687   | 2401688   | 2401689   | 2401690   | 2401691   | 8  |
| M 4,5 x 0,5                   | 2401692   | 2401693   | 2401694   | 2401695   | 2401696   | 7  |
| M 5 x 0,8*                    | 2401697   | 2401698   | 2401699   | 2401700   | 2401701   | 7  |
| M 5 x 0,5                     | 2401702   | 2401703   | 2401704   | 2401705   | 2401706   | 7  |
| M 5,5 x 0,75                  | 2401712   | 2401713   | 2401714   | 2401715   | 2401716   | 6  |
| M 5,5 x 0,5                   | 2401717   | 2401718   | 2401719   | 2401720   | 2401721   | 6  |
| M 6 x 1*                      | 2401722   | 2401723   | 2401724   | 2401725   | 2401726   | 6  |
| M 6 x 0,75                    | 2401727   | 2401728   | 2401729   | 2401730   | 2401731   | 5  |
| M 6 x 0,5                     | 2401732   | 2401733   | 2401734   | 2401735   | 2401736   | 5  |
| M 7 x 1                       | 2401737   | 2401738   | 2401739   | 2401740   | 2401741   | 5  |
| M 7 x 0,75                    | 2401742   | 2401743   | 2401744   | 2401745   | 2401746   | 5  |
| M 7 x 0,5                     | 2401747   | 2401748   | 2401749   | 2401750   | 2401751   | 4  |
| M 8 x 1,25*                   | 2401752   | 2401753   | 2401754   | 2401755   | 2401756   | 4  |
| M 8 x 1                       | 2401757   | 2401758   | 2401759   | 2401760   | 2401761   | 4  |
| M 8 x 0,75                    | 2401762   | 2401763   | 2401764   | 2401765   | 2401766   | 4  |
| M 8 x 0,5                     | 2401767   | 2401768   | 2401769   | 2401770   | 2401771   | 4  |
| M 9 x 1,25                    | 2401772   | 2401773   | 2401774   | 2401775   | 2401776   | 4  |
| M 9 x 1                       | 2401777   | 2401778   | 2401779   | 2401780   | 2401781   | 3  |
| M 9 x 0,75                    | 2401782   | 2401783   | 2401784   | 2401785   | 2401786   | 3  |
| M 9 x 0,5                     | 2401787   | 2401788   | 2401789   | 2401790   | 2401791   | 3  |
| M 10 x 1,5*                   | 2401792   | 2401793   | 2401794   | 2401795   | 2401796   | 3  |
| M 10 x 1,25                   | 2401797   | 2401798   | 2401799   | 2401800   | 2401801   | 3  |
| M 10 x 1                      | 2401802   | 2401803   | 2401804   | 2401805   | 2401806   | 3  |
| M 10 x 0,75                   | 2401807   | 2401808   | 2401809   | 2401810   | 2401811   | 3  |
| M 10 x 0,5                    | 2401812   | 2401813   | 2401814   | 2401815   | 2401816   | 3  |
| M 11 x 1,5                    | 2401817   | 2401818   | 2401819   | 2401820   | 2401821   | 3  |
| M 11 x 1                      | 2401822   | 2401823   | 2401824   | 2401825   | 2401826   | 3  |
| M 11 x 0,75                   | 2401827   | 2401828   | 2401829   | 2401830   | 2401831   | 2  |
| M 11 x 0,5                    | 2401832   | 2401833   | 2401834   | 2401835   | 2401836   | 2  |
| M 12 x 1,5                    | 2401837   | 2401838   | 2401839   | 2401840   | 2401841   | 2  |
| M 12 x 1,25                   | 2401842   | 2401843   | 2401844   | 2401845   | 2401846   | 2  |
| M 12 x 1                      | 2401847   | 2401848   | 2401849   | 2401850   | 2401851   | 2  |
| M 12 x 0,75*                  | 2401852   | 2401853   | 2401854   | 2401855   | 2401856   | 2  |
| M 12 x 0,5                    | 2401857   | 2401858   | 2401859   | 2401860   | 2401861   | 2  |
| M 13 x 1,5                    | 2401862   | 2401863   | 2401864   | 2401865   | 2401866   | 2  |
| M 13 x 1                      | 2401867   | 2401868   | 2401869   | 2401870   | 2401871   | 2  |
| M 13 x 0,75                   | 2401872   | 2401873   | 2401874   | 2401875   | 2401876   | 2  |
| M 13 x 0,5                    | 2401877   | 2401878   | 2401879   | 2401880   | 2401881   | 2  |
| M 14 x 1,5                    | 2401882   | 2401883   | 2401884   | 2401885   | 2401886   | 2  |
| M 14 x 1,25                   | 2401887   | 2401888   | 2401889   | 2401890   | 2401891   | 2  |
| M 14 x 1                      | 2401892   | 2401893   | 2401894   | 2401895   | 2401896   | 2  |
| M 14 x 0,75                   | 2401897   | 2401898   | 2401899   | 2401900   | 2401901   | 2  |
| M 14 x 0,5                    | 2401902   | 2401903   | 2401904   | 2401905   | 2401906   | 2  |

\* Standardgewinde (DIN 13 Teil 1)

\* Standard thread (to DIN 13 part 1)

| Metrisches ISO-Gewinde DIN 13 |           |           |           |           |           |           |           |    |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----|
| Metric ISO Threads DIN 13     |           |           |           |           |           |           |           |    |
| Rollkopf                      | T160F     |           |           |           |           |           |           |    |
| Rolling Head                  |           |           |           |           |           |           |           |    |
| Rollenbreiten                 | 6         | 8         | 10        | 12        | 14        | 16        | 18,5      |    |
| Roll width                    | 0.236"    | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.728"    |    |
| Gewinde-<br>abmessung         | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z  |
| Thread size                   | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z  |
| M 2 x 0,4*                    | 2402262   | 2402263   | 2402264   | 2402265   | 2402266   | 2402267   | 2402268   | 23 |
| M 2,2 x 0,45*                 | 2402269   | 2402270   | 2402271   | 2402272   | 2402273   | 2402274   | 2402275   | 21 |
| M 2,5 x 0,45*                 | 2402276   | 2402277   | 2402278   | 2402279   | 2402280   | 2402281   | 2402282   | 18 |
| M 3 x 0,5*                    | 2402283   | 2402284   | 2402285   | 2402286   | 2402287   | 2402288   | 2402289   | 15 |
| M 3,5 x 0,6*                  | 2402290   | 2402291   | 2402292   | 2402293   | 2402294   | 2402295   | 2402296   | 12 |
| M 3,5 x 0,5                   | 2402297   | 2402298   | 2402299   | 2402300   | 2402301   | 2402302   | 2402303   | 12 |
| M 4 x 0,7*                    | 2402304   | 2402305   | 2402306   | 2402307   | 2402308   | 2402309   | 2172465   | 11 |
| M 4 x 0,5                     | 2402311   | 2402312   | 2402313   | 2402314   | 2402315   | 2402316   | 2402317   | 10 |
| M 4,5 x 0,75*                 | 2402318   | 2402319   | 2402320   | 2402321   | 2402322   | 2402323   | 2402324   | 9  |
| M 4,5 x 0,5                   | 2402325   | 2402326   | 2402327   | 2402328   | 2402329   | 2402330   | 2402331   | 9  |
| M 5 x 0,8*                    | 2402332   | 2402333   | 2172262   | 2402335   | 2402336   | 2402337   | 2172261   | 8  |
| M 5 x 0,5                     | 2402339   | 2402340   | 2402341   | 2402342   | 2402343   | 2402344   | 2402345   | 8  |
| M 5,5 x 0,75                  | 2402353   | 2402354   | 2402355   | 2402356   | 2402357   | 2402358   | 2402359   | 7  |
| M 5,5 x 0,5                   | 2402360   | 2402361   | 2402362   | 2402363   | 2402364   | 2402365   | 2402366   | 7  |
| M 6 x 1*                      | 2402367   | 2402368   | 2172251   | 2402370   | 2402371   | 2402372   | 2172252   | 7  |
| M 6 x 0,75                    | 2402374   | 2402375   | 2402376   | 2402377   | 2402378   | 2402379   | 2402380   | 7  |
| M 6 x 0,5                     | 2402381   | 2402382   | 2402383   | 2402384   | 2402385   | 2402386   | 2402387   | 6  |
| M 7 x 1                       | 2402388   | 2402389   | 2172266   | 2402391   | 2402392   | 2402393   | 2172265   | 6  |
| M 7 x 0,75                    | 2402395   | 2402396   | 2402397   | 2402398   | 2402399   | 2402400   | 2402401   | 5  |
| M 7 x 0,5                     | 2402402   | 2402403   | 2402404   | 2402405   | 2402406   | 2402407   | 2402408   | 5  |
| M 8 x 1,25*                   | 2402409   | 2402410   | 2172247   | 2171117   | 2402413   | 2402414   | 2172248   | 5  |
| M 8 x 1                       | 2402416   | 2172325   | 2172259   | 2402419   | 2402420   | 2402421   | 2172260   | 5  |
| M 8 x 0,75                    | 2402423   | 2402424   | 2402425   | 2402426   | 2402427   | 2402428   | 2402429   | 5  |
| M 8 x 0,5                     | 2402430   | 2402431   | 2402432   | 2402433   | 2402434   | 2402435   | 2402436   | 4  |
| M 9 x 1,25                    | 2402437   | 2402438   | 2402439   | 2402440   | 2402441   | 2402442   | 2402443   | 4  |
| M 9 x 1                       | 2402444   | 2402445   | 2402446   | 2402447   | 2402448   | 2402449   | 2402450   | 4  |
| M 9 x 0,75                    | 2402451   | 2402452   | 2402453   | 2402454   | 2402455   | 2402456   | 2402457   | 4  |
| M 9 x 0,5                     | 2402458   | 2402459   | 2402460   | 2402461   | 2402462   | 2402463   | 2402464   | 4  |
| M 10 x 1,5*                   | 2402465   | 2402466   | 2172246   | 2402468   | 2402469   | 2402470   | 2172245   | 4  |
| M 10 x 1,25                   | 2402472   | 2402473   | 2172254   | 2402475   | 2402476   | 2402477   | 2172253   | 4  |
| M 10 x 1                      | 2402479   | 2172015   | 2172242   | 2402482   | 2402483   | 2402484   | 2172241   | 4  |
| M 10 x 0,75                   | 2402486   | 2402487   | 2402488   | 2402489   | 2402490   | 2402491   | 2402492   | 4  |
| M 10 x 0,5                    | 2402493   | 2402494   | 2402495   | 2402496   | 2402497   | 2402498   | 2402499   | 3  |
| M 11 x 1,5                    | 2402500   | 2402501   | 2402502   | 2402503   | 2402504   | 2402505   | 2402506   | 3  |
| M 11 x 1                      | 2402507   | 2402508   | 2402509   | 2402510   | 2402511   | 2402512   | 2402513   | 3  |
| M 11 x 0,75                   | 2402514   | 2402515   | 2402516   | 2402517   | 2402518   | 2402519   | 2402520   | 3  |
| M 11 x 0,5                    | 2402521   | 2402522   | 2402523   | 2402524   | 2402525   | 2402526   | 2402527   | 3  |
| M 12 x 1,75                   | 2406660   | 2406661   | 2406662   | 2406663   | 2406664   | 2173118   | 2406666   | 3  |
| M 12 x 1,5                    | 2402528   | 2402529   | 2172238   | 2172016   | 2402532   | 2402533   | 2170695   | 3  |
| M 12 x 1,25                   | 2402535   | 2402536   | 2172250   | 2402538   | 2402539   | 2402540   | 2172249   | 3  |
| M 12 x 1                      | 2402542   | 2402543   | 2172263   | 2402545   | 2401577   | 2402547   | 2172264   | 3  |
| M 12 x 0,75*                  | 2402549   | 2402550   | 2402551   | 2402552   | 2402553   | 2402554   | 2402555   | 3  |
| M 12 x 0,5                    | 2402556   | 2402557   | 2402558   | 2402559   | 2402560   | 2402561   | 2402562   | 3  |
| M 13 x 1,5                    | 2402563   | 2402564   | 2402565   | 2402566   | 2402567   | 2402568   | 2402569   | 3  |
| M 13 x 1                      | 2402570   | 2402571   | 2402572   | 2402573   | 2402574   | 2402575   | 2402576   | 3  |
| M 13 x 0,75                   | 2402577   | 2402578   | 2402579   | 2402580   | 2402581   | 2402582   | 2402583   | 2  |
| M 13 x 0,5                    | 2402584   | 2402585   | 2402586   | 2402587   | 2402588   | 2402589   | 2402590   | 2  |
| M 14 x 1,5                    | 2402591   | 2402592   | 2172239   | 2402594   | 2402595   | 2173117   | 2172240   | 2  |
| M 14 x 1,25                   | 2402598   | 2402599   | 2402600   | 2402601   | 2402602   | 2402603   | 2402604   | 2  |
| M 14 x 1                      | 2402605   | 2402606   | 2172258   | 2402608   | 2402609   | 2402610   | 2172257   | 2  |
| M 14 x 0,75                   | 2402612   | 2402613   | 2402614   | 2402615   | 2402616   | 2402617   | 2402618   | 2  |
| M 14 x 0,5                    | 2402619   | 2402620   | 2402621   | 2402622   | 2402623   | 2402624   | 2402625   | 2  |

\* Standardgewinde (DIN 13 Teil 1)  
\* Standard thread (to DIN 13 part 1)

| Metrisches ISO-Gewinde DIN 13 |           |           |           |           |           |           |           |   |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|
| Metric ISO Threads DIN 13     |           |           |           |           |           |           |           |   |
| Rollkopf                      | T160F     |           |           |           |           |           |           |   |
| Rolling Head                  |           |           |           |           |           |           |           |   |
| Rollenbreiten                 | 6         | 8         | 10        | 12        | 14        | 16        | 18,5      |   |
| Roll width                    | 0.236"    | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.728"    |   |
| Gewinde-abmessung             |           |           |           |           |           |           |           |   |
| Thread size                   | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z |
| M 15 x 1,5                    | 2402626   | 2402627   | 2402628   | 2402629   | 2402630   | 2402631   | 2402632   | 2 |
| M 15 x 1                      | 2402633   | 2402634   | 2402635   | 2402636   | 2402637   | 2402638   | 2402639   | 2 |
| M 15 x 0,75                   | 2402640   | 2402641   | 2402642   | 2402643   | 2172668   | 2402645   | 2402646   | 2 |
| M 15 x 0,5                    | 2402647   | 2402648   | 2172255   | 2402650   | 2402651   | 2402652   | 2172256   | 2 |
| M 16 x 1,5                    | 2402654   | 2402655   | 2172243   | 2170362   | 2172762   | 2402659   | 2172244   | 2 |
| M 16 x 1                      | 2402661   | 2402662   | 2402663   | 2402664   | 2402665   | 2402666   | 2402667   | 2 |
| M 16 x 0,75                   | 2402668   | 2402669   | 2402670   | 2402671   | 2402672   | 2402673   | 2402674   | 2 |
| M 16 x 0,5                    | 2402675   | 2402676   | 2402677   | 2402678   | 2402679   | 2402680   | 2402681   | 2 |
| M 17 x 1,5                    | 2402682   | 2402683   | 2402684   | 2402685   | 2402686   | 2402687   | 2402688   | 2 |
| M 17 x 1                      | 2402689   | 2402690   | 2402691   | 2402692   | 2402693   | 2402694   | 2402695   | 2 |

| Metrisches ISO-Gewinde DIN 13 |           |           |           |           |           |           |           |           |           |           |    |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----|
| Metric ISO Threads DIN 13     |           |           |           |           |           |           |           |           |           |           |    |
| Rollkopf                      | T220F     |           |           |           |           |           |           |           |           |           |    |
| Rolling Head                  |           |           |           |           |           |           |           |           |           |           |    |
| Rollenbreiten                 | 8         | 10        | 12        | 14        | 16        | 18        | 20        | 22        | 24        | 26        |    |
| Roll width                    | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    | 0.945"    | 1.024"    |    |
| Gewinde-abmessung             |           |           |           |           |           |           |           |           |           |           |    |
| Thread size                   | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z  |
| M 2 x 0,4*                    | 2403263   | 2403264   | 2403265   | 2403266   | 2403267   | 2403268   | 2403269   | 2403270   | 2403271   | 2403272   | 33 |
| M 2,2 x 0,45*                 | 2403273   | 2403274   | 2403275   | 2403276   | 2403277   | 2403278   | 2403279   | 2403280   | 2403281   | 2403282   | 30 |
| M 2,5 x 0,45*                 | 2403283   | 2403284   | 2403285   | 2403286   | 2403287   | 2403288   | 2403289   | 2403290   | 2403291   | 2403292   | 25 |
| M 3 x 0,5*                    | 2403293   | 2403294   | 2403295   | 2403296   | 2403297   | 2403298   | 2403299   | 2403300   | 2403301   | 2403302   | 21 |
| M 3,5 x 0,6*                  | 2403303   | 2403304   | 2403305   | 2403306   | 2403307   | 2403308   | 2403309   | 2403310   | 2403311   | 2403312   | 18 |
| M 3,5 x 0,5                   | 2403313   | 2403314   | 2403315   | 2403316   | 2403317   | 2403318   | 2403319   | 2403320   | 2403321   | 2403322   | 17 |
| M 4 x 0,7*                    | 2403323   | 2403324   | 2403325   | 2403326   | 2403327   | 2403328   | 2403329   | 2403330   | 2403331   | 2403332   | 16 |
| M 4 x 0,5                     | 2403333   | 2403334   | 2403335   | 2403336   | 2403337   | 2403338   | 2403339   | 2403340   | 2403341   | 2403342   | 15 |
| M 4,5 x 0,75*                 | 2403343   | 2403344   | 2403345   | 2403346   | 2403347   | 2403348   | 2403349   | 2403350   | 2403351   | 2403352   | 14 |
| M 4,5 x 0,5                   | 2403353   | 2403354   | 2403355   | 2403356   | 2403357   | 2403358   | 2403359   | 2403360   | 2403361   | 2403362   | 13 |
| M 5 x 0,8*                    | 2403363   | 2403364   | 2403365   | 2403366   | 2403367   | 2403368   | 2403369   | 2403370   | 2403371   | 2403372   | 12 |
| M 5 x 0,5                     | 2403373   | 2403374   | 2403375   | 2403376   | 2403377   | 2403378   | 2403379   | 2403380   | 2403381   | 2403382   | 11 |
| M 5,5 x 0,75                  | 2403393   | 2403394   | 2403395   | 2403396   | 2403397   | 2403398   | 2403399   | 2403400   | 2403401   | 2403402   | 11 |
| M 5,5 x 0,5                   | 2403403   | 2403404   | 2403405   | 2403406   | 2403407   | 2403408   | 2403409   | 2403410   | 2403411   | 2403412   | 10 |
| M 6 x 1*                      | 2403413   | 2403414   | 2403415   | 2403416   | 2403417   | 2403418   | 2403419   | 2403420   | 2403421   | 2403422   | 10 |
| M 6 x 0,75                    | 2403423   | 2403424   | 2403425   | 2403426   | 2403427   | 2403428   | 2403429   | 2403430   | 2403431   | 2403432   | 10 |
| M 6 x 0,5                     | 2403433   | 2403434   | 2403435   | 2403436   | 2403437   | 2403438   | 2403439   | 2403440   | 2403441   | 2403442   | 9  |
| M 7 x 1                       | 2403443   | 2403444   | 2403445   | 2403446   | 2403447   | 2403448   | 2403449   | 2403450   | 2403451   | 2403452   | 8  |
| M 7 x 0,75                    | 2403453   | 2403454   | 2403455   | 2403456   | 2403457   | 2403458   | 2403459   | 2403460   | 2403461   | 2403462   | 8  |
| M 7 x 0,5                     | 2403463   | 2403464   | 2403465   | 2403466   | 2403467   | 2403468   | 2403469   | 2403470   | 2403471   | 2403472   | 8  |
| M 8 x 1,25*                   | 2403473   | 2403474   | 2403475   | 2403476   | 2403477   | 2403478   | 2403479   | 2403480   | 2403481   | 2403482   | 7  |
| M 8 x 1                       | 2403483   | 2403484   | 2403485   | 2403486   | 2403487   | 2403488   | 2403489   | 2403490   | 2403491   | 2403492   | 7  |
| M 8 x 0,75                    | 2403493   | 2403494   | 2403495   | 2403496   | 2403497   | 2403498   | 2403499   | 2403500   | 2403501   | 2403502   | 7  |
| M 8 x 0,5                     | 2403503   | 2403504   | 2403505   | 2403506   | 2403507   | 2403508   | 2403509   | 2403510   | 2403511   | 2403512   | 7  |
| M 9 x 1,25                    | 2403513   | 2403514   | 2403515   | 2403516   | 2403517   | 2403518   | 2403519   | 2403520   | 2403521   | 2403522   | 6  |
| M 9 x 1                       | 2403523   | 2403524   | 2403525   | 2403526   | 2403527   | 2403528   | 2403529   | 2403530   | 2403531   | 2403532   | 6  |
| M 9 x 0,75                    | 2403533   | 2403534   | 2403535   | 2403536   | 2403537   | 2403538   | 2403539   | 2403540   | 2403541   | 2403542   | 6  |
| M 9 x 0,5                     | 2403543   | 2403544   | 2403545   | 2403546   | 2403547   | 2403548   | 2403549   | 2403550   | 2403551   | 2403552   | 6  |
| M 10 x 1,5*                   | 2403553   | 2403554   | 2403555   | 2403556   | 2403557   | 2403558   | 2403559   | 2403560   | 2403561   | 2403562   | 6  |
| M 10 x 1,25                   | 2403563   | 2403564   | 2403565   | 2403566   | 2403567   | 2403568   | 2403569   | 2403570   | 2403571   | 2403572   | 6  |
| M 10 x 1                      | 2403573   | 2403574   | 2403575   | 2403576   | 2403577   | 2403578   | 2403579   | 2403580   | 2403581   | 2403582   | 5  |

\* Standardgewinde (DIN 13 Teil 1)  
\* Standard thread (to DIN 13 part 1)

| Metrisches ISO-Gewinde DIN 13 |           |           |           |           |           |           |           |           |           |           |   |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|
| Metric ISO Threads DIN 13     |           |           |           |           |           |           |           |           |           |           |   |
| Rollkopf                      | T220F     |           |           |           |           |           |           |           |           |           |   |
| Rolling Head                  |           |           |           |           |           |           |           |           |           |           |   |
| Rollenbreiten                 | 8         | 10        | 12        | 14        | 16        | 18        | 20        | 22        | 24        | 26        |   |
| Roll width                    | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    | 0.945"    | 1.024"    |   |
| Gewinde-<br>abmessung         | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z |
| Thread size                   |           |           |           |           |           |           |           |           |           |           |   |
| M 10 x 0,75                   | 2403583   | 2403584   | 2403585   | 2403586   | 2403587   | 2403588   | 2403589   | 2403590   | 2403591   | 2403592   | 5 |
| M 10 x 0,5                    | 2403593   | 2403594   | 2403595   | 2403596   | 2403597   | 2403598   | 2403599   | 2403600   | 2403601   | 2403602   | 5 |
| M 11 x 1,5                    | 2403603   | 2403604   | 2403605   | 2403606   | 2403607   | 2403608   | 2403609   | 2403610   | 2403611   | 2403612   | 5 |
| M 11 x 1                      | 2403613   | 2403614   | 2403615   | 2403616   | 2403617   | 2403618   | 2403619   | 2403620   | 2403621   | 2403622   | 5 |
| M 11 x 0,75                   | 2403623   | 2403624   | 2403625   | 2403626   | 2403627   | 2403628   | 2403629   | 2403630   | 2403631   | 2403632   | 5 |
| M 11 x 0,5                    | 2403633   | 2403634   | 2403635   | 2403636   | 2403637   | 2403638   | 2403639   | 2403640   | 2403641   | 2403642   | 5 |
| M 12 x 1,75*                  | 2403643   | 2403644   | 2403645   | 2403646   | 2403647   | 2403648   | 2403649   | 2403650   | 2403651   | 2403652   | 5 |
| M 12 x 1,5                    | 2403653   | 2403654   | 2403655   | 2403656   | 2403657   | 2403658   | 2403659   | 2403660   | 2403661   | 2403662   | 5 |
| M 12 x 1,25                   | 2403663   | 2403664   | 2403665   | 2403666   | 2403667   | 2403668   | 2403669   | 2403670   | 2403671   | 2403672   | 4 |
| M 12 x 1                      | 2403673   | 2403674   | 2403675   | 2403676   | 2403677   | 2403678   | 2403679   | 2403680   | 2403681   | 2403682   | 4 |
| M 12 x 0,75                   | 2403683   | 2403684   | 2403685   | 2403686   | 2403687   | 2403688   | 2403689   | 2403690   | 2403691   | 2403692   | 4 |
| M 12 x 0,5                    | 2403693   | 2403694   | 2403695   | 2403696   | 2403697   | 2403698   | 2403699   | 2403700   | 2403701   | 2403702   | 4 |
| M 13 x 1,5                    | 2403703   | 2403704   | 2403705   | 2403706   | 2403707   | 2403708   | 2403709   | 2403710   | 2403711   | 2403712   | 4 |
| M 13 x 1                      | 2403713   | 2403714   | 2403715   | 2403716   | 2403717   | 2403718   | 2403719   | 2403720   | 2403721   | 2403722   | 4 |
| M 13 x 0,75                   | 2403723   | 2403724   | 2403725   | 2403726   | 2403727   | 2403728   | 2403729   | 2403730   | 2403731   | 2403732   | 4 |
| M 13 x 0,5                    | 2403733   | 2403734   | 2403735   | 2403736   | 2403737   | 2403738   | 2403739   | 2403740   | 2403741   | 2403742   | 4 |
| M 14 x 2*                     | 2403743   | 2403744   | 2403745   | 2403746   | 2403747   | 2403748   | 2403749   | 2403750   | 2403751   | 2401329   | 4 |
| M 14 x 1,5                    | 2403753   | 2403754   | 2403755   | 2403756   | 2403757   | 2403758   | 2403759   | 2403760   | 2403761   | 2403762   | 4 |
| M 14 x 1,25                   | 2403763   | 2403764   | 2403765   | 2403766   | 2403767   | 2403768   | 2403769   | 2403770   | 2403771   | 2403772   | 4 |
| M 14 x 1                      | 2403773   | 2403774   | 2403775   | 2403776   | 2403777   | 2403778   | 2403779   | 2403780   | 2403781   | 2403782   | 4 |
| M 14 x 0,75                   | 2403783   | 2403784   | 2403785   | 2403786   | 2403787   | 2403788   | 2403789   | 2403790   | 2403791   | 2403792   | 3 |
| M 14 x 0,5                    | 2403793   | 2403794   | 2403795   | 2403796   | 2403797   | 2403798   | 2403799   | 2403800   | 2403801   | 2403802   | 3 |
| M 15 x 1,5                    | 2403803   | 2403804   | 2403805   | 2403806   | 2403807   | 2403808   | 2403809   | 2403810   | 2403811   | 2403812   | 3 |
| M 15 x 1                      | 2403813   | 2403814   | 2403815   | 2403816   | 2403817   | 2403818   | 2403819   | 2403820   | 2403821   | 2403822   | 3 |
| M 15 x 0,75                   | 2403823   | 2403824   | 2403825   | 2403826   | 2403827   | 2403828   | 2403829   | 2403830   | 2403831   | 2403832   | 3 |
| M 15 x 0,5                    | 2403833   | 2401373   | 2403835   | 2403836   | 2172661   | 2403838   | 2403839   | 2403840   | 2403841   | 2403842   | 3 |
| M 16 x 2*                     | 2403843   | 2403844   | 2403845   | 2403846   | 2403847   | 2403848   | 2403849   | 2403850   | 2403851   | 2403852   | 3 |
| M 16 x 1,5                    | 2403853   | 2403854   | 2403855   | 2403856   | 2403857   | 2403858   | 2403859   | 2403860   | 2403861   | 2403862   | 3 |
| M 16 x 1                      | 2403863   | 2403864   | 2403865   | 2403866   | 2403867   | 2403868   | 2403869   | 2403870   | 2403871   | 2403872   | 3 |
| M 16 x 0,75                   | 2403873   | 2403874   | 2403875   | 2403876   | 2403877   | 2403878   | 2403879   | 2403880   | 2403881   | 2403882   | 3 |
| M 16 x 0,5                    | 2403883   | 2403884   | 2403885   | 2403886   | 2403887   | 2403888   | 2403889   | 2403890   | 2403891   | 2403892   | 3 |
| M 17 x 2                      | 2403893   | 2403894   | 2403895   | 2403896   | 2403897   | 2403898   | 2403899   | 2403900   | 2403901   | 2403902   | 3 |
| M 17 x 1,5                    | 2403903   | 2403904   | 2403905   | 2403906   | 2403907   | 2403908   | 2403909   | 2403910   | 2403911   | 2403912   | 3 |
| M 17 x 1                      | 2403913   | 2403914   | 2403915   | 2403916   | 2403917   | 2403918   | 2403919   | 2403920   | 2403921   | 2403922   | 3 |
| M 17 x 0,75                   | 2403923   | 2403924   | 2403925   | 2403926   | 2172822   | 2403928   | 2403929   | 2403930   | 2403931   | 2403932   | 3 |
| M 17 x 0,5                    | 2403933   | 2403934   | 2403935   | 2403936   | 2403937   | 2403938   | 2403939   | 2403940   | 2403941   | 2403942   | 3 |
| M 18 x 2,5*                   | 2406667   | 2406668   | 2406669   | 2406670   | 2406671   | 2406672   | 2406673   | 2406674   | 2406675   | 2406676   | 3 |
| M 18 x 2                      | 2403943   | 2403944   | 2403945   | 2403946   | 2403947   | 2403948   | 2403949   | 2403950   | 2403951   | 2403952   | 3 |
| M 18 x 1,5                    | 2403953   | 2403954   | 2403955   | 2403956   | 2403957   | 2403958   | 2403959   | 2403960   | 2403961   | 2403962   | 3 |
| M 18 x 1                      | 2403963   | 2403964   | 2403965   | 2403966   | 2403967   | 2403968   | 2403969   | 2403970   | 2403971   | 2403972   | 3 |
| M 18 x 0,75                   | 2403973   | 2403974   | 2403975   | 2403976   | 2403977   | 2403978   | 2403979   | 2403980   | 2403981   | 2403982   | 3 |
| M 18 x 0,5                    | 2403983   | 2403984   | 2403985   | 2403986   | 2403987   | 2403988   | 2403989   | 2403990   | 2403991   | 2403992   | 3 |
| M 19 x 2                      | 2403993   | 2403994   | 2403995   | 2403996   | 2403997   | 2403998   | 2403999   | 2404000   | 2404001   | 2404002   | 3 |
| M 19 x 1,5                    | 2404003   | 2404004   | 2404005   | 2404006   | 2404007   | 2404008   | 2404009   | 2406625   | 2406626   | 2406627   | 3 |
| M 19 x 1                      | 2406628   | 2404014   | 2406629   | 2404016   | 2404017   | 2404018   | 2404019   | 2404020   | 2404021   | 2404022   | 2 |
| M 19 x 0,75                   | 2404023   | 2404024   | 2404025   | 2404026   | 2404027   | 2404028   | 2404029   | 2404030   | 2404031   | 2404032   | 2 |
| M 19 x 0,5                    | 2404033   | 2404034   | 2404035   | 2404036   | 2404037   | 2404038   | 2404039   | 2404040   | 2404041   | 2404042   | 2 |
| M 20 x 2,5*                   | 2406677   | 2406678   | 2406679   | 2406680   | 2406681   | 2406682   | 2406683   | 2406684   | 2406685   | 2406686   | 2 |
| M 20 x 2                      | 2404043   | 2404044   | 2404045   | 2404046   | 2404047   | 2404048   | 2404049   | 2404050   | 2404051   | 2404052   | 2 |
| M 20 x 1,5                    | 2404053   | 2404054   | 2404055   | 2404056   | 2404057   | 2404058   | 2404059   | 2404060   | 2404061   | 2404062   | 2 |
| M 20 x 1                      | 2404063   | 2404064   | 2404065   | 2404066   | 2404067   | 2404068   | 2404069   | 2404070   | 2404071   | 2404072   | 2 |
| M 20 x 0,75                   | 2404073   | 2404074   | 2404075   | 2404076   | 2404077   | 2404078   | 2404079   | 2404080   | 2404081   | 2404082   | 2 |

\* Standardgewinde (DIN 13 Teil 1)  
\* Standard thread (to DIN 13 part 1)

| Metrisches ISO-Gewinde DIN 13 |           |           |           |           |           |           |           |           |           |           |   |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|
| Metric ISO Threads DIN 13     |           |           |           |           |           |           |           |           |           |           |   |
| T220F                         |           |           |           |           |           |           |           |           |           |           |   |
| Rollkopf                      |           |           |           |           |           |           |           |           |           |           |   |
| Rolling Head                  |           |           |           |           |           |           |           |           |           |           |   |
| Rollenbreiten                 | 8         | 10        | 12        | 14        | 16        | 18        | 20        | 22        | 24        | 26        |   |
| Roll width                    | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    | 0.945"    | 1.024"    |   |
| Gewinde-<br>abmessung         | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z |
| Thread size                   | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z |
| M 20 x 0,5                    | 2404083   | 2404084   | 2404085   | 2404086   | 2404087   | 2404088   | 2404089   | 2404090   | 2404091   | 2404092   | 2 |
| M 21 x 2                      | 2404093   | 2404094   | 2404095   | 2404096   | 2404097   | 2404098   | 2404099   | 2404100   | 2404101   | 2404102   | 2 |
| M 21 x 1,5                    | 2404103   | 2404104   | 2404105   | 2404106   | 2404107   | 2404108   | 2404109   | 2404110   | 2404111   | 2404112   | 2 |
| M 21 x 1                      | 2404113   | 2404114   | 2404115   | 2404116   | 2404117   | 2404118   | 2404119   | 2404120   | 2404121   | 2404122   | 2 |
| M 21 x 0,75                   | 2404123   | 2404124   | 2404125   | 2404126   | 2404127   | 2404128   | 2404129   | 2404130   | 2404131   | 2404132   | 2 |
| M 21 x 0,5                    | 2404133   | 2404134   | 2404135   | 2404136   | 2404137   | 2404138   | 2404139   | 2404140   | 2404141   | 2404142   | 2 |
| M 22 x 2,5*                   | 2406687   | 2406688   | 2406689   | 2406690   | 2406691   | 2406692   | 2406693   | 2406694   | 2406695   | 2406696   | 2 |
| M 22 x 2                      | 2404143   | 2404144   | 2404145   | 2404146   | 2404147   | 2404148   | 2404149   | 2404150   | 2404151   | 2404152   | 2 |
| M 22 x 1,5                    | 2404153   | 2404154   | 2404155   | 2404156   | 2404157   | 2172734   | 2404159   | 2404160   | 2404161   | 2401403   | 2 |
| M 22 x 1                      | 2404163   | 2404164   | 2404165   | 2404166   | 2404167   | 2404168   | 2404169   | 2404170   | 2404171   | 2404172   | 2 |
| M 22 x 0,75                   | 2404173   | 2404174   | 2404175   | 2404176   | 2404177   | 2404178   | 2404179   | 2404180   | 2404181   | 2404182   | 2 |
| M 22 x 0,5                    | 2404183   | 2404184   | 2404185   | 2404186   | 2404187   | 2404188   | 2404189   | 2404190   | 2404191   | 2404192   | 2 |
| M 23 x 2                      | 2404193   | 2404194   | 2404195   | 2404196   | 2404197   | 2404198   | 2404199   | 2404200   | 2404201   | 2404202   | 2 |
| M 23 x 1,5                    | 2404203   | 2404204   | 2404205   | 2404206   | 2404207   | 2404208   | 2404209   | 2404210   | 2404211   | 2404212   | 2 |
| M 23 x 1                      | 2404213   | 2404214   | 2404215   | 2404216   | 2404217   | 2404218   | 2404219   | 2404220   | 2404221   | 2404222   | 2 |
| M 23 x 0,75                   | 2404223   | 2404224   | 2404225   | 2404226   | 2404227   | 2404228   | 2404229   | 2404230   | 2404231   | 2404232   | 2 |
| M 23 x 0,5                    | 2404233   | 2404234   | 2404235   | 2404236   | 2404237   | 2404238   | 2404239   | 2404240   | 2404241   | 2404242   | 2 |
| M 24 x 2                      | 2404243   | 2404244   | 2404245   | 2404246   | 2404247   | 2404248   | 2404249   | 2404250   | 2404251   | 2404252   | 2 |
| M 24 x 1,5                    | 2404253   | 2404254   | 2404255   | 2404256   | 2404257   | 2407583   | 2404259   | 2404260   | 2404261   | 2404262   | 2 |
| M 24 x 1                      | 2404263   | 2404264   | 2404265   | 2404266   | 2404267   | 2404268   | 2404269   | 2404270   | 2404271   | 2404272   | 2 |
| M 24 x 0,75                   | 2404273   | 2404274   | 2404275   | 2404276   | 2404277   | 2404278   | 2404279   | 2404280   | 2404281   | 2404282   | 2 |
| M 24 x 0,5                    | 2404283   | 2404284   | 2404285   | 2404286   | 2404287   | 2404288   | 2404289   | 2404290   | 2404291   | 2404292   | 2 |
| M 25 x 2                      | 2404293   | 2404294   | 2404295   | 2404296   | 2404297   | 2404298   | 2404299   | 2404300   | 2404301   | 2404302   | 2 |
| M 25 x 1,5                    | 2404303   | 2404304   | 2404305   | 2404306   | 2404307   | 2404308   | 2404309   | 2404310   | 2404311   | 2404312   | 2 |
| M 25 x 1                      | 2404313   | 2404314   | 2404315   | 2404316   | 2404317   | 2404318   | 2404319   | 2404320   | 2404321   | 2404322   | 2 |
| M 25 x 0,75                   | 2404323   | 2404324   | 2404325   | 2404326   | 2404327   | 2404328   | 2404329   | 2404330   | 2404331   | 2404332   | 2 |
| M 25 x 0,5                    | 2404333   | 2404334   | 2404335   | 2404336   | 2404337   | 2404338   | 2404339   | 2404340   | 2404341   | 2404342   | 2 |
| M 26 x 2                      | 2404343   | 2404344   | 2404345   | 2404346   | 2404347   | 2404348   | 2404349   | 2404350   | 2404351   | 2404352   | 2 |
| M 26 x 1,5                    | 2404353   | 2404354   | 2404355   | 2404356   | 2404357   | 2404358   | 2404359   | 2404360   | 2404361   | 2404362   | 2 |
| M 26 x 1                      | 2404363   | 2404364   | 2404365   | 2404366   | 2404367   | 2404368   | 2404369   | 2404370   | 2404371   | 2404372   | 1 |
| M 26 x 0,75                   | 2404373   | 2404374   | 2404375   | 2404376   | 2404377   | 2404378   | 2404379   | 2404380   | 2404381   | 2404382   | 1 |
| M 26 x 0,5                    | 2404383   | 2404384   | 2404385   | 2404386   | 2404387   | 2404388   | 2404389   | 2404390   | 2404391   | 2404392   | 1 |
| M 27 x 2                      | 2404393   | 2404394   | 2404395   | 2404396   | 2404397   | 2404398   | 2404399   | 2404400   | 2404401   | 2404402   | 1 |
| M 27 x 1,5                    | 2404403   | 2404404   | 2404405   | 2404406   | 2404407   | 2404408   | 2404409   | 2404410   | 2404411   | 2404412   | 1 |
| M 27 x 1                      | 2404413   | 2404414   | 2404415   | 2404416   | 2404417   | 2404418   | 2404419   | 2404420   | 2404421   | 2404422   | 1 |
| M 27 x 0,75                   | 2404423   | 2404424   | 2404425   | 2404426   | 2404427   | 2404428   | 2404429   | 2404430   | 2404431   | 2404432   | 1 |
| M 27 x 0,5                    | 2404433   | 2404434   | 2404435   | 2404436   | 2404437   | 2404438   | 2404439   | 2404440   | 2404441   | 2404442   | 1 |
| M 28 x 2                      | 2404443   | 2404444   | 2404445   | 2404446   | 2404447   | 2404448   | 2404449   | 2404450   | 2404451   | 2404452   | 1 |
| M 28 x 1,5                    | 2404453   | 2404454   | 2404455   | 2404456   | 2404457   | 2404458   | 2404459   | 2404460   | 2404461   | 2404462   | 1 |
| M 28 x 1                      | 2404463   | 2404464   | 2404465   | 2404466   | 2404467   | 2404468   | 2404469   | 2404470   | 2404471   | 2404472   | 1 |
| M 28 x 0,75                   | 2404473   | 2404474   | 2404475   | 2404476   | 2404477   | 2404478   | 2404479   | 2404480   | 2404481   | 2404482   | 1 |
| M 28 x 0,5                    | 2404483   | 2404484   | 2404485   | 2404486   | 2404487   | 2404488   | 2404489   | 2404490   | 2404491   | 2404492   | 1 |
| M 30 x 2                      | 2404493   | 2404494   | 2404495   | 2404496   | 2404497   | 2404498   | 2404499   | 2404500   | 2404501   | 2404502   | 1 |
| M 30 x 1,5                    | 2404503   | 2404504   | 2404505   | 2404506   | 2404507   | 2404508   | 2404509   | 2404510   | 2404511   | 2404512   | 1 |
| M 30 x 1                      | 2404513   | 2404514   | 2404515   | 2404516   | 2404517   | 2404518   | 2404519   | 2404520   | 2404521   | 2404522   | 1 |
| M 30 x 0,75                   | 2404523   | 2404524   | 2404525   | 2404526   | 2404527   | 2404528   | 2404529   | 2404530   | 2404531   | 2404532   | 1 |
| M 30 x 0,5                    | 2404533   | 2404534   | 2404535   | 2404536   | 2404537   | 2404538   | 2404539   | 2404540   | 2404541   | 2404542   | 1 |
| M 32 x 2                      | 2404543   | 2404544   | 2404545   | 2404546   | 2404547   | 2404548   | 2404549   | 2404550   | 2404551   | 2404552   | 1 |
| M 32 x 1,5                    | 2404553   | 2404554   | 2404555   | 2404556   | 2404557   | 2404558   | 2404559   | 2404560   | 2404561   | 2404562   | 1 |
| M 32 x 1                      | 2404563   | 2404564   | 2404565   | 2404566   | 2404567   | 2404568   | 2404569   | 2404570   | 2404571   | 2404572   | 1 |
| M 32 x 0,75                   | 2404573   | 2404574   | 2404575   | 2404576   | 2404577   | 2404578   | 2404579   | 2404580   | 2404581   | 2404582   | 1 |
| M 32 x 0,5                    | 2404583   | 2404584   | 2404585   | 2404586   | 2404587   | 2404588   | 2404589   | 2404590   | 2404591   | 2404592   | 1 |

\* Standardgewinde (DIN 13 Teil 1)  
\* Standard thread (to DIN 13 part 1)

| Metrisches ISO-Gewinde DIN 13 |           |           |           |           |           |           |           |           |           |           |           |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Metric ISO Threads DIN 13     |           |           |           |           |           |           |           |           |           |           |           |
| Rollkopf                      | T220F     |           |           |           |           |           |           |           |           |           |           |
| Rolling Head                  |           |           |           |           |           |           |           |           |           |           |           |
| Rollenbreiten                 | 8         | 10        | 12        | 14        | 16        | 18        | 20        | 22        | 24        | 26        |           |
| Roll width                    | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    | 0.945"    | 1.024"    |           |
| Gewinde-abmessung             |           |           |           |           |           |           |           |           |           |           | Z         |
| Thread size                   | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| M 33 x 2                      | 2404593   | 2404594   | 2404595   | 2404596   | 2404597   | 2404598   | 2404599   | 2404600   | 2404601   | 2404602   | 1         |
| M 33 x 1,5                    | 2404603   | 2404604   | 2404605   | 2404606   | 2404607   | 2404608   | 2404609   | 2404610   | 2404611   | 2404612   | 1         |
| M 33 x 1                      | 2404613   | 2404614   | 2404615   | 2404616   | 2404617   | 2404618   | 2404619   | 2404620   | 2404621   | 2404622   | 1         |
| M 33 x 0,75                   | 2404623   | 2404624   | 2404625   | 2404626   | 2404627   | 2404628   | 2404629   | 2404630   | 2404631   | 2404632   | 1         |
| M 33 x 0,5                    | 2404633   | 2404634   | 2404635   | 2404636   | 2404637   | 2404638   | 2404639   | 2404640   | 2404641   | 2404642   | 1         |
| M 34 x 2                      | 2404643   | 2404644   | 2404645   | 2404646   | 2404647   | 2404648   | 2404649   | 2404650   | 2404651   | 2404652   | 1         |
| M 34 x 1,5                    | 2404653   | 2404654   | 2404655   | 2404656   | 2404657   | 2404658   | 2404659   | 2404660   | 2404661   | 2404662   | 1         |
| M 34 x 1                      | 2404663   | 2404664   | 2404665   | 2404666   | 2404667   | 2404668   | 2404669   | 2404670   | 2404671   | 2404672   | 1         |
| M 34 x 0,75                   | 2404673   | 2404674   | 2404675   | 2404676   | 2404677   | 2404678   | 2404679   | 2404680   | 2404681   | 2404682   | 1         |
| M 34 x 0,5                    | 2404683   | 2404684   | 2404685   | 2404686   | 2404687   | 2404688   | 2404689   | 2404690   | 2404691   | 2404692   | 1         |
| M 35 x 2                      | 2404693   | 2404694   | 2404695   | 2404696   | 2404697   | 2404698   | 2404699   | 2404700   | 2404701   | 2404702   | 1         |
| M 35 x 1,5                    | 2404703   | 2404704   | 2404705   | 2404706   | 2404707   | 2404708   | 2404709   | 2404710   | 2404711   | 2404712   | 1         |
| M 35 x 1                      | 2404713   | 2404714   | 2404715   | 2404716   | 2404717   | 2404718   | 2404719   | 2404720   | 2404721   | 2404722   | 1         |
| M 35 x 0,75                   | 2404723   | 2404724   | 2404725   | 2404726   | 2404727   | 2404728   | 2404729   | 2404730   | 2404731   | 2404732   | 1         |
| M 35 x 0,5                    | 2404733   | 2404734   | 2404735   | 2404736   | 2404737   | 2404738   | 2404739   | 2404740   | 2404741   | 2404742   | 1         |
| M 36 x 2                      | 2404743   | 2404744   | 2404745   | 2404746   | 2404747   | 2404748   | 2404749   | 2404750   | 2404751   | 2404752   | 1         |
| M 36 x 1,5                    | 2404753   | 2404754   | 2404755   | 2404756   | 2404757   | 2404758   | 2404759   | 2404760   | 2404761   | 2404762   | 1         |
| M 36 x 1                      | 2404763   | 2404764   | 2404765   | 2404766   | 2404767   | 2404768   | 2404769   | 2404770   | 2404771   | 2404772   | 1         |
| M 36 x 0,75                   | 2404773   | 2404774   | 2404775   | 2404776   | 2404777   | 2404778   | 2404779   | 2404780   | 2404781   | 2404782   | 1         |
| M 36 x 0,5                    | 2404783   | 2404784   | 2404785   | 2404786   | 2404787   | 2404788   | 2404789   | 2404790   | 2404791   | 2404792   | 1         |
| M 38 x 2                      | 2404793   | 2404794   | 2404795   | 2404796   | 2404797   | 2404798   | 2404799   | 2404800   | 2404801   | 2404802   | 1         |
| M 38 x 1,5                    | 2404803   | 2404804   | 2404805   | 2404806   | 2404807   | 2404808   | 2404809   | 2404810   | 2404811   | 2404812   | 1         |
| M 38 x 1                      | 2404813   | 2404814   | 2404815   | 2404816   | 2404817   | 2404818   | 2404819   | 2404820   | 2404821   | 2404822   | 1         |

| Metrisches ISO-Gewinde DIN 13 |           |           |           |           |           |           |           |           |           |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Metric ISO Threads DIN 13     |           |           |           |           |           |           |           |           |           |
| Rollkopf                      | T350F     |           |           |           |           |           |           |           |           |
| Rolling Head                  |           |           |           |           |           |           |           |           |           |
| Rollenbreiten                 | 8         | 10        | 12        | 14        | 16        | 18        | 20        | 22        |           |
| Roll width                    | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    |           |
| Gewinde-abmessung             |           |           |           |           |           |           |           |           |           |
| Thread size                   | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| M 5 x 0,8*                    | 2432100   | 2432101   | 2432102   | 2432103   | 2432104   | 2432105   | 2432106   | 2432107   | 2432108   |
| M 5 x 0,5                     | 2432115   | 2432116   | 2432117   | 2432118   | 2432119   | 2432120   | 2432121   | 2432122   | 2432123   |
| M 5,5 x 0,75                  | 2432130   | 2432131   | 2432132   | 2432133   | 2432134   | 2432135   | 2432136   | 2432137   | 2432138   |
| M 5,5 x 0,5                   | 2432145   | 2432146   | 2432147   | 2432148   | 2432149   | 2432150   | 2432151   | 2432152   | 2432153   |
| M 6 x 1*                      | 2432160   | 2432161   | 2432162   | 2432163   | 2432164   | 2432165   | 2432166   | 2432167   | 2432168   |
| M 6 x 0,75                    | 2432175   | 2432176   | 2432177   | 2432178   | 2432179   | 2432180   | 2432181   | 2432182   | 2432183   |
| M 6 x 0,5                     | 2432190   | 2432191   | 2432192   | 2432193   | 2432194   | 2432195   | 2432196   | 2432197   | 2432198   |
| M 7 x 1                       | 2432205   | 2432206   | 2432207   | 2432208   | 2432209   | 2432210   | 2432211   | 2432212   | 2432213   |
| M 7 x 0,75                    | 2432220   | 2432221   | 2432222   | 2432223   | 2432224   | 2432225   | 2432226   | 2432227   | 2432228   |
| M 7 x 0,5                     | 2432235   | 2432236   | 2432237   | 2432238   | 2432239   | 2432240   | 2432241   | 2432242   | 2432243   |
| M 8 x 1,25*                   | 2432250   | 2432251   | 2432252   | 2432253   | 2432254   | 2432255   | 2432256   | 2432257   | 2432258   |
| M 8 x 1                       | 2432265   | 2432266   | 2432267   | 2432268   | 2432269   | 2432270   | 2432271   | 2432272   | 2432273   |
| M 8 x 0,75                    | 2432280   | 2432281   | 2432282   | 2432283   | 2432284   | 2432285   | 2432286   | 2432287   | 2432288   |
| M 8 x 0,5                     | 2432295   | 2432296   | 2432297   | 2432298   | 2432299   | 2432300   | 2432301   | 2432302   | 2432303   |
| M 9 x 1,25                    | 2432310   | 2432311   | 2432312   | 2432313   | 2432314   | 2432315   | 2432316   | 2432317   | 2432318   |
| M 9 x 1                       | 2432325   | 2432326   | 2432327   | 2432328   | 2432329   | 2432330   | 2432331   | 2432332   | 2432333   |
| M 9 x 0,75                    | 2432340   | 2432341   | 2432342   | 2432343   | 2432344   | 2432345   | 2432346   | 2432347   | 2432348   |
| M 9 x 0,5                     | 2432355   | 2432356   | 2432357   | 2432358   | 2432359   | 2432360   | 2432361   | 2432362   | 2432363   |

\* Standardgewinde (DIN 13 Teil 1)  
\* Standard thread (to DIN 13 part 1)

| Metrisches ISO-Gewinde DIN 13 |           |           |           |           |           |           |           |           |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Metric ISO Threads DIN 13     |           |           |           |           |           |           |           |           |
| Rollkopf                      | T350F     |           |           |           |           |           |           |           |
| Rolling Head                  |           |           |           |           |           |           |           |           |
| Rollenbreiten                 | 8         | 10        | 12        | 14        | 16        | 18        | 20        | 22        |
| Roll width                    | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    |
| Gewinde-<br>abmessung         | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| Thread size                   | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| M 10 x 1,5*                   | 2432370   | 2432371   | 2432372   | 2432373   | 2432374   | 2432375   | 2432376   | 2432377   |
| M 10 x 1,25                   | 2432385   | 2432386   | 2432387   | 2432388   | 2432389   | 2432390   | 2432391   | 2432392   |
| M 10 x 1                      | 2432400   | 2432401   | 2432402   | 2432403   | 2432404   | 2432405   | 2432406   | 2432407   |
| M 10 x 0,75                   | 2432415   | 2432416   | 2432417   | 2432418   | 2432419   | 2432420   | 2432421   | 2432422   |
| M 10 x 0,5                    | 2432430   | 2432431   | 2432432   | 2432433   | 2432434   | 2432435   | 2432436   | 2432437   |
| M 11 x 1,5                    | 2432445   | 2432446   | 2432447   | 2432448   | 2432449   | 2432450   | 2432451   | 2432452   |
| M 11 x 1                      | 2432460   | 2432461   | 2432462   | 2432463   | 2432464   | 2432465   | 2432466   | 2432467   |
| M 11 x 0,75                   | 2432475   | 2432476   | 2432477   | 2432478   | 2432479   | 2432480   | 2432481   | 2432482   |
| M 11 x 0,5                    | 2432490   | 2432491   | 2432492   | 2432493   | 2432494   | 2432495   | 2432496   | 2432497   |
| M 12 x 1,75*                  | 2432505   | 2432506   | 2432507   | 2432508   | 2432509   | 2432510   | 2432511   | 2432512   |
| M 12 x 1,5                    | 2432520   | 2432521   | 2432522   | 2432523   | 2432524   | 2432525   | 2432526   | 2432527   |
| M 12 x 1,25                   | 2432535   | 2432536   | 2432537   | 2432538   | 2432539   | 2432540   | 2432541   | 2432542   |
| M 12 x 1                      | 2432550   | 2432551   | 2432552   | 2432553   | 2432554   | 2432555   | 2432556   | 2432557   |
| M 12 x 0,75                   | 2432565   | 2432566   | 2432567   | 2432568   | 2432569   | 2432570   | 2432571   | 2432572   |
| M 12 x 0,5                    | 2432580   | 2432581   | 2432582   | 2432583   | 2432584   | 2432585   | 2432586   | 2432587   |
| M 13 x 1,5                    | 2432595   | 2432596   | 2432597   | 2432598   | 2432599   | 2432600   | 2432601   | 2432602   |
| M 13 x 1                      | 2432610   | 2432611   | 2432612   | 2432613   | 2432614   | 2432615   | 2432616   | 2432617   |
| M 13 x 0,75                   | 2432625   | 2432626   | 2432627   | 2432628   | 2432629   | 2432630   | 2432631   | 2432632   |
| M 13 x 0,5                    | 2432640   | 2432641   | 2432642   | 2432643   | 2432644   | 2432645   | 2432646   | 2432647   |
| M 14 x 2*                     | 2432655   | 2432656   | 2432657   | 2432658   | 2432659   | 2432660   | 2432661   | 2432662   |
| M 14 x 1,5                    | 2432669   | 2432670   | 2432671   | 2432672   | 2432673   | 2432674   | 2432675   | 2432676   |
| M 14 x 1,25                   | 2432684   | 2432685   | 2432686   | 2432687   | 2432688   | 2432689   | 2432690   | 2432691   |
| M 14 x 1                      | 2432699   | 2432700   | 2432701   | 2432702   | 2432703   | 2432704   | 2432705   | 2432706   |
| M 14 x 0,75                   | 2432714   | 2432715   | 2432716   | 2432717   | 2432718   | 2432719   | 2432720   | 2432721   |
| M 14 x 0,5                    | 2432729   | 2432730   | 2432731   | 2432732   | 2432733   | 2432734   | 2432735   | 2432736   |
| M 15 x 1,5                    | 2432744   | 2432745   | 2432746   | 2432747   | 2432748   | 2432749   | 2432750   | 2432751   |
| M 15 x 1                      | 2432759   | 2432760   | 2432761   | 2432762   | 2432763   | 2432764   | 2432765   | 2432766   |
| M 15 x 0,75                   | 2432774   | 2432775   | 2432776   | 2432777   | 2432778   | 2432779   | 2432780   | 2432781   |
| M 15 x 0,5                    | 2432789   | 2432790   | 2432791   | 2432792   | 2432793   | 2432794   | 2432795   | 2432796   |
| M 16 x 2*                     | 2432804   | 2432805   | 2432806   | 2432807   | 2432808   | 2432809   | 2432810   | 2432811   |
| M 16 x 1,5                    | 2432819   | 2432820   | 2432821   | 2432822   | 2432823   | 2432824   | 2432825   | 2432826   |
| M 16 x 1                      | 2432834   | 2432835   | 2432836   | 2432837   | 2432838   | 2432839   | 2432840   | 2432841   |
| M 16 x 0,75                   | 2432849   | 2432850   | 2432851   | 2432852   | 2432853   | 2432854   | 2432855   | 2432856   |
| M 16 x 0,5                    | 2432864   | 2432865   | 2432866   | 2432867   | 2432868   | 2432869   | 2432870   | 2432871   |
| M 17 x 2                      | 2432879   | 2432880   | 2432881   | 2432882   | 2432883   | 2432884   | 2432885   | 2432886   |
| M 17 x 1,5                    | 2432894   | 2432895   | 2432896   | 2432897   | 2432898   | 2432899   | 2432900   | 2432901   |
| M 17 x 1                      | 2432909   | 2432910   | 2432911   | 2432912   | 2432913   | 2432914   | 2432915   | 2432916   |
| M 17 x 0,75                   | 2432924   | 2432925   | 2432926   | 2432927   | 2432928   | 2432929   | 2432930   | 2432931   |
| M 17 x 0,5                    | 2432939   | 2432940   | 2432941   | 2432942   | 2432943   | 2432944   | 2432945   | 2432946   |
| M 18 x 2,5*                   | 2432954   | 2432955   | 2432956   | 2432957   | 2432958   | 2432959   | 2432960   | 2432961   |
| M 18 x 2                      | 2432968   | 2432969   | 2432970   | 2432971   | 2432972   | 2432973   | 2432974   | 2432975   |
| M 18 x 1,5                    | 2432983   | 2432984   | 2432985   | 2432986   | 2432987   | 2432988   | 2432989   | 2432990   |
| M 18 x 1                      | 2432998   | 2432999   | 2433000   | 2433001   | 2433002   | 2433003   | 2433004   | 2433005   |
| M 18 x 0,75                   | 2433013   | 2433014   | 2433015   | 2433016   | 2433017   | 2433018   | 2433019   | 2433020   |
| M 18 x 0,5                    | 2433028   | 2433029   | 2433030   | 2433031   | 2433032   | 2433033   | 2433034   | 2433035   |
| M 19 x 2                      | 2433043   | 2433044   | 2433045   | 2433046   | 2433047   | 2433048   | 2433049   | 2433050   |
| M 19 x 1,5                    | 2433058   | 2433059   | 2433060   | 2433061   | 2433062   | 2433063   | 2433064   | 2433065   |
| M 19 x 1                      | 2433073   | 2433074   | 2433075   | 2433076   | 2433077   | 2433078   | 2433079   | 2433080   |
| M 19 x 0,75                   | 2433088   | 2433089   | 2433090   | 2433091   | 2433092   | 2433093   | 2433094   | 2433095   |
| M 19 x 0,5                    | 2433103   | 2433104   | 2433105   | 2433106   | 2433107   | 2433108   | 2433109   | 2433110   |
| M 20 x 2,5*                   | 2433118   | 2433119   | 2433120   | 2433121   | 2433122   | 2433123   | 2433124   | 2433125   |
| M 20 x 2                      | 2433133   | 2433134   | 2433135   | 2433136   | 2433137   | 2433138   | 2433139   | 2433140   |

\* Standardgewinde (DIN 13 Teil 1)  
\* Standard thread (to DIN 13 part 1)



| Metrisches ISO-Gewinde DIN 13<br>Metric ISO Threads DIN 13 |             |              |              |              |              |              |              |              |
|--|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Rollkopf<br>Rolling Head                                   | T350F       |              |              |              |              |              |              |              |
| Rollenbreiten<br>Roll width                                | 8<br>0.315" | 10<br>0.394" | 12<br>0.472" | 14<br>0.551" | 16<br>0.630" | 18<br>0.709" | 20<br>0.787" | 22<br>0.866" |
| Gewinde-<br>abmessung<br>Thread size                       | Ident No.   | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    |
| M 20 x 1,5   | 2433148     | 2433149      | 2433150      | 2433151      | 2433152      | 2433153      | 2433154      | 2433155      |
| M 20 x 1   | 2433163     | 2433164      | 2433165      | 2433166      | 2433167      | 2433168      | 2433169      | 2433170      |
| M 20 x 0,75  | 2433178     | 2433179      | 2433180      | 2433181      | 2433182      | 2433183      | 2433184      | 2433185      |
| M 20 x 0,5   | 2433193     | 2433194      | 2433195      | 2433196      | 2433197      | 2433198      | 2433199      | 2433200      |
| M 21 x 2   | 2433208     | 2433209      | 2433210      | 2433211      | 2433212      | 2433213      | 2433214      | 2433215      |
| M 21 x 1,5   | 2433223     | 2433224      | 2433225      | 2433226      | 2433227      | 2433228      | 2433229      | 2433230      |
| M 21 x 1   | 2433238     | 2433239      | 2433240      | 2433241      | 2433242      | 2433243      | 2433244      | 2433245      |
| M 21 x 0,75  | 2433253     | 2433254      | 2433255      | 2433256      | 2433257      | 2433258      | 2433259      | 2433260      |
| M 21 x 0,5   | 2433268     | 2433269      | 2433270      | 2433271      | 2433272      | 2433273      | 2433274      | 2433275      |
| M 22 x 2,5*  | 2433283     | 2433284      | 2433285      | 2433286      | 2433287      | 2433288      | 2433289      | 2433290      |
| M 22 x 2   | 2433298     | 2433299      | 2433300      | 2433301      | 2433302      | 2433303      | 2433304      | 2433305      |
| M 22 x 1,5   | 2433313     | 2433314      | 2433315      | 2433316      | 2433317      | 2433318      | 2433319      | 2433320      |
| M 22 x 1   | 2433328     | 2433329      | 2433330      | 2433331      | 2433332      | 2433333      | 2433334      | 2433335      |
| M 22 x 0,75  | 2433343     | 2433344      | 2433345      | 2433346      | 2433347      | 2433348      | 2433349      | 2433350      |
| M 22 x 0,5   | 2433358     | 2433359      | 2433360      | 2433361      | 2433362      | 2433363      | 2433364      | 2433365      |
| M 23 x 2   | 2433373     | 2433374      | 2433375      | 2433376      | 2433377      | 2433378      | 2433379      | 2433380      |
| M 23 x 1,5   | 2433388     | 2433389      | 2433390      | 2433391      | 2433392      | 2433393      | 2433394      | 2433395      |
| M 23 x 1   | 2433403     | 2433404      | 2433405      | 2433406      | 2433407      | 2433408      | 2433409      | 2433410      |
| M 23 x 0,75  | 2433418     | 2433419      | 2433420      | 2433421      | 2433422      | 2433423      | 2433424      | 2433425      |
| M 23 x 0,5   | 2433433     | 2433434      | 2433435      | 2433436      | 2433437      | 2433438      | 2433439      | 2433440      |
| M 24 x 3*  | 2433448     | 2433449      | 2433450      | 2433451      | 2433452      | 2433453      | 2433454      | 2433455      |
| M 24 x 2   | 2433463     | 2433464      | 2433465      | 2433466      | 2433467      | 2433468      | 2433469      | 2433470      |
| M 24 x 1,5   | 2433478     | 2433479      | 2433480      | 2433481      | 2433482      | 2433483      | 2433484      | 2433485      |
| M 24 x 1   | 2433493     | 2433494      | 2433495      | 2433496      | 2433497      | 2433498      | 2433499      | 2433500      |
| M 24 x 0,75  | 2433508     | 2433509      | 2433510      | 2433511      | 2433512      | 2433513      | 2433514      | 2433515      |
| M 24 x 0,5   | 2433523     | 2433524      | 2433525      | 2433526      | 2433527      | 2433528      | 2433529      | 2433530      |
| M 25 x 2   | 2433538     | 2433539      | 2433540      | 2433541      | 2433542      | 2433543      | 2433544      | 2433545      |
| M 25 x 1,5   | 2433553     | 2433554      | 2433555      | 2433556      | 2433557      | 2433558      | 2433559      | 2433560      |
| M 25 x 1   | 2433568     | 2433569      | 2433570      | 2433571      | 2433572      | 2433573      | 2433574      | 2433575      |
| M 25 x 0,75  | 2433583     | 2433584      | 2433585      | 2433586      | 2433587      | 2433588      | 2433589      | 2433590      |
| M 25 x 0,5   | 2433598     | 2433599      | 2433600      | 2433601      | 2433602      | 2433603      | 2433604      | 2433605      |
| M 26 x 2   | 2433613     | 2433614      | 2433615      | 2433616      | 2433617      | 2433618      | 2433619      | 2433620      |
| M 26 x 1,5   | 2433628     | 2433629      | 2433630      | 2433631      | 2433632      | 2433633      | 2433634      | 2433635      |
| M 26 x 1   | 2433643     | 2433644      | 2433645      | 2433646      | 2433647      | 2433648      | 2433649      | 2433650      |
| M 26 x 0,75  | 2433658     | 2433659      | 2433660      | 2433661      | 2433662      | 2433663      | 2433664      | 2433665      |
| M 26 x 0,5   | 2433673     | 2433674      | 2433675      | 2433676      | 2433677      | 2433678      | 2433679      | 2433680      |
| M 27 x 3*  | 2433688     | 2433689      | 2433690      | 2433691      | 2433692      | 2433693      | 2433694      | 2433695      |
| M 27 x 2   | 2433703     | 2433704      | 2433705      | 2433706      | 2433707      | 2433708      | 2433709      | 2433710      |
| M 27 x 1,5   | 2433718     | 2433719      | 2433720      | 2433721      | 2433722      | 2433723      | 2433724      | 2433725      |
| M 27 x 1   | 2433733     | 2433734      | 2433735      | 2433736      | 2433737      | 2433738      | 2433739      | 2433740      |
| M 27 x 0,75  | 2433748     | 2433749      | 2433750      | 2433751      | 2433752      | 2433753      | 2433754      | 2433755      |
| M 27 x 0,5   | 2433763     | 2433764      | 2433765      | 2433766      | 2433767      | 2433768      | 2433769      | 2433770      |
| M 28 x 3   | 2433778     | 2433779      | 2433780      | 2433781      | 2433782      | 2433783      | 2433784      | 2433785      |
| M 28 x 2   | 2433793     | 2433794      | 2433795      | 2433796      | 2433797      | 2433798      | 2433799      | 2433800      |
| M 28 x 1,5   | 2433808     | 2433809      | 2433810      | 2433811      | 2433812      | 2433813      | 2433814      | 2433815      |
| M 28 x 1   | 2433823     | 2433824      | 2433825      | 2433826      | 2433827      | 2433828      | 2433829      | 2433830      |
| M 28 x 0,75  | 2433838     | 2433839      | 2433840      | 2433841      | 2433842      | 2433843      | 2433844      | 2433845      |
| M 28 x 0,5   | 2433853     | 2433854      | 2433855      | 2433856      | 2433857      | 2433858      | 2433859      | 2433860      |
| M 30 x 3   | 2433868     | 2433869      | 2433870      | 2433871      | 2433872      | 2433873      | 2433874      | 2433875      |
| M 30 x 2   | 2433883     | 2433884      | 2433885      | 2433886      | 2433887      | 2433888      | 2433889      | 2433890      |
| M 30 x 1,5   | 2433898     | 2433899      | 2433900      | 2433901      | 2433902      | 2433903      | 2433904      | 2433905      |
| M 30 x 1   | 2433913     | 2433914      | 2433915      | 2433916      | 2433917      | 2433918      | 2433919      | 2433920      |

\* Standardgewinde (DIN 13 Teil 1)  
\* Standard thread (to DIN 13 part 1)

| Metrisches ISO-Gewinde DIN 13 |           |           |           |           |           |           |           |           |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Metric ISO Threads DIN 13     |           |           |           |           |           |           |           |           |
| Rollkopf                      | T350F     |           |           |           |           |           |           |           |
| Rolling Head                  |           |           |           |           |           |           |           |           |
| Rollenbreiten                 | 8         | 10        | 12        | 14        | 16        | 18        | 20        | 22        |
| Roll width                    | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    |
| Gewinde-<br>abmessung         | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| Thread size                   | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| M 30 x 0,75                   | 2433928   | 2433929   | 2433930   | 2433931   | 2433932   | 2433933   | 2433934   | 2433935   |
| M 30 x 0,5                    | 2433943   | 2433944   | 2433945   | 2433946   | 2433947   | 2433948   | 2433949   | 2433950   |
| M 32 x 3                      | 2433958   | 2433959   | 2433960   | 2433961   | 2433962   | 2433963   | 2433964   | 2433965   |
| M 32 x 2                      | 2433973   | 2433974   | 2433975   | 2433976   | 2433977   | 2433978   | 2433979   | 2433980   |
| M 32 x 1,5                    | 2433988   | 2433989   | 2433990   | 2433991   | 2433992   | 2433993   | 2433994   | 2433995   |
| M 32 x 1                      | 2434003   | 2434004   | 2434005   | 2434006   | 2434007   | 2434008   | 2434009   | 2434010   |
| M 32 x 0,75                   | 2434018   | 2434019   | 2434020   | 2434021   | 2434022   | 2434023   | 2434024   | 2434025   |
| M 32 x 0,5                    | 2434033   | 2434034   | 2434035   | 2434036   | 2434037   | 2434038   | 2434039   | 2434040   |
| M 33 x 3                      | 2434048   | 2434049   | 2434050   | 2434051   | 2434052   | 2434053   | 2434054   | 2434055   |
| M 33 x 2                      | 2434063   | 2434064   | 2434065   | 2434066   | 2434067   | 2434068   | 2434069   | 2434070   |
| M 33 x 1,5                    | 2434078   | 2434079   | 2434080   | 2434081   | 2434082   | 2434083   | 2434084   | 2434085   |
| M 33 x 1                      | 2434093   | 2434094   | 2434095   | 2434096   | 2434097   | 2434098   | 2434099   | 2434100   |
| M 33 x 0,75                   | 2434108   | 2434109   | 2434110   | 2434111   | 2434112   | 2434113   | 2434114   | 2434115   |
| M 33 x 0,5                    | 2434123   | 2434124   | 2434125   | 2434126   | 2434127   | 2434128   | 2434129   | 2434130   |
| M 34 x 3                      | 2434138   | 2434139   | 2434140   | 2434141   | 2434142   | 2434143   | 2434144   | 2434145   |
| M 34 x 2                      | 2434153   | 2434154   | 2434155   | 2434156   | 2434157   | 2434158   | 2434159   | 2434160   |
| M 34 x 1,5                    | 2434168   | 2434169   | 2434170   | 2434171   | 2434172   | 2434173   | 2434174   | 2434175   |
| M 34 x 1                      | 2434183   | 2434184   | 2434185   | 2434186   | 2434187   | 2434188   | 2434189   | 2434190   |
| M 34 x 0,75                   | 2434198   | 2434199   | 2434200   | 2434201   | 2434202   | 2434203   | 2434204   | 2434205   |
| M 34 x 0,5                    | 2434213   | 2434214   | 2434215   | 2434216   | 2434217   | 2434218   | 2434219   | 2434220   |
| M 35 x 3                      | 2434228   | 2434229   | 2434230   | 2434231   | 2434232   | 2434233   | 2434234   | 2434235   |
| M 35 x 2                      | 2434243   | 2434244   | 2434245   | 2434246   | 2434247   | 2434248   | 2434249   | 2434250   |
| M 35 x 1,5                    | 2434258   | 2434259   | 2434260   | 2434261   | 2434262   | 2434263   | 2434264   | 2434265   |
| M 35 x 1                      | 2434273   | 2434274   | 2434275   | 2434276   | 2434277   | 2434278   | 2434279   | 2434280   |
| M 35 x 0,75                   | 2434288   | 2434289   | 2434290   | 2434291   | 2434292   | 2434293   | 2434294   | 2434295   |
| M 35 x 0,5                    | 2434303   | 2434304   | 2434305   | 2434306   | 2434307   | 2434308   | 2434309   | 2434310   |
| M 36 x 3                      | 2434318   | 2434319   | 2434320   | 2434321   | 2434322   | 2434323   | 2434324   | 2434325   |
| M 36 x 2                      | 2434333   | 2434334   | 2434335   | 2434336   | 2434337   | 2434338   | 2434339   | 2434340   |
| M 36 x 1,5                    | 2434348   | 2434349   | 2434350   | 2434351   | 2434352   | 2434353   | 2434354   | 2434355   |
| M 36 x 1                      | 2434363   | 2434364   | 2434365   | 2434366   | 2434367   | 2434368   | 2434369   | 2434370   |
| M 36 x 0,75                   | 2434378   | 2434379   | 2434380   | 2434381   | 2434382   | 2434383   | 2434384   | 2434385   |
| M 36 x 0,5                    | 2434393   | 2434394   | 2434395   | 2434396   | 2434397   | 2434398   | 2434399   | 2434400   |
| M 38 x 3                      | 2434408   | 2434409   | 2434410   | 2434411   | 2434412   | 2434413   | 2434414   | 2434415   |
| M 38 x 2                      | 2434423   | 2434424   | 2434425   | 2434426   | 2434427   | 2434428   | 2434429   | 2434430   |
| M 38 x 1,5                    | 2434438   | 2434439   | 2434440   | 2434441   | 2434442   | 2434443   | 2434444   | 2434445   |
| M 38 x 1                      | 2434453   | 2434454   | 2434455   | 2434456   | 2434457   | 2434458   | 2434459   | 2434460   |
| M 38 x 0,75                   | 2434468   | 2434469   | 2434470   | 2434471   | 2434472   | 2434473   | 2434474   | 2434475   |
| M 38 x 0,5                    | 2434483   | 2434484   | 2434485   | 2434486   | 2434487   | 2434488   | 2434489   | 2434490   |
| M 39 x 3                      | 2434498   | 2434499   | 2434500   | 2434501   | 2434502   | 2434503   | 2434504   | 2434505   |
| M 39 x 2                      | 2434513   | 2434514   | 2434515   | 2434516   | 2434517   | 2434518   | 2434519   | 2434520   |
| M 39 x 1,5                    | 2434528   | 2434529   | 2434530   | 2434531   | 2434532   | 2434533   | 2434534   | 2434535   |
| M 39 x 1                      | 2434543   | 2434544   | 2434545   | 2434546   | 2434547   | 2434548   | 2434549   | 2434550   |
| M 39 x 0,75                   | 2434558   | 2434559   | 2434560   | 2434561   | 2434562   | 2434563   | 2434564   | 2434565   |
| M 39 x 0,5                    | 2434573   | 2434574   | 2434575   | 2434576   | 2434577   | 2434578   | 2434579   | 2434580   |
| M 40 x 3                      | 2434588   | 2434589   | 2434590   | 2434591   | 2434592   | 2434593   | 2434594   | 2434595   |
| M 40 x 2                      | 2434603   | 2434604   | 2434605   | 2434606   | 2434607   | 2434608   | 2434609   | 2434610   |
| M 40 x 1,5                    | 2434618   | 2434619   | 2434620   | 2434621   | 2434622   | 2434623   | 2434624   | 2434625   |
| M 40 x 1                      | 2434633   | 2434634   | 2434635   | 2434636   | 2434637   | 2434638   | 2434639   | 2434640   |
| M 40 x 0,75                   | 2434648   | 2434649   | 2434650   | 2434651   | 2434652   | 2434653   | 2434654   | 2434655   |
| M 40 x 0,5                    | 2434663   | 2434664   | 2434665   | 2434666   | 2434667   | 2434668   | 2434669   | 2434670   |
| M 42 x 3                      | 2434678   | 2434679   | 2434680   | 2434681   | 2434682   | 2434683   | 2434684   | 2434685   |
| M 42 x 2                      | 2434692   | 2434693   | 2434694   | 2434695   | 2434696   | 2434697   | 2434698   | 2434699   |
| M 42 x 1,5                    | 2434707   | 2434708   | 2434709   | 2434710   | 2434711   | 2434712   | 2434713   | 2434714   |
| M 42 x 1                      | 2434722   | 2434723   | 2434724   | 2434725   | 2434726   | 2434727   | 2434728   | 2434729   |

| Metrisches ISO-Gewinde DIN 13 |           |           |           |           |           |           |           |           |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Metric ISO Threads DIN 13     |           |           |           |           |           |           |           |           |
| Rollkopf                      | T350F     |           |           |           |           |           |           |           |
| Rolling Head                  |           |           |           |           |           |           |           |           |
| Rollenbreiten                 | 8         | 10        | 12        | 14        | 16        | 18        | 20        | 22        |
| Roll width                    | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    |
| Gewinde-<br>abmessung         | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| Thread size                   | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| M 42 x 0,75                   | 2434737   | 2434738   | 2434739   | 2434740   | 2434741   | 2434742   | 2434743   | 2434744   |
| M 42 x 0,5                    | 2434752   | 2434753   | 2434754   | 2434755   | 2434756   | 2434757   | 2434758   | 2434759   |
| M 45 x 3                      | 2434767   | 2434768   | 2434769   | 2434770   | 2434771   | 2434772   | 2434773   | 2434774   |
| M 45 x 2                      | 2434780   | 2434781   | 2434782   | 2434783   | 2434784   | 2434785   | 2434786   | 2434787   |
| M 45 x 1,5                    | 2434795   | 2434796   | 2434797   | 2434798   | 2434799   | 2434800   | 2434801   | 2434802   |
| M 45 x 1                      | 2434810   | 2434811   | 2434812   | 2434813   | 2434814   | 2434815   | 2434816   | 2434817   |
| M 45 x 0,75                   | 2434825   | 2434826   | 2434827   | 2434828   | 2434829   | 2434830   | 2434831   | 2434832   |
| M 45 x 0,5                    | 2434840   | 2434841   | 2434842   | 2434843   | 2434844   | 2434845   | 2434846   | 2434847   |
| M 48 x 3                      | 2434855   | 2434856   | 2434857   | 2434858   | 2434859   | 2434860   | 2434861   | 2434862   |
| M 48 x 2                      | 2434867   | 2434868   | 2434869   | 2434870   | 2434871   | 2434872   | 2434873   | 2434874   |
| M 48 x 1,5                    | 2434882   | 2434883   | 2434884   | 2434885   | 2434886   | 2434887   | 2434888   | 2434889   |
| M 48 x 1                      | 2434897   | 2434898   | 2434899   | 2434900   | 2434901   | 2434902   | 2434903   | 2434904   |
| M 48 x 0,75                   | 2434912   | 2434913   | 2434914   | 2434915   | 2434916   | 2434917   | 2434918   | 2434919   |
| M 48 x 0,5                    | 2434927   | 2434928   | 2434929   | 2434930   | 2434931   | 2434932   | 2434933   | 2434934   |
| M 50 x 3                      | 2434942   | 2434943   | 2434944   | 2434945   | 2434946   | 2434947   | 2434948   | 2434949   |
| M 50 x 2                      | 2434954   | 2434955   | 2434956   | 2434957   | 2434958   | 2434959   | 2434960   | 2434961   |
| M 50 x 1,5                    | 2434969   | 2434970   | 2434971   | 2434972   | 2434973   | 2434974   | 2434975   | 2434976   |
| M 50 x 1                      | 2434984   | 2434985   | 2434986   | 2434987   | 2434988   | 2434989   | 2434990   | 2434991   |
| M 50 x 0,75                   | 2434999   | 2435000   | 2435001   | 2435002   | 2435003   | 2435004   | 2435005   | 2435006   |
| M 50 x 0,5                    | 2435014   | 2435015   | 2435016   | 2435017   | 2435018   | 2435019   | 2435020   | 2435021   |
| M 52 x 3                      | 2435029   | 2435030   | 2435031   | 2435032   | 2435033   | 2435034   | 2435035   | 2435036   |
| M 52 x 2                      | 2435040   | 2435041   | 2435042   | 2435043   | 2435044   | 2435045   | 2435046   | 2435047   |
| M 52 x 1,5                    | 2435055   | 2435056   | 2435057   | 2435058   | 2435059   | 2435060   | 2435061   | 2435062   |
| M 52 x 1                      | 2435070   | 2435071   | 2435072   | 2435073   | 2435074   | 2435075   | 2435076   | 2435077   |
| M 52 x 0,75                   | 2435085   | 2435086   | 2435087   | 2435088   | 2435089   | 2435090   | 2435091   | 2435092   |
| M 52 x 0,5                    | 2435100   | 2435101   | 2435102   | 2435103   | 2435104   | 2435105   | 2435106   | 2435107   |
| Rollenbreiten                 | 24        | 26        | 28        | 30        | 32        | 34        | 36        |           |
| Roll width                    | 0.945"    | 1.024"    | 1.102"    | 1.181"    | 1.26"     | 1.339"    | 1.417"    |           |
| Gewinde-<br>abmessung         | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |           |
| Thread size                   | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |           |
| M 5 x 0,8*                    | 2432108   | 2432109   | 2432110   | 2432111   | 2432112   | 2432113   | 2432114   |           |
| M 5 x 0,5                     | 2432123   | 2432124   | 2432125   | 2432126   | 2432127   | 2432128   | 2432129   |           |
| M 5,5 x 0,75                  | 2432138   | 2432139   | 2432140   | 2432141   | 2432142   | 2432143   | 2432144   |           |
| M 5,5 x 0,5                   | 2432153   | 2432154   | 2432155   | 2432156   | 2432157   | 2432158   | 2432159   |           |
| M 6 x 1*                      | 2432168   | 2432169   | 2432170   | 2432171   | 2432172   | 2432173   | 2432174   |           |
| M 6 x 0,75                    | 2432183   | 2432184   | 2432185   | 2432186   | 2432187   | 2432188   | 2432189   |           |
| M 6 x 0,5                     | 2432198   | 2432199   | 2432200   | 2432201   | 2432202   | 2432203   | 2432204   |           |
| M 7 x 1                       | 2432213   | 2432214   | 2432215   | 2432216   | 2432217   | 2432218   | 2432219   |           |
| M 7 x 0,75                    | 2432228   | 2432229   | 2432230   | 2432231   | 2432232   | 2432233   | 2432234   |           |
| M 7 x 0,5                     | 2432243   | 2432244   | 2432245   | 2432246   | 2432247   | 2432248   | 2432249   |           |
| M 8 x 1,25*                   | 2432258   | 2432259   | 2432260   | 2432261   | 2432262   | 2432263   | 2432264   |           |
| M 8 x 1                       | 2432273   | 2432274   | 2432275   | 2432276   | 2432277   | 2432278   | 2432279   |           |
| M 8 x 0,75                    | 2432288   | 2432289   | 2432290   | 2432291   | 2432292   | 2432293   | 2432294   |           |
| M 8 x 0,5                     | 2432303   | 2432304   | 2432305   | 2432306   | 2432307   | 2432308   | 2432309   |           |
| M 9 x 1,25                    | 2432318   | 2432319   | 2432320   | 2432321   | 2432322   | 2432323   | 2432324   |           |
| M 9 x 1                       | 2432333   | 2432334   | 2432335   | 2432336   | 2432337   | 2432338   | 2432339   |           |
| M 9 x 0,75                    | 2432348   | 2432349   | 2432350   | 2432351   | 2432352   | 2432353   | 2432354   |           |
| M 9 x 0,5                     | 2432363   | 2432364   | 2432365   | 2432366   | 2432367   | 2432368   | 2432369   |           |
| M 10 x 1,5*                   | 2432378   | 2432379   | 2432380   | 2432381   | 2432382   | 2432383   | 2432384   |           |
| M 10 x 1,25                   | 2432393   | 2432394   | 2432395   | 2432396   | 2432397   | 2432398   | 2432399   |           |
| M 10 x 1                      | 2432408   | 2432409   | 2432410   | 2432411   | 2432412   | 2432413   | 2432414   |           |

\* Standardgewinde (DIN 13 Teil 1)  
\* Standard thread (to DIN 13 part 1)



| Metrisches ISO-Gewinde DIN 13 |           |           |           |           |           |           |           |  |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--|
| Metric ISO Threads DIN 13     |           |           |           |           |           |           |           |  |
| Rollkopf                      | T350F     |           |           |           |           |           |           |  |
| Rolling Head                  |           |           |           |           |           |           |           |  |
| Rollenbreiten                 | 24        | 26        | 28        | 30        | 32        | 34        | 36        |  |
| Roll width                    | 0.945"    | 1.024"    | 1.102"    | 1.181"    | 1.26"     | 1.339"    | 1.417"    |  |
| Gewinde-<br>abmessung         | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |  |
| Thread size                   | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |  |
| M 10 x 0,75                   | 2432423   | 2432424   | 2432425   | 2432426   | 2432427   | 2432428   | 2432429   |  |
| M 10 x 0,5                    | 2432438   | 2432439   | 2432440   | 2432441   | 2432442   | 2432443   | 2432444   |  |
| M 11 x 1,5                    | 2432453   | 2432454   | 2432455   | 2432456   | 2432457   | 2432458   | 2432459   |  |
| M 11 x 1                      | 2432468   | 2432469   | 2432470   | 2432471   | 2432472   | 2432473   | 2432474   |  |
| M 11 x 0,75                   | 2432483   | 2432484   | 2432485   | 2432486   | 2432487   | 2432488   | 2432489   |  |
| M 11 x 0,5                    | 2432498   | 2432499   | 2432500   | 2432501   | 2432502   | 2432503   | 2432504   |  |
| M 12 x 1,75*                  | 2432513   | 2432514   | 2432515   | 2432516   | 2432517   | 2432518   | 2432519   |  |
| M 12 x 1,5                    | 2432528   | 2432529   | 2432530   | 2432531   | 2432532   | 2432533   | 2432534   |  |
| M 12 x 1,25                   | 2432543   | 2432544   | 2432545   | 2432546   | 2432547   | 2432548   | 2432549   |  |
| M 12 x 1                      | 2432558   | 2432559   | 2432560   | 2432561   | 2432562   | 2432563   | 2432564   |  |
| M 12 x 0,75                   | 2432573   | 2432574   | 2432575   | 2432576   | 2432577   | 2432578   | 2432579   |  |
| M 12 x 0,5                    | 2432588   | 2432589   | 2432590   | 2432591   | 2432592   | 2432593   | 2432594   |  |
| M 13 x 1,5                    | 2432603   | 2432604   | 2432605   | 2432606   | 2432607   | 2432608   | 2432609   |  |
| M 13 x 1                      | 2432618   | 2432619   | 2432620   | 2432621   | 2432622   | 2432623   | 2432624   |  |
| M 13 x 0,75                   | 2432633   | 2432634   | 2432635   | 2432636   | 2432637   | 2432638   | 2432639   |  |
| M 13 x 0,5                    | 2432648   | 2432649   | 2432650   | 2432651   | 2432652   | 2432653   | 2432654   |  |
| M 14 x 2*                     | 2432663   | 2432664   | 2408740   | 2432665   | 2432666   | 2432667   | 2432668   |  |
| M 14 x 1,5                    | 2432677   | 2432678   | 2432679   | 2432680   | 2432681   | 2432682   | 2432683   |  |
| M 14 x 1,25                   | 2432692   | 2432693   | 2432694   | 2432695   | 2432696   | 2432697   | 2432698   |  |
| M 14 x 1                      | 2432707   | 2432708   | 2432709   | 2432710   | 2432711   | 2432712   | 2432713   |  |
| M 14 x 0,75                   | 2432722   | 2432723   | 2432724   | 2432725   | 2432726   | 2432727   | 2432728   |  |
| M 14 x 0,5                    | 2432737   | 2432738   | 2432739   | 2432740   | 2432741   | 2432742   | 2432743   |  |
| M 15 x 1,5                    | 2432752   | 2432753   | 2432754   | 2432755   | 2432756   | 2432757   | 2432758   |  |
| M 15 x 1                      | 2432767   | 2432768   | 2432769   | 2432770   | 2432771   | 2432772   | 2432773   |  |
| M 15 x 0,75                   | 2432782   | 2432783   | 2432784   | 2432785   | 2432786   | 2432787   | 2432788   |  |
| M 15 x 0,5                    | 2432797   | 2432798   | 2432799   | 2432800   | 2432801   | 2432802   | 2432803   |  |
| M 16 x 2*                     | 2432812   | 2432813   | 2432814   | 2432815   | 2432816   | 2432817   | 2432818   |  |
| M 16 x 1,5                    | 2432827   | 2432828   | 2432829   | 2432830   | 2432831   | 2432832   | 2432833   |  |
| M 16 x 1                      | 2432842   | 2432843   | 2432844   | 2432845   | 2432846   | 2432847   | 2432848   |  |
| M 16 x 0,75                   | 2432857   | 2432858   | 2432859   | 2432860   | 2432861   | 2432862   | 2432863   |  |
| M 16 x 0,5                    | 2432872   | 2432873   | 2432874   | 2432875   | 2432876   | 2432877   | 2432878   |  |
| M 17 x 2                      | 2432887   | 2432888   | 2432889   | 2432890   | 2432891   | 2432892   | 2432893   |  |
| M 17 x 1,5                    | 2432902   | 2432903   | 2432904   | 2432905   | 2432906   | 2432907   | 2432908   |  |
| M 17 x 1                      | 2432917   | 2432918   | 2432919   | 2432920   | 2432921   | 2432922   | 2432923   |  |
| M 17 x 0,75                   | 2432932   | 2432933   | 2432934   | 2432935   | 2432936   | 2432937   | 2432938   |  |
| M 17 x 0,5                    | 2432947   | 2432948   | 2432949   | 2432950   | 2432951   | 2432952   | 2432953   |  |
| M 18 x 2,5*                   | 2432962   | 2432963   | 2432964   | 2432965   | 2408720   | 2432966   | 2432967   |  |
| M 18 x 2                      | 2432976   | 2432977   | 2432978   | 2432979   | 2432980   | 2432981   | 2432982   |  |
| M 18 x 1,5                    | 2432991   | 2432992   | 2432993   | 2432994   | 2432995   | 2432996   | 2432997   |  |
| M 18 x 1                      | 2433006   | 2433007   | 2433008   | 2433009   | 2433010   | 2433011   | 2433012   |  |
| M 18 x 0,75                   | 2433021   | 2433022   | 2433023   | 2433024   | 2433025   | 2433026   | 2433027   |  |
| M 18 x 0,5                    | 2433036   | 2433037   | 2433038   | 2433039   | 2433040   | 2433041   | 2433042   |  |
| M 19 x 2                      | 2433051   | 2433052   | 2433053   | 2433054   | 2433055   | 2433056   | 2433057   |  |
| M 19 x 1,5                    | 2433066   | 2433067   | 2433068   | 2433069   | 2433070   | 2433071   | 2433072   |  |
| M 19 x 1                      | 2433081   | 2433082   | 2433083   | 2433084   | 2433085   | 2433086   | 2433087   |  |
| M 19 x 0,75                   | 2433096   | 2433097   | 2433098   | 2433099   | 2433100   | 2433101   | 2433102   |  |
| M 19 x 0,5                    | 2433111   | 2433112   | 2433113   | 2433114   | 2433115   | 2433116   | 2433117   |  |
| M 20 x 2,5*                   | 2433126   | 2433127   | 2433128   | 2433129   | 2433130   | 2433131   | 2433132   |  |
| M 20 x 2                      | 2433141   | 2433142   | 2433143   | 2433144   | 2433145   | 2433146   | 2433147   |  |
| M 20 x 1,5                    | 2433156   | 2433157   | 2433158   | 2433159   | 2433160   | 2433161   | 2433162   |  |
| M 20 x 1                      | 2433171   | 2433172   | 2433173   | 2433174   | 2433175   | 2433176   | 2433177   |  |
| M 20 x 0,75                   | 2433186   | 2433187   | 2433188   | 2433189   | 2433190   | 2433191   | 2433192   |  |

\* Standardgewinde (DIN 13 Teil 1)  
\* Standard thread (to DIN 13 part 1)

| Metrisches ISO-Gewinde DIN 13 |           |           |           |           |           |           |           |  |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--|
| Metric ISO Threads DIN 13     |           |           |           |           |           |           |           |  |
| Rollkopf                      | T350F     |           |           |           |           |           |           |  |
| Rolling Head                  |           |           |           |           |           |           |           |  |
| Rollenbreiten                 | 24        | 26        | 28        | 30        | 32        | 34        | 36        |  |
| Roll width                    | 0.945"    | 1.024"    | 1.102"    | 1.181"    | 1.26"     | 1.339"    | 1.417"    |  |
| Gewinde-<br>abmessung         | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |  |
| Thread size                   | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |  |
| M 20 x 0,5                    | 2433201   | 2433202   | 2433203   | 2433204   | 2433205   | 2433206   | 2433207   |  |
| M 21 x 2                      | 2433216   | 2433217   | 2433218   | 2433219   | 2433220   | 2433221   | 2433222   |  |
| M 21 x 1,5                    | 2433231   | 2433232   | 2433233   | 2433234   | 2433235   | 2433236   | 2433237   |  |
| M 21 x 1                      | 2433246   | 2433247   | 2433248   | 2433249   | 2433250   | 2433251   | 2433252   |  |
| M 21 x 0,75                   | 2433261   | 2433262   | 2433263   | 2433264   | 2433265   | 2433266   | 2433267   |  |
| M 21 x 0,5                    | 2433276   | 2433277   | 2433278   | 2433279   | 2433280   | 2433281   | 2433282   |  |
| M 22 x 2,5*                   | 2433291   | 2433292   | 2433293   | 2433294   | 2433295   | 2433296   | 2433297   |  |
| M 22 x 2                      | 2433306   | 2433307   | 2433308   | 2433309   | 2433310   | 2433311   | 2433312   |  |
| M 22 x 1,5                    | 2433321   | 2433322   | 2433323   | 2433324   | 2433325   | 2433326   | 2433327   |  |
| M 22 x 1                      | 2433336   | 2433337   | 2433338   | 2433339   | 2433340   | 2433341   | 2433342   |  |
| M 22 x 0,75                   | 2433351   | 2433352   | 2433353   | 2433354   | 2433355   | 2433356   | 2433357   |  |
| M 22 x 0,5                    | 2433366   | 2433367   | 2433368   | 2433369   | 2433370   | 2433371   | 2433372   |  |
| M 23 x 2                      | 2433381   | 2433382   | 2433383   | 2433384   | 2433385   | 2433386   | 2433387   |  |
| M 23 x 1,5                    | 2433396   | 2433397   | 2433398   | 2433399   | 2433400   | 2433401   | 2433402   |  |
| M 23 x 1                      | 2433411   | 2433412   | 2433413   | 2433414   | 2433415   | 2433416   | 2433417   |  |
| M 23 x 0,75                   | 2433426   | 2433427   | 2433428   | 2433429   | 2433430   | 2433431   | 2433432   |  |
| M 23 x 0,5                    | 2433441   | 2433442   | 2433443   | 2433444   | 2433445   | 2433446   | 2433447   |  |
| M 24 x 3*                     | 2433456   | 2433457   | 2433458   | 2433459   | 2433460   | 2433461   | 2433462   |  |
| M 24 x 2                      | 2433471   | 2433472   | 2433473   | 2433474   | 2433475   | 2433476   | 2433477   |  |
| M 24 x 1,5                    | 2433486   | 2433487   | 2433488   | 2433489   | 2433490   | 2433491   | 2433492   |  |
| M 24 x 1                      | 2433501   | 2433502   | 2433503   | 2433504   | 2433505   | 2433506   | 2433507   |  |
| M 24 x 0,75                   | 2433516   | 2433517   | 2433518   | 2433519   | 2433520   | 2433521   | 2433522   |  |
| M 24 x 0,5                    | 2433531   | 2433532   | 2433533   | 2433534   | 2433535   | 2433536   | 2433537   |  |
| M 25 x 2                      | 2433546   | 2433547   | 2433548   | 2433549   | 2433550   | 2433551   | 2433552   |  |
| M 25 x 1,5                    | 2433561   | 2433562   | 2433563   | 2433564   | 2433565   | 2433566   | 2433567   |  |
| M 25 x 1                      | 2433576   | 2433577   | 2433578   | 2433579   | 2433580   | 2433581   | 2433582   |  |
| M 25 x 0,75                   | 2433591   | 2433592   | 2433593   | 2433594   | 2433595   | 2433596   | 2433597   |  |
| M 25 x 0,5                    | 2433606   | 2433607   | 2433608   | 2433609   | 2433610   | 2433611   | 2433612   |  |
| M 26 x 2                      | 2433621   | 2433622   | 2433623   | 2433624   | 2433625   | 2433626   | 2433627   |  |
| M 26 x 1,5                    | 2433636   | 2433637   | 2433638   | 2433639   | 2433640   | 2433641   | 2433642   |  |
| M 26 x 1                      | 2433651   | 2433652   | 2433653   | 2433654   | 2433655   | 2433656   | 2433657   |  |
| M 26 x 0,75                   | 2433666   | 2433667   | 2433668   | 2433669   | 2433670   | 2433671   | 2433672   |  |
| M 26 x 0,5                    | 2433681   | 2433682   | 2433683   | 2433684   | 2433685   | 2433686   | 2433687   |  |
| M 27 x 3*                     | 2433696   | 2433697   | 2433698   | 2433699   | 2433700   | 2433701   | 2433702   |  |
| M 27 x 2                      | 2433711   | 2433712   | 2433713   | 2433714   | 2433715   | 2433716   | 2433717   |  |
| M 27 x 1,5                    | 2433726   | 2433727   | 2433728   | 2433729   | 2433730   | 2433731   | 2433732   |  |
| M 27 x 1                      | 2433741   | 2433742   | 2433743   | 2433744   | 2433745   | 2433746   | 2433747   |  |
| M 27 x 0,75                   | 2433756   | 2433757   | 2433758   | 2433759   | 2433760   | 2433761   | 2433762   |  |
| M 27 x 0,5                    | 2433771   | 2433772   | 2433773   | 2433774   | 2433775   | 2433776   | 2433777   |  |
| M 28 x 3                      | 2433786   | 2433787   | 2433788   | 2433789   | 2433790   | 2433791   | 2433792   |  |
| M 28 x 2                      | 2433801   | 2433802   | 2433803   | 2433804   | 2433805   | 2433806   | 2433807   |  |
| M 28 x 1,5                    | 2433816   | 2433817   | 2433818   | 2433819   | 2433820   | 2433821   | 2433822   |  |
| M 28 x 1                      | 2433831   | 2433832   | 2433833   | 2433834   | 2433835   | 2433836   | 2433837   |  |
| M 28 x 0,75                   | 2433846   | 2433847   | 2433848   | 2433849   | 2433850   | 2433851   | 2433852   |  |
| M 28 x 0,5                    | 2433861   | 2433862   | 2433863   | 2433864   | 2433865   | 2433866   | 2433867   |  |
| M 30 x 3                      | 2433876   | 2433877   | 2433878   | 2433879   | 2433880   | 2433881   | 2433882   |  |
| M 30 x 2                      | 2433891   | 2433892   | 2433893   | 2433894   | 2433895   | 2433896   | 2433897   |  |
| M 30 x 1,5                    | 2433906   | 2433907   | 2433908   | 2433909   | 2433910   | 2433911   | 2433912   |  |
| M 30 x 1                      | 2433921   | 2433922   | 2433923   | 2433924   | 2433925   | 2433926   | 2433927   |  |
| M 30 x 0,75                   | 2433936   | 2433937   | 2433938   | 2433939   | 2433940   | 2433941   | 2433942   |  |
| M 30 x 0,5                    | 2433951   | 2433952   | 2433953   | 2433954   | 2433955   | 2433956   | 2433957   |  |
| M 32 x 3                      | 2433966   | 2433967   | 2433968   | 2433969   | 2433970   | 2433971   | 2433972   |  |

\* Standardgewinde (DIN 13 Teil 1)  
\* Standard thread (to DIN 13 part 1)



| Metrisches ISO-Gewinde DIN 13 |           |           |           |           |           |           |           |  |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--|
| Metric ISO Threads DIN 13     |           |           |           |           |           |           |           |  |
| Rollkopf                      | T350F     |           |           |           |           |           |           |  |
| Rolling Head                  |           |           |           |           |           |           |           |  |
| Rollenbreiten                 | 24        | 26        | 28        | 30        | 32        | 34        | 36        |  |
| Roll width                    | 0.945"    | 1.024"    | 1.102"    | 1.181"    | 1.26"     | 1.339"    | 1.417"    |  |
| Gewinde-<br>abmessung         | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |  |
| Thread size                   | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |  |
| M 32 x 2                      | 2433981   | 2433982   | 2433983   | 2433984   | 2433985   | 2433986   | 2433987   |  |
| M 32 x 1,5                    | 2433996   | 2433997   | 2433998   | 2433999   | 2434000   | 2434001   | 2434002   |  |
| M 32 x 1                      | 2434011   | 2434012   | 2434013   | 2434014   | 2434015   | 2434016   | 2434017   |  |
| M 32 x 0,75                   | 2434026   | 2434027   | 2434028   | 2434029   | 2434030   | 2434031   | 2434032   |  |
| M 32 x 0,5                    | 2434041   | 2434042   | 2434043   | 2434044   | 2434045   | 2434046   | 2434047   |  |
| M 33 x 3                      | 2434056   | 2434057   | 2434058   | 2434059   | 2434060   | 2434061   | 2434062   |  |
| M 33 x 2                      | 2434071   | 2434072   | 2434073   | 2434074   | 2434075   | 2434076   | 2434077   |  |
| M 33 x 1,5                    | 2434086   | 2434087   | 2434088   | 2434089   | 2434090   | 2434091   | 2434092   |  |
| M 33 x 1                      | 2434101   | 2434102   | 2434103   | 2434104   | 2434105   | 2434106   | 2434107   |  |
| M 33 x 0,75                   | 2434116   | 2434117   | 2434118   | 2434119   | 2434120   | 2434121   | 2434122   |  |
| M 33 x 0,5                    | 2434131   | 2434132   | 2434133   | 2434134   | 2434135   | 2434136   | 2434137   |  |
| M 34 x 3                      | 2434146   | 2434147   | 2434148   | 2434149   | 2434150   | 2434151   | 2434152   |  |
| M 34 x 2                      | 2434161   | 2434162   | 2434163   | 2434164   | 2434165   | 2434166   | 2434167   |  |
| M 34 x 1,5                    | 2434176   | 2434177   | 2434178   | 2434179   | 2434180   | 2434181   | 2434182   |  |
| M 34 x 1                      | 2434191   | 2434192   | 2434193   | 2434194   | 2434195   | 2434196   | 2434197   |  |
| M 34 x 0,75                   | 2434206   | 2434207   | 2434208   | 2434209   | 2434210   | 2434211   | 2434212   |  |
| M 34 x 0,5                    | 2434221   | 2434222   | 2434223   | 2434224   | 2434225   | 2434226   | 2434227   |  |
| M 35 x 3                      | 2434236   | 2434237   | 2434238   | 2434239   | 2434240   | 2434241   | 2434242   |  |
| M 35 x 2                      | 2434251   | 2434252   | 2434253   | 2434254   | 2434255   | 2434256   | 2434257   |  |
| M 35 x 1,5                    | 2434266   | 2434267   | 2434268   | 2434269   | 2434270   | 2434271   | 2434272   |  |
| M 35 x 1                      | 2434281   | 2434282   | 2434283   | 2434284   | 2434285   | 2434286   | 2434287   |  |
| M 35 x 0,75                   | 2434296   | 2434297   | 2434298   | 2434299   | 2434300   | 2434301   | 2434302   |  |
| M 35 x 0,5                    | 2434311   | 2434312   | 2434313   | 2434314   | 2434315   | 2434316   | 2434317   |  |
| M 36 x 3                      | 2434326   | 2434327   | 2434328   | 2434329   | 2434330   | 2434331   | 2434332   |  |
| M 36 x 2                      | 2434341   | 2434342   | 2434343   | 2434344   | 2434345   | 2434346   | 2434347   |  |
| M 36 x 1,5                    | 2434356   | 2434357   | 2434358   | 2434359   | 2434360   | 2434361   | 2434362   |  |
| M 36 x 1                      | 2434371   | 2434372   | 2434373   | 2434374   | 2434375   | 2434376   | 2434377   |  |
| M 36 x 0,75                   | 2434386   | 2434387   | 2434388   | 2434389   | 2434390   | 2434391   | 2434392   |  |
| M 36 x 0,5                    | 2434401   | 2434402   | 2434403   | 2434404   | 2434405   | 2434406   | 2434407   |  |
| M 38 x 3                      | 2434416   | 2434417   | 2434418   | 2434419   | 2434420   | 2434421   | 2434422   |  |
| M 38 x 2                      | 2434431   | 2434432   | 2434433   | 2434434   | 2434435   | 2434436   | 2434437   |  |
| M 38 x 1,5                    | 2434446   | 2434447   | 2434448   | 2434449   | 2434450   | 2434451   | 2434452   |  |
| M 38 x 1                      | 2434461   | 2434462   | 2434463   | 2434464   | 2434465   | 2434466   | 2434467   |  |
| M 38 x 0,75                   | 2434476   | 2434477   | 2434478   | 2434479   | 2434480   | 2434481   | 2434482   |  |
| M 38 x 0,5                    | 2434491   | 2434492   | 2434493   | 2434494   | 2434495   | 2434496   | 2434497   |  |
| M 39 x 3                      | 2434506   | 2434507   | 2434508   | 2434509   | 2434510   | 2434511   | 2434512   |  |
| M 39 x 2                      | 2434521   | 2434522   | 2434523   | 2434524   | 2434525   | 2434526   | 2434527   |  |
| M 39 x 1,5                    | 2434536   | 2434537   | 2434538   | 2434539   | 2434540   | 2434541   | 2434542   |  |
| M 39 x 1                      | 2434551   | 2434552   | 2434553   | 2434554   | 2434555   | 2434556   | 2434557   |  |
| M 39 x 0,75                   | 2434566   | 2434567   | 2434568   | 2434569   | 2434570   | 2434571   | 2434572   |  |
| M 39 x 0,5                    | 2434581   | 2434582   | 2434583   | 2434584   | 2434585   | 2434586   | 2434587   |  |
| M 40 x 3                      | 2434596   | 2434597   | 2434598   | 2434599   | 2434600   | 2434601   | 2434602   |  |
| M 40 x 2                      | 2434611   | 2434612   | 2434613   | 2434614   | 2434615   | 2434616   | 2434617   |  |
| M 40 x 1,5                    | 2434626   | 2434627   | 2434628   | 2434629   | 2434630   | 2434631   | 2434632   |  |
| M 40 x 1                      | 2434641   | 2434642   | 2434643   | 2434644   | 2434645   | 2434646   | 2434647   |  |
| M 40 x 0,75                   | 2434656   | 2434657   | 2434658   | 2434659   | 2434660   | 2434661   | 2434662   |  |
| M 40 x 0,5                    | 2434671   | 2434672   | 2434673   | 2434674   | 2434675   | 2434676   | 2434677   |  |
| M 42 x 3                      | 2434686   | 2434687   | 2434688   | 2434689   | 2434690   | 2434691   | -         |  |
| M 42 x 2                      | 2434700   | 2434701   | 2434702   | 2434703   | 2434704   | 2434705   | 2434706   |  |
| M 42 x 1,5                    | 2434715   | 2434716   | 2434717   | 2434718   | 2434719   | 2434720   | 2434721   |  |
| M 42 x 1                      | 2434730   | 2434731   | 2434732   | 2434733   | 2434734   | 2434735   | 2434736   |  |
| M 42 x 0,75                   | 2434745   | 2434746   | 2434747   | 2434748   | 2434749   | 2434750   | 2434751   |  |
| M 42 x 0,5                    | 2434760   | 2434761   | 2434762   | 2434763   | 2434764   | 2434765   | 2434766   |  |
| M 45 x 3                      | 2434775   | 2434776   | 2434777   | 2434778   | 2434779   | -         | -         |  |

| Metrisches ISO-Gewinde DIN 13<br>Metric ISO Threads DIN 13 |              |              |              |              |             |              |              |  |
|--|--------------|--------------|--------------|--------------|-------------|--------------|--------------|--|
| Rollkopf<br>Rolling Head                                   | T350F        |              |              |              |             |              |              |  |
| Rollenbreiten<br>Roll width                                | 24<br>0.945" | 26<br>1.024" | 28<br>1.102" | 30<br>1.181" | 32<br>1.26" | 34<br>1.339" | 36<br>1.417" |  |
| Gewinde-<br>abmessung<br>Thread size                       | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.   | Ident No.    | Ident No.    |  |
| M 45 x 2   | 2434788      | 2434789      | 2434790      | 2434791      | 2434792     | 2434793      | 2434794      |  |
| M 45 x 1,5   | 2434803      | 2434804      | 2434805      | 2434806      | 2434807     | 2434808      | 2434809      |  |
| M 45 x 1   | 2434818      | 2434819      | 2434820      | 2434821      | 2434822     | 2434823      | 2434824      |  |
| M 45 x 0,75  | 2434833      | 2434834      | 2434835      | 2434836      | 2434837     | 2434838      | 2434839      |  |
| M 45 x 0,5   | 2434848      | 2434849      | 2434850      | 2434851      | 2434852     | 2434853      | 2434854      |  |
| M 48 x 3   | 2434863      | 2434864      | 2434865      | 2434866      | -           | -            | -            |  |
| M 48 x 2   | 2434875      | 2434876      | 2434877      | 2434878      | 2434879     | 2434880      | 2434881      |  |
| M 48 x 1,5   | 2434890      | 2434891      | 2434892      | 2434893      | 2434894     | 2434895      | 2434896      |  |
| M 48 x 1   | 2434905      | 2434906      | 2434907      | 2434908      | 2434909     | 2434910      | 2434911      |  |
| M 48 x 0,75  | 2434920      | 2434921      | 2434922      | 2434923      | 2434924     | 2434925      | 2434926      |  |
| M 48 x 0,5   | 2434935      | 2434936      | 2434937      | 2434938      | 2434939     | 2434940      | 2434941      |  |
| M 50 x 3   | 2434950      | 2434951      | 2434952      | 2434953      | -           | -            | -            |  |
| M 50 x 2   | 2434962      | 2434963      | 2434964      | 2434965      | 2434966     | 2434967      | 2434968      |  |
| M 50 x 1,5   | 2434977      | 2434978      | 2434979      | 2434980      | 2434981     | 2434982      | 2434983      |  |
| M 50 x 1   | 2434992      | 2434993      | 2434994      | 2434995      | 2434996     | 2434997      | 2434998      |  |
| M 50 x 0,75  | 2435007      | 2435008      | 2435009      | 2435010      | 2435011     | 2435012      | 2435013      |  |
| M 50 x 0,5   | 2435022      | 2435023      | 2435024      | 2435025      | 2435026     | 2435027      | 2435028      |  |
| M 52 x 3   | 2435037      | 2435038      | 2435039      | -            | -           | -            | -            |  |
| M 52 x 2   | 2435048      | 2435049      | 2435050      | 2435051      | 2435052     | 2435053      | 2435054      |  |
| M 52 x 1,5   | 2435063      | 2435064      | 2435065      | 2435066      | 2435067     | 2435068      | 2435069      |  |
| M 52 x 1   | 2435078      | 2435079      | 2435080      | 2435081      | 2435082     | 2435083      | 2435084      |  |
| M 52 x 0,75  | 2435093      | 2435094      | 2435095      | 2435096      | 2435097     | 2435098      | 2435099      |  |
| M 52 x 0,5   | 2435108      | 2435109      | 2435110      | 2435111      | 2435112     | 2435113      | 2435114      |  |

| Unified-Gewinde ANSI B1.1      |           |           |           |           |           |    |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|----|
| Unified Screw Thread ANIS B1.1 |           |           |           |           |           |    |
| Rollkopf                       | T120F     |           |           |           |           |    |
| Rolling Head                   |           |           |           |           |           |    |
| Rollenbreiten                  | 6         | 8         | 10        | 12        | 15,5      |    |
| Roll width                     | 0.236"    | 0.315"    | 0.394"    | 0.472"    | 0.610"    |    |
| Gewinde-<br>abmessung          |           |           |           |           |           |    |
| Thread size                    | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z  |
| 2 - 56 UNC                     | 2401907   | 2401908   | 2401909   | 2401910   | 2401911   | 18 |
| 2 - 64 UNF                     | 2401912   | 2401913   | 2401914   | 2401915   | 2401916   | 17 |
| 3 - 48 UNC                     | 2401917   | 2401918   | 2401919   | 2401920   | 2401921   | 15 |
| 3 - 56 UNF                     | 2401922   | 2401923   | 2401924   | 2401925   | 2401926   | 15 |
| 4 - 40 UNC                     | 2401927   | 2401928   | 2401929   | 2401930   | 2401931   | 14 |
| 4 - 48 UNF                     | 2401932   | 2401933   | 2401934   | 2401935   | 2401936   | 13 |
| 5 - 40 UNC                     | 2401937   | 2401938   | 2401939   | 2401940   | 2401941   | 12 |
| 5 - 44 UNF                     | 2401942   | 2401943   | 2401944   | 2401945   | 2401946   | 12 |
| 6 - 32 UNC                     | 2401947   | 2401948   | 2401949   | 2401950   | 2401951   | 11 |
| 6 - 40 UNF                     | 2401952   | 2401953   | 2401954   | 2401955   | 2401956   | 10 |
| 8 - 32 UNC                     | 2401957   | 2401958   | 2401959   | 2401960   | 2401961   | 9  |
| 8 - 36 UNF                     | 2401962   | 2401963   | 2401964   | 2401965   | 2401966   | 9  |
| 10 - 24 UNC                    | 2401967   | 2401968   | 2401969   | 2401970   | 2401971   | 8  |
| 10 - 32 UNF                    | 2401972   | 2401973   | 2401974   | 2401975   | 2401976   | 7  |
| 12 - 24 UNC                    | 2401977   | 2401978   | 2401979   | 2401980   | 2401981   | 7  |
| 12 - 28 UNF                    | 2401982   | 2401983   | 2401984   | 2401985   | 2401986   | 6  |
| 12 - 32 UNEF                   | 2401987   | 2401988   | 2401989   | 2401990   | 2401991   | 6  |
| 1/4 - 20 UNC                   | 2401992   | 2401993   | 2401994   | 2401995   | 2401996   | 6  |
| 1/4 - 28 UNF                   | 2401997   | 2401998   | 2401999   | 2402000   | 2402001   | 5  |
| 1/4 - 32 UNEF                  | 2402002   | 2402003   | 2402004   | 2402005   | 2402006   | 5  |
| 5/16 - 18 UNC                  | 2402007   | 2402008   | 2402009   | 2402010   | 2402011   | 4  |
| 5/16 - 20 UN                   | 2402012   | 2402013   | 2402014   | 2402015   | 2402016   | 4  |
| 5/16 - 24 UNF                  | 2402017   | 2402018   | 2402019   | 2402020   | 2402021   | 4  |
| 5/16 - 28 UN                   | 2402022   | 2402023   | 2402024   | 2402025   | 2402026   | 4  |
| 5/16 - 32 UNEF                 | 2402027   | 2402028   | 2402029   | 2402030   | 2402031   | 4  |
| 3/8 - 16 UNC                   | 2402032   | 2402033   | 2402034   | 2402035   | 2402036   | 3  |
| 3/8 - 20 UN                    | 2402037   | 2402038   | 2402039   | 2402040   | 2402041   | 3  |
| 3/8 - 24 UNF                   | 2402042   | 2402043   | 2402044   | 2402045   | 2402046   | 3  |
| 3/8 - 28 UN                    | 2402047   | 2402048   | 2402049   | 2402050   | 2402051   | 3  |
| 3/8 - 32 UNEF                  | 2402052   | 2402053   | 2402054   | 2402055   | 2402056   | 3  |
| 7/16 - 16 UN                   | 2402057   | 2402058   | 2402059   | 2402060   | 2402061   | 3  |
| 7/16 - 20 UNF                  | 2402062   | 2402063   | 2402064   | 2402065   | 2402066   | 3  |
| 7/16 - 28 UNEF                 | 2402067   | 2402068   | 2402069   | 2402070   | 2402071   | 2  |
| 7/16 - 32 UN                   | 2402072   | 2402073   | 2402074   | 2402075   | 2402076   | 2  |
| 1/2 - 16 UN                    | 2402077   | 2402078   | 2402079   | 2402080   | 2402081   | 2  |
| 1/2 - 20 UNF                   | 2402082   | 2402083   | 2402084   | 2402085   | 2402086   | 2  |
| 1/2 - 28 UNEF                  | 2402087   | 2402088   | 2402089   | 2402090   | 2402091   | 2  |
| 1/2 - 32 UN                    | 2402092   | 2402093   | 2402094   | 2402095   | 2402096   | 2  |
| 9/16 - 16 UN                   | 2402097   | 2402098   | 2402099   | 2402100   | 2402101   | 2  |
| 9/16 - 18 UNF                  | 2402102   | 2402103   | 2402104   | 2402105   | 2402106   | 2  |
| 9/16 - 20 UN                   | 2402107   | 2402108   | 2402109   | 2402110   | 2402111   | 2  |
| 9/16 - 24 UNEF                 | 2402112   | 2402113   | 2402114   | 2402115   | 2402116   | 2  |
| 9/16 - 28 UN                   | 2402117   | 2402118   | 2402119   | 2402120   | 2402121   | 2  |
| 9/16 - 32 UN                   | 2402122   | 2402123   | 2402124   | 2402125   | 2402126   | 2  |



| Unified-Gewinde ANSI B1.1      |           |           |           |           |           |           |           |    |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----|
| Unified Screw Thread ANIS B1.1 |           |           |           |           |           |           |           |    |
| Rollkopf                       | T160F     |           |           |           |           |           |           |    |
| Rolling Head                   |           |           |           |           |           |           |           |    |
| Rollenbreiten                  | 6         | 8         | 10        | 12        | 14        | 16        | 18,5      |    |
| Roll width                     | 0.236"    | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.728"    |    |
| Gewinde-<br>abmessung          | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z  |
| Thread size                    | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z  |
| 2 – 56 UNC                     | 2402696   | 2402697   | 2402698   | 2402699   | 2402700   | 2402701   | 2402702   | 21 |
| 2 – 64 UNF                     | 2402703   | 2402704   | 2402705   | 2402706   | 2402707   | 2402708   | 2402709   | 20 |
| 3 – 48 UNC                     | 2402710   | 2402711   | 2402712   | 2402713   | 2402714   | 2402715   | 2402716   | 18 |
| 3 – 56 UNF                     | 2402717   | 2402718   | 2402719   | 2402720   | 2402721   | 2402722   | 2402723   | 18 |
| 4 – 40 UNC                     | 2402724   | 2402725   | 2402726   | 2402727   | 2402728   | 2402729   | 2402730   | 16 |
| 4 – 48 UNF                     | 2402731   | 2402732   | 2402733   | 2402734   | 2402735   | 2402736   | 2402737   | 16 |
| 5 – 40 UNC                     | 2402738   | 2402739   | 2402740   | 2402741   | 2402742   | 2402743   | 2402744   | 14 |
| 5 – 44 UNF                     | 2402745   | 2402746   | 2402747   | 2402748   | 2402749   | 2402750   | 2402751   | 14 |
| 6 – 32 UNC                     | 2402752   | 2402753   | 2402754   | 2402755   | 2402756   | 2402757   | 2402758   | 13 |
| 6 – 40 UNF                     | 2402759   | 2402760   | 2402761   | 2402762   | 2402763   | 2402764   | 2402765   | 12 |
| 8 – 32 UNC                     | 2402766   | 2402767   | 2402768   | 2402769   | 2402770   | 2402771   | 2402772   | 11 |
| 8 – 36 UNF                     | 2402773   | 2402774   | 2402775   | 2402776   | 2402777   | 2402778   | 2402779   | 10 |
| 10 – 24 UNC                    | 2402780   | 2402781   | 2402782   | 2402783   | 2402784   | 2402785   | 2402786   | 9  |
| 10 – 32 UNF                    | 2402787   | 2402788   | 2402789   | 2402790   | 2402791   | 2402792   | 2402793   | 9  |
| 12 – 24 UNC                    | 2402794   | 2402795   | 2402796   | 2402797   | 2402798   | 2402799   | 2402800   | 8  |
| 12 – 28 UNF                    | 2402801   | 2402802   | 2402803   | 2402804   | 2402805   | 2402806   | 2402807   | 8  |
| 12 – 32 UNEF                   | 2402808   | 2402809   | 2402810   | 2402811   | 2402812   | 2402813   | 2402814   | 7  |
| 1/4 – 20 UNC                   | 2402815   | 2402816   | 2402817   | 2402818   | 2402819   | 2402820   | 2402821   | 7  |
| 1/4 – 28 UNF                   | 2402822   | 2402823   | 2402824   | 2402825   | 2402826   | 2402827   | 2402828   | 6  |
| 1/4 – 32 UNEF                  | 2402829   | 2402830   | 2402831   | 2402832   | 2402833   | 2402834   | 2402835   | 6  |
| 5/16 – 18 UNC                  | 2402836   | 2402837   | 2402838   | 2402839   | 2402840   | 2402841   | 2402842   | 5  |
| 5/16 – 20 UN                   | 2402843   | 2402844   | 2402845   | 2402846   | 2402847   | 2402848   | 2402849   | 5  |
| 5/16 – 24 UNF                  | 2402850   | 2402851   | 2402852   | 2402853   | 2402854   | 2402855   | 2402856   | 5  |
| 5/16 – 28 UN                   | 2402857   | 2402858   | 2402859   | 2402860   | 2402861   | 2402862   | 2402863   | 5  |
| 5/16 – 32 UNEF                 | 2402864   | 2402865   | 2402866   | 2402867   | 2402868   | 2402869   | 2402870   | 5  |
| 3/8 – 16 UNC                   | 2402871   | 2402872   | 2402873   | 2402874   | 2402875   | 2402876   | 2402877   | 4  |
| 3/8 – 20 UN                    | 2402878   | 2402879   | 2402880   | 2402881   | 2402882   | 2402883   | 2402884   | 4  |
| 3/8 – 24 UNF                   | 2402885   | 2402886   | 2402887   | 2402888   | 2402889   | 2402890   | 2402891   | 4  |
| 3/8 – 28 UN                    | 2402892   | 2402893   | 2402894   | 2402895   | 2402896   | 2402897   | 2402898   | 4  |
| 3/8 – 32 UNEF                  | 2402899   | 2402900   | 2402901   | 2402902   | 2402903   | 2402904   | 2402905   | 4  |
| 7/16 – 16 UN                   | 2402906   | 2402907   | 2402908   | 2402909   | 2402910   | 2402911   | 2402912   | 3  |
| 7/16 – 20 UNF                  | 2402913   | 2402914   | 2402915   | 2402916   | 2402917   | 2402918   | 2402919   | 3  |
| 7/16 – 28 UNEF                 | 2402920   | 2402921   | 2402922   | 2402923   | 2402924   | 2402925   | 2402926   | 3  |
| 7/16 – 32 UN                   | 2402927   | 2402928   | 2402929   | 2402930   | 2402931   | 2402932   | 2402933   | 3  |
| 1/2 – 16 UN                    | 2402934   | 2402935   | 2402936   | 2402937   | 2402938   | 2402939   | 2402940   | 3  |
| 1/2 – 20 UNF                   | 2402941   | 2402942   | 2402943   | 2402944   | 2402945   | 2402946   | 2402947   | 3  |
| 1/2 – 28 UNEF                  | 2402948   | 2402949   | 2402950   | 2402951   | 2402952   | 2402953   | 2402954   | 3  |
| 1/2 – 32 UN                    | 2402955   | 2402956   | 2402957   | 2402958   | 2402959   | 2402960   | 2402961   | 3  |
| 9/16 – 16 UN                   | 2402962   | 2402963   | 2402964   | 2402965   | 2402966   | 2402967   | 2402968   | 2  |
| 9/16 – 18 UNF                  | 2402969   | 2402970   | 2402971   | 2402972   | 2402973   | 2402974   | 2402975   | 2  |
| 9/16 – 20 UN                   | 2402976   | 2402977   | 2402978   | 2402979   | 2402980   | 2402981   | 2402982   | 2  |
| 9/16 – 24 UNEF                 | 2402983   | 2402984   | 2402985   | 2402986   | 2402987   | 2402988   | 2402989   | 2  |
| 9/16 – 28 UN                   | 2402990   | 2402991   | 2402992   | 2402993   | 2402994   | 2402995   | 2402996   | 2  |
| 9/16 – 32 UN                   | 2402997   | 2402998   | 2402999   | 2403000   | 2403001   | 2403002   | 2403003   | 2  |
| 5/8 – 16 UN                    | 2403004   | 2403005   | 2403006   | 2403007   | 2403008   | 2403009   | 2403010   | 2  |
| 5/8 – 18 UNF                   | 2403011   | 2403012   | 2403013   | 2403014   | 2403015   | 2403016   | 2403017   | 2  |
| 5/8 – 20 UN                    | 2403018   | 2403019   | 2403020   | 2403021   | 2403022   | 2403023   | 2403024   | 2  |
| 5/8 – 24 UNEF                  | 2403025   | 2403026   | 2403027   | 2403028   | 2403029   | 2403030   | 2403031   | 2  |
| 5/8 – 28 UN                    | 2403032   | 2403033   | 2403034   | 2403035   | 2403036   | 2403037   | 2403038   | 2  |
| 5/8 – 32 UN                    | 2403039   | 2403040   | 2403041   | 2403042   | 2403043   | 2403044   | 2403045   | 2  |

| Unified-Gewinde ANSI B1.1      |           |           |           |           |           |           |           |           |           |           |           |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Unified Screw Thread ANIS B1.1 |           |           |           |           |           |           |           |           |           |           |           |
| Rollkopf                       | T220F     |           |           |           |           |           |           |           |           |           |           |
| Rolling Head                   |           |           |           |           |           |           |           |           |           |           |           |
| Rollenbreiten                  | 8         | 10        | 12        | 14        | 16        | 18        | 20        | 22        | 24        | 26        |           |
| Roll width                     | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    | 0.945"    | 1.024"    |           |
| Gewinde-<br>abmessung          |           |           |           |           |           |           |           |           |           |           | Z         |
| Thread size                    | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| 2 - 56 UNC                     | 2404823   | 2404824   | 2404825   | 2404826   | 2404827   | 2404828   | 2404829   | 2404830   | 2404831   | 2404832   | 30        |
| 2 - 64 UNF                     | 2404833   | 2404834   | 2404835   | 2404836   | 2404837   | 2404838   | 2404839   | 2404840   | 2404841   | 2404842   | 29        |
| 3 - 48 UNC                     | 2404843   | 2404844   | 2404845   | 2404846   | 2404847   | 2404848   | 2404849   | 2404850   | 2404851   | 2404852   | 26        |
| 3 - 56 UNF                     | 2404853   | 2404854   | 2404855   | 2404856   | 2404857   | 2404858   | 2404859   | 2404860   | 2404861   | 2404862   | 25        |
| 4 - 40 UNC                     | 2404863   | 2404864   | 2404865   | 2404866   | 2404867   | 2404868   | 2404869   | 2404870   | 2404871   | 2404872   | 23        |
| 4 - 48 UNF                     | 2404873   | 2404874   | 2404875   | 2404876   | 2404877   | 2404878   | 2404879   | 2404880   | 2404881   | 2404882   | 22        |
| 5 - 40 UNC                     | 2404883   | 2404884   | 2404885   | 2404886   | 2404887   | 2404888   | 2404889   | 2404890   | 2404891   | 2404892   | 20        |
| 5 - 44 UNF                     | 2404893   | 2404894   | 2404895   | 2404896   | 2404897   | 2404898   | 2404899   | 2404900   | 2404901   | 2404902   | 20        |
| 6 - 32 UNC                     | 2404903   | 2404904   | 2404905   | 2404906   | 2404907   | 2404908   | 2404909   | 2404910   | 2404911   | 2404912   | 19        |
| 6 - 40 UNF                     | 2404913   | 2404914   | 2404915   | 2404916   | 2404917   | 2404918   | 2404919   | 2404920   | 2404921   | 2404922   | 18        |
| 8 - 32 UNC                     | 2404923   | 2404924   | 2404925   | 2404926   | 2404927   | 2404928   | 2404929   | 2404930   | 2404931   | 2404932   | 15        |
| 8 - 36 UNF                     | 2404933   | 2404934   | 2404935   | 2404936   | 2404937   | 2404938   | 2404939   | 2404940   | 2404941   | 2404942   | 15        |
| 10 - 24 UNC                    | 2404943   | 2404944   | 2404945   | 2404946   | 2404947   | 2404948   | 2404949   | 2404950   | 2404951   | 2404952   | 13        |
| 10 - 32 UNF                    | 2404953   | 2404954   | 2404955   | 2404956   | 2404957   | 2404958   | 2404959   | 2404960   | 2404961   | 2404962   | 13        |
| 12 - 24 UNC                    | 2404963   | 2404964   | 2404965   | 2404966   | 2404967   | 2404968   | 2404969   | 2404970   | 2404971   | 2404972   | 11        |
| 12 - 28 UNF                    | 2404973   | 2404974   | 2404975   | 2404976   | 2404977   | 2404978   | 2404979   | 2404980   | 2404981   | 2404982   | 11        |
| 12 - 32 UNEF                   | 2404983   | 2404984   | 2404985   | 2404986   | 2404987   | 2404988   | 2404989   | 2404990   | 2404991   | 2404992   | 11        |
| 1/4 - 20 UNC                   | 2404993   | 2404994   | 2404995   | 2404996   | 2404997   | 2404998   | 2404999   | 2405000   | 2405001   | 2405002   | 10        |
| 1/4 - 28 UNF                   | 2405003   | 2405004   | 2405005   | 2405006   | 2405007   | 2405008   | 2405009   | 2405010   | 2405011   | 2405012   | 9         |
| 1/4 - 32 UNEF                  | 2405013   | 2405014   | 2405015   | 2405016   | 2405017   | 2405018   | 2405019   | 2405020   | 2405021   | 2405022   | 9         |
| 5/16 - 18 UNC                  | 2405023   | 2405024   | 2405025   | 2405026   | 2405027   | 2405028   | 2405029   | 2405030   | 2405031   | 2405032   | 8         |
| 5/16 - 20 UN                   | 2405033   | 2405034   | 2405035   | 2405036   | 2405037   | 2405038   | 2405039   | 2405040   | 2405041   | 2405042   | 7         |
| 5/16 - 24 UNF                  | 2405043   | 2405044   | 2405045   | 2405046   | 2405047   | 2405048   | 2405049   | 2405050   | 2405051   | 2405052   | 7         |
| 5/16 - 28 UN                   | 2405053   | 2405054   | 2405055   | 2405056   | 2405057   | 2405058   | 2405059   | 2405060   | 2405061   | 2405062   | 7         |
| 5/16 - 32 UNEF                 | 2405063   | 2405064   | 2405065   | 2405066   | 2405067   | 2405068   | 2405069   | 2405070   | 2405071   | 2405072   | 7         |
| 3/8 - 16 UNC                   | 2405073   | 2405074   | 2405075   | 2405076   | 2405077   | 2405078   | 2405079   | 2405080   | 2405081   | 2405082   | 6         |
| 3/8 - 20 UN                    | 2405083   | 2405084   | 2405085   | 2405086   | 2405087   | 2405088   | 2405089   | 2405090   | 2405091   | 2405092   | 6         |
| 3/8 - 24 UNF                   | 2405093   | 2405094   | 2405095   | 2405096   | 2405097   | 2405098   | 2405099   | 2405100   | 2405101   | 2405102   | 6         |
| 3/8 - 28 UN                    | 2405103   | 2405104   | 2405105   | 2405106   | 2405107   | 2405108   | 2405109   | 2405110   | 2405111   | 2405112   | 6         |
| 3/8 - 32 UNEF                  | 2405113   | 2405114   | 2405115   | 2405116   | 2405117   | 2405118   | 2405119   | 2405120   | 2405121   | 2405122   | 6         |
| 7/16 - 14 UNC                  | 2405123   | 2405124   | 2405125   | 2405126   | 2405127   | 2405128   | 2405129   | 2405130   | 2405131   | 2405132   | 5         |
| 7/16 - 16 UN                   | 2405133   | 2405134   | 2405135   | 2405136   | 2405137   | 2405138   | 2405139   | 2405140   | 2405141   | 2405142   | 5         |
| 7/16 - 20 UNF                  | 2405143   | 2405144   | 2405145   | 2405146   | 2405147   | 2405148   | 2405149   | 2405150   | 2405151   | 2405152   | 5         |
| 7/16 - 28 UNEF                 | 2405153   | 2405154   | 2405155   | 2405156   | 2405157   | 2405158   | 2405159   | 2405160   | 2405161   | 2405162   | 5         |
| 7/16 - 32 UN                   | 2405163   | 2405164   | 2405165   | 2405166   | 2405167   | 2405168   | 2405169   | 2405170   | 2405171   | 2405172   | 5         |
| 1/2 - 13 UNC                   | 2405173   | 2405174   | 2405175   | 2405176   | 2405177   | 2405178   | 2405179   | 2405180   | 2405181   | 2405182   | 4         |
| 1/2 - 16 UN                    | 2405183   | 2405184   | 2405185   | 2405186   | 2405187   | 2405188   | 2405189   | 2405190   | 2405191   | 2405192   | 4         |
| 1/2 - 20 UNF                   | 2405193   | 2405194   | 2405195   | 2405196   | 2405197   | 2405198   | 2405199   | 2405200   | 2405201   | 2405202   | 4         |
| 1/2 - 28 UNEF                  | 2405203   | 2405204   | 2405205   | 2405206   | 2405207   | 2405208   | 2405209   | 2405210   | 2405211   | 2405212   | 4         |
| 1/2 - 32 UN                    | 2405213   | 2405214   | 2405215   | 2405216   | 2405217   | 2405218   | 2405219   | 2405220   | 2405221   | 2405222   | 4         |
| 9/16 - 12 UNC                  | 2405223   | 2405224   | 2405225   | 2405226   | 2405227   | 2405228   | 2405229   | 2405230   | 2405231   | 2405232   | 4         |
| 9/16 - 16 UN                   | 2405233   | 2405234   | 2405235   | 2405236   | 2405237   | 2405238   | 2405239   | 2405240   | 2405241   | 2405242   | 4         |
| 9/16 - 18 UNF                  | 2405243   | 2405244   | 2405245   | 2405246   | 2405247   | 2405248   | 2405249   | 2405250   | 2405251   | 2405252   | 4         |
| 9/16 - 20 UN                   | 2405253   | 2405254   | 2405255   | 2405256   | 2405257   | 2405258   | 2405259   | 2405260   | 2405261   | 2405262   | 4         |
| 9/16 - 24 UNEF                 | 2405263   | 2405264   | 2405265   | 2405266   | 2405267   | 2405268   | 2405269   | 2405270   | 2405271   | 2405272   | 3         |
| 9/16 - 28 UN                   | 2405273   | 2405274   | 2405275   | 2405276   | 2405277   | 2405278   | 2405279   | 2405280   | 2405281   | 2405282   | 3         |
| 9/16 - 32 UN                   | 2405283   | 2405284   | 2405285   | 2405286   | 2405287   | 2405288   | 2405289   | 2405290   | 2405291   | 2405292   | 3         |
| 5/8 - 11 UNC                   | 2406697   | 2406698   | 2406699   | 2406700   | 2406701   | 2406702   | 2406703   | 2406704   | 2406705   | 2406706   | 3         |
| 5/8 - 12 UN                    | 2405293   | 2405294   | 2405295   | 2405296   | 2405297   | 2405298   | 2405299   | 2405300   | 2405301   | 2405302   | 3         |
| 5/8 - 16UN                     | 2405303   | 2405304   | 2405305   | 2405306   | 2405307   | 2405308   | 2405309   | 2405310   | 2405311   | 2405312   | 3         |
| 5/8 - 18 UNF                   | 2405313   | 2405314   | 2405315   | 2405316   | 2405317   | 2405318   | 2405319   | 2405320   | 2405321   | 2405322   | 3         |
| 5/8 - 20 UN                    | 2405323   | 2405324   | 2405325   | 2405326   | 2405327   | 2405328   | 2405329   | 2405330   | 2405331   | 2405332   | 3         |
| 5/8 - 24 UNEF                  | 2405333   | 2405334   | 2405335   | 2405336   | 2405337   | 2405338   | 2405339   | 2405340   | 2405341   | 2405342   | 3         |
| 5/8 - 28 UN                    | 2405343   | 2405344   | 2405345   | 2405346   | 2405347   | 2405348   | 2405349   | 2405350   | 2405351   | 2405352   | 3         |

| Unified-Gewinde ANSI B1.1      |           |           |           |           |           |           |           |           |           |           |   |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|
| Unified Screw Thread ANIS B1.1 |           |           |           |           |           |           |           |           |           |           |   |
| Rollkopf                       | T220F     |           |           |           |           |           |           |           |           |           |   |
| Rolling Head                   |           |           |           |           |           |           |           |           |           |           |   |
| Rollenbreiten                  | 8         | 10        | 12        | 14        | 16        | 18        | 20        | 22        | 24        | 26        |   |
| Roll width                     | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    | 0.945"    | 1.024"    |   |
| Gewinde-<br>abmessung          | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z |
| Thread size                    | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z |
| 5/8 – 32 UN                    | 2405353   | 2405354   | 2405355   | 2405356   | 2405357   | 2405358   | 2405359   | 2405360   | 2405361   | 2405362   | 3 |
| 11/16 – 12 UN                  | 2405363   | 2405364   | 2405365   | 2405366   | 2405367   | 2405368   | 2405369   | 2405370   | 2405371   | 2405372   | 3 |
| 11/16 – 24 UNEF                | 2405373   | 2405374   | 2405375   | 2405376   | 2405377   | 2405378   | 2405379   | 2405380   | 2405381   | 2405382   | 3 |
| 3/4 – 10 UNC                   | 2406707   | 2406708   | 2406709   | 2406710   | 2406711   | 2406712   | 2406713   | 2406714   | 2406715   | 2406716   | 3 |
| 3/4 – 12UN                     | 2405383   | 2405384   | 2405385   | 2405386   | 2405387   | 2405388   | 2405389   | 2405390   | 2405391   | 2405392   | 3 |
| 3/4 – 16 UNF                   | 2405393   | 2405394   | 2405395   | 2405396   | 2405397   | 2405398   | 2405399   | 2405400   | 2405401   | 2405402   | 3 |
| 3/4 – 20 UNEF                  | 2405403   | 2405404   | 2405405   | 2405406   | 2405407   | 2405408   | 2405409   | 2405410   | 2405411   | 2405412   | 2 |
| 3/4 – 28 UN                    | 2405413   | 2405414   | 2405415   | 2405416   | 2405417   | 2405418   | 2405419   | 2405420   | 2405421   | 2405422   | 2 |
| 3/4 – 32 UN                    | 2405423   | 2405424   | 2405425   | 2405426   | 2405427   | 2405428   | 2405429   | 2405430   | 2405431   | 2405432   | 2 |
| 13/16 – 12 UN                  | 2405433   | 2405434   | 2405435   | 2405436   | 2405437   | 2405438   | 2405439   | 2405440   | 2405441   | 2405442   | 2 |
| 13/16 – 16 UN                  | 2405443   | 2405444   | 2172583   | 2405446   | 2405447   | 2405448   | 2405449   | 2405450   | 2405451   | 2405452   | 2 |
| 13/16 – 20 UNEF                | 2405453   | 2405454   | 2405455   | 2405456   | 2405457   | 2405458   | 2405459   | 2405460   | 2405461   | 2405462   | 2 |
| 7/8 – 12 UN                    | 2405463   | 2405464   | 2405465   | 2405466   | 2405467   | 2405468   | 2405469   | 2405470   | 2405471   | 2405472   | 2 |
| 7/8 – 14 UNF                   | 2405473   | 2405474   | 2405475   | 2405476   | 2405477   | 2405478   | 2405479   | 2405480   | 2405481   | 2401360   | 2 |
| 7/8 – 16 UN                    | 2405483   | 2405484   | 2405485   | 2405486   | 2405487   | 2405488   | 2405489   | 2405490   | 2405491   | 2405492   | 2 |
| 7/8 – 20 UNEF                  | 2405493   | 2405494   | 2405495   | 2405496   | 2405497   | 2405498   | 2405499   | 2405500   | 2405501   | 2405502   | 2 |
| 7/8 – 28 UN                    | 2405503   | 2405504   | 2405505   | 2405506   | 2405507   | 2405508   | 2405509   | 2405510   | 2405511   | 2405512   | 2 |
| 7/8 – 32 UN                    | 2405513   | 2405514   | 2405515   | 2405516   | 2405517   | 2405518   | 2405519   | 2405520   | 2405521   | 2405522   | 2 |
| 15/16 – 12 UN                  | 2405523   | 2405524   | 2405525   | 2405526   | 2405527   | 2405528   | 2405529   | 2405530   | 2405531   | 2405532   | 2 |
| 15/16 – 16 UN                  | 2405533   | 2405534   | 2405535   | 2405536   | 2405537   | 2405538   | 2405539   | 2405540   | 2405541   | 2405542   | 2 |
| 15/16 – 20 UNEF                | 2405543   | 2405544   | 2405545   | 2405546   | 2405547   | 2405548   | 2405549   | 2405550   | 2405551   | 2405552   | 2 |
| 1 – 12 UNF                     | 2405553   | 2405554   | 2405555   | 2405556   | 2405557   | 2405558   | 2405559   | 2405560   | 2405561   | 2405562   | 2 |
| 1 – 16 UN                      | 2405563   | 2405564   | 2405565   | 2405566   | 2405567   | 2405568   | 2405569   | 2405570   | 2405571   | 2405572   | 2 |
| 1 – 20 UNEF                    | 2405573   | 2405574   | 2405575   | 2405576   | 2405577   | 2405578   | 2405579   | 2405580   | 2405581   | 2405582   | 2 |
| 1 – 28 UN                      | 2405583   | 2405584   | 2405585   | 2405586   | 2405587   | 2405588   | 2405589   | 2405590   | 2405591   | 2405592   | 2 |
| 1 – 32 UN                      | 2405593   | 2405594   | 2405595   | 2405596   | 2405597   | 2405598   | 2405599   | 2405600   | 2405601   | 2405602   | 2 |
| 11/16 – 12 UN                  | 2405603   | 2405604   | 2405605   | 2405606   | 2405607   | 2405608   | 2405609   | 2405610   | 2405611   | 2405612   | 1 |
| 11/16 – 16 UN                  | 2405613   | 2405614   | 2405615   | 2405616   | 2405617   | 2405618   | 2405619   | 2405620   | 2405621   | 2405622   | 1 |
| 11/16 – 18 UNEF                | 2405623   | 2405624   | 2405625   | 2405626   | 2405627   | 2405628   | 2405629   | 2405630   | 2405631   | 2405632   | 1 |
| 11/8 – 12 UNF                  | 2405633   | 2405634   | 2405635   | 2405636   | 2405637   | 2405638   | 2405639   | 2405640   | 2405641   | 2405642   | 1 |
| 11/8 – 16 UN                   | 2405643   | 2405644   | 2405645   | 2405646   | 2405647   | 2405648   | 2405649   | 2405650   | 2405651   | 2405652   | 1 |
| 11/8 – 18 UNEF                 | 2405653   | 2405654   | 2405655   | 2405656   | 2405657   | 2405658   | 2405659   | 2405660   | 2405661   | 2405662   | 1 |
| 11/8 – 20 UN                   | 2405663   | 2405664   | 2405665   | 2405666   | 2405667   | 2405668   | 2405669   | 2405670   | 2405671   | 2405672   | 1 |
| 11/8 – 28 UN                   | 2405673   | 2405674   | 2405675   | 2405676   | 2405677   | 2405678   | 2405679   | 2405680   | 2405681   | 2405682   | 1 |
| 13/16 – 12 UN                  | 2405683   | 2405684   | 2405685   | 2405686   | 2405687   | 2405688   | 2405689   | 2405690   | 2405691   | 2405692   | 1 |
| 13/16 – 16 UN                  | 2405693   | 2405694   | 2405695   | 2405696   | 2405697   | 2405698   | 2405699   | 2405700   | 2405701   | 2405702   | 1 |
| 13/16 – 18 UNEF                | 2405703   | 2405704   | 2405705   | 2405706   | 2405707   | 2405708   | 2405709   | 2405710   | 2405711   | 2405712   | 1 |
| 11/4 – 12 UNF                  | 2405713   | 2405714   | 2405715   | 2405716   | 2405717   | 2405718   | 2405719   | 2405720   | 2405721   | 2405722   | 1 |
| 11/4 – 16 UN                   | 2405723   | 2405724   | 2405725   | 2405726   | 2405727   | 2405728   | 2405729   | 2405730   | 2405731   | 2405732   | 1 |
| 11/4 – 18 UNEF                 | 2405733   | 2405734   | 2405735   | 2405736   | 2405737   | 2405738   | 2405739   | 2405740   | 2405741   | 2405742   | 1 |
| 11/4 – 20 UN                   | 2405743   | 2405744   | 2405745   | 2405746   | 2405747   | 2405748   | 2405749   | 2405750   | 2405751   | 2405752   | 1 |
| 11/4 – 28 UN                   | 2405753   | 2405754   | 2405755   | 2405756   | 2405757   | 2405758   | 2405759   | 2405760   | 2405761   | 2405762   | 1 |
| 15/16 – 12 UN                  | 2405763   | 2405764   | 2405765   | 2405766   | 2405767   | 2405768   | 2405769   | 2405770   | 2405771   | 2405772   | 1 |
| 15/16 – 16 UN                  | 2405773   | 2405774   | 2405775   | 2405776   | 2405777   | 2405778   | 2405779   | 2405780   | 2405781   | 2405782   | 1 |
| 15/16 – 18 UNEF                | 2405783   | 2405784   | 2405785   | 2405786   | 2405787   | 2405788   | 2405789   | 2405790   | 2405791   | 2405792   | 1 |
| 13/8 – 12 UNF                  | 2405793   | 2405794   | 2405795   | 2405796   | 2405797   | 2405798   | 2405799   | 2405800   | 2405801   | 2405802   | 1 |
| 13/8 – 16 UN                   | 2405803   | 2405804   | 2405805   | 2405806   | 2405807   | 2405808   | 2405809   | 2405810   | 2405811   | 2405812   | 1 |
| 13/8 – 18 UNEF                 | 2405813   | 2405814   | 2405815   | 2405816   | 2405817   | 2405818   | 2405819   | 2405820   | 2405821   | 2405822   | 1 |
| 13/8 – 20 UN                   | 2405823   | 2405824   | 2405825   | 2405826   | 2405827   | 2405828   | 2405829   | 2405830   | 2405831   | 2405832   | 1 |
| 13/8 – 28 UN                   | 2405833   | 2405834   | 2405835   | 2405836   | 2405837   | 2405838   | 2405839   | 2405840   | 2405841   | 2405842   | 1 |
| 17/16 – 12 UN                  | 2405843   | 2405844   | 2405845   | 2405846   | 2405847   | 2405848   | 2405849   | 2405850   | 2405851   | 2405852   | 1 |
| 17/16 – 16 UN                  | 2405853   | 2405854   | 2405855   | 2405856   | 2405857   | 2405858   | 2405859   | 2405860   | 2405861   | 2405862   | 1 |
| 17/16 – 18 UNEF                | 2405863   | 2405864   | 2405865   | 2405866   | 2405867   | 2405868   | 2405869   | 2405870   | 2405871   | 2405872   | 1 |
| 11/2 – 12 UNF                  | 2405873   | 2405874   | 2405875   | 2405876   | 2405877   | 2405878   | 2405879   | 2405880   | 2405881   | 2405882   | 1 |

| Unified-Gewinde ANSI B1.1      |           |           |           |           |           |           |           |           |           |           |   |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|
| Unified Screw Thread ANIS B1.1 |           |           |           |           |           |           |           |           |           |           |   |
| Rollkopf                       | T220F     |           |           |           |           |           |           |           |           |           |   |
| Rolling Head                   |           |           |           |           |           |           |           |           |           |           |   |
| Rollenbreiten                  | 8         | 10        | 12        | 14        | 16        | 18        | 20        | 22        | 24        | 26        |   |
| Roll width                     | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    | 0.945"    | 1.024"    |   |
| Gewinde-<br>abmessung          |           |           |           |           |           |           |           |           |           |           |   |
| Thread size                    | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z |
| 1 1/2 – 16 UN                  | 2405883   | 2405884   | 2405885   | 2405886   | 2405887   | 2405888   | 2405889   | 2405890   | 2405891   | 2405892   | 1 |
| 1 1/2 – 18 UNEF                | 2405893   | 2405894   | 2405895   | 2405896   | 2405897   | 2405898   | 2405899   | 2405900   | 2405901   | 2405902   | 1 |
| 1 1/2 – 20 UN                  | 2405903   | 2405904   | 2405905   | 2405906   | 2405907   | 2405908   | 2405909   | 2405910   | 2405911   | 2405912   | 1 |

| Unified-Gewinde ANIS B1.1      |           |           |           |           |           |           |           |           |           |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Unified Screw Thread ANIS B1.1 |           |           |           |           |           |           |           |           |           |
| Rollkopf                       | T350F     |           |           |           |           |           |           |           |           |
| Rolling Head                   |           |           |           |           |           |           |           |           |           |
| Rollenbreiten                  | 8         | 10        | 12        | 14        | 16        | 18        | 20        | 22        |           |
| Roll width                     | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    |           |
| Gewinde-<br>abmessung          |           |           |           |           |           |           |           |           |           |
| Thread size                    | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| 12 – 24 UNC                    | 2435115   | 2435116   | 2435117   | 2435118   | 2435119   | 2435120   | 2435121   | 2435122   |           |
| 12 – 28 UNF                    | 2435130   | 2435131   | 2435132   | 2435133   | 2435134   | 2435135   | 2435136   | 2435137   |           |
| 12 – 32 UNEF                   | 2435145   | 2435146   | 2435147   | 2435148   | 2435149   | 2435150   | 2435151   | 2435152   |           |
| 1/4 – 20 UNC                   | 2435160   | 2435161   | 2435162   | 2435163   | 2435164   | 2435165   | 2435166   | 2435167   |           |
| 1/4 – 28 UNF                   | 2435175   | 2435176   | 2435177   | 2435178   | 2435179   | 2435180   | 2435181   | 2435182   |           |
| 1/4 – 32 UNEF                  | 2435190   | 2435191   | 2435192   | 2435193   | 2435194   | 2435195   | 2435196   | 2435197   |           |
| 5/16 – 18 UNC                  | 2435205   | 2435206   | 2435207   | 2435208   | 2435209   | 2435210   | 2435211   | 2435212   |           |
| 5/16 – 20 UN                   | 2435220   | 2435221   | 2435222   | 2435223   | 2435224   | 2435225   | 2435226   | 2435227   |           |
| 5/16 – 24 UNF                  | 2435235   | 2435236   | 2435237   | 2435238   | 2435239   | 2435240   | 2435241   | 2435242   |           |
| 5/16 – 28 UN                   | 2435250   | 2435251   | 2435252   | 2435253   | 2435254   | 2435255   | 2435256   | 2435257   |           |
| 5/16 – 32 UNEF                 | 2435265   | 2435266   | 2435267   | 2435268   | 2435269   | 2435270   | 2435271   | 2435272   |           |
| 3/8 – 16 UNC                   | 2435280   | 2435281   | 2435282   | 2435283   | 2435284   | 2435285   | 2435286   | 2435287   |           |
| 3/8 – 20 UN                    | 2435295   | 2435296   | 2435297   | 2435298   | 2435299   | 2435300   | 2435301   | 2435302   |           |
| 3/8 – 24 UNF                   | 2435310   | 2435311   | 2435312   | 2435313   | 2435314   | 2435315   | 2435316   | 2435317   |           |
| 3/8 – 28 UN                    | 2435325   | 2435326   | 2435327   | 2435328   | 2435329   | 2435330   | 2435331   | 2435332   |           |
| 3/8 – 32 UNEF                  | 2435340   | 2435341   | 2435342   | 2435343   | 2435344   | 2435345   | 2435346   | 2435347   |           |
| 7/16 – 14 UNC                  | 2435355   | 2435356   | 2435357   | 2435358   | 2435359   | 2435360   | 2435361   | 2435362   |           |
| 7/16 – 16 UN                   | 2435370   | 2435371   | 2435372   | 2435373   | 2435374   | 2435375   | 2435376   | 2435377   |           |
| 7/16 – 20 UNF                  | 2435385   | 2435386   | 2435387   | 2435388   | 2435389   | 2435390   | 2435391   | 2435392   |           |
| 7/16 – 28 UNEF                 | 2435400   | 2435401   | 2435402   | 2435403   | 2435404   | 2435405   | 2435406   | 2435407   |           |
| 7/16 – 32 UN                   | 2435415   | 2435416   | 2435417   | 2435418   | 2435419   | 2435420   | 2435421   | 2435422   |           |
| 1/2 – 13 UNC                   | 2435430   | 2435431   | 2435432   | 2435433   | 2435434   | 2435435   | 2435436   | 2435437   |           |
| 1/2 – 16 UN                    | 2435445   | 2435446   | 2435447   | 2435448   | 2435449   | 2435450   | 2435451   | 2435452   |           |
| 1/2 – 20 UNF                   | 2435460   | 2435461   | 2435462   | 2435463   | 2435464   | 2435465   | 2435466   | 2435467   |           |
| 1/2 – 28 UNEF                  | 2435475   | 2435476   | 2435477   | 2435478   | 2435479   | 2435480   | 2435481   | 2435482   |           |
| 1/2 – 32 UN                    | 2435490   | 2435491   | 2435492   | 2435493   | 2435494   | 2435495   | 2435496   | 2435497   |           |
| 9/16 – 12 UNC                  | 2435505   | 2435506   | 2435507   | 2435508   | 2435509   | 2435510   | 2435511   | 2435512   |           |
| 9/16 – 16 UN                   | 2435520   | 2435521   | 2435522   | 2435523   | 2435524   | 2435525   | 2435526   | 2435527   |           |
| 9/16 – 18 UNF                  | 2435535   | 2435536   | 2435537   | 2435538   | 2435539   | 2435540   | 2435541   | 2435542   |           |
| 9/16 – 20 UN                   | 2435550   | 2435551   | 2435552   | 2435553   | 2435554   | 2435555   | 2435556   | 2435557   |           |
| 9/16 – 24 UNEF                 | 2435565   | 2435566   | 2435567   | 2435568   | 2435569   | 2435570   | 2435571   | 2435572   |           |
| 9/16 – 28 UN                   | 2435580   | 2435581   | 2435582   | 2435583   | 2435584   | 2435585   | 2435586   | 2435587   |           |
| 9/16 – 32 UN                   | 2435595   | 2435596   | 2435597   | 2435598   | 2435599   | 2435600   | 2435601   | 2435602   |           |
| 5/8 – 11 UNC                   | 2435610   | 2435611   | 2435612   | 2435613   | 2435614   | 2435615   | 2435616   | 2435617   |           |
| 5/8 – 12 UN                    | 2435625   | 2435626   | 2435627   | 2435628   | 2435629   | 2435630   | 2435631   | 2435632   |           |
| 5/8 – 16 UN                    | 2435640   | 2435641   | 2435642   | 2435643   | 2435644   | 2435645   | 2435646   | 2435647   |           |
| 5/8 – 18 UNF                   | 2435655   | 2435656   | 2435657   | 2435658   | 2435659   | 2435660   | 2435661   | 2435662   |           |
| 5/8 – 20 UN                    | 2435670   | 2435671   | 2435672   | 2435673   | 2435674   | 2435675   | 2435676   | 2435677   |           |
| 5/8 – 24 UNEF                  | 2435685   | 2435686   | 2435687   | 2435688   | 2435689   | 2435690   | 2435691   | 2435692   |           |
| 5/8 – 28 UN                    | 2435700   | 2435701   | 2435702   | 2435703   | 2435704   | 2435705   | 2435706   | 2435707   |           |

| Unified-Gewinde ANIS B1.1      |           |           |           |           |           |           |           |           |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Unified Screw Thread ANIS B1.1 |           |           |           |           |           |           |           |           |
| Rollkopf                       | T350F     |           |           |           |           |           |           |           |
| Rolling Head                   |           |           |           |           |           |           |           |           |
| Rollenbreiten                  | 8         | 10        | 12        | 14        | 16        | 18        | 20        | 22        |
| Roll width                     | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    |
| Gewinde-<br>abmessung          | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| Thread size                    | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| 5/8 – 32 UN                    | 2435715   | 2435716   | 2435717   | 2435718   | 2435719   | 2435720   | 2435721   | 2435722   |
| 11/16 – 12 UN                  | 2435730   | 2435731   | 2435732   | 2435733   | 2435734   | 2435735   | 2435736   | 2435737   |
| 11/16 – 24 UNEF                | 2435745   | 2435746   | 2435747   | 2435748   | 2435749   | 2435750   | 2435751   | 2435752   |
| 3/4 – 10 UNC                   | 2435760   | 2435761   | 2435762   | 2435763   | 2435764   | 2435765   | 2435766   | 2435767   |
| 3/4 – 12 UN                    | 2435775   | 2435776   | 2435777   | 2435778   | 2435779   | 2435780   | 2435781   | 2435782   |
| 3/4 – 16 UNF                   | 2435790   | 2435791   | 2435792   | 2435793   | 2435794   | 2435795   | 2435796   | 2435797   |
| 3/4 – 20 UNEF                  | 2435805   | 2435806   | 2435807   | 2435808   | 2435809   | 2435810   | 2435811   | 2435812   |
| 3/4 – 28 UN                    | 2435820   | 2435821   | 2435822   | 2435823   | 2435824   | 2435825   | 2435826   | 2435827   |
| 3/4 – 32 UN                    | 2435835   | 2435836   | 2435837   | 2435838   | 2435839   | 2435840   | 2435841   | 2435842   |
| 13/16 – 12 UN                  | 2435850   | 2435851   | 2435852   | 2435853   | 2435854   | 2435855   | 2435856   | 2435857   |
| 13/16 – 16 UN                  | 2435865   | 2435866   | 2435867   | 2435868   | 2435869   | 2435870   | 2435871   | 2435872   |
| 13/16 – 20 UNEF                | 2435880   | 2435881   | 2435882   | 2435883   | 2435884   | 2435885   | 2435886   | 2435887   |
| 7/8 – 9 UNC                    | 2435895   | 2435896   | 2435897   | 2435898   | 2435899   | 2435900   | 2435901   | 2435902   |
| 7/8 – 12 UN                    | 2435910   | 2435911   | 2435912   | 2435913   | 2435914   | 2435915   | 2435916   | 2435917   |
| 7/8 – 14 UNF                   | 2435925   | 2435926   | 2435927   | 2435928   | 2435929   | 2435930   | 2435931   | 2435932   |
| 7/8 – 16 UN                    | 2435940   | 2435941   | 2435942   | 2435943   | 2435944   | 2435945   | 2435946   | 2435947   |
| 7/8 – 20 UNEF                  | 2435955   | 2435956   | 2435957   | 2435958   | 2435959   | 2435960   | 2435961   | 2435962   |
| 7/8 – 28 UN                    | 2435970   | 2435971   | 2435972   | 2435973   | 2435974   | 2435975   | 2435976   | 2435977   |
| 7/8 – 32 UN                    | 2435985   | 2435986   | 2435987   | 2435988   | 2435989   | 2435990   | 2435991   | 2435992   |
| 15/16 – 12 UN                  | 2436000   | 2436001   | 2436002   | 2436003   | 2436004   | 2436005   | 2436006   | 2436007   |
| 15/16 – 16 UN                  | 2436015   | 2436016   | 2436017   | 2436018   | 2436019   | 2436020   | 2436021   | 2436022   |
| 15/16 – 20 UNEF                | 2436030   | 2436031   | 2436032   | 2436033   | 2436034   | 2436035   | 2436036   | 2436037   |
| 1 – 12 UNF                     | 2436045   | 2436046   | 2436047   | 2436048   | 2436049   | 2436050   | 2436051   | 2436052   |
| 1 – 16 UN                      | 2436060   | 2436061   | 2436062   | 2436063   | 2436064   | 2436065   | 2436066   | 2436067   |
| 1 – 20 UNEF                    | 2436075   | 2436076   | 2436077   | 2436078   | 2436079   | 2436080   | 2436081   | 2436082   |
| 1 – 28 UN                      | 2436090   | 2436091   | 2436092   | 2436093   | 2436094   | 2436095   | 2436096   | 2436097   |
| 1 – 32 UN                      | 2436105   | 2436106   | 2436107   | 2436108   | 2436109   | 2436110   | 2436111   | 2436112   |
| 11/16 – 12 UN                  | 2436120   | 2436121   | 2436122   | 2436123   | 2436124   | 2436125   | 2436126   | 2436127   |
| 11/16 – 16 UN                  | 2436135   | 2436136   | 2436137   | 2436138   | 2436139   | 2436140   | 2436141   | 2436142   |
| 11/16 – 18 UNEF                | 2436150   | 2436151   | 2436152   | 2436153   | 2436154   | 2436155   | 2436156   | 2436157   |
| 11/8 – 12 UNF                  | 2436165   | 2436166   | 2436167   | 2436168   | 2436169   | 2436170   | 2436171   | 2436172   |
| 11/8 – 16 UN                   | 2436180   | 2436181   | 2436182   | 2436183   | 2436184   | 2436185   | 2436186   | 2436187   |
| 11/8 – 18 UNEF                 | 2436195   | 2436196   | 2436197   | 2436198   | 2436199   | 2436200   | 2436201   | 2436202   |
| 11/8 – 20 UN                   | 2436210   | 2436211   | 2436212   | 2436213   | 2436214   | 2436215   | 2436216   | 2436217   |
| 11/8 – 28 UN                   | 2436225   | 2436226   | 2436227   | 2436228   | 2436229   | 2436230   | 2436231   | 2436232   |
| 13/16 – 12 UN                  | 2436240   | 2436241   | 2436242   | 2436243   | 2436244   | 2436245   | 2436246   | 2436247   |
| 13/16 – 16 UN                  | 2436255   | 2436256   | 2436257   | 2436258   | 2436259   | 2436260   | 2436261   | 2436262   |
| 13/16 – 18 UNEF                | 2436270   | 2436271   | 2436272   | 2436273   | 2436274   | 2436275   | 2436276   | 2436277   |
| 11/4 – 12 UNF                  | 2436285   | 2436286   | 2436287   | 2436288   | 2436289   | 2436290   | 2436291   | 2436292   |
| 11/4 – 16 UN                   | 2436300   | 2436301   | 2436302   | 2436303   | 2436304   | 2436305   | 2436306   | 2436307   |
| 11/4 – 18 UNEF                 | 2436315   | 2436316   | 2436317   | 2436318   | 2436319   | 2436320   | 2436321   | 2436322   |
| 11/4 – 20 UN                   | 2436330   | 2436331   | 2436332   | 2436333   | 2436334   | 2436335   | 2436336   | 2436337   |
| 11/4 – 28 UN                   | 2436345   | 2436346   | 2436347   | 2436348   | 2436349   | 2436350   | 2436351   | 2436352   |
| 15/16 – 12 UN                  | 2436360   | 2436361   | 2436362   | 2436363   | 2436364   | 2436365   | 2436366   | 2436367   |
| 15/16 – 16 UN                  | 2436375   | 2436376   | 2436377   | 2436378   | 2436379   | 2436380   | 2436381   | 2436382   |
| 15/16 – 18 UNEF                | 2436390   | 2436391   | 2436392   | 2436393   | 2436394   | 2436395   | 2436396   | 2436397   |
| 13/8 – 12 UNF                  | 2436405   | 2436406   | 2436407   | 2436408   | 2436409   | 2436410   | 2436411   | 2436412   |
| 13/8 – 16 UN                   | 2436420   | 2436421   | 2436422   | 2436423   | 2436424   | 2436425   | 2436426   | 2436427   |
| 13/8 – 18 UNEF                 | 2436435   | 2436436   | 2436437   | 2436438   | 2436439   | 2436440   | 2436441   | 2436442   |
| 13/8 – 20 UN                   | 2436450   | 2436451   | 2436452   | 2436453   | 2436454   | 2436455   | 2436456   | 2436457   |
| 13/8 – 28 UN                   | 2436465   | 2436466   | 2436467   | 2436468   | 2436469   | 2436470   | 2436471   | 2436472   |
| 17/16 – 12 UN                  | 2436480   | 2436481   | 2436482   | 2436483   | 2436484   | 2436485   | 2436486   | 2436487   |
| 17/16 – 16 UN                  | 2436495   | 2436496   | 2436497   | 2436498   | 2436499   | 2436500   | 2436501   | 2436502   |
| 17/16 – 18 UNEF                | 2436510   | 2436511   | 2436512   | 2436513   | 2436514   | 2436515   | 2436516   | 2436517   |

| Unified-Gewinde ANIS B1.1      |           |           |           |           |           |           |           |           |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Unified Screw Thread ANIS B1.1 |           |           |           |           |           |           |           |           |
| Rollkopf                       | T350F     |           |           |           |           |           |           |           |
| Rolling Head                   |           |           |           |           |           |           |           |           |
| Rollenbreiten                  | 8         | 10        | 12        | 14        | 16        | 18        | 20        | 22        |
| Roll width                     | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    |
| Gewinde-<br>abmessung          | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| Thread size                    | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| 1 1/2 – 12 UNF                 | 2436525   | 2436526   | 2436527   | 2436528   | 2436529   | 2436530   | 2436531   | 2436532   |
| 1 1/2 – 16 UN                  | 2436540   | 2436541   | 2436542   | 2436543   | 2436544   | 2436545   | 2436546   | 2436547   |
| 1 1/2 – 18 UNEF                | 2436555   | 2436556   | 2436557   | 2436558   | 2436559   | 2436560   | 2436561   | 2436562   |
| 1 1/2 – 20 UN                  | 2436570   | 2436571   | 2436572   | 2436573   | 2436574   | 2436575   | 2436576   | 2436577   |
| 1 1/2 – 28 UN                  | 2436585   | 2436586   | 2436587   | 2436588   | 2436589   | 2436590   | 2436591   | 2436592   |
| 1 9/16 – 16 UN                 | 2436600   | 2436601   | 2436602   | 2436603   | 2436604   | 2436605   | 2436606   | 2436607   |
| 1 9/16 – 18 UNEF               | 2436615   | 2436616   | 2436617   | 2436618   | 2436619   | 2436620   | 2436621   | 2436622   |
| 1 5/8 – 12 UN                  | 2436630   | 2436631   | 2436632   | 2436633   | 2436634   | 2436635   | 2436636   | 2436637   |
| 1 5/8 – 16 UN                  | 2436645   | 2436646   | 2436647   | 2436648   | 2436649   | 2436650   | 2436651   | 2436652   |
| 1 5/8 – 18 UNEF                | 2436660   | 2436661   | 2436662   | 2436663   | 2436664   | 2436665   | 2436666   | 2436667   |
| 1 5/8 – 20 UN                  | 2436675   | 2436676   | 2436677   | 2436678   | 2436679   | 2436680   | 2436681   | 2436682   |
| 1 11/16 – 16 UN                | 2436690   | 2436691   | 2436692   | 2436693   | 2436694   | 2436695   | 2436696   | 2436697   |
| 1 11/16 – 18 UNEF              | 2436705   | 2436706   | 2436707   | 2436708   | 2436709   | 2436710   | 2436711   | 2436712   |
| 1 3/4 – 12 UN                  | 2436720   | 2436721   | 2436722   | 2436723   | 2436724   | 2436725   | 2436726   | 2436727   |
| 1 3/4 – 16 UN                  | 2436735   | 2436736   | 2436737   | 2436738   | 2436739   | 2436740   | 2436741   | 2436742   |
| 1 3/4 – 20 UN                  | 2436750   | 2436751   | 2436752   | 2436753   | 2436754   | 2436755   | 2436756   | 2436757   |
| 1 13/16 – 16 UN                | 2436765   | 2436766   | 2436767   | 2436768   | 2436769   | 2436770   | 2436771   | 2436772   |
| 1 7/8 – 12 UN                  | 2436780   | 2436781   | 2436782   | 2436783   | 2436784   | 2436785   | 2436786   | 2436787   |
| 1 7/8 – 16 UN                  | 2436795   | 2436796   | 2436797   | 2436798   | 2436799   | 2436800   | 2436801   | 2436802   |
| 1 7/8 – 20 UN                  | 2436810   | 2436811   | 2436812   | 2436813   | 2436814   | 2436815   | 2436816   | 2436817   |
| 1 15/16 – 16 UN                | 2436825   | 2436826   | 2436827   | 2436828   | 2436829   | 2436830   | 2436831   | 2436832   |
| 2 – 12 UN                      | 2436840   | 2436841   | 2436842   | 2436843   | 2436844   | 2436845   | 2436846   | 2436847   |
| 2 – 16 UN                      | 2436855   | 2436856   | 2436857   | 2436858   | 2436859   | 2436860   | 2436861   | 2436862   |
| 2 – 20 UN                      | 2436870   | 2436871   | 2436872   | 2436873   | 2436874   | 2436875   | 2436876   | 2436877   |
| 2 1/8 – 12 UN                  | 2436885   | 2436886   | 2436887   | 2436888   | 2436889   | 2436890   | 2436891   | 2436892   |
| 2 1/8 – 16 UN                  | 2436900   | 2436901   | 2436902   | 2436903   | 2436904   | 2436905   | 2436906   | 2436907   |
| 2 1/8 – 20 UN                  | 2436915   | 2436916   | 2436917   | 2436918   | 2436919   | 2436920   | 2436921   | 2436922   |
| Rollenbreiten                  | 24        | 26        | 28        | 30        | 32        | 34        | 36        |           |
| Roll width                     | 0.945"    | 1.024"    | 1.102"    | 1.181"    | 1.26"     | 1.339"    | 1.417"    |           |
| Gewinde-<br>abmessung          | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |           |
| Thread size                    | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |           |
| 12 – 24 UNC                    | 2435123   | 2435124   | 2435125   | 2435126   | 2435127   | 2435128   | 2435129   |           |
| 12 – 28 UNF                    | 2435138   | 2435139   | 2435140   | 2435141   | 2435142   | 2435143   | 2435144   |           |
| 12 – 32 UNEF                   | 2435153   | 2435154   | 2435155   | 2435156   | 2435157   | 2435158   | 2435159   |           |
| 1 1/4 – 20 UNC                 | 2435168   | 2435169   | 2435170   | 2435171   | 2435172   | 2435173   | 2435174   |           |
| 1 1/4 – 28 UNF                 | 2435183   | 2435184   | 2435185   | 2435186   | 2435187   | 2435188   | 2435189   |           |
| 1 1/4 – 32 UNEF                | 2435198   | 2435199   | 2435200   | 2435201   | 2435202   | 2435203   | 2435204   |           |
| 5/16 – 18 UNC                  | 2435213   | 2435214   | 2435215   | 2435216   | 2435217   | 2435218   | 2435219   |           |
| 5/16 – 20 UN                   | 2435228   | 2435229   | 2435230   | 2435231   | 2435232   | 2435233   | 2435234   |           |
| 5/16 – 24 UNF                  | 2435243   | 2435244   | 2435245   | 2435246   | 2435247   | 2435248   | 2435249   |           |
| 5/16 – 28 UN                   | 2435258   | 2435259   | 2435260   | 2435261   | 2435262   | 2435263   | 2435264   |           |
| 5/16 – 32 UNEF                 | 2435273   | 2435274   | 2435275   | 2435276   | 2435277   | 2435278   | 2435279   |           |
| 3/8 – 16 UNC                   | 2435288   | 2435289   | 2435290   | 2435291   | 2435292   | 2435293   | 2435294   |           |
| 3/8 – 20 UN                    | 2435303   | 2435304   | 2435305   | 2435306   | 2435307   | 2435308   | 2435309   |           |
| 3/8 – 24 UNF                   | 2435318   | 2435319   | 2435320   | 2435321   | 2435322   | 2435323   | 2435324   |           |
| 3/8 – 28 UN                    | 2435333   | 2435334   | 2435335   | 2435336   | 2435337   | 2435338   | 2435339   |           |
| 3/8 – 32 UNEF                  | 2435348   | 2435349   | 2435350   | 2435351   | 2435352   | 2435353   | 2435354   |           |
| 7/16 – 14 UNC                  | 2435363   | 2435364   | 2435365   | 2435366   | 2435367   | 2435368   | 2435369   |           |
| 7/16 – 16 UN                   | 2435378   | 2435379   | 2435380   | 2435381   | 2435382   | 2435383   | 2435384   |           |
| 7/16 – 20 UNF                  | 2435393   | 2435394   | 2435395   | 2435396   | 2435397   | 2435398   | 2435399   |           |
| 7/16 – 28 UNEF                 | 2435408   | 2435409   | 2435410   | 2435411   | 2435412   | 2435413   | 2435414   |           |
| 7/16 – 32 UN                   | 2435423   | 2435424   | 2435425   | 2435426   | 2435427   | 2435428   | 2435429   |           |

| Unified-Gewinde ANIS B1.1      |           |           |           |           |           |           |           |  |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--|
| Unified Screw Thread ANIS B1.1 |           |           |           |           |           |           |           |  |
| Rollkopf                       | T350F     |           |           |           |           |           |           |  |
| Rolling Head                   |           |           |           |           |           |           |           |  |
| Rollenbreiten                  | 24        | 26        | 28        | 30        | 32        | 34        | 36        |  |
| Roll width                     | 0.945"    | 1.024"    | 1.102"    | 1.181"    | 1.26"     | 1.339"    | 1.417"    |  |
| Gewinde-<br>abmessung          | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |  |
| Thread size                    | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |  |
| 1/2 – 13 UNC                   | 2435438   | 2435439   | 2435440   | 2435441   | 2435442   | 2435443   | 2435444   |  |
| 1/2 – 16 UN                    | 2435453   | 2435454   | 2435455   | 2435456   | 2435457   | 2435458   | 2435459   |  |
| 1/2 – 20 UNF                   | 2435468   | 2435469   | 2435470   | 2435471   | 2435472   | 2435473   | 2435474   |  |
| 1/2 – 28 UNEF                  | 2435483   | 2435484   | 2435485   | 2435486   | 2435487   | 2435488   | 2435489   |  |
| 1/2 – 32 UN                    | 2435498   | 2435499   | 2435500   | 2435501   | 2435502   | 2435503   | 2435504   |  |
| 9/16 – 12 UNC                  | 2435513   | 2435514   | 2435515   | 2435516   | 2435517   | 2435518   | 2435519   |  |
| 9/16 – 16 UN                   | 2435528   | 2435529   | 2435530   | 2435531   | 2435532   | 2435533   | 2435534   |  |
| 9/16 – 18 UNF                  | 2435543   | 2435544   | 2435545   | 2435546   | 2435547   | 2435548   | 2435549   |  |
| 9/16 – 20 UN                   | 2435558   | 2435559   | 2435560   | 2435561   | 2435562   | 2435563   | 2435564   |  |
| 9/16 – 24 UNEF                 | 2435573   | 2435574   | 2435575   | 2435576   | 2435577   | 2435578   | 2435579   |  |
| 9/16 – 28 UN                   | 2435588   | 2435589   | 2435590   | 2435591   | 2435592   | 2435593   | 2435594   |  |
| 9/16 – 32 UN                   | 2435603   | 2435604   | 2435605   | 2435606   | 2435607   | 2435608   | 2435609   |  |
| 5/8 – 11 UNC                   | 2435618   | 2435619   | 2435620   | 2435621   | 2435622   | 2435623   | 2435624   |  |
| 5/8 – 12 UN                    | 2435633   | 2435634   | 2435635   | 2435636   | 2435637   | 2435638   | 2435639   |  |
| 5/8 – 16 UN                    | 2435648   | 2435649   | 2435650   | 2435651   | 2435652   | 2435653   | 2435654   |  |
| 5/8 – 18 UNF                   | 2435663   | 2435664   | 2435665   | 2435666   | 2435667   | 2435668   | 2435669   |  |
| 5/8 – 20 UN                    | 2435678   | 2435679   | 2435680   | 2435681   | 2435682   | 2435683   | 2435684   |  |
| 5/8 – 24 UNEF                  | 2435693   | 2435694   | 2435695   | 2435696   | 2435697   | 2435698   | 2435699   |  |
| 5/8 – 28 UN                    | 2435708   | 2435709   | 2435710   | 2435711   | 2435712   | 2435713   | 2435714   |  |
| 5/8 – 32 UN                    | 2435723   | 2435724   | 2435725   | 2435726   | 2435727   | 2435728   | 2435729   |  |
| 11/16 – 12 UN                  | 2435738   | 2435739   | 2435740   | 2435741   | 2435742   | 2435743   | 2435744   |  |
| 11/16 – 24 UNEF                | 2435753   | 2435754   | 2435755   | 2435756   | 2435757   | 2435758   | 2435759   |  |
| 3/4 – 10 UNC                   | 2435768   | 2435769   | 2435770   | 2435771   | 2435772   | 2435773   | 2435774   |  |
| 3/4 – 12 UN                    | 2435783   | 2435784   | 2435785   | 2435786   | 2435787   | 2435788   | 2435789   |  |
| 3/4 – 16 UNF                   | 2435798   | 2435799   | 2435800   | 2435801   | 2435802   | 2435803   | 2435804   |  |
| 3/4 – 20 UNEF                  | 2435813   | 2435814   | 2435815   | 2435816   | 2435817   | 2435818   | 2435819   |  |
| 3/4 – 28 UN                    | 2435828   | 2435829   | 2435830   | 2435831   | 2435832   | 2435833   | 2435834   |  |
| 3/4 – 32 UN                    | 2435843   | 2435844   | 2435845   | 2435846   | 2435847   | 2435848   | 2435849   |  |
| 13/16 – 12 UN                  | 2435858   | 2435859   | 2435860   | 2435861   | 2435862   | 2435863   | 2435864   |  |
| 13/16 – 16 UN                  | 2435873   | 2435874   | 2435875   | 2435876   | 2435877   | 2435878   | 2435879   |  |
| 13/16 – 20 UNEF                | 2435888   | 2435889   | 2435890   | 2435891   | 2435892   | 2435893   | 2435894   |  |
| 7/8 – 9 UNC                    | 2435903   | 2435904   | 2435905   | 2435906   | 2435907   | 2435908   | 2435909   |  |
| 7/8 – 12 UN                    | 2435918   | 2435919   | 2435920   | 2435921   | 2435922   | 2435923   | 2435924   |  |
| 7/8 – 14 UNF                   | 2435933   | 2435934   | 2435935   | 2435936   | 2435937   | 2435938   | 2435939   |  |
| 7/8 – 16 UN                    | 2435948   | 2435949   | 2435950   | 2435951   | 2435952   | 2435953   | 2435954   |  |
| 7/8 – 20 UNEF                  | 2435963   | 2435964   | 2435965   | 2435966   | 2435967   | 2435968   | 2435969   |  |
| 7/8 – 28 UN                    | 2435978   | 2435979   | 2435980   | 2435981   | 2435982   | 2435983   | 2435984   |  |
| 7/8 – 32 UN                    | 2435993   | 2435994   | 2435995   | 2435996   | 2435997   | 2435998   | 2435999   |  |
| 15/16 – 12 UN                  | 2436008   | 2436009   | 2436010   | 2436011   | 2436012   | 2436013   | 2436014   |  |
| 15/16 – 16 UN                  | 2436023   | 2436024   | 2436025   | 2436026   | 2436027   | 2436028   | 2436029   |  |
| 15/16 – 20 UNEF                | 2436038   | 2436039   | 2436040   | 2436041   | 2436042   | 2436043   | 2436044   |  |
| 1 – 12 UNF                     | 2436053   | 2436054   | 2436055   | 2436056   | 2436057   | 2436058   | 2436059   |  |
| 1 – 16 UN                      | 2436068   | 2436069   | 2436070   | 2436071   | 2436072   | 2436073   | 2436074   |  |
| 1 – 20 UNEF                    | 2436083   | 2436084   | 2436085   | 2436086   | 2436087   | 2436088   | 2436089   |  |
| 1 – 28 UN                      | 2436098   | 2436099   | 2436100   | 2436101   | 2436102   | 2436103   | 2436104   |  |
| 1 – 32 UN                      | 2436113   | 2436114   | 2436115   | 2436116   | 2436117   | 2436118   | 2436119   |  |
| 11/16 – 12 UN                  | 2436128   | 2436129   | 2436130   | 2436131   | 2436132   | 2436133   | 2436134   |  |
| 11/16 – 16 UN                  | 2436143   | 2436144   | 2436145   | 2436146   | 2436147   | 2436148   | 2436149   |  |
| 11/16 – 18 UNEF                | 2436158   | 2436159   | 2436160   | 2436161   | 2436162   | 2436163   | 2436164   |  |
| 11/8 – 12 UNF                  | 2436173   | 2436174   | 2436175   | 2436176   | 2436177   | 2436178   | 2436179   |  |
| 11/8 – 16 UN                   | 2436188   | 2436189   | 2436190   | 2436191   | 2436192   | 2436193   | 2436194   |  |
| 11/8 – 18 UNEF                 | 2436203   | 2436204   | 2436205   | 2436206   | 2436207   | 2436208   | 2436209   |  |
| 11/8 – 20 UN                   | 2436218   | 2436219   | 2436220   | 2436221   | 2436222   | 2436223   | 2436224   |  |
| 11/8 – 28 UN                   | 2436233   | 2436234   | 2436235   | 2436236   | 2436237   | 2436238   | 2436239   |  |

| Unified-Gewinde ANIS B1.1                 |           |           |           |           |           |           |           |  |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--|
| Unified Screw Thread ANIS B1.1            |           |           |           |           |           |           |           |  |
| Rollkopf                                  | T350F     |           |           |           |           |           |           |  |
| Rolling Head                              |           |           |           |           |           |           |           |  |
| Rollenbreiten                             | 24        | 26        | 28        | 30        | 32        | 34        | 36        |  |
| Roll width                                | 0.945"    | 1.024"    | 1.102"    | 1.181"    | 1.26"     | 1.339"    | 1.417"    |  |
| Gewinde-<br>abmessung                     |           |           |           |           |           |           |           |  |
| Thread size                               | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |  |
| 1 <sup>3</sup> / <sub>16</sub> – 12 UN    | 2436248   | 2436249   | 2436250   | 2436251   | 2436252   | 2436253   | 2436254   |  |
| 1 <sup>3</sup> / <sub>16</sub> – 16 UN    | 2436263   | 2436264   | 2436265   | 2436266   | 2436267   | 2436268   | 2436269   |  |
| 1 <sup>3</sup> / <sub>16</sub> – 18 UNEF  | 2436278   | 2436279   | 2436280   | 2436281   | 2436282   | 2436283   | 2436284   |  |
| 1 <sup>1</sup> / <sub>4</sub> – 12 UNF    | 2436293   | 2436294   | 2436295   | 2436296   | 2436297   | 2436298   | 2436299   |  |
| 1 <sup>1</sup> / <sub>4</sub> – 16 UN     | 2436308   | 2436309   | 2436310   | 2436311   | 2436312   | 2436313   | 2436314   |  |
| 1 <sup>1</sup> / <sub>4</sub> – 18 UNEF   | 2436323   | 2436324   | 2436325   | 2436326   | 2436327   | 2436328   | 2436329   |  |
| 1 <sup>1</sup> / <sub>4</sub> – 20 UN     | 2436338   | 2436339   | 2436340   | 2436341   | 2436342   | 2436343   | 2436344   |  |
| 1 <sup>1</sup> / <sub>4</sub> – 28 UN     | 2436353   | 2436354   | 2436355   | 2436356   | 2436357   | 2436358   | 2436359   |  |
| 1 <sup>5</sup> / <sub>16</sub> – 12 UN    | 2436368   | 2436369   | 2436370   | 2436371   | 2436372   | 2436373   | 2436374   |  |
| 1 <sup>5</sup> / <sub>16</sub> – 16 UN    | 2436383   | 2436384   | 2436385   | 2436386   | 2436387   | 2436388   | 2436389   |  |
| 1 <sup>5</sup> / <sub>16</sub> – 18 UNEF  | 2436398   | 2436399   | 2436400   | 2436401   | 2436402   | 2436403   | 2436404   |  |
| 1 <sup>3</sup> / <sub>8</sub> – 12 UNF    | 2436413   | 2436414   | 2436415   | 2436416   | 2436417   | 2436418   | 2436419   |  |
| 1 <sup>3</sup> / <sub>8</sub> – 16 UN     | 2436428   | 2436429   | 2436430   | 2436431   | 2436432   | 2436433   | 2436434   |  |
| 1 <sup>3</sup> / <sub>8</sub> – 18 UNEF   | 2436443   | 2436444   | 2436445   | 2436446   | 2436447   | 2436448   | 2436449   |  |
| 1 <sup>3</sup> / <sub>8</sub> – 20 UN     | 2436458   | 2436459   | 2436460   | 2436461   | 2436462   | 2436463   | 2436464   |  |
| 1 <sup>3</sup> / <sub>8</sub> – 28 UN     | 2436473   | 2436474   | 2436475   | 2436476   | 2436477   | 2436478   | 2436479   |  |
| 1 <sup>7</sup> / <sub>16</sub> – 12 UN    | 2436488   | 2436489   | 2436490   | 2436491   | 2436492   | 2436493   | 2436494   |  |
| 1 <sup>7</sup> / <sub>16</sub> – 16 UN    | 2436503   | 2436504   | 2436505   | 2436506   | 2436507   | 2436508   | 2436509   |  |
| 1 <sup>7</sup> / <sub>16</sub> – 18 UNEF  | 2436518   | 2436519   | 2436520   | 2436521   | 2436522   | 2436523   | 2436524   |  |
| 1 <sup>1</sup> / <sub>2</sub> – 12 UNF    | 2436533   | 2436534   | 2436535   | 2436536   | 2436537   | 2436538   | 2436539   |  |
| 1 <sup>1</sup> / <sub>2</sub> – 16 UN     | 2436548   | 2436549   | 2436550   | 2436551   | 2436552   | 2436553   | 2436554   |  |
| 1 <sup>1</sup> / <sub>2</sub> – 18 UNEF   | 2436563   | 2436564   | 2436565   | 2436566   | 2436567   | 2436568   | 2436569   |  |
| 1 <sup>1</sup> / <sub>2</sub> – 20 UN     | 2436578   | 2436579   | 2436580   | 2436581   | 2436582   | 2436583   | 2436584   |  |
| 1 <sup>1</sup> / <sub>2</sub> – 28 UN     | 2436593   | 2436594   | 2436595   | 2436596   | 2436597   | 2436598   | 2436599   |  |
| 1 <sup>9</sup> / <sub>16</sub> – 16 UN    | 2436608   | 2436609   | 2436610   | 2436611   | 2436612   | 2436613   | 2436614   |  |
| 1 <sup>9</sup> / <sub>16</sub> – 18 UNEF  | 2436623   | 2436624   | 2436625   | 2436626   | 2436627   | 2436628   | 2436629   |  |
| 1 <sup>5</sup> / <sub>8</sub> – 12 UN     | 2436638   | 2436639   | 2436640   | 2436641   | 2436642   | 2436643   | 2436644   |  |
| 1 <sup>5</sup> / <sub>8</sub> – 16 UN     | 2436653   | 2436654   | 2436655   | 2436656   | 2436657   | 2436658   | 2436659   |  |
| 1 <sup>5</sup> / <sub>8</sub> – 18 UNEF   | 2436668   | 2436669   | 2436670   | 2436671   | 2436672   | 2436673   | 2436674   |  |
| 1 <sup>5</sup> / <sub>8</sub> – 20 UN     | 2436683   | 2436684   | 2436685   | 2436686   | 2436687   | 2436688   | 2436689   |  |
| 1 <sup>11</sup> / <sub>16</sub> – 16 UN   | 2436698   | 2436699   | 2436700   | 2436701   | 2436702   | 2436703   | 2436704   |  |
| 1 <sup>11</sup> / <sub>16</sub> – 18 UNEF | 2436713   | 2436714   | 2436715   | 2436716   | 2436717   | 2436718   | 2436719   |  |
| 1 <sup>3</sup> / <sub>4</sub> – 12 UN     | 2436728   | 2436729   | 2436730   | 2436731   | 2436732   | 2436733   | 2436734   |  |
| 1 <sup>3</sup> / <sub>4</sub> – 16 UN     | 2436743   | 2436744   | 2436745   | 2436746   | 2436747   | 2436748   | 2436749   |  |
| 1 <sup>3</sup> / <sub>4</sub> – 20 UN     | 2436758   | 2436759   | 2436760   | 2436761   | 2436762   | 2436763   | 2436764   |  |
| 1 <sup>13</sup> / <sub>16</sub> – 16 UN   | 2436773   | 2436774   | 2436775   | 2436776   | 2436777   | 2436778   | 2436779   |  |
| 1 <sup>7</sup> / <sub>8</sub> – 12 UN     | 2436788   | 2436789   | 2436790   | 2436791   | 2436792   | 2436793   | 2436794   |  |
| 1 <sup>7</sup> / <sub>8</sub> – 16 UN     | 2436803   | 2436804   | 2436805   | 2436806   | 2436807   | 2436808   | 2436809   |  |
| 1 <sup>7</sup> / <sub>8</sub> – 20 UN     | 2436818   | 2436819   | 2436820   | 2436821   | 2436822   | 2436823   | 2436824   |  |
| 1 <sup>15</sup> / <sub>16</sub> – 16 UN   | 2436833   | 2436834   | 2436835   | 2436836   | 2436837   | 2436838   | 2436839   |  |
| 2 – 12 UN                                 | 2436848   | 2436849   | 2436850   | 2436851   | 2436852   | 2436853   | 2436854   |  |
| 2 – 16 UN                                 | 2436863   | 2436864   | 2436865   | 2436866   | 2436867   | 2436868   | 2436869   |  |
| 2 – 20 UN                                 | 2436878   | 2436879   | 2436880   | 2436881   | 2436882   | 2436883   | 2436884   |  |
| 2 <sup>1</sup> / <sub>8</sub> – 12 UN     | 2436893   | 2436894   | 2436895   | 2436896   | 2436897   | 2436898   | 2436899   |  |
| 2 <sup>1</sup> / <sub>8</sub> – 16 UN     | 2436908   | 2436909   | 2436910   | 2436911   | 2436912   | 2436913   | 2436914   |  |
| 2 <sup>1</sup> / <sub>8</sub> – 20 UN     | 2436923   | 2436924   | 2436925   | 2436926   | 2436927   | 2436928   | 2436929   |  |



| Whitworth-Gewinde B.S. 84 |           |           |           |           |           |    |
|---------------------------|-----------|-----------|-----------|-----------|-----------|----|
| Whitworth Thread B.S. 84  |           |           |           |           |           |    |
| Rollkopf                  | T120F     |           |           |           |           |    |
| Rolling Head              |           |           |           |           |           |    |
| Rollenbreiten             | 6         | 8         | 10        | 12        | 15,5      |    |
| Roll width                | 0.236"    | 0.315"    | 0.394"    | 0.472"    | 0.610"    |    |
| Gewinde-<br>abmessung     |           |           |           |           |           | Z  |
| Thread size               | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |    |
| 1/8 – 40 BSW              | 2402127   | 2402128   | 2402129   | 2402130   | 2402131   | 12 |
| 3/16 – 24 BSW             | 2402132   | 2402133   | 2402134   | 2402135   | 2402136   | 8  |
| 3/16 – 32 BSF             | 2402137   | 2402138   | 2402139   | 2402140   | 2402141   | 7  |
| 7/32 – 24 BSFS            | 2402142   | 2402143   | 2402144   | 2402145   | 2402146   | 7  |
| 7/32 – 28 BSF             | 2402147   | 2402148   | 2402149   | 2402150   | 2402151   | 6  |
| 1/4 – 20 BSW              | 2402152   | 2402153   | 2402154   | 2402155   | 2402156   | 6  |
| 1/4 – 26 BSF              | 2402157   | 2402158   | 2402159   | 2402160   | 2402161   | 5  |
| 1/4 – 32 BSFS             | 2402162   | 2402163   | 2402164   | 2402165   | 2402166   | 5  |
| 9/32 – 26 BSF             | 2402167   | 2402168   | 2402169   | 2402170   | 2402171   | 5  |
| 5/16 – 18 BSW             | 2402172   | 2402173   | 2402174   | 2402175   | 2402176   | 4  |
| 5/16 – 22 BSF             | 2402177   | 2402178   | 2402179   | 2402180   | 2402181   | 4  |
| 5/16 – 26 BSFS            | 2402182   | 2402183   | 2402184   | 2402185   | 2402186   | 4  |
| 5/16 – 32 BSFS            | 2402187   | 2402188   | 2402189   | 2402190   | 2402191   | 4  |
| 3/8 – 16 BSW              | 2402192   | 2402193   | 2402194   | 2402195   | 2402196   | 3  |
| 3/8 – 20 BSF              | 2402197   | 2402198   | 2402199   | 2402200   | 2402201   | 3  |
| 3/8 – 26 BSFS             | 2402202   | 2402203   | 2402204   | 2402205   | 2402206   | 3  |
| 3/8 – 32 BSFS             | 2402207   | 2402208   | 2402209   | 2402210   | 2402211   | 3  |
| 7/16 – 18 BSF             | 2402212   | 2402213   | 2402214   | 2402215   | 2402216   | 3  |
| 7/16 – 26 BSFS            | 2402217   | 2402218   | 2402219   | 2402220   | 2402221   | 3  |
| 1/2 – 16 BSF              | 2402222   | 2402223   | 2402224   | 2402225   | 2402226   | 2  |
| 1/2 – 20 BSFS             | 2402227   | 2402228   | 2402229   | 2402230   | 2402231   | 2  |
| 1/2 – 26 BSFS             | 2402232   | 2402233   | 2402234   | 2402235   | 2402236   | 2  |
| 9/16 – 16 BSF             | 2402237   | 2402238   | 2402239   | 2402240   | 2402241   | 2  |
| 9/16 – 20 BSFS            | 2402242   | 2402243   | 2402244   | 2402245   | 2402246   | 2  |
| 9/16 – 26 BSFS            | 2402247   | 2402248   | 2402249   | 2402250   | 2402251   | 2  |

| Whitworth-Gewinde B.S. 84 |           |           |           |           |           |           |           |    |
|---------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----|
| Whitworth Thread B.S. 84  |           |           |           |           |           |           |           |    |
| Rollkopf                  | T160F     |           |           |           |           |           |           |    |
| Rolling Head              |           |           |           |           |           |           |           |    |
| Rollenbreiten             | 6         | 8         | 10        | 12        | 14        | 16        | 18,5      |    |
| Roll width                | 0.236"    | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.728"    |    |
| Gewinde-<br>abmessung     |           |           |           |           |           |           |           | Z  |
| Thread size               | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |    |
| 1/8 – 40 BSW              | 2403046   | 2403047   | 2403048   | 2403049   | 2403050   | 2403051   | 2403052   | 14 |
| 3/16 – 24 BSW             | 2403053   | 2403054   | 2403055   | 2403056   | 2403057   | 2403058   | 2403059   | 10 |
| 3/16 – 32 BSF             | 2403060   | 2403061   | 2403062   | 2403063   | 2403064   | 2403065   | 2403066   | 9  |
| 7/32 – 24 BSFS            | 2403067   | 2403068   | 2403069   | 2403070   | 2403071   | 2403072   | 2403073   | 8  |
| 7/32 – 28 BSF             | 2403074   | 2403075   | 2403076   | 2403077   | 2403078   | 2403079   | 2403080   | 8  |
| 1/4 – 20 BSW              | 2403081   | 2403082   | 2403083   | 2403084   | 2403085   | 2403086   | 2403087   | 7  |
| 1/4 – 26 BSF              | 2403088   | 2403089   | 2403090   | 2403091   | 2403092   | 2403093   | 2403094   | 6  |
| 1/4 – 32 BSFS             | 2403095   | 2403096   | 2403097   | 2403098   | 2403099   | 2403100   | 2403101   | 6  |
| 9/32 – 26 BSF             | 2403102   | 2403103   | 2403104   | 2403105   | 2403106   | 2403107   | 2403108   | 6  |
| 5/16 – 18 BSW             | 2403109   | 2403110   | 2403111   | 2403112   | 2403113   | 2403114   | 2403115   | 5  |
| 5/16 – 22 BSF             | 2403116   | 2403117   | 2403118   | 2403119   | 2403120   | 2403121   | 2403122   | 5  |
| 5/16 – 26 BSFS            | 2403123   | 2403124   | 2403125   | 2403126   | 2403127   | 2403128   | 2403129   | 5  |
| 5/16 – 32 BSFS            | 2403130   | 2403131   | 2403132   | 2403133   | 2403134   | 2403135   | 2403136   | 5  |
| 3/8 – 16 BSW              | 2403137   | 2403138   | 2403139   | 2403140   | 2403141   | 2403142   | 2403143   | 4  |
| 3/8 – 20 BSF              | 2403144   | 2403145   | 2403146   | 2403147   | 2403148   | 2403149   | 2403150   | 4  |
| 3/8 – 26 BSFS             | 2403151   | 2403152   | 2403153   | 2403154   | 2403155   | 2403156   | 2403157   | 4  |
| 3/8 – 32 BSFS             | 2403158   | 2403159   | 2403160   | 2403161   | 2403162   | 2403163   | 2403164   | 4  |
| 7/16 – 18 BSF             | 2403165   | 2403166   | 2403167   | 2403168   | 2403169   | 2403170   | 2403171   | 3  |

| Whitworth-Gewinde B.S. 84 |           |           |           |           |           |           |           |   |
|---------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|
| Whitworth Thread B.S. 84  |           |           |           |           |           |           |           |   |
| Rollkopf                  | T160F     |           |           |           |           |           |           |   |
| Rolling Head              |           |           |           |           |           |           |           |   |
| Rollenbreiten             | 6         | 8         | 10        | 12        | 14        | 16        | 18,5      |   |
| Roll width                | 0.236"    | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.728"    |   |
| Gewinde-abmessung         |           |           |           |           |           |           |           | Z |
| Thread size               | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z |
| 7/16 – 26 BSFS            | 2403172   | 2403173   | 2403174   | 2403175   | 2403176   | 2403177   | 2403178   | 3 |
| 1/2 – 16 BSF              | 2403179   | 2403180   | 2403181   | 2403182   | 2403183   | 2403184   | 2403185   | 3 |
| 1/2 – 20 BSFS             | 2403186   | 2403187   | 2403188   | 2403189   | 2403190   | 2403191   | 2403192   | 3 |
| 1/2 – 26 BSFS             | 2403193   | 2403194   | 2403195   | 2403196   | 2403197   | 2403198   | 2403199   | 3 |
| 9/16 – 16 BSF             | 2403200   | 2403201   | 2403202   | 2403203   | 2403204   | 2403205   | 2403206   | 2 |
| 9/16 – 20 BSFS            | 2403207   | 2403208   | 2403209   | 2403210   | 2403211   | 2403212   | 2403213   | 2 |
| 9/16 – 26 BSFS            | 2403214   | 2403215   | 2403216   | 2403217   | 2403218   | 2403219   | 2403220   | 2 |
| 5/8 – 20 BSFS             | 2403221   | 2403222   | 2403223   | 2403224   | 2403225   | 2403226   | 2403227   | 2 |
| 5/8 – 26 BSFS             | 2403228   | 2403229   | 2403230   | 2403231   | 2403232   | 2403233   | 2403234   | 2 |
| 11/16 – 16 BSFS           | 2403235   | 2403236   | 2403237   | 2403238   | 2403239   | 2403240   | 2403241   | 2 |

| Whitworth-Gewinde B.S. 84 |           |           |           |           |           |           |           |           |           |           |    |
|---------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----|
| Whitworth Thread B.S. 84  |           |           |           |           |           |           |           |           |           |           |    |
| Rollkopf                  | T220F     |           |           |           |           |           |           |           |           |           |    |
| Rolling Head              |           |           |           |           |           |           |           |           |           |           |    |
| Rollenbreiten             | 8         | 10        | 12        | 14        | 16        | 18        | 20        | 22        | 24        | 26        |    |
| Roll width                | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    | 0.945"    | 1.024"    |    |
| Gewinde-abmessung         |           |           |           |           |           |           |           |           |           |           | Z  |
| Thread size               | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z  |
| 1/8 – 40 BSW              | 2405913   | 2405914   | 2405915   | 2405916   | 2405917   | 2405918   | 2405919   | 2405920   | 2405921   | 2405922   | 20 |
| 3/16 – 24 BSW             | 2405923   | 2405924   | 2405925   | 2405926   | 2405927   | 2405928   | 2405929   | 2405930   | 2405931   | 2405932   | 14 |
| 3/16 – 32 BSF             | 2405933   | 2405934   | 2405935   | 2405936   | 2405937   | 2405938   | 2405939   | 2405940   | 2405941   | 2405942   | 13 |
| 7/32 – 24 BSFS            | 2405943   | 2405944   | 2405945   | 2405946   | 2405947   | 2405948   | 2405949   | 2405950   | 2405951   | 2405952   | 11 |
| 7/32 – 28 BSF             | 2405953   | 2405954   | 2405955   | 2405956   | 2405957   | 2405958   | 2405959   | 2405960   | 2405961   | 2405962   | 11 |
| 1/4 – 20 BSW              | 2405963   | 2405964   | 2405965   | 2405966   | 2405967   | 2405968   | 2405969   | 2405970   | 2405971   | 2405972   | 10 |
| 1/4 – 26 BSF              | 2405973   | 2405974   | 2405975   | 2405976   | 2405977   | 2405978   | 2405979   | 2405980   | 2405981   | 2405982   | 9  |
| 1/4 – 32 BSFS             | 2405983   | 2405984   | 2405985   | 2405986   | 2405987   | 2405988   | 2405989   | 2405990   | 2405991   | 2405992   | 9  |
| 9/32 – 26 BSF             | 2405993   | 2405994   | 2405995   | 2405996   | 2405997   | 2405998   | 2405999   | 2406000   | 2406001   | 2406002   | 8  |
| 5/16 – 18 BSW             | 2406003   | 2406004   | 2406005   | 2406006   | 2406007   | 2406008   | 2406009   | 2406010   | 2406011   | 2406012   | 8  |
| 5/16 – 22 BSF             | 2406013   | 2406014   | 2406015   | 2406016   | 2406017   | 2406018   | 2406019   | 2406020   | 2406021   | 2406022   | 7  |
| 5/16 – 26 BSFS            | 2406023   | 2406024   | 2406025   | 2406026   | 2406027   | 2406028   | 2406029   | 2406030   | 2406031   | 2406032   | 7  |
| 5/16 – 32 BSFS            | 2406033   | 2406034   | 2406035   | 2406036   | 2406037   | 2406038   | 2406039   | 2406040   | 2406041   | 2406042   | 7  |
| 3/8 – 16 BSW              | 2406043   | 2406044   | 2406045   | 2406046   | 2406047   | 2406048   | 2406049   | 2406050   | 2406051   | 2406052   | 6  |
| 3/8 – 20 BSF              | 2406053   | 2406054   | 2406055   | 2406056   | 2406057   | 2406058   | 2406059   | 2406060   | 2406061   | 2406062   | 6  |
| 3/8 – 26 BSFS             | 2406063   | 2406064   | 2406065   | 2406066   | 2406067   | 2406068   | 2406069   | 2406070   | 2406071   | 2406072   | 6  |
| 3/8 – 32 BSFS             | 2406073   | 2406074   | 2406075   | 2406076   | 2406077   | 2406078   | 2406079   | 2406080   | 2406081   | 2406082   | 6  |
| 7/16 – 14 BSW             | 2406083   | 2406084   | 2406085   | 2406086   | 2406087   | 2406088   | 2406089   | 2406090   | 2406091   | 2406092   | 5  |
| 7/16 – 18 BSF             | 2406093   | 2406094   | 2406095   | 2406096   | 2406097   | 2406098   | 2406099   | 2406100   | 2406101   | 2406102   | 5  |
| 7/16 – 26 BSFS            | 2406103   | 2406104   | 2406105   | 2406106   | 2406107   | 2406108   | 2406109   | 2406110   | 2406111   | 2406112   | 5  |
| 1/2 – 12 BSW              | 2406113   | 2406114   | 2406115   | 2406116   | 2406117   | 2406118   | 2406119   | 2406120   | 2406121   | 2406122   | 4  |
| 1/2 – 16 BSF              | 2406123   | 2406124   | 2406125   | 2406126   | 2406127   | 2406128   | 2406129   | 2406130   | 2406131   | 2406132   | 4  |
| 1/2 – 20 BSFS             | 2406133   | 2406134   | 2406135   | 2406136   | 2406137   | 2406138   | 2406139   | 2406140   | 2406141   | 2406142   | 4  |
| 1/2 – 26 BSFS             | 2406143   | 2406144   | 2406145   | 2406146   | 2406147   | 2406148   | 2406149   | 2406150   | 2406151   | 2406152   | 4  |
| 9/16 – 12 BSW             | 2406153   | 2406154   | 2406155   | 2406156   | 2406157   | 2406158   | 2406159   | 2406160   | 2406161   | 2406162   | 4  |
| 9/16 – 16 BSF             | 2406163   | 2406164   | 2406165   | 2406166   | 2406167   | 2406168   | 2406169   | 2406170   | 2406171   | 2406172   | 4  |
| 9/16 – 20 BSFS            | 2406173   | 2406174   | 2406175   | 2406176   | 2406177   | 2406178   | 2406179   | 2406180   | 2406181   | 2406182   | 4  |
| 9/16 – 26 BSFS            | 2406183   | 2406184   | 2406185   | 2406186   | 2406187   | 2406188   | 2406189   | 2406190   | 2406191   | 2406192   | 3  |
| 5/8 – 11 BSW              | 2406717   | 2406718   | 2406719   | 2406720   | 2406721   | 2406722   | 2406723   | 2406724   | 2406725   | 2406726   | 3  |
| 5/8 – 14 BSF              | 2406193   | 2406194   | 2406195   | 2406196   | 2406197   | 2406198   | 2406199   | 2406200   | 2406201   | 2406202   | 3  |
| 5/8 – 20 BSFS             | 2406203   | 2406204   | 2406205   | 2406206   | 2406207   | 2406208   | 2406209   | 2406210   | 2406211   | 2406212   | 3  |
| 5/8 – 26 BSFS             | 2406213   | 2406214   | 2406215   | 2406216   | 2406217   | 2406218   | 2406219   | 2406220   | 2406221   | 2406222   | 3  |
| 11/16 – 11 BSW            | 2406727   | 2406728   | 2406729   | 2406730   | 2406731   | 2406732   | 2406733   | 2406734   | 2406735   | 2406736   | 3  |

| Whitworth-Gewinde B.S. 84                |           |           |           |           |           |           |           |           |           |           |           |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Whitworth Thread B.S. 84                 |           |           |           |           |           |           |           |           |           |           |           |
| Rollkopf                                 | T220F     |           |           |           |           |           |           |           |           |           |           |
| Rolling Head                             |           |           |           |           |           |           |           |           |           |           |           |
| Rollenbreiten                            | 8         | 10        | 12        | 14        | 16        | 18        | 20        | 22        | 24        | 26        |           |
| Roll width                               | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    | 0.945"    | 1.024"    |           |
| Gewinde-<br>abmessung                    |           |           |           |           |           |           |           |           |           |           | Z         |
| Thread size                              | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| 1 <sup>1</sup> / <sub>16</sub> – 14 BSF  | 2406223   | 2406224   | 2406225   | 2406226   | 2406227   | 2406228   | 2406229   | 2406230   | 2406231   | 2406232   | 3         |
| 1 <sup>1</sup> / <sub>16</sub> – 16 BSFS | 2406233   | 2406234   | 2406235   | 2406236   | 2406237   | 2406238   | 2406239   | 2406240   | 2406241   | 2406242   | 3         |
| 1 <sup>1</sup> / <sub>16</sub> – 20 BSFS | 2406243   | 2406244   | 2406245   | 2406246   | 2406247   | 2406248   | 2406249   | 2406250   | 2406251   | 2406252   | 3         |
| 1 <sup>1</sup> / <sub>16</sub> – 26 BSFS | 2406253   | 2406254   | 2406255   | 2406256   | 2406257   | 2406258   | 2406259   | 2406260   | 2406261   | 2406262   | 3         |
| 3/4 – 10 BSW                             | 2406737   | 2406738   | 2406739   | 2406740   | 2406741   | 2406742   | 2406743   | 2406744   | 2406745   | 2406746   | 3         |
| 3/4 – 12 BSF                             | 2406263   | 2406264   | 2406265   | 2406266   | 2406267   | 2406268   | 2406269   | 2406270   | 2406271   | 2406272   | 3         |
| 3/4 – 16 BSFS                            | 2406273   | 2406274   | 2406275   | 2406276   | 2406277   | 2406278   | 2406279   | 2406280   | 2406281   | 2406282   | 3         |
| 3/4 – 20 BSFS                            | 2406283   | 2406284   | 2406285   | 2406286   | 2406287   | 2406288   | 2406289   | 2406290   | 2406291   | 2406292   | 2         |
| 3/4 – 26 BSFS                            | 2406293   | 2406294   | 2406295   | 2406296   | 2406297   | 2406298   | 2406299   | 2406300   | 2406301   | 2406302   | 2         |
| 1 <sup>3</sup> / <sub>16</sub> – 12 BSF  | 2406303   | 2406304   | 2406305   | 2406306   | 2406307   | 2406308   | 2406309   | 2406310   | 2406311   | 2406312   | 2         |
| 1 <sup>3</sup> / <sub>16</sub> – 16 BSFS | 2406313   | 2406314   | 2406315   | 2406316   | 2406317   | 2406318   | 2406319   | 2406320   | 2406321   | 2406322   | 2         |
| 1 <sup>3</sup> / <sub>16</sub> – 20 BSFS | 2406323   | 2406324   | 2406325   | 2406326   | 2406327   | 2406328   | 2406329   | 2406330   | 2406331   | 2406332   | 2         |
| 1 <sup>3</sup> / <sub>16</sub> – 26 BSFS | 2406333   | 2406334   | 2406335   | 2406336   | 2406337   | 2406338   | 2406339   | 2406340   | 2406341   | 2406342   | 2         |
| 7/8 – 11 BSF                             | 2406747   | 2406748   | 2406749   | 2406750   | 2406751   | 2406752   | 2406753   | 2406754   | 2406755   | 2406756   | 2         |
| 7/8 – 20 BSFS                            | 2406343   | 2406344   | 2406345   | 2406346   | 2406347   | 2406348   | 2406349   | 2406350   | 2406351   | 2406352   | 2         |
| 1 <sup>5</sup> / <sub>16</sub> – 12 BSFS | 2406353   | 2406354   | 2406355   | 2406356   | 2406357   | 2406358   | 2406359   | 2406360   | 2406361   | 2406362   | 2         |
| 1 <sup>5</sup> / <sub>16</sub> – 20 BSFS | 2406363   | 2406364   | 2406365   | 2406366   | 2406367   | 2406368   | 2406369   | 2406370   | 2406371   | 2406372   | 2         |
| 1 – 10 BSF                               | 2406757   | 2406758   | 2406759   | 2406760   | 2406761   | 2406762   | 2406763   | 2406764   | 2406765   | 2406766   | 2         |
| 1 – 12 BSFS                              | 2406373   | 2406374   | 2406375   | 2406376   | 2406377   | 2406378   | 2406379   | 2406380   | 2406381   | 2406382   | 2         |
| 1 – 20 BSFS                              | 2406383   | 2406384   | 2406385   | 2406386   | 2406387   | 2406388   | 2406389   | 2406390   | 2406391   | 2406392   | 2         |
| 1 <sup>1</sup> / <sub>16</sub> – 12 BSFS | 2406393   | 2406394   | 2406395   | 2406396   | 2406397   | 2406398   | 2406399   | 2406400   | 2406401   | 2406402   | 1         |
| 1 <sup>1</sup> / <sub>16</sub> – 20 BSFS | 2406403   | 2406404   | 2406405   | 2406406   | 2406407   | 2406408   | 2406409   | 2406410   | 2406411   | 2406412   | 1         |
| 1 <sup>1</sup> / <sub>8</sub> – 12 BSFS  | 2406413   | 2406414   | 2406415   | 2406416   | 2406417   | 2406418   | 2406419   | 2406420   | 2406421   | 2406422   | 1         |
| 1 <sup>1</sup> / <sub>8</sub> – 20 BSFS  | 2406423   | 2406424   | 2406425   | 2406426   | 2406427   | 2406428   | 2406429   | 2406430   | 2406431   | 2406432   | 1         |
| 1 <sup>3</sup> / <sub>16</sub> – 12 BSFS | 2406433   | 2406434   | 2406435   | 2406436   | 2406437   | 2406438   | 2406439   | 2406440   | 2406441   | 2406442   | 1         |
| 1 <sup>3</sup> / <sub>16</sub> – 20 BSFS | 2406443   | 2406444   | 2406445   | 2406446   | 2406447   | 2406448   | 2406449   | 2406450   | 2406451   | 2406452   | 1         |
| 1 <sup>1</sup> / <sub>4</sub> – 12 BSFS  | 2406453   | 2406454   | 2406455   | 2406456   | 2406457   | 2406458   | 2406459   | 2406460   | 2406461   | 2406462   | 1         |
| 1 <sup>1</sup> / <sub>4</sub> – 20 BSFS  | 2406463   | 2406464   | 2406465   | 2406466   | 2406467   | 2406468   | 2406469   | 2406470   | 2406471   | 2406472   | 1         |
| 1 <sup>5</sup> / <sub>16</sub> – 12 BSFS | 2406473   | 2406474   | 2406475   | 2406476   | 2406477   | 2406478   | 2406479   | 2406480   | 2406481   | 2406482   | 1         |
| 1 <sup>5</sup> / <sub>16</sub> – 20 BSFS | 2406483   | 2406484   | 2406485   | 2406486   | 2406487   | 2406488   | 2406489   | 2406490   | 2406491   | 2406492   | 1         |
| 1 <sup>3</sup> / <sub>8</sub> – 12 BSF   | 2406493   | 2406494   | 2406495   | 2406496   | 2406497   | 2406498   | 2406499   | 2406500   | 2406501   | 2406502   | 1         |
| 1 <sup>3</sup> / <sub>8</sub> – 20 BSFS  | 2406503   | 2406504   | 2406505   | 2406506   | 2406507   | 2406508   | 2406509   | 2406510   | 2406511   | 2406512   | 1         |
| 1 <sup>7</sup> / <sub>16</sub> – 12 BSFS | 2406513   | 2406514   | 2406515   | 2406516   | 2406517   | 2406518   | 2406519   | 2406520   | 2406521   | 2406522   | 1         |
| 1 <sup>7</sup> / <sub>16</sub> – 20 BSFS | 2406523   | 2406524   | 2406525   | 2406526   | 2406527   | 2406528   | 2406529   | 2406530   | 2406531   | 2406532   | 1         |
| 1 <sup>1</sup> / <sub>2</sub> – 12 BSFS  | 2406533   | 2406534   | 2406535   | 2406536   | 2406537   | 2406538   | 2406539   | 2406540   | 2406541   | 2406542   | 1         |
| 1 <sup>1</sup> / <sub>2</sub> – 20 BSFS  | 2406543   | 2406544   | 2406545   | 2406546   | 2406547   | 2406548   | 2406549   | 2406550   | 2406551   | 2406552   | 1         |

| Whitworth-Gewinde B.S. 84               |  |
|---|--|
| Whitworth Thread B.S. 84                |  |
| T350F auf Anfrage!<br>T350F on request! |  |

| Whitworth-Rohrgewinde, zylindrisch DIN ISO 228 |           |           |           |           |           |   |
|--|-----------|-----------|-----------|-----------|-----------|---|
| Whitworth Pipe Thread cylindric DIN ISO 228    |           |           |           |           |           |   |
| Rollkopf                                       | T120F     |           |           |           |           |   |
| Rolling Head                                   |           |           |           |           |           |   |
| Rollenbreiten                                  | 6         | 8         | 10        | 12        | 15,5      |   |
| Roll width                                     | 0.236"    | 0.315"    | 0.394"    | 0.472"    | 0.610"    |   |
| Gewinde-<br>abmessung                          |           |           |           |           |           | Z |
| Thread size                                    | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |   |
| G 1/8 – 28                                     | 2402252   | 2402253   | 2402254   | 2402255   | 2402256   | 3 |
| G 1/4 – 19                                     | 2402257   | 2402258   | 2402259   | 2402260   | 2402261   | 2 |

| Whitworth-Rohrgewinde, zylindrisch DIN ISO 228 |           |           |           |           |           |           |           |   |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|
| Whitworth Pipe Thread cylindric DIN ISO 228    |           |           |           |           |           |           |           |   |
| Rollkopf                                       | T160F     |           |           |           |           |           |           |   |
| Rolling Head                                   |           |           |           |           |           |           |           |   |
| Rollenbreiten                                  | 6         | 8         | 10        | 12        | 14        | 16        | 18,5      |   |
| Roll width                                     | 0.236"    | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.728"    |   |
| Gewinde-<br>abmessung                          |           |           |           |           |           |           |           | Z |
| Thread size                                    | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |   |
| G 1/8 – 28                                     | 2403242   | 2172017   | 2172267   | 2403245   | 2403246   | 2403247   | 2172268   | 4 |
| G 1/4 – 19                                     | 2403249   | 2403250   | 2172269   | 2172018   | 2403253   | 2403254   | 2172270   | 3 |
| G 3/8 – 19                                     | 2403256   | 2403257   | 2172271   | 2172019   | 2403260   | 2403261   | 2172272   | 2 |

| Whitworth-Rohrgewinde, zylindrisch DIN ISO 228 |           |           |           |           |           |           |           |           |           |           |   |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|
| Whitworth Pipe Thread cylindric DIN ISO 228    |           |           |           |           |           |           |           |           |           |           |   |
| Rollkopf                                       | T220F     |           |           |           |           |           |           |           |           |           |   |
| Rolling Head                                   |           |           |           |           |           |           |           |           |           |           |   |
| Rollenbreiten                                  | 8         | 10        | 12        | 14        | 16        | 18        | 20        | 22        | 24        | 26        |   |
| Roll width                                     | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    | 0.945"    | 1.024"    |   |
| Gewinde-<br>abmessung                          |           |           |           |           |           |           |           |           |           |           | Z |
| Thread size                                    | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |   |
| G 1/8 – 28                                     | 2406553   | 2406554   | 2406555   | 2406556   | 2406557   | 2406558   | 2406559   | 2406560   | 2406561   | 2406562   | 5 |
| G 1/4 – 19                                     | 2406563   | 2406564   | 2401435   | 2406566   | 2406567   | 2406568   | 2406569   | 2406570   | 2406571   | 2406572   | 4 |
| G 3/8 – 19                                     | 2406573   | 2406574   | 2406575   | 2406576   | 2406577   | 2406578   | 2406579   | 2406580   | 2406581   | 2406582   | 3 |
| G 1/2 – 14                                     | 2406583   | 2406584   | 2406585   | 2406586   | 2406587   | 2406588   | 2406589   | 2406590   | 2406591   | 2406592   | 2 |
| G 5/8 – 14                                     | 2406593   | 2406594   | 2406595   | 2406596   | 2406597   | 2406598   | 2406599   | 2406600   | 2406601   | 2406602   | 2 |
| G 3/4 – 14                                     | 2406603   | 2406604   | 2406605   | 2406606   | 2406607   | 2406608   | 2406609   | 2406610   | 2406611   | 2406612   | 2 |
| G 7/8 – 14                                     | 2406613   | 2406614   | 2406615   | 2406616   | 2406617   | 2406618   | 2406619   | 2406620   | 2406621   | 2406622   | 1 |

| Whitworth-Rohrgewinde, zylindrisch DIN ISO 228 |           |           |           |           |           |           |           |           |   |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|
| Whitworth Pipe Thread cylindric DIN ISO 228    |           |           |           |           |           |           |           |           |   |
| Rollkopf                                       | T350F     |           |           |           |           |           |           |           |   |
| Rolling Head                                   |           |           |           |           |           |           |           |           |   |
| Rollenbreiten                                  | 8         | 10        | 12        | 14        | 16        | 18        | 20        | 22        |   |
| Roll width                                     | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    |   |
| Gewinde-<br>abmessung                          |           |           |           |           |           |           |           |           | Z |
| Thread size                                    | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |   |
| G 1/16 – 28                                    | 2436930   | 2436931   | 2436932   | 2436933   | 2436934   | 2436935   | 2436936   | 2436937   |   |
| G 1/4 – 19                                     | 2436945   | 2436946   | 2436947   | 2436948   | 2436949   | 2436950   | 2436951   | 2436952   |   |
| G 3/8 – 19                                     | 2436960   | 2436961   | 2436962   | 2436963   | 2436964   | 2436965   | 2436966   | 2436967   |   |
| G 1/2 – 14                                     | 2436975   | 2436976   | 2436977   | 2436978   | 2436979   | 2436980   | 2436981   | 2436982   |   |
| G 5/8 – 14                                     | 2436990   | 2436991   | 2436992   | 2436993   | 2436994   | 2436995   | 2436996   | 2436997   |   |
| G 3/4 – 14                                     | 2437005   | 2437006   | 2437007   | 2437008   | 2437009   | 2437010   | 2437011   | 2437012   |   |
| G 7/8 – 14                                     | 2437020   | 2437021   | 2437022   | 2437023   | 2437024   | 2437025   | 2437026   | 2437027   |   |
| G 1 – 11                                       | 2437035   | 2437036   | 2437037   | 2437038   | 2437039   | 2437040   | 2437041   | 2437042   |   |
| G 1 1/8 – 11                                   | 2437050   | 2437051   | 2437052   | 2437053   | 2437054   | 2437055   | 2437056   | 2437057   |   |

| Whitworth-Rohrgewinde, zylindrisch DIN ISO 228<br>Whitworth Pipe Thread cylindrical DIN ISO 228 |              |              |              |              |              |              |              |              |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Rollkopf<br>Rolling Head  | T350F        |              |              |              |              |              |              |              |
| Rollenbreiten<br>Roll width   | 8<br>0.315"  | 10<br>0.394" | 12<br>0.472" | 14<br>0.551" | 16<br>0.630" | 18<br>0.709" | 20<br>0.787" | 22<br>0.866" |
| Gewinde-<br>abmessung<br>Thread size  | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    |
| G 1 1/4 – 11  | 2437065      | 2437066      | 2437067      | 2437068      | 2437069      | 2437070      | 2437071      | 2437072      |
| G 1 3/8 – 11  | 2437080      | 2437081      | 2437082      | 2437083      | 2437084      | 2437085      | 2437086      | 2437087      |
| G 1 3/8 – 11  | 2437095      | 2437096      | 2437097      | 2437098      | 2437099      | 2437100      | 2437101      | 2437102      |
| G 1 3/4 – 11  | 2437110      | 2437111      | 2437112      | 2437113      | 2437114      | 2437115      | 2437116      | 2437117      |
| Rollenbreiten<br>Roll width   | 24<br>0.945" | 26<br>1.024" | 28<br>1.102" | 30<br>1.181" | 32<br>1.26"  | 34<br>1.339" | 36<br>1.417" |              |
| Gewinde-<br>abmessung<br>Thread size  | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    |              |
| G 1/16 – 28   | 2436938      | 2436939      | 2436940      | 2436941      | 2436942      | 2436943      | 2436944      |              |
| G 1/4 – 19  | 2436953      | 2436954      | 2436955      | 2436956      | 2436957      | 2436958      | 2436959      |              |
| G 3/8 – 19  | 2436968      | 2436969      | 2436970      | 2436971      | 2436972      | 2436973      | 2436974      |              |
| G 1/2 – 14  | 2436983      | 2436984      | 2436985      | 2436986      | 2436987      | 2436988      | 2436989      |              |
| G 5/8 – 14  | 2436998      | 2436999      | 2437000      | 2437001      | 2437002      | 2437003      | 2437004      |              |
| G 3/4 – 14  | 2437013      | 2437014      | 2437015      | 2437016      | 2437017      | 2437018      | 2437019      |              |
| G 7/8 – 14  | 2437028      | 2437029      | 2437030      | 2437031      | 2437032      | 2437033      | 2437034      |              |
| G 1 – 11  | 2437043      | 2437044      | 2437045      | 2437046      | 2437047      | 2437048      | 2437049      |              |
| G 1 1/8 – 11  | 2437058      | 2437059      | 2437060      | 2437061      | 2437062      | 2437063      | 2437064      |              |
| G 1 1/4 – 11  | 2437073      | 2437074      | 2437075      | 2437076      | 2437077      | 2437078      | 2437079      |              |
| G 1 3/8 – 11  | 2437088      | 2437089      | 2437090      | 2437091      | 2437092      | 2437093      | 2437094      |              |
| G 1 3/8 – 11  | 2437103      | 2437104      | 2437105      | 2437106      | 2437107      | 2437108      | 2437109      |              |
| G 1 3/4 – 11  | 2437118      | 2437119      | 2437120      | 2437121      | 2437122      | 2437123      | 2437124      |              |

Gewindeabmessungen, Artikel-Nr. der Gewinderollen  
für zylindrische Werkstück-Rechtsgewinde, Ausführung „A“ und „AV“  
Thread sizes, Ident No. for Thread Rolls  
with Right-Hand Threads – Version „A“ and „AV“

| Whitworth-Rohrgewinde, kegelig DIN 2999<br>Whitworth Pipe Thread, Taper DIN 2999 |           |   |        |           |   |        |   |
|--|-----------|---|--------|-----------|---|--------|---|
| Rollkopf<br>Rolling Head   | T120F     |   |        |           |   |        |   |
| Rollen-<br>ausführung<br>Roll design   | A         |   |        | AV        |   |        |   |
| Gewinde-<br>abmessung<br>Thread size   | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |        | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |        | Z |
| R 1/16 – 28  | 2401581   | 9                                       | 0.354" | 2401584   | 10                                      | 0.394" | 4 |
| R 1/8 – 28   | 2401582   | 9                                       | 0.354" | 2401585   | 10                                      | 0.394" | 3 |
| R 1/4 – 19   | 2401583   | 14                                      | 0.551" | 2401586   | 14                                      | 0.551" | 2 |

| Whitworth-Rohrgewinde, kegelig DIN 2999<br>Whitworth Pipe Thread, Taper DIN 2999 |           |                            |        |           |                            |        |   |
|--|-----------|----------------------------|--------|-----------|----------------------------|--------|---|
| Rollkopf<br>Rolling Head   | T160F     |                            |        |           |                            |        |   |
| Rollen-<br>ausführung<br>Roll design   | A         |                            |        | AV        |                            |        | Z |
| Gewinde-<br>abmessung<br>Thread size   | Ident No. | Rollenbreite<br>Roll width |        | Ident No. | Rollenbreite<br>Roll width |        |   |
|  |           | mm                         | inch   |           | mm                         | inch   |   |
| R 1/16 – 28  | 2401449   | 9                          | 0.354" | 2401601   | 10                         | 0.394" | 5 |
| R 1/8 – 28   | 2401450   | 9                          | 0.354" | 2401602   | 10                         | 0.394" | 4 |
| R 1/4 – 19   | 2172772   | 14                         | 0.551" | 2401603   | 14                         | 0.551" | 3 |
| R 3/8 – 19   | 2401451   | 14                         | 0.551" | 2401604   | 14                         | 0.551" | 2 |

| Whitworth-Rohrgewinde, kegelig DIN 2999<br>Whitworth Pipe Thread, Taper DIN 2999 |           |                            |        |           |                            |        |   |
|--|-----------|----------------------------|--------|-----------|----------------------------|--------|---|
| Rollkopf<br>Rolling Head   | T220F     |                            |        |           |                            |        |   |
| Rollen-<br>ausführung<br>Roll design   | A         |                            |        | AV        |                            |        | Z |
| Gewinde-<br>abmessung<br>Thread size   | Ident No. | Rollenbreite<br>Roll width |        | Ident No. | Rollenbreite<br>Roll width |        |   |
|  |           | mm                         | inch   |           | mm                         | inch   |   |
| R 1/16 – 28  | 2401452   | 9                          | 0.354" | 2401619   | 10                         | 0.394" | 7 |
| R 1/8 – 28   | 2401453   | 9                          | 0.354" | 2401620   | 10                         | 0.394" | 5 |
| R 1/4 – 19   | 2401454   | 14                         | 0.551" | 2401621   | 14                         | 0.551" | 4 |
| R 3/8 – 19   | 2401455   | 14                         | 0.551" | 2401622   | 14                         | 0.551" | 3 |
| R 1/2 – 14   | 2401456   | 20                         | 0.787" | 2401623   | 20                         | 0.787" | 2 |
| R 3/4 – 14   | 2401457   | 20                         | 0.787" | 2401624   | 20                         | 0.787" | 2 |

| Whitworth-Rohrgewinde, kegelig DIN 2999<br>Whitworth Pipe Thread, Taper DIN 2999 |           |                            |        |           |                            |        |   |
|--|-----------|----------------------------|--------|-----------|----------------------------|--------|---|
| Rollkopf<br>Rolling Head   | T350F     |                            |        |           |                            |        |   |
| Rollen-<br>ausführung<br>Roll design   | A         |                            |        | AV        |                            |        | Z |
| Gewinde-<br>abmessung<br>Thread size   | Ident No. | Rollenbreite<br>Roll width |        | Ident No. | Rollenbreite<br>Roll width |        |   |
|  |           | mm                         | inch   |           | mm                         | inch   |   |
| R 1/16 – 28  | 2437125   | 9                          | 0.354" | 2437126   | 10                         | 0.394" |   |
| R 1/8 – 28   | 2437127   | 9                          | 0.354" | 2437128   | 10                         | 0.394" |   |
| R 1/4 – 19   | 2437129   | 14                         | 0.551" | 2437130   | 14                         | 0.551" |   |
| R 3/8 – 19   | 2437131   | 14                         | 0.551" | 2437132   | 14                         | 0.551" |   |
| R 1/2 – 14   | 2437133   | 20                         | 0.787" | 2437134   | 20                         | 0.787" |   |
| R 3/4 – 14   | 2437135   | 20                         | 0.787" | 2437136   | 20                         | 0.787" |   |
| R 1 – 11   | 2437137   | 24                         | 0.945" | 2437138   | 24                         | 0.945" |   |
| R 1 1/4 – 11   | 2437139   | 26                         | 1.024" | 2437140   | 26                         | 1.024" |   |
| R 1 1/2 – 11   | 2437141   | 26                         | 1.024" | 2437142   | 26                         | 1.024" |   |

| Whitworth-Rohrgewinde, kegelig DIN 3858 – Standard |              |             |              |             |   |  |
|--|--------------|-------------|--------------|-------------|---|--|
| Whitworth Pipe Thread, Taper DIN 3858 – Standard   |              |             |              |             |   |  |
| Rollkopf   | T120F        |             |              |             |   |  |
| Rolling Head                                       |              |             |              |             |   |  |
| Rollen-<br>ausführung                              | A            |             |              | AV          |   |  |
| Roll design  |              |             |              |             |   |  |
| Gewinde-<br>abmessung                              | Rollenbreite |             | Rollenbreite |             | Z |  |
| Thread size  | Ident No.    | mm   inch   | Ident No.    | mm   inch   |   |  |
| R 1/8 – 28   | 2401587      | 8   0.315"  | 2401589      | 8   0.315"  | 3 |  |
| R 1/4 – 19   | 2401588      | 12   0.472" | 2401590      | 12   0.472" | 2 |  |

| Whitworth-Rohrgewinde, kegelig DIN 3858 – Standard |              |             |              |             |   |  |
|--|--------------|-------------|--------------|-------------|---|--|
| Whitworth Pipe Thread, Taper DIN 3858 – Standard   |              |             |              |             |   |  |
| Rollkopf   | T160F        |             |              |             |   |  |
| Rolling Head                                       |              |             |              |             |   |  |
| Rollen-<br>ausführung                              | A            |             |              | AV          |   |  |
| Roll design  |              |             |              |             |   |  |
| Gewinde-<br>abmessung                              | Rollenbreite |             | Rollenbreite |             | Z |  |
| Thread size  | Ident No.    | mm   inch   | Ident No.    | mm   inch   |   |  |
| R 1/8 – 28   | 2401605      | 8   0.315"  | 2401608      | 8   0.315"  | 4 |  |
| R 1/4 – 19   | 2401606      | 12   0.472" | 2401609      | 12   0.472" | 3 |  |
| R 3/8 – 19   | 2401607      | 12   0.472" | 2401610      | 12   0.472" | 2 |  |

| Whitworth-Rohrgewinde, kegelig DIN 3858 – Standard |              |             |              |             |   |  |
|--|--------------|-------------|--------------|-------------|---|--|
| Whitworth Pipe Thread, Taper DIN 3858 – Standard   |              |             |              |             |   |  |
| Rollkopf   | T220F        |             |              |             |   |  |
| Rolling Head                                       |              |             |              |             |   |  |
| Rollen-<br>ausführung                              | A            |             |              | AV          |   |  |
| Roll design  |              |             |              |             |   |  |
| Gewinde-<br>abmessung                              | Rollenbreite |             | Rollenbreite |             | Z |  |
| Thread size  | Ident No.    | mm   inch   | Ident No.    | mm   inch   |   |  |
| R 1/8 – 28   | 2401625      | 8   0.315"  | 2401630      | 8   0.315"  | 5 |  |
| R 1/4 – 19   | 2401626      | 12   0.472" | 2401631      | 12   0.472" | 4 |  |
| R 3/8 – 19   | 2401627      | 12   0.472" | 2401632      | 12   0.472" | 3 |  |
| R 1/2 – 14   | 2401628      | 16   0.63"  | 2401633      | 16   0.63"  | 2 |  |
| R 3/4 – 14   | 2401629      | 17   0.669" | 2401634      | 18   0.709" | 2 |  |

| Whitworth-Rohrgewinde, kegelig DIN 3858 – Standard |              |             |              |             |   |  |
|--|--------------|-------------|--------------|-------------|---|--|
| Whitworth Pipe Thread, Taper DIN 3858 – Standard   |              |             |              |             |   |  |
| Rollkopf   | T350F        |             |              |             |   |  |
| Rolling Head                                       |              |             |              |             |   |  |
| Rollen-<br>ausführung                              | A            |             |              | AV          |   |  |
| Roll design  |              |             |              |             |   |  |
| Gewinde-<br>abmessung                              | Rollenbreite |             | Rollenbreite |             | Z |  |
| Thread size  | Ident No.    | mm   inch   | Ident No.    | mm   inch   |   |  |
| R 1/8 – 28   | 2437143      | 8   0.315"  | 2437144      | 8   0.315"  |   |  |
| R 1/4 – 19   | 2437145      | 12   0.472" | 2437146      | 12   0.472" |   |  |
| R 3/8 – 19   | 2437147      | 12   0.472" | 2437148      | 12   0.472" |   |  |
| R 1/2 – 14   | 2437149      | 16   0.63"  | 2437150      | 16   0.63"  |   |  |
| R 3/4 – 14   | 2437151      | 17   0.669" | 2437152      | 18   0.709" |   |  |

Gewindeabmessungen, Artikel-Nr. der Gewinderollen  
für zylindrische Werkstück-Rechtsgewinde, Ausführung „A“ und „AV“  
Thread sizes, Ident No. for Thread Rolls  
with Right-Hand Threads – Version „A“ and „AV“

| Whitworth-Rohrgewinde, kegelig DIN 3858 – Standard |              |    |              |           |    |        |
|--|--------------|----|--------------|-----------|----|--------|
| Whitworth Pipe Thread, Taper DIN 3858 – Standard   |              |    |              |           |    |        |
| Rollkopf   | T350F        |    |              |           |    |        |
| Rolling Head                                       |              |    |              |           |    |        |
| Rollen-<br>ausführung                              | A            |    |              | AV        |    |        |
| Roll design  |              |    |              |           |    |        |
| Gewinde-<br>abmessung                              | Rollenbreite |    | Rollenbreite |           | Z  |        |
| Thread size  | Ident No.    | mm | inch         | Ident No. | mm | inch   |
| R 1 – 11   | 2437153      | 20 | 0.787"       | 2437154   | 20 | 0.787" |
| R 1¼ – 11  | 2437155      | 21 | 0.828"       | 2437156   | 22 | 0.866" |
| R 1½ – 11  | 2437157      | 21 | 0.828"       | 2437158   | 22 | 0.866" |

Gewindeabmessungen, Artikel-Nr. der Gewinderollen  
für zylindrische Werkstück-Rechtsgewinde, Ausführung „A“ und „AV“  
Thread sizes, Ident No. for Thread Rolls  
with Right-Hand Threads – Version „A“ and „AV“

| Amerikanisches Rohrgewinde, kegelig ANSI B 1.20.1 NPT |              |    |              |           |    |        |
|---|--------------|----|--------------|-----------|----|--------|
| American Pipe Thread Taper ANSI B 1.20.1 NPT          |              |    |              |           |    |        |
| Rollkopf  | T120F        |    |              |           |    |        |
| Rolling Head  |              |    |              |           |    |        |
| Rollen-<br>ausführung                                 | A            |    |              | AV        |    |        |
| Roll design   |              |    |              |           |    |        |
| Gewinde-<br>abmessung                                 | Rollenbreite |    | Rollenbreite |           | Z  |        |
| Thread size   | Ident No.    | mm | inch         | Ident No. | mm | inch   |
| 1/16 – 27 NPT   | 2401591      | 10 | 0.394"       | 2401593   | 10 | 0.394" |
| 1/8 – 27 NPT  | 2401592      | 10 | 0.394"       | 2401594   | 10 | 0.394" |

| Amerikanisches Rohrgewinde, kegelig ANSI B 1.20.1 NPT |              |    |              |           |    |        |
|---|--------------|----|--------------|-----------|----|--------|
| American Pipe Thread Taper ANSI B 1.20.1 NPT          |              |    |              |           |    |        |
| Rollkopf  | T160F        |    |              |           |    |        |
| Rolling Head  |              |    |              |           |    |        |
| Rollen-<br>ausführung                                 | A            |    |              | AV        |    |        |
| Roll design   |              |    |              |           |    |        |
| Gewinde-<br>abmessung                                 | Rollenbreite |    | Rollenbreite |           | Z  |        |
| Thread size   | Ident No.    | mm | inch         | Ident No. | mm | inch   |
| 1/16 – 27 NPT   | 2401471      | 10 | 0.394"       | 2401611   | 10 | 0.394" |
| 1/8 – 27 NPT  | 2401472      | 10 | 0.394"       | 2401612   | 10 | 0.394" |
| 1/4 – 18 NPT  | 2401473      | 15 | 0.591"       | 2401613   | 16 | 0.63"  |
| 3/8 – 18 NPT  | 2401474      | 15 | 0.591"       | 2401614   | 16 | 0.63"  |



Gewindeabmessungen, Artikel-Nr. der Gewinderollen  
für zylindrische Werkstück-Rechtsgewinde, Ausführung „A“ und „AV“  
Thread sizes, Ident No. for Thread Rolls  
with Right-Hand Threads – Version „A“ and „AV“

| Amerikanisches Rohrgewinde, kegelig ANSI B 1.20.1 NPT<br>American Pipe Thread Taper ANSI B 1.20.1 NPT |           |   |        |           |   |        |   |
|---|-----------|---|--------|-----------|---|--------|---|
| Rollkopf<br>Rolling Head  | T220F     |   |        |           |   |        |   |
| Rollen-<br>ausführung<br>Roll design  | A         |   |        | AV        |   |        | Z |
| Gewinde-<br>abmessung<br>Thread size  | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |        | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |        |   |
| 1/16 – 27 NPT   | 2401459   | 10                                      | 0.394" | 2401635   | 10                                      | 0.394" | 7 |
| 1/8 – 27 NPT  | 2401460   | 10                                      | 0.394" | 2401636   | 10                                      | 0.394" | 5 |
| 1/4 – 18 NPT  | 2401461   | 15                                      | 0.591" | 2401637   | 16                                      | 0.63"  | 4 |
| 3/8 – 18 NPT  | 2401462   | 15                                      | 0.591" | 2401638   | 16                                      | 0.63"  | 3 |
| 1/2 – 14 NPT  | 2401463   | 19                                      | 0.748" | 2401639   | 20                                      | 0.787" | 2 |
| 3/4 – 14 NPT  | 2401464   | 20                                      | 0.787" | 2401640   | 20                                      | 0.787" | 2 |

| Amerikanisches Rohrgewinde, kegelig ANSI B 1.20.1 NPT<br>American Pipe Thread Taper ANSI B 1.20.1 NPT |           |   |        |           |   |        |   |
|---|-----------|---|--------|-----------|---|--------|---|
| Rollkopf<br>Rolling Head  | T350F     |   |        |           |   |        |   |
| Rollen-<br>ausführung<br>Roll design  | A         |   |        | AV        |   |        | Z |
| Gewinde-<br>abmessung<br>Thread size  | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |        | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |        |   |
| 1/16 – 27 NPT   | 2437159   | 10                                      | 0.394" | 2437160   | 10                                      | 0.394" |   |
| 1/8 – 27 NPT  | 2437161   | 10                                      | 0.394" | 2437162   | 10                                      | 0.394" |   |
| 1/4 – 18 NPT  | 2437163   | 15                                      | 0.591" | 2437164   | 16                                      | 0.63"  |   |
| 3/8 – 18 NPT  | 2437165   | 15                                      | 0.591" | 2437166   | 16                                      | 0.63"  |   |
| 1/2 – 14 NPT  | 2437167   | 19                                      | 0.748" | 2437168   | 20                                      | 0.787" |   |
| 3/4 – 14 NPT  | 2437169   | 20                                      | 0.787" | 2437170   | 20                                      | 0.787" |   |
| 1 – 11,5 NPT  | 2437171   | 24                                      | 0.945" | 2437172   | 24                                      | 0.945" |   |
| 1 1/4 – 11,5 NPT  | 2437173   | 25                                      | 0.984" | 2437174   | 26                                      | 1.024" |   |
| 1 1/2 – 11,5 NPT  | 2437175   | 25                                      | 0.984" | 2437176   | 26                                      | 1.024" |   |

Gewindeabmessungen, Artikel-Nr. der Gewinderollen  
für zylindrische Werkstück-Rechtsgewinde, Ausführung „A“ und „AV“  
Thread sizes, Ident No. for Thread Rolls  
with Right-Hand Threads – Version „A“ and „AV“

| Amerikanisches Rohrgewinde, kegelig ANSI B 1.20.1 NPTF<br>American Pipe Thread Taper ANSI B 1.20.1 NPTF |           |   |        |           |   |        |   |
|---|-----------|---|--------|-----------|---|--------|---|
| Rollkopf<br>Rolling Head  | T120F     |   |        |           |   |        |   |
| Rollen-<br>ausführung<br>Roll design  | A         |   |        | AV        |   |        | Z |
| Gewinde-<br>abmessung<br>Thread size  | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |        | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |        |   |
| 1/16 – 27 NPTF  | 2401595   | 10                                      | 0.394" | 2401598   | 10                                      | 0.394" | 4 |
| 1/8 – 27 NPTF   | 2401596   | 10                                      | 0.394" | 2401599   | 10                                      | 0.394" | 3 |
| 1/4 – 18 NPTF   | 2401597   | 15                                      | 0.591" | 2401600   | 16                                      | 0.63"  | 2 |

Gewindeabmessungen, Artikel-Nr. der Gewinderollen  
für zylindrische Werkstück-Rechtsgewinde, Ausführung „A“ und „AV“  
Thread sizes, Ident No. for Thread Rolls  
with Right-Hand Threads – Version „A“ and „AV“

| Amerikanisches Rohrgewinde, kegelig ANSI B 1.20.1 NPTF |           |              |        |           |              |        |   |
|--|-----------|--------------|--------|-----------|--------------|--------|---|
| American Pipe Thread Taper ANSI B 1.20.1 NPTF          |           |              |        |           |              |        |   |
| Rollkopf   | T160F     |              |        |           |              |        |   |
| Rolling Head   |           |              |        |           |              |        |   |
| Rollen-<br>ausführung                                  | A         |              |        | AV        |              |        | Z |
| Roll design  |           |              |        |           |              |        |   |
| Gewinde-<br>abmessung                                  | Ident No. | Rollenbreite |        | Ident No. | Rollenbreite |        |   |
| Thread size  |           | mm           | inch   |           | mm           | inch   |   |
| 1/16 – 27 NPTF   | 2401475   | 10           | 0.394" | 2401615   | 10           | 0.394" | 5 |
| 1/8 – 27 NPTF  | 2401476   | 10           | 0.394" | 2401616   | 10           | 0.394" | 4 |
| 1/4 – 18 NPTF  | 2401477   | 15           | 0.591" | 2401617   | 16           | 0.63"  | 3 |
| 3/8 – 18 NPTF  | 2401478   | 15           | 0.591" | 2401618   | 16           | 0.63"  | 2 |

| Amerikanisches Rohrgewinde, kegelig ANSI B 1.20.1 NPTF |           |              |        |           |              |        |   |
|--|-----------|--------------|--------|-----------|--------------|--------|---|
| American Pipe Thread Taper ANSI B 1.20.1 NPTF          |           |              |        |           |              |        |   |
| Rollkopf   | T220F     |              |        |           |              |        |   |
| Rolling Head   |           |              |        |           |              |        |   |
| Rollen-<br>ausführung                                  | A         |              |        | AV        |              |        | Z |
| Roll design  |           |              |        |           |              |        |   |
| Gewinde-<br>abmessung                                  | Ident No. | Rollenbreite |        | Ident No. | Rollenbreite |        |   |
| Thread size  |           | mm           | inch   |           | mm           | inch   |   |
| 1/16 – 27 NPTF   | 2401465   | 10           | 0.394" | 2401641   | 10           | 0.394" | 7 |
| 1/8 – 27 NPTF  | 2401466   | 10           | 0.394" | 2401642   | 10           | 0.394" | 5 |
| 1/4 – 18 NPTF  | 2401467   | 15           | 0.591" | 2401643   | 16           | 0.63"  | 4 |
| 3/8 – 18 NPTF  | 2401468   | 15           | 0.591" | 2401644   | 16           | 0.63"  | 3 |
| 1/2 – 14 NPTF  | 2401469   | 19           | 0.748" | 2401645   | 20           | 0.787" | 2 |
| 3/4 – 14 NPTF  | 2401470   | 20           | 0.787" | 2401646   | 20           | 0.787" | 2 |

| Amerikanisches Rohrgewinde, kegelig ANSI B 1.20.1 NPTF |           |              |        |           |              |        |   |
|--|-----------|--------------|--------|-----------|--------------|--------|---|
| American Pipe Thread Taper ANSI B 1.20.1 NPTF          |           |              |        |           |              |        |   |
| Rollkopf   | T350F     |              |        |           |              |        |   |
| Rolling Head   |           |              |        |           |              |        |   |
| Rollen-<br>ausführung                                  | A         |              |        | AV        |              |        | Z |
| Roll design  |           |              |        |           |              |        |   |
| Gewinde-<br>abmessung                                  | Ident No. | Rollenbreite |        | Ident No. | Rollenbreite |        |   |
| Thread size  |           | mm           | inch   |           | mm           | inch   |   |
| 1/16 – 27 NPTF   | 2437177   | 10           | 0.394" | 2437178   | 10           | 0.394" |   |
| 1/8 – 27 NPTF  | 2437179   | 10           | 0.394" | 2437180   | 10           | 0.394" |   |
| 1/4 – 18 NPTF  | 2437181   | 15           | 0.591" | 2437182   | 16           | 0.63"  |   |
| 3/8 – 18 NPTF  | 2437183   | 15           | 0.394" | 2437184   | 16           | 0.63"  |   |
| 1/2 – 14 NPTF  | 2437185   | 19           | 0.748" | 2437186   | 20           | 0.787" |   |
| 3/4 – 14 NPTF  | 2437187   | 20           | 0.787" | 2437188   | 20           | 0.787" |   |
| 1 – 11,5 NPTF  | 2437189   | 24           | 0.945" | 2437190   | 24           | 0.945" |   |
| 1 1/4 – 11,5 NPTF                                      | 2437191   | 25           | 0.984" | 2437192   | 26           | 1.024" |   |
| 1 1/2 – 11,5 NPTF                                      | 2437193   | 25           | 0.984" | 2437194   | 26           | 1.024" |   |

**Gewindeabmessungen, Artikel-Nr. der Gewinderollen  
für zylindrische Werkstück-Rechtsgewinde, Ausführung „A“**  
Thread sizes, Ident No. for Thread Rolls  
with Straight Right-Hand Threads – Version „A“

| Metrisches ISO-Gewinde DIN 13 |           |           |           |           |           |           |           |           |           |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Metric ISO Threads DIN 13     |           |           |           |           |           |           |           |           |           |
| Rollkopf                      | T18       |           |           |           |           |           |           |           |           |
| Rolling Head                  |           |           |           |           |           |           |           |           |           |
| Rollenbreiten                 | 6         | 8         | 10        | 12        | 14        | 16        | 18        | 21,5      |           |
| Roll width                    | 0.236"    | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.846"    |           |
| Gewinde-<br>abmessung         |           |           |           |           |           |           |           |           | Z         |
| Thread size                   | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| M 3 x 0,5*                    | 2175559   | 2180753   | 2180754   | 2180755   | 2174969   | 2180756   | 2180757   | 2180739   |           |
| M 3,5 x 0,6*                  | 2180758   | 2180759   | 2180760   | 2180761   | 2175346   | 2180762   | 2180763   | 2180764   |           |
| M 4 x 0,7*                    | 1539705   | 1536003   | 2175184   | 2180765   | 1539714   | 2180766   | 2180767   | 1539723   |           |
| M 4 x 0,5                     | 2180740   | 2180768   | 2180769   | 2180770   | 2180771   | 2180772   | 2180773   | 2180774   |           |
| M 5 x 0,8*                    | 1536021   | 1536049   | 1536058   | 1536067   | 1539732   | 2180775   | 2180776   | 2174949   |           |
| M 5 x 0,5                     | 2175348   | 2180777   | 2180778   | 2180779   | 2180780   | 2175347   | 2180741   | 2180781   |           |
| M 6 x 1*                      | 1536101   | 1536110   | 1536129   | 1536147   | 1539750   | 2174668   | 1539769   | 1536165   |           |
| M 6 x 0,75                    | 1536076   | 1536085   | 2180782   | 2180783   | 1536094   | 2180784   | 2180785   | 1539741   |           |
| M 6 x 0,5                     | 1555018   | 2180786   | 2175250   | 2180742   | 2174971   | 2180787   | 2180788   | 1555027   |           |
| M 8 x 1,25*                   | 2175816   | 2175185   | 1536316   | 1555081   | 1536325   | 1536343   | 2176817   | 1536370   |           |
| M 8 x 1                       | 1536236   | 1536245   | 1536263   | 1536272   | 1536281   | 1536290   | 2176840   | 1539787   |           |
| M 8 x 0,75                    | 2173494   | 1536227   | 2174793   | 2180796   | 2180797   | 2180798   | 2180799   | 1539778   |           |
| M 8 x 0,5                     | 2180789   | 2180790   | 2180791   | 1555063   | 2180792   | 2180793   | 2180794   | 2180795   |           |
| M 10 x 1,5*                   | 2180800   | 2176134   | 1536619   | 1536628   | 1536646   | 1536664   | 1536673   | 1536691   |           |
| M 10 x 1,25                   | 2180801   | 2180802   | 2180803   | 2180804   | 2180805   | 1536593   | 1536600   | 2174789   | 4         |
| M 10 x 1,25                   | 2180806   | 2180807   | 2180808   | 1536584   | 2175351   | 2180809   | 2180810   | 2180748   | 5         |
| M 10 x 1                      | 2180744   | 1536450   | 1536478   | 1536487   | 1536496   | 1536511   | 1536539   | 1536548   |           |
| M 10 x 0,75                   | 2174672   | 1536432   | 2180811   | 2180743   | 2180812   | 2173949   | 2180813   | 1536441   |           |
| M 12 x 1,75*                  | 2180814   | 2173992   | 2180815   | 1536968   | 1536977   | 1555553   | 1537002   | 1537011   |           |
| M 12 x 1,5                    | 2180816   | 2175450   | 1536897   | 1536904   | 1536922   | 1536931   | 1536940   | 1536959   |           |
| M 12 x 1,25                   | 2180817   | 1536842   | 2180818   | 1536851   | 2180819   | 1536860   | 1536879   | 1536888   |           |
| M 12 x 1,25                   | 2180745   | 2180820   | 2180821   | 2180822   | 2180823   | 2180824   | 2180825   | 2180826   | 4         |
| M 12 x 1                      | 2180827   | 1536762   | 1536771   | 1536799   | 1536806   | 1536815   | 1536824   | 1536833   | 3         |
| M 14 x 2*                     | 2180828   | 1537253   | 2180829   | 2180751   | 1537262   | 2180830   | 1539821   | 2180752   |           |
| M 14 x 1,5                    | 2180831   | 1537182   | 1537191   | 1537208   | 1537226   | 1555152   | 1537235   | 1537244   |           |
| M 14 x 1,25                   | 2180832   | 2180833   | 2180834   | 1537146   | 2180835   | 2176323   | 1537155   | 1537173   |           |
| M 14 x 1                      | 1537075   | 1537084   | 1537093   | 1537100   | 2175110   | 1537119   | 2180836   | 1537128   |           |
| M 15 x 1,5                    | 2180749   | 2180837   | 2180838   | 2180839   | 1537299   | 2180840   | 2180841   | 2176933   |           |
| M 15 x 1                      | 2180842   | 2180843   | 2180844   | 2180845   | 2180846   | 2176276   | 2180847   | 2175227   |           |
| M 16 x 2*                     | 2180848   | 2180849   | 2180850   | 2180851   | 2180852   | 2180853   | 2173867   | 1537495   |           |
| M 16 x 1,5                    | 2180854   | 2174007   | 1537404   | 1537413   | 1537422   | 1537431   | 1539830   | 1537459   | 2         |
| M 16 x 1,5                    | 2180855   | 2180856   | 2180750   | 2176097   | 2174618   | 2173537   | 2176383   | 1537468   | 3         |
| M 16 x 1                      | 1537333   | 2180746   | 1537351   | 2175600   | 1537360   | 2176980   | 2180857   | 1537388   |           |
| M 17 x 1                      | 1537501   | 2180858   | 2180859   | 2180860   | 2180861   | 2180862   | 2180863   | 1537510   |           |
| M 18 x 2                      | 2180864   | 2180865   | 2180866   | 2180867   | 2180868   | 2180869   | 2180870   | 1537636   |           |
| M 18 x 1,5                    | 2180871   | 2174318   | 1537583   | 1537592   | 1537609   | 2174315   | 1537618   | 1537627   |           |
| M 18 x 1                      | 2180747   | 1537556   | 2180872   | 1537565   | 2177149   | 2180873   | 2173583   | 1537574   |           |
| M 20 x 2                      | 2180874   | 2180875   | 2180876   | 2180877   | 2180878   | 2180879   | 2180880   | 2180881   |           |
| M 20 x 1,5                    | 2180882   | 2177129   | 2173513   | 1539849   | 1539858   | 2174634   | 2173950   | 1539867   |           |
| M 20 x 1                      | 2180883   | 1537663   | 2180884   | 2174679   | 2180885   | 2175460   | 2180886   | 1555189   |           |
| M 22 x 2                      | 2180887   | 2180888   | 2180889   | 2180890   | 2180891   | 2180892   | 2180893   | 2180894   |           |
| M 22 x 1,5                    | 2180895   | 2180896   | 2180897   | 1537672   | 2180898   | 2176062   | 1537681   | 2180899   |           |
| M 22 x 1                      | 2174896   | 2176122   | 2177158   | 2175091   | 2180900   | 2180901   | 2180902   | 2180903   |           |
| M 24 x 2                      | 2180904   | 2180905   | 2180906   | 2180907   | 2180908   | 2180909   | 2180910   | 2180911   |           |
| M 24 x 1,5                    | 2180912   | 2180913   | 2180914   | 2176946   | 2176710   | 2175365   | 2180915   | 1555223   |           |
| M 24 x 1                      | 2180916   | 2174515   | 2174516   | 2174694   | 2176181   | 2180917   | 2180918   | 2180919   |           |
| M 25 x 1,5                    | 2180920   | 2180921   | 2180922   | 2180923   | 2180924   | 2180925   | 2180926   | 2176838   |           |
| M 26 x 1,5                    | 2180927   | 2180928   | 2180929   | 2180930   | 2176657   | 2180931   | 2180932   | 2174499   |           |
| M 27 x 2                      | 2180933   | 2180934   | 2180935   | 2180936   | 2180937   | 2175116   | 2180938   | 2180939   |           |
| M 27 x 1,5                    | 2180940   | 2180941   | 2180942   | 2180943   | 2175392   | 2180944   | 2180945   | 2180946   |           |
| M 28 x 1,5                    | 2180947   | 2180948   | 2180949   | 2176875   | 2180950   | 2180951   | 2177792   | 2176489   |           |
| M 30 x 2                      | 2180952   | 2180953   | 2180954   | 2180955   | 2180956   | 2180957   | 2180958   | 1537725   |           |
| M 30 x 1,5                    | 2180959   | 2180960   | 2180961   | 2175870   | 2180962   | 2176218   | 2180963   | 2177162   |           |

\* Standardgewinde (DIN 13 Teil 1)  
\* Standard thread (to DIN 13 part 1)



**Gewindeabmessungen, Artikel-Nr. der Gewinderollen  
für zylindrische Werkstück-Rechtsgewinde, Ausführung „A“**  
Thread sizes, Ident No. for Thread Rolls  
with Straight Right-Hand Threads – Version „A“

| Metrisches ISO-Gewinde DIN 13 |           |           |           |           |           |           |           |           |           |           |           |           |     |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----|
| Metric ISO Threads DIN 13     |           |           |           |           |           |           |           |           |           |           |           |           |     |
| Rollkopf                      |           |           |           |           |           |           |           |           |           |           |           |           | T27 |
| Rolling Head                  |           |           |           |           |           |           |           |           |           |           |           |           |     |
| Rollenbreiten                 | 8         | 10        | 12        | 14        | 16        | 18        | 20        | 22        | 24        | 26        | 28        | 31        |     |
| Roll width                    | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    | 0.945"    | 1.024"    | 1.102"    | 1.220"    |     |
| Gewinde-<br>abmessung         | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z   |
| Thread size                   | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z   |
| M 6 x 1*                      | 2182085   | 2174329   | 2176536   | 2182086   | 2178556   | 1542906   | 1542915   | 2182087   | 2182088   | 2182089   | 2182090   | 2182091   |     |
| M 8 x 1,25*                   | 2182092   | 1542960   | 2182093   | 2176108   | 2176379   | 1542979   | 1542988   | 2174414   | 2182094   | 2182061   | 2182095   | 1542997   |     |
| M 8 x 1                       | 2182096   | 2174010   | 2176121   | 2174857   | 2174009   | 2182097   | 2182098   | 2178558   | 2182099   | 2182100   | 2182062   | 2182101   |     |
| M 10 x 1,5*                   | 2182102   | 2182103   | 1543120   | 1543139   | 2182104   | 1543157   | 2182105   | 2182063   | 2182106   | 2182107   | 2182108   | 1543166   |     |
| M 10 x 1,25                   | 2182109   | 2182110   | 2182111   | 2182064   | 2175964   | 2182112   | 2182113   | 2182114   | 2182115   | 2182116   | 2173495   | 2175003   |     |
| M 10 x 1                      | 1543004   | 1543022   | 1543040   | 1543059   | 1543068   | 2182117   | 2177396   | 1543077   | 2182118   | 2182119   | 1543095   | 1543111   |     |
| M 10 x 0,75                   | 2182120   | 2182121   | 2182122   | 2182123   | 2182124   | 2182125   | 2182126   | 2182127   | 2182128   | 2182129   | 2182130   | 2182131   |     |
| M 12 x 1,75*                  | 2182132   | 2182133   | 1543344   | 2182134   | 1543353   | 1556017   | 2182135   | 2175660   | 2175716   | 2182136   | 2182137   | 1543362   |     |
| M 12 x 1,5                    | 2182154   | 1543273   | 1543282   | 1543291   | 2175635   | 1543308   | 2177163   | 1543317   | 1543326   | 2182155   | 2182162   | 1543335   |     |
| M 12 x 1,25                   | 2182156   | 2182157   | 2182158   | 2182065   | 2182159   | 1543246   | 1543255   | 2182160   | 2182161   | 2173496   | 2182163   | 2182164   |     |
| M 12 x 1                      | 1543184   | 1545618   | 1543193   | 1543200   | 2182165   | 2182066   | 2182067   | 2182166   | 2176347   | 2182167   | 2182168   | 2174693   |     |
| M 14 x 2*                     | 2182169   | 2182068   | 2182170   | 2182069   | 2175771   | 1543549   | 1545627   | 1543558   | 2182070   | 2182171   | 2182172   | 1543576   |     |
| M 14 x 1,5                    | 1543451   | 1543460   | 1543479   | 1543488   | 1556053   | 1543503   | 2176617   | 2182173   | 2177269   | 2175132   | 2182071   | 1543530   |     |
| M 14 x 1                      | 2177145   | 2177683   | 1543406   | 2182174   | 2175891   | 2182175   | 2182176   | 2182177   | 2182178   | 2182179   | 2182180   | 2182181   |     |
| M 15 x 1                      | 1543594   | 2182182   | 2182183   | 2182184   | 2182185   | 2182186   | 2182187   | 2182188   | 2182189   | 2182190   | 2182191   | 2182192   |     |
| M 16 x 2*                     | 2182193   | 2182194   | 1543718   | 2182195   | 1543727   | 2182196   | 2175131   | 1556106   | 2182197   | 2177972   | 2182198   | 1543736   |     |
| M 16 x 1,5                    | 2175893   | 1543656   | 1543674   | 1543683   | 1543692   | 1543709   | 2174368   | 2176135   | 1556071   | 2175472   | 1556080   | 1556099   |     |
| M 16 x 1                      | 2182199   | 2182200   | 1543601   | 2177100   | 2182201   | 1543629   | 1543638   | 2175836   | 2182202   | 2182203   | 2182204   | 1543647   |     |
| M 17 x 1                      | 2182205   | 2182206   | 2182207   | 2176918   | 2175126   | 2182208   | 2182209   | 2182210   | 2182211   | 2182212   | 2182213   | 2182072   |     |
| M 18 x 2,5*                   | 2182214   | 2182215   | 2182216   | 2175456   | 2182217   | 2182218   | 2173497   | 2182219   | 2182220   | 2182221   | 2182222   | 2177012   |     |
| M 18 x 2                      | 2182223   | 2182224   | 2182225   | 2182226   | 2182227   | 2182228   | 2182229   | 2182230   | 2182231   | 2182232   | 2182233   | 2182234   |     |
| M 18 x 1,5                    | 1543763   | 1543772   | 1543790   | 1543807   | 1543816   | 1543834   | 1543843   | 1545645   | 1543852   | 1556124   | 2177805   | 1543861   |     |
| M 18 x 1                      | 1543745   | 2182235   | 2173652   | 1543754   | 2182073   | 2182236   | 2182237   | 2182238   | 2182239   | 2182240   | 1556115   | 2174790   |     |
| M 20 x 2,5*                   | 2182241   | 2182242   | 2182243   | 2182074   | 2182244   | 2182245   | 1544030   | 2175128   | 2182246   | 2182247   | 2182248   | 2175408   |     |
| M 20 x 2                      | 2182249   | 2182250   | 2182251   | 2182252   | 2182253   | 2182254   | 2182255   | 2182256   | 2182257   | 2182258   | 2182259   | 2182260   |     |
| M 20 x 1,5                    | 2182261   | 1543914   | 1543923   | 1543932   | 1543950   | 1543987   | 1545789   | 2175127   | 1544003   | 2182262   | 1544012   | 1544021   |     |
| M 20 x 1                      | 2182263   | 1543905   | 2175699   | 2176346   | 2177101   | 2182264   | 2182265   | 2182266   | 2182267   | 2182268   | 2182269   | 2174791   |     |
| M 22 x 2,5*                   | 2182270   | 2182271   | 2182272   | 2182273   | 2182274   | 2182275   | 2182276   | 2182277   | 2182278   | 2182279   | 2182280   | 2182281   |     |
| M 22 x 2                      | 2182282   | 2182283   | 2182284   | 2182285   | 2182286   | 2182287   | 2182288   | 2182289   | 2182290   | 2182291   | 2182292   | 2182293   |     |
| M 22 x 1,5                    | 2182294   | 2182295   | 2177215   | 2175459   | 2177900   | 1545798   | 2182296   | 2182297   | 2182298   | 2182299   | 2182300   | 2174812   | 3   |
| M 22 x 1,5                    | 2176006   | 1544049   | 1544058   | 1544067   | 1544076   | 2176136   | 2174571   | 2175550   | 1545672   | 2182075   | 2176689   | 1544101   | 2   |
| M 22 x 1                      | 2182301   | 2182302   | 2182303   | 2177730   | 2182305   | 2182306   | 2182307   | 2182308   | 2182309   | 2182310   | 2182311   | 2184277   | 3   |
| M 22 x 1                      | 2177394   | 2182312   | 2176184   | 2177088   | 2177071   | 2175539   | 2182313   | 2182314   | 2182315   | 2182316   | 2177444   | 2174482   | 2   |
| M 24 x 2                      | 2182317   | 2182076   | 1544227   | 1544236   | 1545878   | 2182318   | 2182319   | 2182320   | 2182321   | 2182322   | 2182323   | 2174792   |     |
| M 24 x 1,5                    | 2182324   | 1544156   | 1544165   | 1544174   | 1544183   | 2177229   | 1556188   | 2177066   | 2182077   | 2182325   | 2176314   | 1544218   |     |
| M 25 x 1,5                    | 2182326   | 2182327   | 2182328   | 2182329   | 2177087   | 2175129   | 2182330   | 2182078   | 2182331   | 2182332   | 2182333   | 2176744   |     |
| M 27 x 2                      | 2182334   | 2182335   | 2182336   | 2175734   | 2173619   | 2175556   | 2175871   | 2176405   | 2182337   | 2182338   | 2182339   | 1556213   |     |
| M 27 x 1,5                    | 2182079   | 2182340   | 2182341   | 1544334   | 1544343   | 2177174   | 2182342   | 2182343   | 2182080   | 2182344   | 2182345   | 1544352   |     |
| M 30 x 2                      | 2182346   | 2182347   | 2182348   | 1544423   | 1544432   | 1544441   | 1544450   | 2176406   | 2182349   | 2182350   | 2182351   | 2174635   |     |
| M 30 x 1,5                    | 2182352   | 2182353   | 2175578   | 1544405   | 1544414   | 2182081   | 2177065   | 2182354   | 2182355   | 2182356   | 2182082   | 2175104   |     |
| M 33 x 2                      | 2182357   | 2182358   | 2182359   | 2174418   | 2182360   | 2175115   | 2182361   | 2182362   | 2182363   | 2182364   | 2182365   | 2175577   |     |
| M 33 x 1,5                    | 2182366   | 2182367   | 2182368   | 2182369   | 2182370   | 2182371   | 2182372   | 2182373   | 2182374   | 2182375   | 2182376   | 2177334   |     |
| M 35 x 1,5                    | 2182377   | 2182378   | 2182379   | 2182380   | 2175726   | 2182381   | 2182382   | 2182383   | 2182384   | 2182385   | 2182386   | 2176294   |     |
| M 36 x 2                      | 2182387   | 2182388   | 2182389   | 2182390   | 2182391   | 2175724   | 2182392   | 2182083   | 2182393   | 2182394   | 2182395   | 2176335   |     |
| M 36 x 1,5                    | 2182396   | 2182397   | 2182398   | 1556222   | 2182399   | 2182400   | 2182401   | 2182402   | 2182403   | 2182404   | 2182405   | 2176562   |     |
| M 39 x 2                      | 2182406   | 2182407   | 2182408   | 2182409   | 2182410   | 2182411   | 2182412   | 2182413   | 2182414   | 2182415   | 2182416   | 2182417   |     |
| M 39 x 1,5                    | 2182418   | 2182419   | 2182420   | 2182421   | 2182422   | 2182423   | 2182424   | 2182425   | 2182426   | 2182427   | 2182428   | 2182429   |     |
| M 40 x 1,5                    | 2182430   | 2182431   | 2182432   | 2182433   | 2182084   | 2182434   | 2175235   | 2182435   | 2182436   | 2182437   | 2182438   | 2182439   |     |
| M 42 x 2                      | 2182440   | 2182441   | 2182442   | 2182443   | 2182444   | 2182445   | 2182446   | 2182447   | 2182448   | 2182449   | 2182450   | 2177666   |     |
| M 42 x 1,5                    | 2182451   | 2182452   | 2182453   | 2182454   | 2182455   | 2182456   | 2182457   | 2182458   | 2182459   | 2182460   | 2182461   | 2182462   |     |

\* Standardgewinde (DIN 13 Teil 1)  
\* Standard thread (to DIN 13 part 1)

**Gewindeabmessungen, Artikel-Nr. der Gewinderollen  
für zylindrische Werkstück-Rechtsgewinde, Ausführung „A“**  
Thread sizes, Ident No. for Thread Rolls  
with Straight Right-Hand Threads – Version „A“

| Metrisches ISO-Gewinde DIN 13 |           |           |           |           |           |           |           |           |   |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|
| Metric ISO Threads DIN 13     |           |           |           |           |           |           |           |           |   |
| Rollkopf                      | T42       |           |           |           |           |           |           |           |   |
| Rolling Head                  |           |           |           |           |           |           |           |           |   |
| Rollenbreiten                 | 10        | 12        | 14        | 16        | 18        | 20        | 22        | 24        |   |
| Roll width                    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    | 0.945"    |   |
| Gewinde-<br>abmessung         |           |           |           |           |           |           |           |           | Z |
| Thread size                   | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |   |
| M 16 x 2*                     | 2182916   | 2182917   | 2182918   | 2182919   | 2182920   | 2182921   | 2182922   | 2182923   |   |
| M 16 x 1,5                    | 2175173   | 1547705   | 2182930   | 2182931   | 2182932   | 2182933   | 2182934   | 2182935   |   |
| M 16 x 1                      | 2182943   | 2182944   | 2182945   | 2182946   | 2182947   | 2182948   | 2182949   | 2182950   |   |
| M 17 x 1                      | 2182959   | 2182960   | 2182961   | 2182962   | 2182963   | 2182964   | 2182965   | 2182966   |   |
| M 18 x 2,5*                   | 2182975   | 2182976   | 2182977   | 2182978   | 2182979   | 2182980   | 2182981   | 2182982   |   |
| M 18 x 2                      | 2182990   | 2182991   | 2182992   | 2182993   | 2182994   | 2182995   | 2182996   | 2182997   |   |
| M 18 x 1,5                    | 2177260   | 2183005   | 1549400   | 2183006   | 2175544   | 2176247   | 2183007   | 2183008   |   |
| M 18 x 1                      | 2183016   | 2183017   | 2183018   | 2183019   | 2183020   | 2183021   | 2183022   | 2183023   |   |
| M 20 x 2,5*                   | 2183032   | 2183033   | 2183034   | 2183035   | 2183036   | 2183037   | 2183038   | 2183039   |   |
| M 20 x 2                      | 2183047   | 2183048   | 2183049   | 2183050   | 2183051   | 2183052   | 2183053   | 2183054   |   |
| M 20 x 1,5                    | 2183062   | 2183063   | 1547714   | 2183071   | 2183064   | 2174629   | 2175004   | 2183065   |   |
| M 20 x 1                      | 2183073   | 2183074   | 2183075   | 2183076   | 2183077   | 2183078   | 2183079   | 2183080   |   |
| M 22 x 2,5*                   | 2183089   | 2183090   | 2183091   | 2183092   | 2183093   | 2183094   | 2183095   | 2183096   |   |
| M 22 x 2                      | 2183104   | 2183105   | 2183106   | 2183107   | 2183108   | 2183109   | 2183110   | 2183111   |   |
| M 22 x 1,5                    | 2183120   | 1547741   | 2176694   | 1547750   | 2183121   | 2176248   | 2183122   | 2183123   |   |
| M 22 x 1                      | 2183128   | 2183129   | 2183130   | 2183131   | 2183132   | 2183134   | 2183135   | 2183136   |   |
| M 24 x 3*                     | 2183145   | 2183146   | 2183147   | 2183148   | 2183149   | 2183150   | 2183151   | 2183152   |   |
| M 24 x 2                      | 2183160   | 2183161   | 2183162   | 2183163   | 2183164   | 2183165   | 2183166   | 2183167   |   |
| M 24 x 1,5                    | 2183176   | 2183177   | 1547778   | 1547787   | 2176693   | 2175005   | 2183178   | 2183179   | 3 |
| M 24 x 1,5                    | 2183186   | 2183187   | 2183188   | 2183189   | 2183190   | 2183191   | 2183192   | 2183193   | 4 |
| M 25 x 1,5                    | 2183201   | 2183202   | 2183203   | 2175572   | 2183204   | 2183205   | 2183206   | 2183207   |   |
| M 27 x 3*                     | 2183216   | 2183217   | 2183218   | 2183219   | 2183220   | 2183221   | 2183222   | 2183223   |   |
| M 27 x 2                      | 2183231   | 2183232   | 2183233   | 2175145   | 2175449   | 2183234   | 2183235   | 2175500   |   |
| M 27 x 1,5                    | 2183244   | 2183245   | 2183246   | 2183247   | 2183248   | 2183249   | 2183250   | 2183251   |   |
| M 30 x 2                      | 2183259   | 2183260   | 2183261   | 1547858   | 2173937   | 2176695   | 2183262   | 2183263   |   |
| M 30 x 1,5                    | 2183269   | 2183270   | 2183271   | 2173569   | 2173969   | 2174365   | 2183272   | 2183273   |   |
| M 33 x 2                      | 2183281   | 2183282   | 2183283   | 2174678   | 1547867   | 1547876   | 2183284   | 2183285   |   |
| M 33 x 1,5                    | 2183291   | 2183292   | 2183293   | 2183294   | 2183295   | 2183296   | 2183297   | 2183298   |   |
| M 35 x 1,5                    | 2183306   | 2176874   | 2173932   | 2183307   | 2183308   | 2183309   | 1549419   | 1547885   |   |
| M 36 x 3                      | 2183318   | 2183319   | 2183320   | 2183321   | 2183322   | 2183323   | 2183324   | 2183325   |   |
| M 36 x 2                      | 2183334   | 2183335   | 2175366   | 1547947   | 2175364   | 1547956   | 2183336   | 2183337   |   |
| M 36 x 1,5                    | 2183343   | 1547901   | 1547910   | 2175252   | 2183344   | 2183345   | 2183346   | 2183347   |   |
| M 39 x 3                      | 2183354   | 2183355   | 2183356   | 2183357   | 2183358   | 2183359   | 2183360   | 2183361   |   |
| M 39 x 2                      | 2183370   | 2183371   | 2183372   | 2183373   | 2183374   | 2183375   | 2183376   | 2183377   |   |
| M 39 x 1,5                    | 2183386   | 2183387   | 2183388   | 2183389   | 2183390   | 2183391   | 2183392   | 2183393   |   |
| M 40 x 1,5                    | 2183402   | 1547983   | 2173936   | 1547992   | 2176599   | 2183403   | 2183404   | 2183405   |   |
| M 42 x 3                      | 2183413   | 2183414   | 2183415   | 2183416   | 2183417   | 2183418   | 2183419   | 2183420   |   |
| M 42 x 2                      | 2183429   | 2183430   | 2183431   | 2176187   | 1548009   | 1548018   | 1548027   | 2183432   |   |
| M 42 x 1,5                    | 2183440   | 2183441   | 2183442   | 2183443   | 2183444   | 2176056   | 2183445   | 2183446   |   |
| M 45 x 3                      | 2183455   | 2183456   | 2183457   | 2183458   | 2183459   | 2183460   | 2183461   | 2183462   |   |
| M 45 x 2                      | 2183487   | 2183488   | 2183489   | 2183490   | 2175606   | 2177398   | 2183491   | 2183492   |   |
| M 45 x 1,5                    | 2183500   | 2183501   | 2183502   | 2183503   | 2183504   | 1548036   | 2183505   | 2183506   |   |
| M 48 x 3                      | 2183513   | 2183514   | 2183515   | 2183516   | 2183517   | 2183518   | 2183519   | 2183520   |   |
| M 48 x 2                      | 2183529   | 2183530   | 2183531   | 2183532   | 2183533   | 2183534   | 2183535   | 2183536   |   |
| M 48 x 1,5                    | 2183544   | 2183545   | 2183546   | 2183547   | 2183548   | 2183549   | 2183550   | 2183551   |   |
| M 50 x 1,5                    | 2183560   | 2183561   | 2183562   | 2183563   | 2183564   | 1548072   | 2183565   | 2183566   |   |
| M 52 x 3                      | 2183573   | 2183574   | 2183575   | 2183576   | 2183577   | 2183578   | 2183579   | 2183580   |   |
| M 52 x 2                      | 2183589   | 2183590   | 2183591   | 2183592   | 2183593   | 2183594   | 2174446   | 2183595   |   |
| M 52 x 1,5                    | 2183603   | 2183604   | 2183605   | 2183606   | 2183607   | 2183608   | 2183609   | 2183610   |   |
| M 55 x 2                      | 2183618   | 2183619   | 2183620   | 2183621   | 2183622   | 2183623   | 2183991   | 2183625   |   |
| M 55 x 1,5                    | 2183633   | 2183634   | 2183635   | 2183636   | 2183637   | 2183638   | 2183639   | 2183640   |   |

\* Standardgewinde (DIN 13 Teil 1)  
\* Standard thread (to DIN 13 part 1)



**Gewindeabmessungen, Artikel-Nr. der Gewinderollen  
für zylindrische Werkstück-Rechtsgewinde, Ausführung „A“  
Thread sizes, Ident No. for Thread Rolls  
with Straight Right-Hand Threads – Version „A“**

| Metrisches ISO-Gewinde DIN 13 |           |           |           |           |           |           |           |           |   |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|
| Metric ISO Threads DIN 13     |           |           |           |           |           |           |           |           |   |
| Rollkopf                      | T42       |           |           |           |           |           |           |           |   |
| Rolling Head                  |           |           |           |           |           |           |           |           |   |
| Rollenbreiten                 | 10        | 12        | 14        | 16        | 18        | 20        | 22        | 24        |   |
| Roll width                    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    | 0.945"    |   |
| Gewinde-<br>abmessung         |           |           |           |           |           |           |           |           |   |
| Thread size                   | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z |
| M 56 x 2                      | 2183649   | 2183650   | 2183651   | 2183652   | 2183653   | 2183654   | 2183655   | 2183656   |   |
| M 56 x 1,5                    | 2183665   | 2183666   | 2183667   | 2183668   | 2183669   | 2183670   | 2183671   | 2183672   |   |
| M 60 x 2                      | 2183682   | 2183683   | 2183684   | 2183685   | 2183686   | 2183687   | 2183688   | 2183689   |   |
| M 60 x 1,5                    | 2183698   | 2183699   | 2183700   | 2183701   | 2183702   | 2176069   | 2183703   | 2183704   |   |
| M 64 x 2                      | 2183713   | 2183714   | 2183715   | 2183716   | 2183717   | 2183718   | 2183719   | 2183720   |   |
| M 64 x 1,5                    | 2183729   | 2183730   | 2183731   | 2183732   | 2183733   | 2183734   | 2183735   | 2183736   |   |
| Rollenbreiten                 | 26        | 28        | 30        | 32        | 34        | 36        | 38        | 40,5      |   |
| Roll width                    | 1.024"    | 1.102"    | 1.181"    | 1.26"     | 1.339"    | 1.417"    | 1.496"    | 1.594"    |   |
| Gewinde-<br>abmessung         |           |           |           |           |           |           |           |           |   |
| Thread size                   | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z |
| M 16 x 2*                     | 2182924   | 2178581   | 2182925   | 2182926   | 2182927   | 2182928   | 2182929   | 2175693   |   |
| M 16 x 1,5                    | 2182936   | 2182937   | 2182938   | 2182939   | 2182940   | 2182941   | 2182942   | 2174675   |   |
| M 16 x 1                      | 2182951   | 2182952   | 2182953   | 2182954   | 2182955   | 2182956   | 2182957   | 2182958   |   |
| M 17 x 1                      | 2182967   | 2182968   | 2182969   | 2182970   | 2182971   | 2182972   | 2182973   | 2182974   |   |
| M 18 x 2,5*                   | 2182983   | 2182984   | 2182985   | 2182986   | 2182987   | 2182988   | 2182989   | 2175956   |   |
| M 18 x 2                      | 2182998   | 2182999   | 2183000   | 2183001   | 2183002   | 2183003   | 2183004   | 2175105   |   |
| M 18 x 1,5                    | 2183009   | 2183010   | 2183011   | 2183012   | 2183013   | 2183014   | 2183015   | 2174676   |   |
| M 18 x 1                      | 2183024   | 2183025   | 2183026   | 2183027   | 2183028   | 2183029   | 2183030   | 2183031   |   |
| M 20 x 2,5*                   | 2183040   | 2183041   | 2183042   | 2183043   | 2183044   | 2183045   | 2183046   | 2175695   |   |
| M 20 x 2                      | 2183055   | 2183056   | 2183057   | 2183058   | 2183059   | 2183060   | 2183061   | 2175107   |   |
| M 20 x 1,5                    | 2183066   | 2183067   | 2183068   | 2183069   | 2183070   | 1547732   | 2183072   | 2175499   |   |
| M 20 x 1                      | 2183081   | 2183082   | 2183083   | 2183084   | 2183085   | 2183086   | 2183087   | 2183088   |   |
| M 22 x 2,5*                   | 2183097   | 2183098   | 2183099   | 2183100   | 2183101   | 2183102   | 2183103   | 2175908   |   |
| M 22 x 2                      | 2183112   | 2183113   | 2183114   | 2183115   | 2183116   | 2183117   | 2183118   | 2183119   |   |
| M 22 x 1,5                    | 2183124   | 2176877   | 2176173   | 2183125   | 2183126   | 2176945   | 2183127   | 2174888   |   |
| M 22 x 1                      | 2183137   | 2183138   | 2183139   | 2183140   | 2183141   | 2183142   | 2183143   | 2183144   |   |
| M 24 x 3*                     | 2183153   | 2183154   | 2183155   | 2183156   | 2183157   | 2183158   | 2183159   | 2174826   |   |
| M 24 x 2                      | 2183168   | 2183169   | 2183170   | 2183171   | 2183172   | 2183173   | 2183174   | 2183175   |   |
| M 24 x 1,5                    | 2183180   | 1547796   | 2183181   | 2183182   | 2183183   | 2183184   | 2183185   | 2174328   | 3 |
| M 25 x 1,5                    | 2183194   | 2183195   | 2183196   | 2183197   | 2183198   | 2183199   | 2183200   | 2174011   | 4 |
| M 25 x 1,5                    | 2183208   | 2183209   | 2183210   | 2183211   | 2183212   | 2183213   | 2183214   | 2183215   |   |
| M 27 x 3*                     | 2183224   | 2183225   | 2183226   | 2183227   | 2183228   | 2183229   | 2183230   | 2175909   |   |
| M 27 x 2                      | 2183236   | 2183237   | 2183238   | 2183239   | 2183240   | 2183241   | 2183242   | 2183243   |   |
| M 27 x 1,5                    | 2183252   | 2183253   | 2183254   | 2183255   | 2183256   | 2183257   | 2183258   | 2175390   |   |
| M 30 x 2                      | 2174627   | 2183264   | 2183265   | 2183266   | 2183267   | 2175076   | 2183268   | 2175000   |   |
| M 30 x 1,5                    | 2183274   | 2183275   | 2183276   | 2183277   | 2183278   | 2183279   | 2183280   | 2176616   |   |
| M 33 x 2                      | 2183286   | 2173931   | 2174630   | 2183287   | 2183288   | 2183289   | 2183290   | 2177092   |   |
| M 33 x 1,5                    | 2183299   | 2183300   | 2183301   | 2183302   | 2183303   | 2183304   | 2183305   | 2177320   |   |
| M 35 x 1,5                    | 2183310   | 2183311   | 2183312   | 2183313   | 2183314   | 2183315   | 2183316   | 2183317   |   |
| M 36 x 3                      | 2183326   | 2183327   | 2183328   | 2183329   | 2183330   | 2183331   | 2183332   | 2183333   |   |
| M 36 x 2                      | 2183338   | 2183339   | 2183340   | 2183341   | 2183342   | 2175072   | 2176690   | 2176975   |   |
| M 36 x 1,5                    | 1547938   | 2183348   | 2183349   | 2183350   | 2183351   | 2183352   | 2183353   | 1549428   |   |
| M 39 x 3                      | 2183362   | 2183363   | 2183364   | 2183365   | 2183366   | 2183367   | 2183368   | 2183369   |   |
| M 39 x 2                      | 2183378   | 2183379   | 2183380   | 2183381   | 2183382   | 2183383   | 2183384   | 2183385   |   |
| M 39 x 1,5                    | 2183394   | 2183395   | 2183396   | 2183397   | 2183398   | 2183399   | 2183400   | 2183401   |   |
| M 40 x 1,5                    | 2183406   | 2183407   | 2183408   | 2183409   | 2183410   | 2183411   | 2183412   | 2173940   |   |
| M 42 x 3                      | 2183421   | 2183422   | 2183423   | 2183424   | 2183425   | 2183426   | 2183427   | 2183428   |   |
| M 42 x 2                      | 2183433   | 2174626   | 2183434   | 2183435   | 2183436   | 2183437   | 2183438   | 2183439   |   |
| M 42 x 1,5                    | 2183447   | 2183448   | 2183449   | 2183450   | 2183451   | 2183452   | 2183453   | 2183454   |   |
| M 45 x 3                      | 2183463   | 2183464   | 2183465   | 2183466   | 2183467   | 2183468   | 2183469   | 2177227   |   |

\* Standardgewinde (DIN 13 Teil 1)  
\* Standard thread (to DIN 13 part 1)

**Gewindeabmessungen, Artikel-Nr. der Gewinderollen  
für zylindrische Werkstück-Rechtsgewinde, Ausführung „A“**  
Thread sizes, Ident No. for Thread Rolls  
with Straight Right-Hand Threads – Version „A“

| Metrisches ISO-Gewinde DIN 13 |           |           |           |           |           |           |           |           |   |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|
| Metric ISO Threads DIN 13     |           |           |           |           |           |           |           |           |   |
| Rollkopf                      | T42       |           |           |           |           |           |           |           |   |
| Rolling Head                  |           |           |           |           |           |           |           |           |   |
| Rollenbreiten                 | 26        | 28        | 30        | 32        | 34        | 36        | 38        | 40,5      |   |
| Roll width                    | 1.024"    | 1.102"    | 1.181"    | 1.26"     | 1.339"    | 1.417"    | 1.496"    | 1.594"    |   |
| Gewinde-<br>abmessung         |           |           |           |           |           |           |           |           |   |
| Thread size                   | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z |
| M 45 x 2                      | 2183493   | 2183494   | 2183495   | 2183496   | 2183497   | 2183498   | 2183499   | 2176966   |   |
| M 45 x 1,5                    | 2183507   | 2183508   | 1548045   | 2183509   | 2183510   | 2183511   | 2183512   | 2173939   |   |
| M 48 x 3                      | 2183521   | 2183522   | 2183523   | 2183524   | 2183525   | 2183526   | 2183527   | 2183528   |   |
| M 48 x 2                      | 2183537   | 2183538   | 2174625   | 2183539   | 2183540   | 2183541   | 2183542   | 2183543   |   |
| M 48 x 1,5                    | 2183552   | 2183553   | 2183554   | 2183555   | 2183556   | 2183557   | 2183558   | 2183559   |   |
| M 50 x 1,5                    | 2177388   | 2183567   | 2183568   | 2183569   | 2183570   | 2183571   | 2183572   | 2173924   |   |
| M 52 x 3                      | 2183581   | 2183582   | 2183583   | 2183584   | 2183585   | 2183586   | 2183587   | 2183588   |   |
| M 52 x 2                      | 2183596   | 2183597   | 2183598   | 2183599   | 2183600   | 2183601   | 2183602   | 2177166   |   |
| M 52 x 1,5                    | 2177387   | 2183611   | 2183612   | 2183613   | 2183614   | 2183615   | 2183616   | 2183617   |   |
| M 55 x 2                      | 2183992   | 2183627   | 2183628   | 2183629   | 2183630   | 2183631   | 2183632   | 2173942   |   |
| M 55 x 1,5                    | 2183641   | 2183642   | 2183643   | 2183644   | 2183645   | 2183646   | 2183647   | 2183648   |   |
| M 56 x 2                      | 2183657   | 2183658   | 2183659   | 2183660   | 2183661   | 2183662   | 2183663   | 2183664   |   |
| M 56 x 1,5                    | 2183673   | 2183674   | 2183675   | 2183678   | 2183679   | 2183680   | 2183681   | 2177525   |   |
| M 60 x 2                      | 2183690   | 2183691   | 2183692   | 2183693   | 2183694   | 2183695   | 2183696   | 2183697   |   |
| M 60 x 1,5                    | 2183705   | 2183706   | 2183707   | 2183708   | 2183709   | 2183710   | 2183711   | 2183712   |   |
| M 64 x 2                      | 2183721   | 2183722   | 2183723   | 2183724   | 2183725   | 2183726   | 2183727   | 2183728   |   |
| M 64 x 1,5                    | 2183737   | 2183738   | 2183739   | 2183740   | 2183741   | 2183742   | 2183743   | 2183744   |   |

| Unified-Gewinde ANSI B1.1 |           |           |           |           |           |           |           |           |   |
|---------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|
| Unified Threads ANSI B1.1 |           |           |           |           |           |           |           |           |   |
| Rollkopf                  | T18       |           |           |           |           |           |           |           |   |
| Rolling Head              |           |           |           |           |           |           |           |           |   |
| Rollenbreiten             | 6         | 8         | 10        | 12        | 14        | 16        | 18        | 21,5      |   |
| Roll width                | 0.236"    | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.846"    |   |
| Gewinde-<br>abmessung     |           |           |           |           |           |           |           |           |   |
| Thread size               | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z |
| 2 – 56 UNC                | 2181434   | 2181435   | 2181436   | 2181437   | 2181438   | 2181439   | 2181440   | 2181441   |   |
| 2 – 64 UNF                | 2181442   | 2181443   | 2181444   | 2181445   | 2181446   | 2181447   | 2181448   | 2181449   |   |
| 3 – 48 UNC                | 2181450   | 2181451   | 2181452   | 2181453   | 2181454   | 2181455   | 2181456   | 2181457   |   |
| 3 – 56 UNF                | 2181458   | 2181459   | 2181460   | 2181461   | 2181462   | 2181463   | 2181464   | 2181465   |   |
| 4 – 40 UNC                | 2181466   | 2181467   | 2181468   | 2181469   | 2181470   | 2181471   | 2181472   | 2181473   |   |
| 4 – 48 UNF                | 2181474   | 2181475   | 2181476   | 2181477   | 2181478   | 2181479   | 2181480   | 2181481   |   |
| 5 – 40 UNC                | 2181482   | 2181483   | 2181484   | 2181485   | 2181486   | 2181487   | 2181488   | 2181489   |   |
| 5 – 44 UNF                | 2181490   | 2181491   | 2181492   | 2181493   | 2181494   | 2181495   | 2181496   | 2181497   |   |
| 6 – 32 UNC                | 2181498   | 2176409   | 2181499   | 2181500   | 2181501   | 2181502   | 2181503   | 2181504   |   |
| 6 – 40 UNF                | 2181505   | 2181506   | 2181507   | 2181508   | 2181509   | 2181510   | 2181511   | 2181512   |   |
| 8 – 32 UNC                | 2181513   | 2181514   | 2181515   | 2181228   | 2181516   | 2181517   | 2181518   | 2181519   |   |
| 8 – 36 UNF                | 2181520   | 2181521   | 2181522   | 2181523   | 2181524   | 2181525   | 2181526   | 2181527   |   |
| 10 – 24 UNC               | 2181528   | 2181529   | 2181530   | 2181531   | 2181532   | 2181533   | 2181534   | 2181535   |   |
| 10 – 32 UNF               | 2181536   | 2181227   | 2176408   | 1538056   | 2176418   | 2181537   | 2177207   | 2176017   |   |
| 12 – 24 UNC               | 2181538   | 2181539   | 2181540   | 2181541   | 2181542   | 2181543   | 2181544   | 2176791   |   |
| 12 – 28 UNF               | 2181555   | 2181556   | 2181557   | 2181558   | 2175327   | 2181559   | 2181560   | 2181561   |   |
| 12 – 32 UNEF              | 1538403   | 2181562   | 2181563   | 2181564   | 2181565   | 2181566   | 2181567   | 2181568   |   |
| 1/4 – 20 UNC              | 2181569   | 2181570   | 2175167   | 2175435   | 2181571   | 2181572   | 2181573   | 1538001   |   |
| 1/4 – 28 UNF              | 2181226   | 2174573   | 1538065   | 2175231   | 2173642   | 2181574   | 2177208   | 1539901   |   |
| 1/4 – 32 UNEF             | 2181575   | 2177519   | 2181576   | 2181577   | 2181578   | 2181579   | 2181580   | 2181581   |   |
| 5/16 – 18 UNC             | 2181582   | 2181583   | 2181584   | 2181585   | 2181586   | 2181587   | 2181588   | 2175898   |   |
| 5/16 – 24 UNF             | 2181589   | 2181225   | 2181590   | 2176555   | 2181591   | 2175326   | 2181592   | 1538092   |   |
| 5/16 – 32 UNEF            | 1538421   | 2181593   | 2181594   | 2181595   | 2176432   | 2181596   | 2181597   | 2181598   |   |
| 3/8 – 16 UNC              | 2181599   | 2181600   | 2181601   | 2181602   | 2181603   | 2181604   | 2181605   | 2181224   |   |
| 3/8 – 24 UNF              | 2181606   | 2176648   | 1538109   | 1538118   | 1538136   | 2175187   | 1538145   | 1538154   |   |



Gewindeabmessungen, Artikel-Nr. der Gewinderollen  
für zylindrische Werkstück-Rechtsgewinde, Ausführung „A“  
Thread sizes, Ident No. for Thread Rolls  
with Straight Right-Hand Threads – Version „A“

| Unified-Gewinde ANSI B1.1 |           |           |           |           |           |           |           |           |   |
|---------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|
| Unified Threads ANSI B1.1 |           |           |           |           |           |           |           |           |   |
| Rollkopf                  | T18       |           |           |           |           |           |           |           |   |
| Rolling Head              |           |           |           |           |           |           |           |           |   |
| Rollenbreiten             | 6         | 8         | 10        | 12        | 14        | 16        | 18        | 21,5      |   |
| Roll width                | 0.236"    | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.846"    |   |
| Gewinde-abmessung         |           |           |           |           |           |           |           |           |   |
| Thread size               | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z |
| 3/8 - 32 UNEF             | 2174661   | 2181607   | 2181608   | 2181609   | 2181610   | 2181611   | 2181612   | 2181613   |   |
| 7/16 - 14 UNC             | 2181614   | 2181615   | 2181616   | 2175469   | 2181617   | 2181618   | 1538029   | 2181619   |   |
| 7/16 - 20 UNF             | 2175451   | 2181620   | 2173991   | 2181223   | 1538163   | 2181621   | 2176417   | 1538172   |   |
| 7/16 - 28 UNEF            | 2181622   | 2181623   | 2181624   | 2181625   | 2176433   | 2181626   | 2181627   | 2181628   |   |
| 1/2 - 13 UNC              | 2181629   | 2181630   | 2181631   | 2181632   | 2181633   | 2181634   | 2181635   | 2181636   |   |
| 1/2 - 20 UNF              | 2181637   | 2174417   | 1538181   | 2176485   | 1538190   | 1538207   | 2181638   | 1538216   |   |
| 1/2 - 28 UNEF             | 2181639   | 2181640   | 2181641   | 2181642   | 2181643   | 2181644   | 2174056   | 2181645   |   |
| 9/16 - 12 UNC             | 2181646   | 2181647   | 2181648   | 2181649   | 2181650   | 2181651   | 2181652   | 2181653   |   |
| 9/16 - 18 UNF             | 2181654   | 2181655   | 1538225   | 2173631   | 2177941   | 1538234   | 2177622   | 2175809   |   |
| 9/16 - 24 UNEF            | 2181656   | 2181657   | 2181222   | 2181221   | 2181658   | 1538252   | 2181659   | 2175454   |   |
| 5/8 - 18 UNF              | 2181660   | 2181661   | 1538270   | 2175966   | 1538289   | 1538298   | 1538305   | 2175325   | 2 |
| 5/8 - 18 UNF              | 2184477   | 2184478   | 2184479   | 2184480   | 2184481   | 2184482   | 2184483   | 2184484   | 3 |
| 5/8 - 24 UNEF             | 2181662   | 2181663   | 2176236   | 1538449   | 2181664   | 2181665   | 2181666   | 1539910   |   |
| 11/16 - 24 UNEF           | 2181670   | 2181671   | 2181672   | 2181673   | 2181674   | 2181675   | 2181676   | 2175568   |   |
| 3/8 - 16 UNF              | 2173561   | 2181677   | 2181678   | 1538314   | 1538323   | 1538332   | 2181679   | 1555278   |   |
| 3/8 - 20 UNEF             | 2181680   | 2181220   | 1538458   | 2175403   | 2181681   | 2173962   | 2181219   | 2175923   |   |
| 13/16 - 20 UNEF           | 2181682   | 1538467   | 1538476   | 2175541   | 2175939   | 2181683   | 2181684   | 2181685   |   |
| 7/8 - 14 UNF              | 2181686   | 2181687   | 2181688   | 2176382   | 2181689   | 2176144   | 2176796   | 2175496   |   |
| 7/8 - 20 UNEF             | 2181690   | 2181691   | 2181692   | 2181693   | 2181694   | 2181695   | 2181696   | 2176473   |   |
| 13/16 - 20 UNF            | 2181697   | 2181698   | 2181699   | 2181700   | 2181701   | 2181702   | 2181703   | 2181704   |   |
| 1 - 12 UNF                | 2181705   | 2181706   | 2181707   | 2175137   | 2175344   | 2181708   | 2181709   | 2181710   |   |
| 1 - 20 UNEF               | 2181711   | 2181712   | 2181713   | 2181714   | 2181715   | 2181716   | 2181717   | 2181718   |   |
| 11/16 - 18 UNEF           | 2181719   | 2181720   | 2181721   | 2181722   | 2181723   | 2181724   | 2181725   | 2181726   |   |
| 11/8 - 12 UNF             | 2181727   | 2181728   | 2181729   | 2181730   | 2181731   | 2181732   | 2181733   | 2181734   |   |
| 11/8 - 18 UNEF            | 2181735   | 2181736   | 2181737   | 2181738   | 2181739   | 2181740   | 2181741   | 2181742   |   |
| 13/16 - 18 UNEF           | 2181743   | 2181744   | 2181745   | 2181746   | 2181747   | 2181748   | 2181749   | 2181750   |   |

| Unified-Gewinde ANSI B1.1 |           |           |           |           |           |           |           |           |           |           |           |           |   |
|---------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|
| Unified Threads ANSI B1.1 |           |           |           |           |           |           |           |           |           |           |           |           |   |
| Rollkopf                  | T27       |           |           |           |           |           |           |           |           |           |           |           |   |
| Rolling Head              |           |           |           |           |           |           |           |           |           |           |           |           |   |
| Rollenbreiten             | 8         | 10        | 12        | 14        | 16        | 18        | 20        | 22        | 24        | 26        | 28        | 31        |   |
| Roll width                | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    | 0.945"    | 1.024"    | 1.102"    | 1.220"    |   |
| Gewinde-abmessung         |           |           |           |           |           |           |           |           |           |           |           |           |   |
| Thread size               | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z |
| 1/4 - 20 UNC              | 2182463   | 2182464   | 2182465   | 2174511   | 2182466   | 2182467   | 2182468   | 2182469   | 2182470   | 2182471   | 2182472   | 2182473   |   |
| 1/4 - 28 UNF              | 2182474   | 2182475   | 2182476   | 2182477   | 2175810   | 2182478   | 2182479   | 2182480   | 2182481   | 2182482   | 2182483   | 2175811   |   |
| 1/4 - 32 UNEF             | 2182484   | 2182485   | 2182486   | 2182487   | 2182488   | 2182489   | 2182490   | 2182491   | 2182492   | 2182493   | 2182494   | 2182495   |   |
| 5/16 - 18 UNC             | 2182496   | 2182497   | 2182498   | 2182499   | 2182500   | 2182501   | 2182502   | 2182503   | 2182504   | 2182505   | 2182506   | 2182507   |   |
| 5/16 - 24 UNF             | 2182508   | 2182509   | 2182510   | 2182511   | 2182512   | 2182513   | 2182514   | 2182515   | 2182516   | 2182517   | 2182518   | 2182519   |   |
| 5/16 - 32 UNEF            | 2182520   | 2182521   | 2182522   | 2182523   | 2182524   | 2182525   | 2182526   | 2182527   | 2182528   | 2182529   | 2182530   | 2182531   |   |
| 3/8 - 16 UNC              | 2182532   | 2182533   | 1545743   | 2182534   | 2182535   | 2182536   | 2182153   | 2182537   | 2182538   | 2182539   | 2182540   | 2177695   |   |
| 3/8 - 24 UNF              | 1556240   | 2182541   | 1556259   | 2182542   | 2182543   | 2182544   | 2182545   | 2182546   | 2182547   | 2182548   | 2182549   | 2182152   |   |
| 3/8 - 32 UNEF             | 2182550   | 2182551   | 2182552   | 2182553   | 2182554   | 2182555   | 2182556   | 2182557   | 2182558   | 2182559   | 2182560   | 2182561   |   |
| 7/16 - 14 UNC             | 2182562   | 2182563   | 2182564   | 2183980   | 2182565   | 2182566   | 2182567   | 2182568   | 2182569   | 2182570   | 2182571   | 2182572   |   |
| 7/16 - 20 UNF             | 2182151   | 1544977   | 1544986   | 2182573   | 2182574   | 2182150   | 2182575   | 2173546   | 2182576   | 2173545   | 2182577   | 1544995   |   |
| 7/16 - 28 UNEF            | 2182578   | 2182579   | 2182580   | 2182581   | 2182582   | 2182583   | 2182584   | 2182585   | 2182586   | 2182587   | 2182588   | 2182589   |   |
| 1/2 - 13 UNC              | 2182590   | 2182591   | 2182592   | 2182593   | 2182594   | 2182595   | 2182596   | 2182597   | 2182598   | 2182599   | 2182600   | 2182601   |   |
| 1/2 - 20 UNF              | 2182602   | 2176337   | 2176629   | 2182603   | 1545761   | 2182149   | 2182604   | 2174595   | 2182605   | 2177169   | 2182606   | 1545011   |   |
| 1/2 - 28 UNEF             | 2178580   | 2182607   | 2182608   | 2182609   | 2182610   | 2182611   | 2182612   | 2182613   | 2182614   | 2182615   | 2182616   | 2182617   |   |
| 9/16 - 12 UNC             | 2182618   | 2182619   | 2182620   | 2182621   | 2182622   | 2182623   | 2182624   | 2182625   | 2182626   | 2182627   | 2182628   | 2182629   |   |



**Gewindeabmessungen, Artikel-Nr. der Gewinderollen  
für zylindrische Werkstück-Rechtsgewinde, Ausführung „A“**  
Thread sizes, Ident No. for Thread Rolls  
with Straight Right-Hand Threads – Version „A“

| Unified-Gewinde ANSI B1.1 |           |           |           |           |           |           |           |           |           |           |           |           |   |
|---------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|
| Unified Threads ANSI B1.1 |           |           |           |           |           |           |           |           |           |           |           |           |   |
| Rollkopf                  | T27       |           |           |           |           |           |           |           |           |           |           |           |   |
| Rolling Head              |           |           |           |           |           |           |           |           |           |           |           |           |   |
| Rollenbreiten             | 8         | 10        | 12        | 14        | 16        | 18        | 20        | 22        | 24        | 26        | 28        | 31        |   |
| Roll width                | 0.315"    | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    | 0.945"    | 1.024"    | 1.102"    | 1.220"    |   |
| Gewinde-<br>abmessung     |           |           |           |           |           |           |           |           |           |           |           |           |   |
| Thread size               | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Z |
| 9/16 – 18 UNF             | 2182630   | 2182631   | 1545020   | 1545039   | 2177759   | 2182632   | 2182633   | 2182634   | 2182635   | 2182636   | 2182637   | 1545048   |   |
| 9/16 – 24 UNEF            | 2182638   | 2182639   | 2182640   | 2182641   | 2182642   | 2182643   | 2182644   | 2182645   | 2182646   | 2182647   | 2182648   | 2182649   |   |
| 5/8 – 11 UNC              | 2182650   | 2182651   | 2182652   | 2182653   | 2182654   | 2176404   | 2173354   | 2182655   | 2182656   | 2182657   | 2182658   | 2177107   |   |
| 5/8 – 18 UNF              | 2182659   | 2182660   | 2182148   | 1556268   | 2182661   | 2182662   | 1556277   | 2182663   | 2177702   | 2182664   | 2182665   | 2176015   |   |
| 5/8 – 24 UNEF             | 2182666   | 2182667   | 2182668   | 2182669   | 2182670   | 2182671   | 2182672   | 2182673   | 2182674   | 2182675   | 2182676   | 2182677   |   |
| 11/16 – 24 UNEF           | 2182678   | 2182679   | 2182680   | 2182681   | 2182682   | 2182683   | 2182684   | 2183981   | 2182685   | 2182686   | 2182687   | 2182688   |   |
| 3/4 – 10 UNC              | 2182689   | 2182690   | 2182691   | 2182692   | 2182693   | 2182694   | 2182695   | 2182696   | 2182697   | 2182698   | 2182699   | 2182700   |   |
| 3/4 – 16 UNF              | 2182701   | 2176938   | 1545066   | 1545075   | 2182147   | 2182702   | 1545084   | 2182703   | 2182704   | 2182705   | 2182706   | 1545093   |   |
| 3/4 – 20 UNEF             | 2182707   | 2182708   | 2182146   | 2182709   | 2182710   | 2174752   | 2182711   | 2182712   | 2182713   | 2182714   | 2182715   | 2173929   |   |
| 13/16 – 20 UNEF           | 2182716   | 2182717   | 2182718   | 2182719   | 2182720   | 2182144   | 2182721   | 2182722   | 2182145   | 2182723   | 2182724   | 2182725   |   |
| 7/8 – 14 UNF              | 2182726   | 2174665   | 2182143   | 1545100   | 2182727   | 2182728   | 1556286   | 2182729   | 2182730   | 2182731   | 2182732   | 2176016   | 2 |
| 7/8 – 14 UNF              | 2182733   | 2182734   | 2182735   | 2182736   | 2182737   | 2182738   | 2182739   | 2182740   | 1556295   | 2182741   | 2182742   | 2182743   | 3 |
| 7/8 – 20 UNEF             | 2182744   | 2182745   | 2177064   | 2182142   | 2182746   | 2182141   | 2182747   | 2182748   | 2182749   | 2182750   | 2182751   | 2183982   |   |
| 15/16 – 20 UNEF           | 2182752   | 2182753   | 2182754   | 2182755   | 2182756   | 2182757   | 2182767   | 2182768   | 2182769   | 2182770   | 2182771   | 2182772   |   |
| 1 – 12 UNF                | 2182773   | 2182774   | 2182775   | 2182776   | 2182777   | 1545128   | 2182778   | 2182779   | 2182780   | 2182781   | 2182782   | 2182783   |   |
| 1 – 20 UNEF               | 2182784   | 2182785   | 2176631   | 2182786   | 2182787   | 2182140   | 2182788   | 2182789   | 2182790   | 2182791   | 2182792   | 2176664   |   |
| 11/16 – 18 UNEF           | 2182793   | 2182794   | 2182795   | 2182796   | 2182797   | 2182798   | 2182799   | 2182800   | 2182801   | 2182802   | 2182803   | 2182804   |   |
| 11/8 – 12 UNF             | 2182805   | 2182806   | 2182807   | 2182808   | 1545155   | 2182809   | 1545164   | 2182810   | 2182811   | 2182812   | 2182813   | 2177715   |   |
| 11/8 – 18 UNEF            | 2182814   | 2182815   | 2182816   | 2182817   | 2182818   | 2182819   | 2182820   | 2182821   | 2182822   | 2182823   | 2182824   | 2182825   |   |
| 13/16 – 18 UNEF           | 2182826   | 2182827   | 2182829   | 2182830   | 2182831   | 2182832   | 2182833   | 2182834   | 2182835   | 2182836   | 2182837   | 2182838   |   |

| Unified-Gewinde ANSI B1.1 |           |           |           |           |           |           |           |           |           |
|---------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Unified Threads ANSI B1.1 |           |           |           |           |           |           |           |           |           |
| Rollkopf                  | T42       |           |           |           |           |           |           |           |           |
| Rolling Head              |           |           |           |           |           |           |           |           |           |
| Rollenbreiten             | 10        | 12        | 14        | 16        | 18        | 20        | 22        | 24        |           |
| Roll width                | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    | 0.945"    |           |
| Gewinde-<br>abmessung     |           |           |           |           |           |           |           |           |           |
| Thread size               | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| 5/8 – 11 UNC              | 2184278   | 2184279   | 2184280   | 2184281   | 2184282   | 2184283   | 2184284   | 2184285   |           |
| 5/8 – 18 UNF              | 2184294   | 2184295   | 2184296   | 2184297   | 2184298   | 2184299   | 2184300   | 2184301   |           |
| 5/8 – 24 UNEF             | 2184310   | 2184311   | 2184312   | 2184313   | 2184314   | 2184315   | 2184316   | 2184317   |           |
| 11/16 – 24 UNEF           | 2184326   | 2184327   | 2184328   | 2184329   | 2184330   | 2184331   | 2184332   | 2184333   |           |
| 3/4 – 10 UNC              | 2184342   | 2184343   | 2184344   | 2184345   | 2184346   | 2184347   | 2184348   | 2184349   |           |
| 3/4 – 16 UNF              | 2184358   | 2177195   | 2184359   | 2184360   | 2184361   | 2184362   | 2184363   | 2184364   |           |
| 3/4 – 20 UNEF             | 2184372   | 2184373   | 2184374   | 2184375   | 2184376   | 2184377   | 2184378   | 2184379   |           |
| 13/16 – 20 UNEF           | 2184388   | 2184389   | 2184390   | 2184391   | 2184392   | 2184393   | 2184394   | 2184395   |           |
| 7/8 – 9 UNC               | 2184404   | 2184405   | 2184406   | 2184407   | 2184408   | 2184409   | 2184410   | 2184411   |           |
| 7/8 – 14 UNF              | 2184420   | 2176212   | 2177194   | 2184421   | 2184422   | 1548401   | 2184423   | 2184424   |           |
| 7/8 – 20 UNEF             | 2184432   | 2184433   | 2184434   | 2184435   | 2184436   | 2184437   | 2184438   | 2184439   |           |
| 15/16 – 20 UNEF           | 2184448   | 2184449   | 2184450   | 2184451   | 2184452   | 2184453   | 2184454   | 2184455   |           |
| 1 – 8 UNC                 | 2184464   | 2184465   | 2184466   | 2184467   | 2184468   | 2184469   | 2184470   | 2184471   |           |
| 1 – 12 UNF                | 2183997   | 2183998   | 2183999   | 2184000   | 2184001   | 2184002   | 2184003   | 2184004   |           |
| 1 – 20 UNEF               | 2184012   | 2184013   | 2184014   | 2184015   | 2184016   | 2184017   | 2184018   | 2184019   |           |
| 11/16 – 18 UNEF           | 2184028   | 2184029   | 2184030   | 2184031   | 2184032   | 2184033   | 2184034   | 2184035   |           |
| 11/8 – 12 UNF             | 2184044   | 2184045   | 2184046   | 2184047   | 2184048   | 2184049   | 2184050   | 2184051   |           |
| 11/8 – 18 UNEF            | 2184060   | 2184061   | 2184062   | 2184063   | 2184064   | 2184065   | 2184066   | 2184067   |           |
| 13/16 – 18 UNEF           | 2184076   | 2184077   | 2184078   | 2184089   | 2184090   | 2184091   | 2184092   | 2184093   |           |
| 11/4 – 12 UNF             | 2184102   | 2184103   | 2184104   | 2184105   | 2184106   | 2184107   | 2184108   | 2184109   |           |
| 11/4 – 18 UNEF            | 2184118   | 2184119   | 2184120   | 2184121   | 2184122   | 2184123   | 2184124   | 2184125   |           |
| 15/16 – 18 UNEF           | 2184134   | 2184135   | 2184136   | 2184137   | 2184138   | 2184139   | 2184140   | 2184141   |           |

Gewindeabmessungen, Artikel-Nr. der Gewinderollen  
für zylindrische Werkstück-Rechtsgewinde, Ausführung „A“  
Thread sizes, Ident No. for Thread Rolls  
with Straight Right-Hand Threads – Version „A“

| Unified-Gewinde ANSI B1.1                 |           |           |           |           |           |           |           |           |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Unified Threads ANSI B1.1                 |           |           |           |           |           |           |           |           |
| Rollkopf                                  | T42       |           |           |           |           |           |           |           |
| Rolling Head                              |           |           |           |           |           |           |           |           |
| Rollenbreiten                             | 10        | 12        | 14        | 16        | 18        | 20        | 22        | 24        |
| Roll width                                | 0.394"    | 0.472"    | 0.551"    | 0.630"    | 0.709"    | 0.787"    | 0.866"    | 0.945"    |
| Gewinde-<br>abmessung                     |           |           |           |           |           |           |           |           |
| Thread size                               | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| 1 <sup>3</sup> / <sub>8</sub> – 12 UNF    | 2184150   | 2184151   | 2184152   | 2184153   | 2184154   | 2184155   | 2184156   | 2184157   |
| 1 <sup>3</sup> / <sub>8</sub> – 18 UNEF   | 2184166   | 2184167   | 2184168   | 2184169   | 2184170   | 2184171   | 2184172   | 2184173   |
| 1 <sup>7</sup> / <sub>16</sub> – 18 UNEF  | 2184182   | 2184183   | 2184184   | 2184185   | 2184186   | 2184187   | 2184188   | 2184189   |
| 1 <sup>1</sup> / <sub>2</sub> – 12 UNF    | 2184198   | 2184199   | 2184201   | 2184202   | 2184203   | 2184204   | 2184205   | 2184206   |
| 1 <sup>1</sup> / <sub>2</sub> – 18 UNEF   | 2184214   | 2184215   | 2184216   | 2184217   | 2184218   | 2184219   | 2184220   | 2184221   |
| 1 <sup>9</sup> / <sub>16</sub> – 18 UNEF  | 2184230   | 2184231   | 2184232   | 2184233   | 2184234   | 2184235   | 2184236   | 2184337   |
| 1 <sup>5</sup> / <sub>8</sub> – 18 UNEF   | 2184246   | 2184247   | 2184248   | 2184249   | 2184250   | 2184251   | 2184252   | 2184253   |
| 1 <sup>11</sup> / <sub>16</sub> – 18 UNEF | 2184262   | 2184263   | 2184264   | 2184265   | 2184266   | 2184267   | 2184268   | 2184269   |
| Rollenbreiten                             | 26        | 28        | 30        | 32        | 34        | 36        | 38        | 40,5      |
| Roll width                                | 1.024"    | 1.102"    | 1.181"    | 1.26"     | 1.339"    | 1.417"    | 1.496"    | 1.594"    |
| Gewinde-<br>abmessung                     |           |           |           |           |           |           |           |           |
| Thread size                               | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. | Ident No. |
| 5/8 – 11 UNC                              | 2184286   | 2184287   | 2184288   | 2184289   | 2184290   | 2184291   | 2184292   | 2184293   |
| 5/8 – 18 UNF                              | 2184302   | 2184303   | 2184304   | 2184305   | 2184306   | 2184307   | 2184308   | 2184309   |
| 5/8 – 24 UNEF                             | 2184318   | 2184319   | 2184320   | 2184321   | 2184322   | 2184323   | 2184324   | 2184325   |
| 1 <sup>1</sup> / <sub>16</sub> – 24 UNEF  | 2184334   | 2184335   | 2184336   | 2184337   | 2184338   | 2184339   | 2184340   | 2184341   |
| 3/4 – 10 UNC                              | 2184350   | 2184351   | 2184352   | 2184353   | 2184354   | 2184355   | 2184356   | 2184357   |
| 3/4 – 16 UNF                              | 2184365   | 2184366   | 2184367   | 2184368   | 2184369   | 2184370   | 2184371   | 2177013   |
| 3/4 – 20 UNEF                             | 2184380   | 2184381   | 2184382   | 2184383   | 2184384   | 2184385   | 2184386   | 2184387   |
| 1 <sup>3</sup> / <sub>16</sub> – 20 UNEF  | 2184396   | 2184397   | 2184398   | 2184399   | 2184400   | 2184401   | 2184402   | 2184403   |
| 7/8 – 9 UNC                               | 2184412   | 2184413   | 2184414   | 2184415   | 2184416   | 2184417   | 2184418   | 2184419   |
| 7/8 – 14 UNF                              | 2184425   | 2184426   | 2184427   | 2184428   | 2184429   | 2184430   | 2184431   | 2175907   |
| 7/8 – 20 UNEF                             | 2184440   | 2184441   | 2184442   | 2184443   | 2184444   | 2184445   | 2184446   | 2184447   |
| 1 <sup>5</sup> / <sub>16</sub> – 20 UNEF  | 2184456   | 2184457   | 2184458   | 2184459   | 2184460   | 2184461   | 2184462   | 2184463   |
| 1 – 8 UNC                                 | 2184472   | 2184473   | 2184474   | 2184475   | 2184476   | 2183994   | 2183995   | 2183996   |
| 1 – 12 UNF                                | 2184005   | 2184006   | 2184007   | 2184008   | 2184009   | 2184010   | 2184011   | 2173400   |
| 1 – 20 UNEF                               | 2184020   | 2184021   | 2184022   | 2184023   | 2184024   | 2184025   | 2184026   | 2184027   |
| 1 <sup>1</sup> / <sub>16</sub> – 18 UNF   | 2184036   | 2184037   | 2184038   | 2184039   | 2184040   | 2184041   | 2184042   | 2184043   |
| 1 <sup>1</sup> / <sub>8</sub> – 12 UNF    | 2184052   | 2184053   | 2184054   | 2184055   | 2184056   | 2184057   | 2184058   | 2184059   |
| 1 <sup>1</sup> / <sub>8</sub> – 18 UNEF   | 2184068   | 2184069   | 2184070   | 2184071   | 2184072   | 2184073   | 2184074   | 2184075   |
| 1 <sup>3</sup> / <sub>16</sub> – 18 UNEF  | 2184094   | 2184095   | 2184096   | 2184097   | 2184098   | 2184099   | 2184100   | 2184101   |
| 1 <sup>1</sup> / <sub>4</sub> – 12 UNF    | 2184110   | 2184111   | 2184112   | 2184113   | 2184114   | 2184115   | 2184116   | 2184117   |
| 1 <sup>1</sup> / <sub>4</sub> – 18 UNEF   | 2184126   | 2184127   | 2184128   | 2184129   | 2184130   | 2184131   | 2184132   | 2184133   |
| 1 <sup>5</sup> / <sub>16</sub> – 18 UNEF  | 2184142   | 2184143   | 2184144   | 2184145   | 2184146   | 2184147   | 2184148   | 2184149   |
| 1 <sup>3</sup> / <sub>8</sub> – 12 UNF    | 2184158   | 2184159   | 2184160   | 2184161   | 2184162   | 2184163   | 2184164   | 2184165   |
| 1 <sup>3</sup> / <sub>8</sub> – 18 UNEF   | 2184174   | 2184175   | 2184176   | 2184177   | 2184178   | 2184179   | 2184180   | 2184181   |
| 1 <sup>7</sup> / <sub>16</sub> – 18 UNF   | 2184190   | 2184191   | 2184192   | 2184193   | 2184194   | 2184195   | 2184196   | 2184197   |
| 1 <sup>1</sup> / <sub>2</sub> – 12 UNF    | 2184207   | 2184208   | 2184209   | 2184210   | 2184211   | 2184212   | 2184213   | 2174699   |
| 1 <sup>1</sup> / <sub>2</sub> – 18 UNEF   | 2184222   | 2184223   | 2184224   | 2184225   | 2184226   | 2184227   | 2184228   | 2184229   |
| 1 <sup>9</sup> / <sub>16</sub> – 18 UNEF  | 2184238   | 2184239   | 2184240   | 2184241   | 2184242   | 2184243   | 2184244   | 2184245   |
| 1 <sup>5</sup> / <sub>8</sub> – 18 UNEF   | 2184254   | 2184255   | 2184256   | 2184257   | 2184258   | 2184259   | 2184260   | 2184261   |
| 1 <sup>11</sup> / <sub>16</sub> – 18 UNEF | 2184270   | 2184271   | 2178582   | 2184272   | 2184273   | 2184274   | 2184275   | 2184276   |

Gewindeabmessungen, Artikel-Nr. der Gewinderollen  
für zylindrische Werkstück-Rechtsgewinde, Ausführung „A“  
Thread sizes, Ident No. for Thread Rolls  
with Straight Right-Hand Threads – Version „A“

| Whitworth-Rohrgewinde, parallel, DIN ISO 228<br>Whitworth Pipe Thread, parallel, DIN ISO 228 |             |             |              |              |              |              |              |                |
|--|-------------|-------------|--------------|--------------|--------------|--------------|--------------|----------------|
| Rollkopf<br>Rolling Head   | T18         |             |              |              |              |              |              |                |
| Rollenbreiten<br>Roll width  | 6<br>0.236" | 8<br>0.315" | 10<br>0.394" | 12<br>0.472" | 14<br>0.551" | 16<br>0.630" | 18<br>0.709" | 21,5<br>0.846" |
| Gewinde-<br>abmessung<br>Thread size   | Ident No.   | Ident No.   | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.      |
| G 1/8 – 28   | 2175573     | 1537869     | 1537878      | 1537887      | 2175370      | 2180975      | 2180976      | 1539885        |
| G 1/4 – 19   | 2180977     | 1537896     | 1537912      | 1537921      | 1537930      | 1537949      | 2176823      | 1539894        |
| G 3/8 – 19   | 2180978     | 2175574     | 1537958      | 1537967      | 1537976      | 2180974      | 2176487      | 1555250        |
| G 1/2 – 14   | 2175175     | 2180979     | 2180973      | 2176537      | 1537985      | 2175698      | 2176824      | 1555269        |
| G 5/8 – 14   | 2180980     | 2180981     | 2180982      | 2180983      | 2174319      | 2180984      | 2180985      | 2173603        |
| G 3/4 – 14   | 2180986     | 2180987     | 2180988      | 2175432      | 2180989      | 2180990      | 2180991      | 2173602        |

| Whitworth-Rohrgewinde, parallel, DIN ISO 228<br>Whitworth Pipe Thread, parallel, DIN ISO 228 |             |              |              |              |              |              |              |              |              |              |              |              |
|--|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Rollkopf<br>Rolling Head   | T27         |              |              |              |              |              |              |              |              |              |              |              |
| Rollenbreiten<br>Roll width  | 8<br>0.315" | 10<br>0.394" | 12<br>0.472" | 14<br>0.551" | 16<br>0.630" | 18<br>0.709" | 20<br>0.787" | 22<br>0.866" | 24<br>0.945" | 26<br>1.024" | 28<br>1.102" | 31<br>1.220" |
| Gewinde-<br>abmessung<br>Thread size   | Ident No.   | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    |
| G 1/8 – 28   | 2175781     | 2175558      | 2175177      | 2176939      | 2182839      | 2175629      | 2182840      | 2182841      | 2182842      | 2182843      | 2182844      | 2182845      |
| G 1/4 – 19   | 2173398     | 1544600      | 1544628      | 1544637      | 1544646      | 2175322      | 2176971      | 2182846      | 2182847      | 2182848      | 2182849      | 2177505      |
| G 3/8 – 19   | 1544655     | 1544664      | 1544682      | 1544691      | 1544708      | 2175599      | 2182850      | 2182851      | 2177170      | 2182852      | 2182853      | 2176905      |
| G 1/2 – 14   | 1544717     | 1544726      | 1544735      | 1544744      | 1544762      | 1544771      | 1545752      | 2175146      | 2182138      | 2182854      | 2182855      | 2175521      |
| G 5/8 – 14   | 2182856     | 2182857      | 1544780      | 2182858      | 1544799      | 2182859      | 2182860      | 2182861      | 2182862      | 2182863      | 2182864      | 2182865      |
| G 3/4 – 14   | 2182866     | 2182867      | 2174420      | 1544806      | 1544815      | 2174597      | 2182868      | 1544824      | 2182869      | 2173567      | 2182870      | 2175900      |
| G 7/8 – 14   | 2182871     | 2182872      | 2182873      | 2182874      | 2182875      | 2182876      | 2182877      | 2182878      | 2182879      | 2182880      | 2182881      | 2182882      |
| G 1 – 11   | 2182883     | 2182884      | 2182885      | 2182886      | 2182887      | 2182888      | 2182139      | 2182889      | 2182890      | 2182891      | 2182892      | 2174976      |
| G 1 1/8 – 11   | 2182893     | 2182894      | 2182895      | 2182896      | 2182897      | 2182898      | 2182899      | 2182900      | 2182901      | 2182902      | 2182903      | 2182904      |
| G 1 1/4 – 11   | 2182905     | 2182906      | 2182907      | 2176935      | 2182908      | 2182909      | 2182910      | 2182911      | 2182912      | 2182913      | 2182914      | 2182915      |

| Whitworth-Rohrgewinde, parallel, DIN ISO 228<br>Whitworth Pipe Thread, parallel, DIN ISO 228 |              |              |              |              |              |              |              |              |
|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Rollkopf<br>Rolling Head   | T42          |              |              |              |              |              |              |              |
| Rollenbreiten<br>Roll width  | 10<br>0.394" | 12<br>0.472" | 14<br>0.551" | 16<br>0.630" | 18<br>0.709" | 20<br>0.787" | 22<br>0.866" | 24<br>0.945" |
| Gewinde-<br>abmessung<br>Thread size   | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    | Ident No.    |
| G 1/8 – 28   | 2183745      | 2183746      | 2183747      | 2183748      | 2183749      | 2183750      | 2183751      | 2183752      |
| G 1/4 – 19   | 2183761      | 2183762      | 2183763      | 2183764      | 2183765      | 2183766      | 2183767      | 2183768      |
| G 3/8 – 19   | 2183777      | 2183778      | 2183779      | 2183780      | 2183781      | 2183782      | 2183783      | 2183784      |
| G 1/8 – 14   | 2183793      | 2183794      | 1548205      | 2176296      | 2183795      | 2175546      | 2183796      | 2183797      |
| G 5/8 – 14   | 2183806      | 2183807      | 2183808      | 2183809      | 2183810      | 2183811      | 2183812      | 2183813      |
| G 3/4 – 14   | 2183822      | 2183823      | 2183824      | 2175276      | 1548232      | 2183825      | 2183826      | 2174633      |
| G 7/8 – 14   | 2183835      | 2183836      | 2183837      | 2183838      | 2183839      | 2183840      | 2183841      | 2183842      |
| G 1 – 11   | 2183851      | 2183852      | 2176692      | 2174677      | 1548241      | 1548269      | 2183853      | 2183854      |
| G 1 1/8 – 11   | 2183861      | 2183862      | 2183863      | 2183864      | 2183865      | 2183866      | 2183867      | 2183868      |
| G 1 1/4 – 11   | 2183877      | 2183878      | 2183879      | 2177440      | 2183880      | 1548278      | 1548287      | 2183881      |
| G 1 3/8 – 11   | 2183889      | 2183890      | 2183891      | 2183892      | 2183893      | 2183894      | 2183895      | 2183896      |
| G 1 1/2 – 11   | 2183905      | 2183906      | 2183907      | 2183908      | 2183909      | 1548296      | 1548303      | 2183910      |
| G 1 3/4 – 11   | 2183918      | 2183919      | 2183920      | 2183921      | 2183922      | 2183923      | 2183924      | 1548321      |
| G 2 – 11   | 2183933      | 2183934      | 2183935      | 2183936      | 2183937      | 2183938      | 2183939      | 2183940      |

**Gewindeabmessungen, Artikel-Nr. der Gewinderollen  
für zylindrische Werkstück-Rechtsgewinde, Ausführung „A“**  
Thread sizes, Ident No. for Thread Rolls  
with Straight Right-Hand Threads – Version „A“

| Whitworth-Rohrgewinde, parallel, DIN ISO 228<br>Whitworth Pipe Thread, parallel, DIN ISO 228 |              |              |              |             |              |              |              |                |
|--|--------------|--------------|--------------|-------------|--------------|--------------|--------------|----------------|
| Rollkopf<br>Rolling Head   | T42          |              |              |             |              |              |              |                |
| Rollenbreiten<br>Roll width  | 26<br>1.024" | 28<br>1.102" | 30<br>1.181" | 32<br>1.26" | 34<br>1.339" | 36<br>1.417" | 38<br>1.496" | 40,5<br>1.594" |
| Gewinde-<br>abmessung<br>Thread size   | Ident No.    | Ident No.    | Ident No.    | Ident No.   | Ident No.    | Ident No.    | Ident No.    | Ident No.      |
| G 1/8 – 28   | 2183753      | 2183754      | 2183755      | 2183756     | 2183757      | 2183758      | 2183759      | 2183760        |
| G 1/4 – 19   | 2183769      | 2183770      | 2183771      | 2183772     | 2183773      | 2183774      | 2183775      | 2183776        |
| G 3/8 – 19   | 2183785      | 2183786      | 2183787      | 2183788     | 2183789      | 2183790      | 2183791      | 2183792        |
| G 1/8 – 14   | 2183798      | 2183799      | 2183800      | 2183801     | 2183802      | 2183803      | 2183804      | 2183805        |
| G 5/8 – 14   | 2183814      | 2183815      | 2183816      | 2183817     | 2183818      | 2183819      | 2183820      | 2183821        |
| G 3/4 – 14   | 2183827      | 2183828      | 2183829      | 2183830     | 2183831      | 2183832      | 2183833      | 2183834        |
| G 7/8 – 14   | 2183843      | 2183844      | 2183845      | 2183846     | 2183847      | 2183848      | 2183849      | 2183850        |
| G 1 – 11   | 2183855      | 2173930      | 2183856      | 2183857     | 2183858      | 2183859      | 2183860      | 2177093        |
| G 1 1/8 – 11   | 2183869      | 2183870      | 2183871      | 2183872     | 2183873      | 2183874      | 2183875      | 2183876        |
| G 1 1/4 – 11   | 2183882      | 2174632      | 2183883      | 2183884     | 2183885      | 2183886      | 2183887      | 2183888        |
| G 1 3/8 – 11   | 2183897      | 2183898      | 2183899      | 2183900     | 2183901      | 2183902      | 2183903      | 2183904        |
| G 1 1/2 – 11   | 2183911      | 2183912      | 2174631      | 2183913     | 2183914      | 2183915      | 2183916      | 2183917        |
| G 1 3/4 – 11   | 2183925      | 2183926      | 2183927      | 2183928     | 2183929      | 2183930      | 2183931      | 2183932        |
| G 2 – 11   | 2183941      | 2183942      | 2183943      | 2183944     | 2183945      | 2183946      | 2183947      | 2183948        |

**Gewindeabmessungen, Artikel-Nr. der Gewinderollen  
für kegelige Werkstück-Rechtsgewinde, Ausführung „A“ und „AV“**  
Thread sizes, Ident No. for Thread Rolls  
with Right-Hand Tapered Threads – Version „A“ and „AV“

| Whitworth-Rohrgewinde, kegelig DIN 2999<br>Whitworth Pipe Thread, Taper DIN 2999 |           |   |           |   |
|--|-----------|---|-----------|---|
| Rollkopf<br>Rolling Head   | T18       |   |           |   |
| Rollen-<br>ausführung<br>Roll design   | A         |   | AV        |   |
| Gewinde-<br>abmessung<br>Thread size   | Ident No. | Rollenbreite<br>Roll width<br>mm   inch | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |
| R 1/16 – 28  | 2182025   | 9   0.354"                              | 2182026   | 10   0.394"                             |
| R 1/8 – 28   | 2182032   | 9   0.354"                              | 2177508   | 10   0.394"                             |
| R 1/4 – 19   | 1538957   | 14   0.551"                             | 1555456   | 14   0.551"                             |
| R 3/8 – 19   | 1538993   | 14   0.551"                             | 2182040   | 14   0.551"                             |
| R 1/2 – 14   | 2182044   | 19   0.748"                             | 2182045   | 20   0.787"                             |
| R 3/4 – 14   | 2182048   | 20   0.787"                             | 2182049   | 20   0.787"                             |

Rollenausführungsarten „A“ und „AV“ siehe Skizzen Seiten 326, 327.  
Designs „A“ and „AV“ see sketch on pages 326, 327.

Gewindeabmessungen, Artikel-Nr. der Gewinderollen  
für kegelige Werkstück-Rechtsgewinde, Ausführung „A“ und „AV“  
Thread sizes, Ident No. for Thread Rolls  
with Right-Hand Tapered Threads – Version „A“ and „AV“

| Whitworth-Rohrgewinde, kegelig DIN 2999<br>Whitworth Pipe Thread, Taper DIN 2999 |           |   |        |           |   |        |
|--|-----------|---|--------|-----------|---|--------|
| Rollkopf<br>Rolling Head   | T27       |   |        |           |   |        |
| Rollen-<br>ausführung<br>Roll design   | A         |   | AV     |           |   |        |
| Gewinde-<br>abmessung<br>Thread size   | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |        | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |        |
| R 1/16 – 28  | 2182027   | 9                                       | 0.354" | 2182028   | 10                                      | 0.394" |
| R 1/8 – 28   | 2182033   | 9                                       | 0.354" | 2182034   | 10                                      | 0.394" |
| R 1/4 – 19   | 1545538   | 14                                      | 0.551" | 2176707   | 14                                      | 0.551" |
| R 3/8 – 19   | 1545556   | 14                                      | 0.551" | 2182041   | 14                                      | 0.551" |
| R 1/2 – 14   | 2174974   | 19                                      | 0.748" | 2176773   | 20                                      | 0.787" |
| R 3/4 – 14   | 2175230   | 20                                      | 0.787" | 2177516   | 20                                      | 0.787" |
| R 1 – 11   | 2182052   | 24                                      | 0.945" | 2177976   | 24                                      | 0.945" |
| R 1 1/4 – 11   | 2182054   | 26                                      | 1.024" | 2177977   | 26                                      | 1.024" |

| Whitworth-Rohrgewinde, kegelig DIN 2999<br>Whitworth Pipe Thread, Taper DIN 2999 |           |   |        |           |   |        |
|--|-----------|---|--------|-----------|---|--------|
| Rollkopf<br>Rolling Head   | T42       |   |        |           |   |        |
| Rollen-<br>ausführung<br>Roll design   | A         |   | AV     |           |   |        |
| Gewinde-<br>abmessung<br>Thread size   | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |        | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |        |
| R 1/16 – 28  | 2182029   | 9                                       | 0.354" | 2182030   | 10                                      | 0.394" |
| R 1/8 – 28   | 2182035   | 9                                       | 0.354" | 2182036   | 10                                      | 0.394" |
| R 1/4 – 19   | 2182038   | 14                                      | 0.551" | 2182039   | 14                                      | 0.551" |
| R 3/8 – 19   | 2182042   | 14                                      | 0.551" | 2182043   | 14                                      | 0.551" |
| R 1/2 – 14   | 2182046   | 19                                      | 0.748" | 2182047   | 20                                      | 0.787" |
| R 3/4 – 14   | 2182050   | 20                                      | 0.787" | 2182051   | 20                                      | 0.787" |
| R 1 – 11   | 2177000   | 24                                      | 0.945" | 2182053   | 24                                      | 0.945" |
| R 1 1/4 – 11   | 2182055   | 26                                      | 1.024" | 2182056   | 26                                      | 1.024" |
| R 1 1/2 – 11   | 2182057   | 26                                      | 1.024" | 2182058   | 26                                      | 1.024" |
| R 2 – 11   | 2182059   | 30                                      | 1.181" | 2182060   | 30                                      | 1.181" |

| Whitworth-Rohrgewinde, kegelig DIN 3858 – Regelausführung<br>Whitworth Pipe Thread, Taper DIN 3858 – Standard |           |   |        |           |   |        |
|---|-----------|---|--------|-----------|---|--------|
| Rollkopf<br>Rolling Head  | T18       |   |        |           |   |        |
| Rollen-<br>ausführung<br>Roll design  | A         |   | AV     |           |   |        |
| Gewinde-<br>abmessung<br>Thread size  | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |        | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |        |
| R 1/8 – 28  | 2174612   | 8                                       | 0.315" | 2181753   | 8                                       | 0.315" |
| R 1/4 – 19  | 1539929   | 12                                      | 0.472" | 2181760   | 12                                      | 0.472" |
| R 3/8 – 19  | 2177192   | 12                                      | 0.472" | 2181765   | 12                                      | 0.472" |
| R 1/2 – 14  | 2181769   | 16                                      | 0.63"  | 2181770   | 16                                      | 0.63"  |
| R 3/4 – 14  | 2181774   | 17                                      | 0.669" | 2181775   | 18                                      | 0.709" |

Rollenausführungsarten „A“ und „AV“ siehe Skizzen Seiten 326, 327.  
Designs „A“ and „AV“ see sketch on pages 326, 327.

| Whitworth-Rohrgewinde, kegelig DIN 3858 – Regelausführung |           |              |           |              |
|---|-----------|--------------|-----------|--------------|
| Whitworth Pipe Thread, Taper DIN 3858 – Standard          |           |              |           |              |
| Rollkopf  | T27       |              |           |              |
| Rolling Head  |           |              |           |              |
| Rollen-<br>ausführung                                     | A         |              | AV        |              |
| Roll design   |           |              |           |              |
| Gewinde-<br>abmessung                                     |           | Rollenbreite |           | Rollenbreite |
| Thread size   | Ident No. | Roll width   | Ident No. | Roll width   |
|   |           | mm   inch    |           | mm   inch    |
| R 1/8 – 28  | 2181754   | 8   0.315"   | 2181755   | 8   0.315"   |
| R 1/4 – 19  | 2181761   | 12   0.472"  | 2181762   | 12   0.472"  |
| R 3/8 – 19  | 1545547   | 12   0.472"  | 2181766   | 12   0.472"  |
| R 1/2 – 14  | 2177496   | 16   0.63"   | 2181771   | 16   0.63"   |
| R 3/4 – 14  | 2181776   | 17   0.669"  | 2181777   | 18   0.709"  |
| R 1 – 11  | 2181780   | 20   0.787"  | 2181781   | 20   0.787"  |
| R 1 1/4 – 11  | 2181784   | 21   0.827"  | 2181785   | 22   0.866"  |

| Whitworth-Rohrgewinde, kegelig DIN 3858 – Regelausführung |           |              |           |              |
|---|-----------|--------------|-----------|--------------|
| Whitworth Pipe Thread, Taper DIN 3858 – Standard          |           |              |           |              |
| Rollkopf  | T42       |              |           |              |
| Rolling Head  |           |              |           |              |
| Rollen-<br>ausführung                                     | A         |              | AV        |              |
| Roll design   |           |              |           |              |
| Gewinde-<br>abmessung                                     |           | Rollenbreite |           | Rollenbreite |
| Thread size   | Ident No. | Roll width   | Ident No. | Roll width   |
|   |           | mm   inch    |           | mm   inch    |
| R 1/8 – 28  | 2181756   | 8   0.315"   | 2181757   | 8   0.315"   |
| R 1/4 – 19  | 2181763   | 12   0.472"  | 2181764   | 12   0.472"  |
| R 3/8 – 19  | 2181767   | 12   0.472"  | 2181768   | 12   0.472"  |
| R 1/2 – 14  | 2181772   | 16   0.63"   | 2181773   | 16   0.63"   |
| R 3/4 – 14  | 2181778   | 17   0.669"  | 2181779   | 18   0.315"  |
| R 1 – 11  | 2181782   | 20   0.787"  | 2181783   | 20   0.787"  |
| R 1 1/4 – 11  | 2181786   | 21   0.827"  | 2181787   | 22   0.866"  |
| R 1 1/2 – 11  | 2181788   | 21   0.827"  | 2181789   | 22   0.866"  |

| Amerikanisches Rohrgewinde, kegelig ANSI B 1.20.1 NPT |           |              |           |              |
|---|-----------|--------------|-----------|--------------|
| American Pipe Thread Taper ANSI B 1.20.1 NPT          |           |              |           |              |
| Rollkopf  | T18       |              |           |              |
| Rolling Head  |           |              |           |              |
| Rollen-<br>ausführung                                 | A         |              | AV        |              |
| Roll design   |           |              |           |              |
| Gewinde-<br>abmessung                                 |           | Rollenbreite |           | Rollenbreite |
| Thread size   | Ident No. | Roll width   | Ident No. | Roll width   |
|   |           | mm   inch    |           | mm   inch    |
| 1/16 – 27 NPT   | 1539108   | 10   0.394"  | 2181792   | 10   0.394"  |
| 1/8 – 27 NPT  | 2173606   | 10   0.394"  | 1539126   | 10   0.394"  |
| 1/4 – 18 NPT  | 2173610   | 15   0.591"  | 1539206   | 16   0.630"  |
| 3/8 – 18 NPT  | 1539233   | 15   0.591"  | 2177978   | 16   0.630"  |
| 1/2 – 14 NPT  | 2173608   | 19   0.748"  | 1539260   | 20   0.787"  |
| 3/4 – 14 NPT  | 2173607   | 20   0.787"  | 2177979   | 20   0.787"  |

Rollenausführungsarten „A“ und „AV“ siehe Skizzen Seiten 326, 327.  
Designs „A“ and „AV“ see sketch on pages 326, 327.

Gewindeabmessungen, Artikel-Nr. der Gewinderollen  
für kegelige Werkstück-Rechtsgewinde, Ausführung „A“ und „AV“  
Thread sizes, Ident No. for Thread Rolls  
with Right-Hand Tapered Threads – Version „A“ and „AV“

| Amerikanisches Rohrgewinde, kegelig ANSI B 1.20.1 NPT<br>American Pipe Thread Taper ANSI B 1.20.1 NPT |           |   |        |           |   |        |
|---|-----------|---|--------|-----------|---|--------|
| Rollkopf<br>Rolling Head  | T27       |   |        |           |   |        |
| Rollen-<br>ausführung<br>Roll design  | A         |   | AV     |           |   |        |
| Gewinde-<br>abmessung<br>Thread size  | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |        | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |        |
| 1/16 – 27 NPT   | 2181793   | 10                                      | 0.394" | 2174734   | 10                                      | 0.394" |
| 1/8 – 27 NPT  | 1545654   | 10                                      | 0.394" | 2174735   | 10                                      | 0.394" |
| 1/4 – 18 NPT  | 2181798   | 15                                      | 0.591" | 2174732   | 16                                      | 0.630" |
| 3/8 – 18 NPT  | 2177603   | 15                                      | 0.591" | 2174736   | 16                                      | 0.630" |
| 1/2 – 14 NPT  | 2173550   | 19                                      | 0.748" | 2174733   | 20                                      | 0.787" |
| 3/4 – 14 NPT  | 2175739   | 20                                      | 0.787" | 2174737   | 20                                      | 0.787" |
| 1 – 11,5 NPT  | 2181809   | 24                                      | 0.945" | 2174738   | 24                                      | 0.945" |
| 1 1/4 – 11,5 NPT  | 2181810   | 25                                      | 0.984" | 2174739   | 26                                      | 1.024" |

| Amerikanisches Rohrgewinde, kegelig ANSI B 1.20.1 NPT<br>American Pipe Thread Taper ANSI B 1.20.1 NPT |           |   |        |           |   |        |
|---|-----------|---|--------|-----------|---|--------|
| Rollkopf<br>Rolling Head  | T42       |   |        |           |   |        |
| Rollen-<br>ausführung<br>Roll design  | A         |   | AV     |           |   |        |
| Gewinde-<br>abmessung<br>Thread size  | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |        | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |        |
| 1/16 – 27 NPT   | 2181794   | 10                                      | 0.394" | 2181795   | 10                                      | 0.394" |
| 1/8 – 27 NPT  | 2181799   | 10                                      | 0.394" | 2181800   | 10                                      | 0.394" |
| 1/4 – 18 NPT  | 2181801   | 15                                      | 0.591" | 2181802   | 16                                      | 0.630" |
| 3/8 – 18 NPT  | 2181803   | 15                                      | 0.591" | 2181804   | 16                                      | 0.630" |
| 1/2 – 14 NPT  | 2181805   | 19                                      | 0.748" | 2181806   | 20                                      | 0.787" |
| 3/4 – 14 NPT  | 2176804   | 20                                      | 0.787" | 2181807   | 20                                      | 0.787" |
| 1 – 11,5 NPT  | 2177599   | 24                                      | 0.945" | 2181808   | 24                                      | 0.945" |
| 1 1/4 – 11,5 NPT  | 2181811   | 25                                      | 0.984" | 2181812   | 26                                      | 1.024" |
| 1 1/2 – 11,5 NPT  | 2181813   | 25                                      | 0.984" | 2181814   | 26                                      | 1.024" |
| 2 – 11,5 NPT  | 2175307   | 26                                      | 1.024" | 2175400   | 26                                      | 1.024" |

| Amerikanisches Rohrgewinde, kegelig ANSI B 1.20.3 NPTF<br>American Dryseal Pipe Thread Taper ANSI B 1.20.3 NPTF |           |   |        |           |   |        |
|---|-----------|---|--------|-----------|---|--------|
| Rollkopf<br>Rolling Head  | T18       |   |        |           |   |        |
| Rollen-<br>ausführung<br>Roll design  | A         |   | AV     |           |   |        |
| Gewinde-<br>abmessung<br>Thread size  | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |        | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |        |
| 1/16 – 27 NPTF  | 2181817   | 10                                      | 0.394" | 2175503   | 10                                      | 0.394" |
| 1/8 – 27 NPTF   | 1539135   | 10                                      | 0.394" | 2181823   | 10                                      | 0.394" |
| 1/4 – 18 NPTF   | 2176456   | 15                                      | 0.591" | 2177350   | 16                                      | 0.630" |
| 3/8 – 18 NPTF   | 2176045   | 15                                      | 0.591" | 2181832   | 16                                      | 0.630" |
| 1/2 – 14 NPTF   | 2176285   | 19                                      | 0.748" | 1539251   | 20                                      | 0.787" |
| 3/4 – 14 NPTF   | 2181838   | 20                                      | 0.787" | 2181839   | 20                                      | 0.787" |

Rollenausführungsarten „A“ und „AV“ siehe Skizzen Seiten 326, 327.  
Designs „A“ and „AV“ see sketch on pages 326, 327.

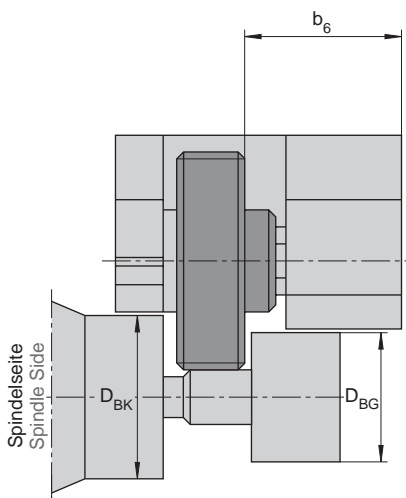
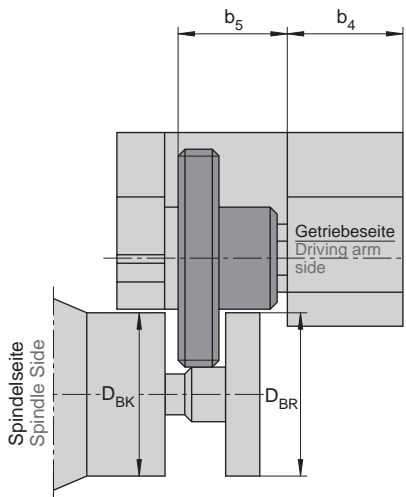
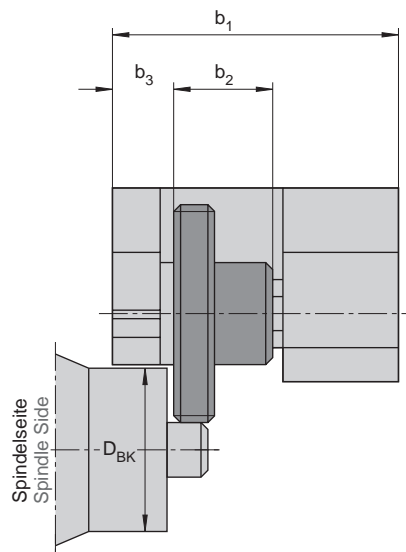
Gewindeabmessungen, Artikel-Nr. der Gewinderollen  
für kegelige Werkstück-Rechtsgewinde, Ausführung „A“ und „AV“  
Thread sizes, Ident No. for Thread Rolls  
with Right-Hand Tapered Threads – Version „A“ and „AV“

| Amerikanisches Rohrgewinde, kegelig ANSI B 1.20.3 NPTF<br>American Dryseal Pipe Thread Taper ANSI B 1.20.3 NPTF |  |           |   |           |   |
|---|--|-----------|---|-----------|---|
| Rollkopf<br>Rolling Head  |  | T27       |   |           |   |
| Rollen-<br>ausführung<br>Roll design  |  | A         | AV                                      |           |   |
| Gewinde-<br>abmessung<br>Thread size  |  | Ident No. | Rollenbreite<br>Roll width<br>mm   inch | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |
| 1/16 – 27 NPTF  |  | 2181818   | 10   0.394"                             | 2181819   | 10   0.394"                             |
| 1/8 – 27 NPTF   |  | 2175722   | 10   0.394"                             | 2181824   | 10   0.394"                             |
| 1/4 – 18 NPTF   |  | 2176174   | 15   0.591"                             | 2181829   | 16   0.630"                             |
| 3/8 – 18 NPTF   |  | 2175222   | 15   0.591"                             | 1556446   | 16   0.630"                             |
| 1/2 – 14 NPTF   |  | 2175223   | 19   0.748"                             | 2181835   | 20   0.787"                             |
| 3/4 – 14 NPTF   |  | 1556455   | 20   0.787"                             | 2181840   | 20   0.787"                             |
| 1 – 11,5 NPTF   |  | 2181842   | 24   0.945"                             | 2181843   | 24   0.945"                             |
| 1 1/4 – 11,5 NPTF   |  | 2181844   | 25   0.984"                             | 2181845   | 26   1.024"                             |

| Amerikanisches Rohrgewinde, kegelig ANSI B 1.20.3 NPTF<br>American Dryseal Pipe Thread Taper ANSI B 1.20.3 NPTF |  |           |   |           |   |
|---|--|-----------|---|-----------|---|
| Rollkopf<br>Rolling Head  |  | T42       |   |           |   |
| Rollen-<br>ausführung<br>Roll design  |  | A         | AV                                      |           |   |
| Gewinde-<br>abmessung<br>Thread size  |  | Ident No. | Rollenbreite<br>Roll width<br>mm   inch | Ident No. | Rollenbreite<br>Roll width<br>mm   inch |
| 1/16 – 27 NPTF  |  | 2181820   | 10   0.394"                             | 2181821   | 10   0.394"                             |
| 1/8 – 27 NPTF   |  | 2181825   | 10   0.394"                             | 2181826   | 10   0.394"                             |
| 1/4 – 18 NPTF   |  | 2181830   | 15   0.591"                             | 2181831   | 16   0.630"                             |
| 3/8 – 18 NPTF   |  | 2181833   | 15   0.591"                             | 2181834   | 16   0.630"                             |
| 1/2 – 14 NPTF   |  | 2181836   | 19   0.748"                             | 2181837   | 20   0.787"                             |
| 3/4 – 14 NPTF   |  | 2177264   | 20   0.787"                             | 2181841   | 20   0.787"                             |
| 1 – 11,5 NPTF   |  | 2177262   | 24   0.945"                             | 2177840   | 24   0.945"                             |
| 1 1/4 – 11,5 NPTF   |  | 2175959   | 25   0.984"                             | 2181846   | 26   1.024"                             |
| 1 1/2 – 11,5 NPTF   |  | 2181847   | 25   0.984"                             | 2181848   | 26   1.024"                             |
| 2 – 11,5 NPTF   |  | 2181849   | 26   1.024"                             | 2181850   | 26   1.024"                             |

Rollenausführungsarten „A“ und „AV“ siehe Skizzen Seiten 326, 327.  
Designs „A“ and „AV“ see sketch on pages 326, 327.





Auswahltabelle siehe Internet

For selection tables please refer to our website

|         | b <sub>1</sub> | b <sub>2</sub> | b <sub>3</sub> | b <sub>4</sub> | b <sub>5</sub> | b <sub>6 min</sub> |
|---------|----------------|----------------|----------------|----------------|----------------|--------------------|
| T 120 F | 43<br>1.693"   | 15,5<br>0.61"  | 7,2<br>0.283"  | 18,5<br>0.728" | 17,3<br>0.681" | 20,3<br>0.799"     |
| T 160 F | 50<br>1.968"   | 18,5<br>0.728" | 8,5<br>0.335"  | 20,6<br>0.811" | 20,9<br>0.823" | 23<br>0.906"       |
| T 18    | 58<br>2.283"   | 21,5<br>0.846" | 11,1<br>0.437" | 22,5<br>0.886" | 24,4<br>0.961" | 25,4<br>1"         |
| T 220 F | 70<br>2.756"   | 26<br>1.024"   | 13,2<br>0.519" | 27,5<br>1.083" | 29,3<br>1.083" | 30,8<br>1.246"     |
| T 27    | 83<br>3.268"   | 31<br>1.22"    | 15,8<br>0.622" | 33<br>1.299"   | 34,2<br>1.346" | 36,2<br>1.425"     |
| T 350 F | 99<br>3.898"   | 36<br>1.417"   | 18<br>0.709"   | 41<br>1.614"   | 40<br>1.575"   | 45<br>1.772"       |
| T 42    | 112<br>4.409"  | 40,5<br>1.595" | 21<br>0.827"   | 46<br>1.811"   | 45<br>1.772"   | 50,5<br>1.988"     |

b<sub>2</sub> = max. Rollenbreite

b<sub>2</sub> = max. roll width

**ACHTUNG!**

Bei konischen Gewinden (Metrisch- und Whitworth-Profil) sind Bund-Ø und Arbeitswege mit zylindrischen Gewinden gleicher Abmessung identisch.

**IMPORTANT!**

On taper threads NPT, NPTF, (Metric, Whitworth) shoulder diameter and stroke are identical to parallel threads having the same dimensions.

Der Rollkopf kann auch mit der Getriebe-seite zur Spindel-seite liegend eingesetzt werden.

Location of spindle side to the position of the rolling attachment can be selected to suit.

## Auswahl der Rollkopfgröße nach Gewindeabmessungen, max. Bund-Ø und Arbeitswegen Selection of Side Rolling Attachment Sizes in accordance with Thread Sizes, maximum Shoulder Diameter and Stroke

Je nach Rollkopfgröße und Gewindeabmessung werden die Gewinderollen ein- oder mehrgängig ausgeführt. Grundsätzlich ist die größte Rollenganzahl = größtmöglicher Rollen-Ø angestrebt worden, um die größtmöglichen Werkstück-Bund-Ø zu berücksichtigen.

Es bedeuten in folgenden Tabellen:

$D_{BK}$  = max. Werkstück-Bund-Ø an der schmalen Armseite des Rollkopfes

$D_{BR}$  = max. Werkstück-Bund-Ø im Gewinderollenbereich bei abgesetzten Rollen

$D_{BG}$  = max. Werkstück-Bund-Ø an der breiten Armseite (Getriebe-seite) des Rollkopfes

$A_V$  = Theoretischer Arbeitsweg des Rollkopfes, d. h. Weg (mm) vom Zeitpunkt der ersten Berührung zwischen Rollen und Werkstück-Vordreh-Ø bis zum Endstand „Rollen auf Werkstückmitte“

$Z$  = Rollenganzahl (Anzahl der Gewindeanfänge auf der Gewinderolle)

Depending on roll size and thread dimensions rolls are made with one or more starts. Basically Fette always uses the largest possible roll diameter in order to accommodate the largest possible shoulder diameter.

In the following tables the abbreviated terms and letters stand for:  
 $D_{BK}$  = maximum component shoulder diameter at the narrow arm end of the rolling attachment.

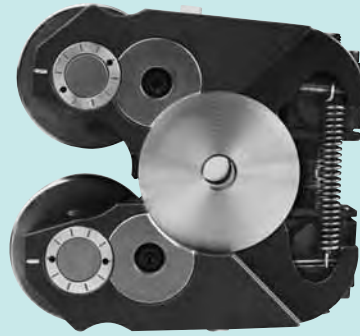
$D_{BR}$  = maximum component shoulder diameter range with rolls not modified.

$D_{BG}$  = maximum component shoulder diameter at the wide arm end (gear end) of the rolling attachment.

$A_V$  = theoretical working stroke of the rolling attachment, i. e. the travel (in inches) from the time of the first contact between rolls and component blank diameter to the final position of "rolls on center of component".

$Z$  = Number of thread starts on thread rolls.

Seitenansicht auf Getriebe-seite  
Side view of gear end



Seitenansicht auf schmale Armseite  
Side view of narrow arm end



Vorderansicht  
Front view



Draufsicht  
Top view



**Auswahl der Rollkopfgröße nach Gewindeabmessungen, max. Bund-Ø und Arbeitswegen**  
**Selection of Side Rolling Attachment Sizes in accordance with Thread Sizes, maximum Shoulder Diameter and Stroke**

| Metrisches ISO-Gewinde DIN 13<br>Metric ISO Threads DIN 13 |                                |                 |                 |                |    |                 |                 |                 |                |    |                 |                 |                 |                | Metrisch<br>Metric |                 |                 |                 |                |   |
|--|--------------------------------|-----------------|-----------------|----------------|----|-----------------|-----------------|-----------------|----------------|----|-----------------|-----------------|-----------------|----------------|--------------------|-----------------|-----------------|-----------------|----------------|---|
| Gewinde-<br>abmessung<br>Thread<br>dimension               | Rollkopf<br>Rolling Attachment |                 |                 |                |    |                 |                 |                 |                |    |                 |                 |                 |                |                    |                 |                 |                 |                |   |
|  | T12                            |                 |                 |                |    | T18             |                 |                 |                |    | T27             |                 |                 |                |                    | T42             |                 |                 |                |   |
|  | D <sub>BK</sub>                | D <sub>BR</sub> | D <sub>BG</sub> | A <sub>V</sub> | Z  | D <sub>BK</sub> | D <sub>BR</sub> | D <sub>BG</sub> | A <sub>V</sub> | Z  | D <sub>BK</sub> | D <sub>BR</sub> | D <sub>BG</sub> | A <sub>V</sub> | Z                  | D <sub>BK</sub> | D <sub>BR</sub> | D <sub>BG</sub> | A <sub>V</sub> | Z |
| M 1.6 x 0.35*  | 21.7                           | 16.7            | 16.7            | 1.9            | 25 |                 |                 |                 |                |    |                 |                 |                 |                |                    |                 |                 |                 |                |   |
| M 1.8 x 0.35*  | 21.2                           | 16.2            | 16.2            | 1.8            | 21 |                 |                 |                 |                |    |                 |                 |                 |                |                    |                 |                 |                 |                |   |
| M 2 x 0.4*   | 21.3                           | 16.3            | 16.3            | 2              | 19 | 30              | 23.5            | 23              | 2.3            | 27 | 43.1            | 33.6            | 33.1            | 2.8            | 39                 |                 |                 |                 |                |   |
| M 2.2 x 0.45*  | 22.6                           | 17.6            | 17.6            | 2.1            | 18 | 30.7            | 24.2            | 23.6            | 2.5            | 25 | 43.9            | 34.4            | 33.9            | 2.9            | 36                 |                 |                 |                 |                |   |
| M 2.5 x 0.45*  | 22.2                           | 17.2            | 17.2            | 2.1            | 15 | 30.3            | 23.9            | 23.3            | 2.5            | 21 | 44.8            | 35.3            | 34.8            | 3              | 31                 |                 |                 |                 |                |   |
| M 3 x 0.5*   | 21.9                           | 16.9            | 16.9            | 2.2            | 12 | 30.3            | 23.4            | 23.3            | 2.6            | 17 | 44.3            | 34.8            | 34.3            | 3.1            | 25                 |                 |                 |                 |                |   |
| M 3.5 x 0.6*   | 21.3                           | 16.3            | 16.3            | 2.4            | 10 | 31.7            | 24.8            | 24.4            | 2.9            | 15 | 43.1            | 33.6            | 33.1            | 3.4            | 21                 |                 |                 |                 |                |   |
| M 3.5 x 0.5  | 22.4                           | 17.4            | 17.4            | 2.2            | 10 | 30.3            | 23.9            | 23.3            | 2.6            | 14 | 45.3            | 35.8            | 35.4            | 3.1            | 21                 |                 |                 |                 |                |   |
| M 4 x 0.7*   | 22.5                           | 17.5            | 17.5            | 2.6            | 9  | 31.5            | 24.6            | 24.3            | 3.1            | 13 | 45.4            | 35.9            | 35.4            | 3.7            | 19                 |                 |                 |                 |                |   |
| M 4 x 0.5  | 24.3                           | 19.4            | 17.9            | 2.3            | 9  | 30.8            | 24.4            | 23.8            | 2.6            | 12 | 45.9            | 36.3            | 35.9            | 3.1            | 18                 |                 |                 |                 |                |   |
| M 4.5 x 0.75*  | 23.2                           | 18.2            | 18.2            | 2.8            | 8  | 30.4            | 23.4            | 23.4            | 3.2            | 11 | 43.2            | 33.7            | 33.2            | 3.8            | 16                 |                 |                 |                 |                |   |
| M 4.5 x 0.5  | 21.5                           | 16.5            | 16.5            | 2.2            | 7  | 33.3            | 26.9            | 25.2            | 2.7            | 11 | 43.4            | 33.9            | 33.4            | 3.1            | 15                 |                 |                 |                 |                |   |
| M 5 x 0.8*   | 22.1                           | 18.1            | 18.1            | 2.5            | 7  | 31.2            | 24.2            | 23.2            | 3.3            | 10 | 46.6            | 37.1            | 36.4            | 4              | 15                 | 52.2            | 51.5            |                 |                |   |

Für die richtigen Größen der Tangential-Rollköpfe für die entsprechenden Gewindegrößen wenden Sie sich bitte an die für Sie zuständige Vertretung oder besuchen Sie unsere Website, die regelmäßig aktualisiert wird.  
 For proper side rolling attachment sizes in accordance with thread sizes, please refer to our representative or visit our website, which will be updated regularly.

**Einsatzmöglichkeiten der Tangential-Gewinde-Rollköpfe auf Drehautomaten**  
**Possible Applications of Fette Tangential Type Side Rolling Attachments on various Machine Tools**

| Machinen-<br>hersteller<br>Machine Tool<br>Manufacturer | Typ<br>Type  | Maschinen-<br>modell<br>Machine<br>Model | Rollkopf<br>Rolling Attachment |               |           |           | Bedingungen<br>Conditions  |                        |                        |                              |                                 |                                 |                   |                                  |                             |  |
|---|--------------|--|--------------------------------|---------------|-----------|-----------|----------------------------|------------------------|------------------------|------------------------------|---------------------------------|---------------------------------|-------------------|----------------------------------|-----------------------------|--|
|   |              |  | T12                            | T18           | T27       | T42       | Crossslide Position<br>*** | Mounting Method<br>*** | Turret Stations<br>*** | Turret can Index 360°<br>*** | Tail Stock Center Ø Min.<br>*** | Tail Stock Center Ø Max.<br>*** | Turret No.<br>*** | Modellnummer<br>Model No.<br>*** | Special Features<br>***     |  |
|   |              |  | Ident No.                      | Ident No.     | Ident No. | Ident No. |                            |                        |                        |                              |                                 |                                 |                   |                                  |                             |  |
| ACME-<br>GRIDLEY  | Conventional | 7/16" RA-6                               | 1529752                        |               |           |           | 3, 4                       | T                      |                        |                              |                                 |                                 |                   |                                  |                             |  |
|   |              | 23/8"-6                                  | 2172028                        |               |           |           |                            |                        |                        |                              |                                 |                                 |                   |                                  |                             |  |
|   |              | (Starting with<br>Serial No.<br>B 23510) | 1529306                        |               |           |           | 3, 4                       | T                      |                        |                              |                                 |                                 |                   |                                  | position 2, 5<br>on request |  |
|   |              | 9/16" RA-6<br>9/16" RAN-6                |                                | on<br>request |           |           | 3, 4                       | T                      |                        |                              |                                 |                                 |                   |                                  |                             |  |

Für mögliche Anwendungen von Rollköpfen für verschiedene Werkzeugmaschinen wenden Sie sich bitte an die für Sie zuständige Vertretung oder besuchen Sie unsere Website, die regelmäßig aktualisiert wird.  
 For possible applications of rolling attachments on various machine tools, please refer to our representative or visit our website, which will be updated regularly.

Entnehmen Sie bitte unserer Homepage [www.fette.de](http://www.fette.de)  
 Please see our homepage [www.fette.com](http://www.fette.com)

**Forderungen an die Werkzeugmaschine**

Der Rollvorgang erfolgt im Einstichverfahren. Das Werkstück muss also umlaufen. Die Drehmaschine muss einen zwangsgesteuerten Vorschub haben. Dieser kann über Kurvensteuerung hydraulisch oder elektrisch angetrieben sein. In der Werkzeugaufnahme des Querschlittens wird der Tangential-Gewinde-Rollkopf, der in einem Rollkopfhalter (Adapter) gelagert ist, eingespannt. Die Aufnahme des Rollkopfhalters kann verschieden sein. Sie ist der jeweiligen Werkzeugaufnahme angepasst, z. B. T-Nut-, Rundschacht-, Prisma- oder Vierkant-Aufnahme. Der Rollkopf sollte an die Zentralschmierung und Zentralkühlung angeschlossen werden. Zwei über ein Getriebe synchronisierte Gewinderollen liegen im Tangential-Gewinde-Rollkopf übereinander. Diese werden bis zur Mitte des Werkstückes durch den zwangsgesteuerten Hub auf das rotierende Werkstück gepresst und erzeugen die gewünschte Profilform. Die Profilrollen dürfen niemals über Werkstückmitte kommen. Bei Kurvensteuerung ist hierfür ein Festanschlag zu setzen. Der Vorschub des Querschlittens oder Revolvers muss so ausgelegt werden, dass innerhalb von 10–35 Werkstückumdrehungen der Rollvorgang beendet ist.

**Rollgeschwindigkeit**

Die Rollgeschwindigkeit sollte zwischen 20–60 m/min gewählt werden. Wir empfehlen  $\approx 20\text{--}30$  m/min für hohe Werkstofffestigkeiten und große Umformleistungen.

**Werkstückabmessungen**

Das Tangential-Rollverfahren ist bei allen metallischen Werkstoffen anwendbar, deren Bruchdehnung  $\delta_5 \geq \text{ca. } 7\%$  ist. Die Festigkeit  $\delta_B$  sollte ca.  $1.000 \text{ N/mm}^2$  nicht überschreiten. Wenn die Eigenschaften des Materials in der Nähe der obengenannten Grenzwerte liegen, ist die Rollbarkeit von der Umformleistung abhängig. Bei sehr kleiner Umformleistung können diese Werte überschritten werden. Die größte rollbare Gewindelänge entspricht der Rollenbreite, abzüglich pro Rollenseite  $1 \times$  Gewindeteilung als Umlauffase. Die max. Rollenbreite  $b_2$  ist aus den Baumaßtabellen auf den Seiten 312, 316, 320 zu ersehen. Bei kleineren Gewindelängen können, wenn erforderlich, abgesetzte Rollen benutzt werden. Es ist bei Bestellungen von Rollen die gewünschte min. und max. Rollenbreite anzugeben. Der Bund- $\emptyset$  des Werkstückes muss kleiner sein als die Aussparungen im Rollkopf. Max. zulässige Werkstück-Bund- $\emptyset$  für die jeweiligen Kopfgrößen siehe Internet. Der Werkstück-Ausgangs- $\emptyset$  entspricht im allgemeinen dem Flanken- $\emptyset$  des zu rollenden Gewindes. Abweichungen nach oben oder unten können einerseits durch das Fließverhalten des Werkstoffes und andererseits wegen unterschiedlicher Toleranzlage des Gewindes notwendig werden. Der Werkstück-Außen- $\emptyset$  sollte nach dem Rollen möglichst nicht pressblank sein, es darf kein Überdruck auftreten.

**Machine Tool Considerations**

The working process occurs in the plunging or straddle method which requires that the component must rotate. The machine has to have a controlled power feed stroke. This can be generated by means of a cam, template, hydraulics, CNC servo, etc. The tangential holder is attached to the machine's mounting method; i.e., T-slot, round shank, V-block, square shank, etc. Optimally, the rolling attachment should be connected to the central lubrication and coolant system of the machine.

In the tangential rolling attachment, two self-timed synchronized rolls are positioned one over the other. The profile is generated when the center line of the rolls is driven with a controlled power feed rate, to the centerline of the rotating component. The center line of the rolls should never go beyond the centerline of the component. Cam driven automatics should use a mechanical fixed stop. The feed rate of the cross slide or turret is calculated so that the rolled profile is produced within 10–35 revolutions of the component.

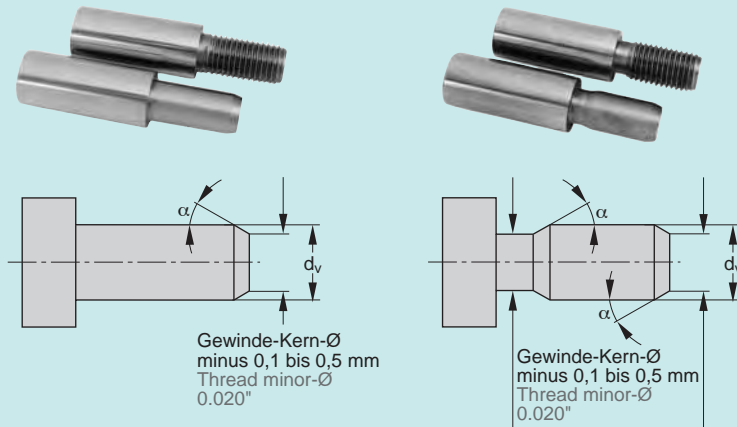
**Rolling Speed**

The selected rolling speed should be between 20 to 80 m/min. (60–250 SFM). For components with higher tensile strength, coarser pitches, or longer profile lengths, we recommend approximately 20 to 30 m/min. (60–90 SFM).

**Component Requirements**

The tangential side rolling method can be applied to any metallic material that has an elongation factor equal to or greater than 7%. The tensile strength of the material should not exceed approximately 145,000 PSI ( $1000 \text{ N/mm}^2$ ). When the material is within the above specifications, the rollability success is dependent upon the volume of forming; i.e., profile, pitch, length, etc. With smaller forming volumes, these limits can be exceeded. The longest thread length possible is equivalent to the maximum roll width  $b_2$  minus  $(1/2 - 1 \times \text{pitch}) \times 2$  which represents the chamfers (thread runout) on both sides of the roll. The maximum roll widths can be taken from the tables on pages 312, 316, 320. If needed, recessed (hubbed) rolls can be used for shorter threads that are between shoulders. To help delivery when ordering rolls, please state the min./max. roll width possible. Care should be taken to ensure that the attachment will clear shoulder diameters.

Beispiel der Werkstückvorbereitung  
Example of component preparation



$\alpha$  = Anfaswinkel 10°–30°  
Chamfer 10°–30°  
 $d_v$  = Werkstück-Ausgangs-Ø entspricht  
ca. dem Werkstück-Flanken-Ø  
Blank-Ø is approx. workpiece pitch Ø

**Kraftbedarf**

Beim Tangential-Verfahren wird das Gewinde oder das Profil in seiner gesamten Länge mit mehreren Umdrehungen erzeugt. Grundsätzlich sind die Werkstückumdrehungen während des Rollvorganges von Bedeutung. Der Rollvorgang sollte innerhalb von 10–35 Werkstückumdrehungen beendet sein. Hohe Werkstückumdrehungen sind für große Umformungen anzusetzen (siehe Werkstückumdrehungen Seite 393). Die Antriebsleistung an der Spindel ist meistens nicht das entscheidende Kriterium. Die Kraft zum Einrollen des Profils muss vom Seitenschlitten bzw. vom Revolver aufgebaut werden. Bei kurvengesteuerten Drehmaschinen ist das meistens kein Problem. Bei hydraulisch oder elektrisch angetriebenen Schlitten ist es nötig, die Tangentialkraft zu errechnen, um eine ausreichende Schlittenkraft zu gewährleisten. Die erforderliche Tangentialkraft kann anhand der Berechnungsformel auf Seite 392 errechnet werden. Stellt es sich aufgrund der ermittelten Werte zunächst heraus, dass die Tangentialkraft der vorhandenen Maschine zu gering ist, kann durch Veränderung der Werkstückumdrehungen (max. 35) eine geringere Tangentialkraft erreicht werden.

**Gewinderollen auf Rohre**

Das Gewinderollen auf nahtlos gezogene Rohre ist von der vorhandenen Rohrwandstärke abhängig. Im allgemeinen sind Rollversuche für den vorliegenden Arbeitsfall erforderlich, wenn das Verhältnis

$$\frac{\text{Rohrbohrung}}{\text{Gewindekern-Ø}} \leq 0,65 \text{ ist.}$$

Beim Rollvorgang auf Rohren sollten 25 Werkstückumdrehungen nicht unterschritten werden.

**Power Requirements**

H.P. (kw), torque [ft./lbs. (Nm)], and thrust [lbs. (N)].  
In the tangential method, the profile is generated during a number of component revolutions. The number of component revolutions during the forming process is very important. This should be done within 10–35 revolutions. For greater volumes for forming, a higher number of component revolutions should be selected. (See component revolutions on page 393). The power of the spindle is not usually a limiting factor. The thrust required to form the profile comes from the cross slide or turret. Cam driven machines normally do not present a problem. For hydraulic or electric driven machines, the tangential force should be calculated to guarantee sufficient power. The tangential thrust can be calculated with the formula on page 392. If the calculated thrust is not available on the machine, the required tangential force can be reduced by increasing the number of component revolutions (max. 35).

**Thread Rolling on Tubes**

The rolling of threads on seamless drawn tubes depends on many factors, such as thread form, length, pitch, and material. In general, testing should be done when the wall thickness appears borderline. The following formula can be used as a guideline:

$$\frac{\text{bore dia}}{\text{thread minor dia.}} \leq 0.65$$

if quotient is 0.65 or less it can be rolled

When calculating feed rate, use no more than 25 component revolutions.

Skizzen hierzu siehe Seiten 382, 383.

Sketches see pages 382, 383.

### 1

#### Einbau der Gewinderollen

Zylinderschraube (25)<sup>1)</sup> lösen, Achsen in Pfeilrichtung herausziehen. Mit Blechprüflehre überprüfen, ob Ritzelmitnahmeklauen richtig zueinander stehen. Ist das nicht der Fall, dann Gewindestift (27) lösen, Buchse (4) herausziehen. Kombiniertes Zahnrad (11, 12), mit Verzahnung nach unten, wieder einbauen. Buchse (4) ins Gehäuse stecken. Gewindestift (27) festziehen. Rolleneinbau kann erfolgen. Laufbuchsen (17, bei Rollkopf T 42 Teil 30) in Gewinderollen stecken. Mit 1 signierte Rolle in Getriebearmseite (1) auf Ritzelklau (8) schieben, dabei muss Zahl 1 der Rolle zum Werkstück hinzeigen, siehe Skizze 1 (Seite 382). Achse in Gewinderollenbohrung einführen, Scheibe (15, bei Rollkopf T 42 Teil 34) zwischen Rolle und schmale Rollkopfarmseite schieben. Achse bis auf Anschlag schieben. Schlitz in Achse (Getriebearmseite) muss mit Strich auf Buchse (13) in 0-Stellung übereinstimmen. Achse mit Zylinderschraube (25) sehr festklemmen. Gewinderolle 2 ist genauso einzubauen. Es ist darauf zu achten, dass, nachdem die Gewinderolle 1 eingebaut, diese nicht mehr verdreht wird. Beide Zahlen müssen also zum Werkstück hinzeigen, siehe Skizze. Die Arbeitsweise des Rollkopfes ist gewährleistet, wenn die Rollen sich leichtgängig drehen lassen und beim Festhalten einer Rolle die andere sich zum Kopfinnen verdrehen lässt. Beim Loslassen der verdrehten Rolle muss diese selbsttätig in die Ausgangsstellung zurückkommen. Für jede Gewindeabmessung sind ein Rollensatz und eine Einstelllehre erforderlich. Die ersten beiden Zahlengruppen der Code-Nr. müssen in der Regel gleich sein.

### 2

#### Einrichten des Rollkopfes

Der Mittenabstand der Gewinderollen ist durch Verstellen zweier Gewindestifte 30 (bei Rollkopf T 42 14) auf das erforderliche Werkstückkernmaß einzustellen. Die Einstelllehre (32) entspricht in ihrer Breite dem Werkstückkernmaß. Dazu Gewindestift (28) lösen, Gewindestift 30 (bei Rollkopf T 42 14) solange verstellen, bis Einstelllehre stramm zwischen Rollen passt und Gewindestift (28) wieder festziehen. Es ist darauf zu achten, dass die beiden Gewindestifte gleichmäßig in Ober- und Unterteil verstellt werden.

### 3

#### Vorbereitung des Werkstückes

Roll-Ø (Ausgangs-Ø) entspricht ca. dem Flanken-Ø des zu rollenden Gewindes. Je nach Werkstoff sind Abweichungen möglich. Die Werkstücke sind unter  $\alpha = 10^\circ - 30^\circ$  zur Werkstückachse anzufasen. Der kleinste Fasen-Ø sollte ca. 0,1–0,5 mm unter Werkstückkern-Ø liegen. Die Anfasung gilt für den Gewindeanfang und auch für den Gewindeauslauf, sofern ein Freistich vorhanden ist.

### 4

#### Einrichten des Rollkopfhalters (31)

##### a) Einsatz auf konventionellen Drehautomaten mit Querschlitzen

Einstelllehre in Rollkopfhalter auf Bolzen (31-4) schieben. Rollkopfhalter auf Querschlitzen festspannen. Schlitten in höchste Stellung der Vorschubkurve bringen. Kurve muss so ausgelegt sein, dass innerhalb von 15–30 Werkstückumdrehungen der Rollvorgang beendet ist. Der Rücklauf des Rollkopfes muss innerhalb von max. 5 weiteren Werkstückumdrehungen erfolgt sein. Die Länge des Arbeitsweges, die man zur Auslegung der Kurve braucht, und auch die Lehrenlänge „F“ sind auf der Einstelllehre signiert. Der Schlitten muss so lange verschoben werden, bis die Einstelllehre den Werkstückvordreh-Ø eben berührt. Hier ist der Festanschlag zu setzen. Einstelllehre aus Rollkopfhalter nehmen und eingestellten Rollkopf in Rollkopfhalter einsetzen. Bolzen (31-4) einführen und mit Gewindestift (31-12) festklemmen.

##### b) Einsatz auf CNC-Drehautomaten mit Revolver

Eingestellten Rollkopf im Rollkopfhalter aufnehmen. Rolleinheit in Revolverscheibe einbauen. Prüfen, ob Rollkopf bzw. Rollen innerhalb des max. möglichen Schaltkreis-Ø liegen. Bei verstellbarem Halter Seitenabstand auf vorher ausgemessenen Schaltkreisabstand einstellen (min. Verstellung 1,5 mm). Rollkopf ausbauen,

### 1

#### Assembly of thread rolls (18)

Loosen cap screw #25 and remove axles in direction of arrow. Using Sheet metal gage #36 (#38 on T42). Check if pinion dogs are in correct position to each other. If not, loosen set screw #27 and withdraw Bushing #4 and then combined gears #11 and 12, Rotate Pinion #8 until dogs fit in gage slots. Reinstall gears 11 and 12 with #11 entering first. Replace Bushing #4 and retighten screw #27. Now Thread Rolls may be assembled. Install two carbide bushings #17 (in T42 #30) in to each thread roll. Place #1 roll in geared arm marked 1 1 so that it engages the drivedogs and the number 1 on the roll is facing out. See sketch 1 (page 382). Insert axle in wide arm and push it part way thru thread roll. Holding Thrust Washer #15 (on T42, #34) between thread roll and narrow arm push axle thru it against stop. Slot on end of axle, wide arm side, must be aligned with slot on #13 bushing when in 0 position. Axle must be firmly clamped by tightening cap screw #25. Assemble #2 roll in the same manner being very careful not to move or rotate #1 roll until assembly has been completed. The numbers on both rolls should point towards the component. The Attachment has been properly assembled if the rolls can be easily rotated, and if, while holding one roll stationary the other is rotated towards the inside of the attachment automatically returnsto starting position. One set of rolls and one setting gage #32 is required for each different job. Replacement rolls may be ordered without ordering another gage.

### 2

#### Adjusting attachment for thread size

Thread Size is controlled by #30 Adjusting Screws (#14 on T42). The #32 Setting Gauge, ground to Minor Diameter of thread being rolled is inserted between the rolls. Loosen #28 Locking Screw and rotate Adjusting Screws until the rolls lightly touch the Gauge, making sure the screws are moved equally. Remove the Gauge and retighten the locking screw.

### 3

#### Preparation of component

Rolling Diameter (Blank Diameter) is Approx. Mean Pitch Diameter of the Thread being rolled. Deviations are possible depending upon the material being rolled. The blank should have a chamfer of 10/300 at both the beginning end and at the relief if there is one. Chamfer should start 0.008"/0.020" below the minor diameter of the thread.

### 4

#### Setting up the rolling head holder (# 31)

##### a) Use on conventional automatic lathes with cross slides

Push the setting gauge in the rolling head holder onto the bolts (# 31-4). Clamp the rolling head holder onto the cross slide. Place the slide block in the highest position of the feed cam. The cam must be designed in such a way that the rolling process is completed within 15–30 rotations of the workpiece. The rolling head must return within a maximum of 5 further workpiece rotations. The length of the working path that is necessary for the design of the cam is marked on the setting gauge, as is the gauge length "F". The slide block must be pushed along until the setting gauge evenly touches the pre-turning diameter of the workpiece. The fixed stop should be positioned here. Take the setting gauge out of the rolling head holder and insert the set rolling head into the rolling head holder. Insert bolt (# 31-4) and fix with stud bolt (# 31-12).

##### b) Use on automatic CNC lathes with turret

Mount the adjusted rolling head in the rolling head holder. Fit the rolling unit into the turret plate. Check that rolling head and/or rollers are positioned within the maximum possible swing diameter. Adjustable holders should have the side clearance set to the previously measured swing circle clearance (min. offset 0.059"). Remove the rolling head, and fit the setting gauge in its place. Turn the turret with the rolling head holder and the gauge until the front edge of the gauge meets the rolling diameter. Note this dimension; the turret must move this far on the x-axis during the subsequent rolling operation. Program the transit distance – see page 382. The length of the working transit "Av" and the gauge length "F" are marked on the setting gauge. Then take the setting gauge out of the rolling head holder and insert the

dafür Einstelllehre einbauen. Revolver mit Rollkopfhalter und Lehre soweit verfahren, bis Vorderkante Lehre gegen den Roll-Ø stößt. Dieses Maß fixieren, soweit muss der Revolver bei folgendem Rollvorgang in x-Achse verfahren. Verfahrensweg programmieren siehe Seite 382. Die Länge des Arbeitsweges „Av“ und die Lehrenlänge „F“ sind auf der Einstelllehre signiert. Dann Einstelllehre aus Rollkopfhalter nehmen und eingestellten Rollkopf im Rollkopfhalter setzen. Bolzen (31-4) einführen und mit Gewindestift (31-12) festklemmen. Wird der Rollkopf im Rollkopfhalter um 180° gedreht, so ist das Federblech (31-7) mit dem Klemmbolzen (31-6) in den Aufnahmebohrungen auszutauschen. Grundsätzlich muss das Federblech immer zwischen den beiden Gewindestiften (30, bei T42 14) liegen.

### 5

#### Einsatz des Rollkopfes

Es muss die Gewinderolle zuerst das Werkstück berühren, die mit der auf dem Rollkopf signierten Pfeilrichtung und der Werkstückumdrehung gleichen Drehsinn hat

a) Rollkopfhalter mit Federbolzen-Ausführung (31-2). Der Federbolzen (31-2) im Rollkopfhalter ist mit der zuerst anlaufenden Gewinderolle am Werkstück in gleicher Höhe einzusetzen. Der Anschlagbolzen (31-3) muss so eingestellt sein, dass, wenn beide Gewinderollen eben das Werkstück berühren, ca. 0,5 mm Spiel zum Rollkopf vorhanden ist. Dann kontern mit Mutter (31-11).

b) Rollkopfhalter mit Federblech-Ausführung (31-7). Beim Einsatz eines Rollkopfhalters mit Federblech ist durch Verdrehen des Gewindestiftes 30 (bei Rollkopf T 42 14) das Zuerstberühren einer Rolle mit dem Werkstück zu erreichen. Es ist aber darauf zu achten, dass der Achsabstand des Rollkopfes wieder neu eingestellt werden muss.

Zeigt die nun folgende Rolloperation noch kein ausgerolltes Gewinde, dann ist Gewindestift (28) zu lösen und Gewindestift (29 oder 30, bei Rollkopf T 42 14 oder 15) etwas im Uhrzeigersinn zu verdrehen. Gewindestift (28) festziehen. 1 Teilstrich auf dem Gewindestift entspricht für T 18 ca. 0,15 mm, für T 27 u. T 42 ca. 0,2 mm Zustellung. Dieses wiederholt man so lange, bis das Gewinde maßhaltig ist. Stellt es sich heraus, dass das Gewinde leicht konisch wird, so lässt sich durch Verdrehen beider Achsen (3) ein paralleles Gewinde erreichen. Dreht man den Schlitz beider Achsen zur Außenseite des Rollkopfes, wird der Werkstück-Flanken-Ø an der schmalen Armseite des Rollkopfes kleiner. Umgekehrt wird der Werkstück-Ø an der schmalen Arm-seite größer. Es ist unbedingt wichtig, dass die Achsen mit Zylinderschraube (25) sehr fest angezogen werden müssen. Achsenverdrehung während des Rollens ergibt Rollen- und Getriebebruch. Auftretender starker Späneanfall kann die Rolloperation sehr beeinflussen. Wenn möglich, ist Späneschutz für den Rollkopf vorzusehen. Kühlstromflussrichtungen sollten so vorgesehen werden, dass gleichzeitig die Späne bei dem Rollvorgang weggespült werden.

### 6

#### Rollenwechsel

Wird in der laufenden Produktion ein Rollenwechsel erforderlich, so ist darauf zu achten, dass eine Kontrolle des Außen-Ø erfolgt. Die gemessenen Ø-Unterschiede sind durch Veränderung der Kopfeinstellung auszugleichen.

### 7

#### Verschleißteile

Sollte das Rollergebnis bei einwandfreien Rollen nicht mehr zufriedenstellend sein, so kann ein Teil im Rollkopf verschlissen sein. Hauptverschleißteile sind: Scheibe (15), Achse (3), Ritzel (8), Zahnrad (10, 11, 12), Buchse (13). Es empfiehlt sich, von diesen Teilen einen Vorrat zu halten.

### 8

#### Rollgeschwindigkeit

Je nach Werkstoff und vorhandener Spindeldrehzahl sind Rollgeschwindigkeiten von 20–60 m/min zu verwenden.

adjusted rolling head into the rolling head holder. Insert bolt (# 31-4) and fix with stud bolt (# 31-12). If the rolling head is turned by 180° in the rolling head holder, the spring clip (# 31-7) with the clamping bolt (# 31-6) in the location holder must be exchanged. The spring clip must always be located between the two stud bolts (# 30, # 14 on the T42).

### 5

#### Inserting the rolling head

The thread roller that rotates in the same direction as the arrow marked on the rolling head and the rotation of the workpiece must be the first to contact the workpiece.

a) Rolling head holder version with spring pin (# 31-2). The spring pin (# 31-2) in the rolling head holder is to be set to the same height as the thread roller that first runs onto the workpiece. The stop bolt (# 31-3) must be adjusted so that there is a clearance from the rolling head of about 0.5 mm when the two thread rollers contact the workpiece evenly. Then lock with the nut (# 31-11).

b) Rolling head holder version with spring clip (# 31-7). When using a rolling head holder with a spring clip, the stud bolt, part 30 (# 14 on the T42 rolling head), should be turned in order to ensure that one roller is the first to contact the workpiece. Note, however, that the clearance between the axis and the rolling head must be adjusted again. If the rolling operation that now follows still does not produce a rolled thread, the stud bolt (# 28) should be loosened, and the stud bolt (#29 or 30, # 14 or 15 on the T 42) turned some distance clockwise.

Tighten the stud bolt (# 28). One graduation on the stud bolt corresponds to an adjustment of approx. 0.15 mm on the T 18 and approx. 0.008" for the T 27 and T 42. This process is to be repeated until the thread has the correct dimensions. If it is found that the thread is slightly conical, a parallel thread can be achieved by turning the two axes (# 3). If the slot on the two axes is turned towards the outer side of the rolling head, the workpiece flank diameter becomes smaller on the side of the rolling head with the narrow lever. The opposite movement will increase the workpiece diameter on the side with the narrow lever. It is extremely important that the axes are tightened very firmly with the cheese head screw (# 25). Movement of the axes during the rolling process will result in damage to both rollers and gearing. Heavy chip formation can have a strong influence on the rolling operation. Protect the rolling head from chips if possible. The direction of the flow of coolant should be selected so that the rolling operation flushes chips away at the same time.

### 6

#### Installing a new set of rolls

When replacing a worn set of thread rolls they do not have to be synchronized. The unique Fette design accomplishes this automatically. Gauge size of component should always be checked.

### 7

#### Wear Parts

Eventually some Attachment Parts will wear and thread quality will suffer. Main wear parts are Washer #15, Shaft #3, Pinion #8, Gears #10, 11 & 12. Bushing #13. It is recommended to stock spareparts.

### 8

#### Rolling Speed, and Coolants

Depending upon material to be rolled we recommend a rolling speed of 80 to 250 SSFM. Normal cutting fluids are suitable for thread rolling. Water soluble mixture should be at least 10:1.

<sup>1)</sup> Diese Zahlen entsprechen den Ersatzteil-Nr. auf den Seiten 319, 323.

<sup>1)</sup> These numbers correspond to the spare part no. on pages 319, 323.

### Einbau auf konventionellen Drehautomaten

Skizzen entsprechen Rollköpfen T 18, T 27

Beispiel: Einsatz auf Querschlitten mit T-Nut

### Application on conventional automatic lathes

Sketches show attachments T 18, T 27

Example: application on cross slide with T-slot

### Einbau auf CNC-Drehautomaten

Skizzen entsprechen Rollkopf T 42

Beispiel: Einsatz auf Revolver mit Rundschaft

### Application on NC, CNC automatic lathes

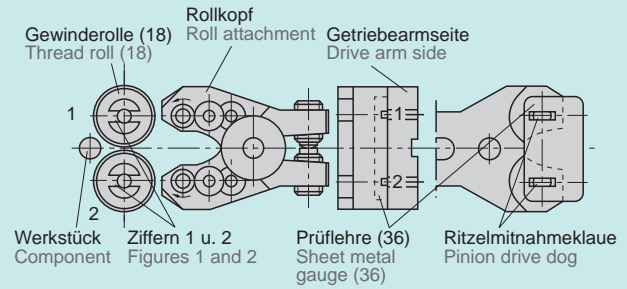
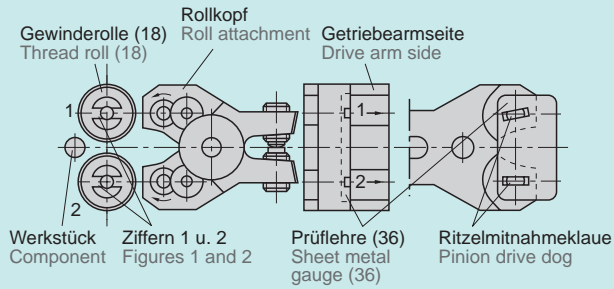
Sketches show attachment T 42

Example: application on turret with round shank

## 1

### Einbau der Gewinderollen

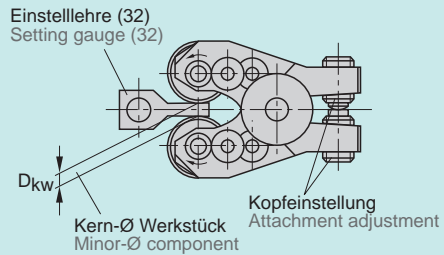
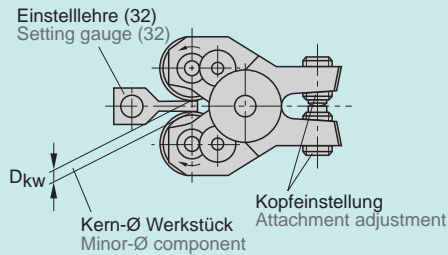
#### Mounting of rolls



## 2

### Einrichten des Rollkopfes

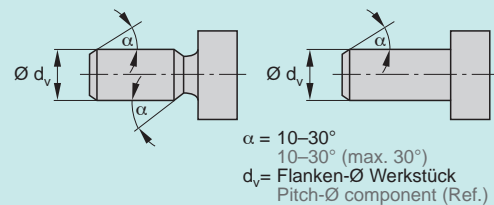
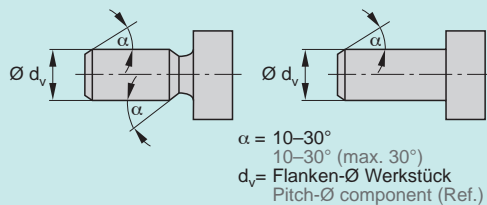
#### Pre-set of rolling attachment for size



## 3

### Vorbereitung des Werkstückes

#### Component preparation





**Einsatz auf konventionellen Drehautomaten**

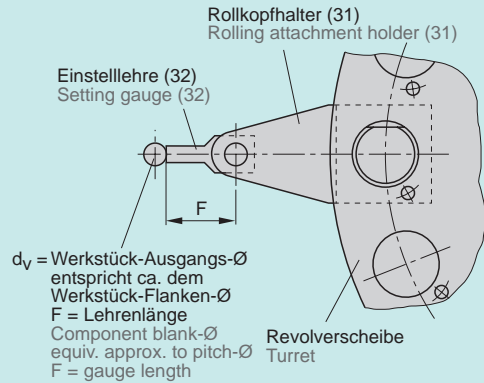
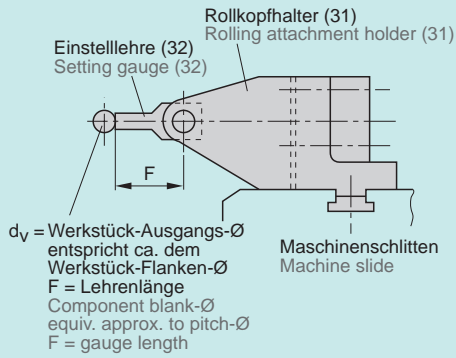
Skizzen entsprechen Rollköpfen T 18, T 27  
 Beispiel: Einsatz auf Querschlitten mit T-Nut  
**Application on conventional automatic lathes**  
 Sketches show attachments T 18, T 27  
 Example: application on cross slide with T-slot

**Einsatz auf CNC-Drehautomaten**

Skizzen entsprechen Rollkopf T 42  
 Beispiel: Einsatz auf Revolver mit Rundschaft  
**Application on NC, CNC automatic lathes**  
 Sketches show attachment T 42  
 Example: application on turret with round shank

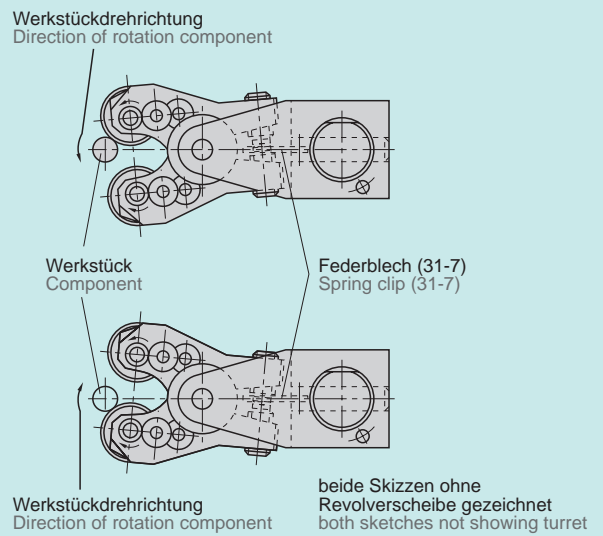
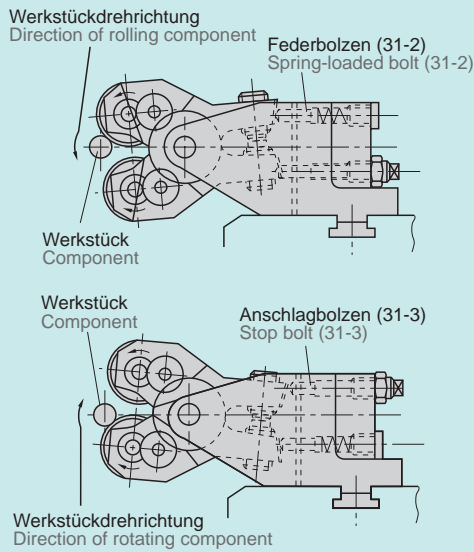
**4**

**Einrichten des Rollkopfhalters**  
**Setting rolling attachment holder**



**5**

**Einsatz des Rollkopfes Application of rolling attachment**



### 1

#### Einbau der Gewinderollen

Einbauanweisung für Tangential-Rollköpfe T120F, T160F, T220F und T350F Gewindestift (25) lösen. Achsen herausziehen. Mit der Blechprüflehre (36) überprüfen, ob die Ritzelmitnahmeklauen richtig zueinander stehen. Ist das nicht der Fall, Gewindestift (27) lösen, Buchse (4) herausziehen. Kombiniertes Zahnrad (11, 12) herausnehmen. Zahnrad (10) solange verdrehen, bis die Ritzelklauen (8) in die Blechprüflehre (36) passen. Kombiniertes Zahnrad (11, 12) mit der Verzahnung nach unten wieder einbauen. Buchse (4) ins Gehäuse stecken. Gewindestift (27) festziehen.

Nun kann der Rolleneinbau erfolgen. Vom Überprüfen mit der Blechprüflehre sollen die Ritzelklauen noch so stehen, dass die schmale Klaue in Richtung Werkstück zeigt. Mit 1 signierte Rolle in die Getriebearmseite (1) auf die Ritzelklaue (8) schieben, dabei muss die Zahl 1 der Rolle zum Werkstück zeigen. (siehe Skizze 1, Seite 386)

Achse (3) in Gewinderollenbohrung einführen, Scheibe (15) zwischen Rolle und schmale Rollkopfarmseite schieben. Achse bis auf Anschlag einschieben. Die Achse mit Gewindestift (25) festklemmen. Die zweite Rolle ist nach gleichem Muster einzusetzen. Nach dem Einbau beider Rollen müssen die aufsignierten Ziffern zum Werkstück hinzeigen. (siehe Skizze 1, Seite 386) Die Arbeitsweise des Rollkopfes ist gewährleistet, wenn die Rollen sich leichtgängig drehen lassen und beim Festhalten einer Rolle die andere sich zum Kopffinneren verdrehen lässt. Beim Loslassen der verdrehten Rolle muss diese selbständig in die Ausgangsstellung zurückkommen. Das axiale Lagerspiel ist unter ständiger Kontrolle zu halten. Wird das Spiel größer als 0,1 mm (bei feinen Gewindeteilungen größer als 0,05 mm) ist die Feineinstellung nachzustellen (siehe Seite 386). Außerdem ist die Scheibe (15) zu kontrollieren und bei starkem Verschleiß zu wechseln.

### 2

#### Einrichten des Rollkopfes

Der Mittenabstand der Gewinderollen (bezeichnet als „Achsabstand“) ist durch Verstellen der Spindel (30) auf den erforderlichen Werkstückkern-Ø einzustellen. (siehe Skizze 2, Seite 386) Hierzu beide Klemmschrauben (28) lösen. Durch Verdrehen der Spindel (30) mit beiliegendem Inbusschlüssel wird der Achsabstand verändert.

#### Einstellen ohne Einstelllehre

Das Voreinstellmaß aus den Tabellen der Bedienungsanleitung oder dem Internet für das benötigte Gewinde entnehmen. (siehe Tabelle 1, Seite 386) Spindel (30) so weit verdrehen, bis das Voreinstellmaß mittels Messschieber, Mikrometerschraube oder Werkzeugvoreinstellgerät über die beiden Nocken am Rollkopf gemessen wird.

#### Einstellen mit Einstelllehre

Die Einstelllehre (32) entspricht in ihrer Breite dem Werkstückkern-Ø. Spindel (30) so weit verdrehen, bis die Einstelllehre stramm wischen die Rollen passt.  
Hinweis: Wird die Spindel (30) im gleichen Drehsinn gedreht, wie dem aufgraviertem Drehrichtungspfeil verstellt, so wird der Abstand zwischen den Rollen verringert.

### 3

#### Feineinstellung des Rollkopfes

Nachdem das erste Werkstück gerollt wurde, kann eine Feineinstellung des Achsabstandes nötig sein, um evtl. geforderte Toleranzen des Werkstücks zu erreichen.

Hierzu ist die Einstellskala auf den Teilen (29 und 30) vorgesehen. (siehe Skizze 3, Seite 386) Eine Verstellung der Spindel (30) um einen Teilstrich ergibt folgende Änderung des Achsabstandes:

- ca. 0,05 mm beim T120F
- ca. 0,06 mm beim T160F
- ca. 0,07 mm beim T220F
- ca. 0,08 mm beim T350F

### 1

#### Assembly of thread rolls

Loosen set screw #25 and remove axles in direction of arrow. Using Sheet metal gauge #36, check if pinion dogs are in correct position to each other. If not, loosen set screw #27 and withdraw bushing #4 and then combined gears #11 and 12. Rotate Pinion #8 until dogs fit in gauge slots. Reinstall gears 11 and 12 with #11 entering first. Replace Bushing #4 and retighten screw #27. Now Thread Rolls may be assembled. Before checking with the gauge, make sure that the smaller one of the pinions faces towards the component. Place #1 roll in geared arm marked 1 so that it engages the driven dogs and the number 1 on the roll is facing out. See sketch 1 (page 386). Insert axle #3 between thread roll and narrow arm, push axle through it against stop. The numbers on both rolls should point towards the component (see sketch 1 (page 386)). Axle must be firmly clamped by tightening cap screw #25. Assemble #2 roll in the same manner. The attachment has been properly assembled if the rolls can be easily rotated, and if, while holding one roll stationary, the other is rotated towards the inside of the attachment automatically returns to starting position.

### 2

#### Adjusting attachment for thread size

Thread Size is controlled by adjusting spindle #30 to the diameter of the component body (see sketch 2 (page 386)). Loosen the two Locking Screws #28. You can adjust the axle distance by turning the spindle with the enclosed hex driver.

#### Adjusting without setting gage

Take the presetting for the desired thread size from the charts in the manual (see chart 1 (page 386)) or the internet. Turn the spindle #30 until you measure the presetting value over the two cams of the thread roll by caliper gauge, micrometer screw or tool-setting equipment.

#### Adjusting with setting gage

The Setting Gauge #32, corresponds with the component body diameter. Turn spindle #30 until setting gauge fits tightly between the rolls.

Note: If you turn spindle #30 towards the same direction as the engraved arrow points to, the distance between the rolls is reduced.

### 3

#### Vernier adjustment of the rolling attachment

After having rolled the first component, a vernier adjustment of the axle distance could become necessary, to achieve a desired tolerance. This is the purpose of the adjusting dial on the parts #29 and 30. (Sketch 3 (page 386)). Adjusting the spindle #30 of one scale line, you achieve the following changes in the axle distance:

- Appr. 0.0020" with T120F
- Appr. 0.0024" with T160F
- Appr. 0.0028" with T220F
- Appr. 0.0031" with T350F.

Note: Before starting the serial production, make sure that the spindle is clamped with at least one of the two locking screws #28.

### 4

#### Preparation of the component

Rolling Diameter (Blank Diameter) is Approx. Mean Pitch Diameter of the Thread being rolled. Deviations are possible depending upon the material being rolled. The blank should have a chamfer of 10/300 at both the beginning end and at the relief if there is one. Chamfer should start .008"/.020" below the minor diameter of the thread.

Achtung: Vor Aufnahme der Serienfertigung unbedingt die Spindel mit mindestens einer der beiden Klemmschrauben (28) wieder festsetzen.

### 4

#### Vorbereitung des Werkstückes

Der Rolldurchmesser (Ausgangsdurchmesser) entspricht ca. dem Flankendurchmesser des zu rollenden Gewindes. Je nach Werkstoff sind Abweichungen möglich.

Die Werkstücke sind unter einem Winkel  $\alpha = 10^\circ - 30^\circ$  anzufasen. Der kleinste Fasen-Ø sollte ca. 0,1–0,5 mm unter dem Werkstückkern-Ø liegen. Die Anfasung gilt für den Gewindeanfang und auch für den Gewindeauslauf, sofern ein Freistich vorhanden ist.

### 5

#### Einsatz des Rollkopfs

##### Rollkopf auf Mehrspindler

Einstelllehre in Rollkopfhalter auf Bolzen (31-4) schieben. Rollkopfhalter auf Querschlitzen festspannen. Schlitten in höchste Stellung der Vorschubkurve bringen. Kurve muss so ausgelegt sein, dass innerhalb von 15–20 Werkstückumdrehungen der Rollvorgang beendet ist. Der Rücklauf des Rollkopfes muss innerhalb von max. 5 weiteren Werkstückumdrehungen erfolgt sein. Die Länge des Arbeitsweges, die man zur Auslegung der Kurve braucht, ist auf der Einstelllehre signiert. Der Schlitten muss so lange verschoben werden, bis die Einstelllehre den Werkstückvordrehdurchmesser eben berührt. Hier ist der Festanschlag zu setzen. Einstelllehre aus Rollkopfhalter nehmen und eingestellten Rollkopf in Rollkopfhalter einsetzen. Bolzen (31-4) einführen und mit Gewindestift (31-12) festklemmen.

Weitere Informationen siehe Kapitel Einsatz auf Mehrspindlern (Seiten 395, 396)

##### Rollkopf auf Drehzentrum

Rollkopfhalter (31) am Revolver anbauen. Eingestellten Rollkopf in den Rollkopfhalter (31) setzen. Bolzen (31-4) einführen und mit Gewindestift (31-12) sichern. Prüfen, ob Rollkopf bzw. Rollen innerhalb des Schwingkreis-Ø liegen, damit es beim Durchschalten keine Kollision gibt.

Die Steuerung der CNC-Maschine programmieren. Die benötigten Maße sind der Baumaßzeichnung des Halters sowie den Tabellen aus der Bedienungsanleitung oder dem Internet zu entnehmen. (siehe Tabelle 2)

Weitere Informationen siehe Kapitel Einsatz auf Drehzentren (Seiten 397, 398)

### 6

#### Rollenwechsel

Wird in der laufenden Produktion ein Rollenwechsel erforderlich, so ist darauf zu achten, dass eine Kontrolle des Außen-Ø der Rollen erfolgt. Die gemessenen Ø-Unterschiede sind durch Veränderung der Kopfeinstellung auszugleichen.

### 7

#### Verschleißteile

Sollte das Rollergebnis bei einwandfreien Rollen nicht mehr zufriedenstellend sein, so kann ein Teil im Rollkopf verschlissen sein.

Hauptverschleißteile sind: Scheibe (15), Achse (3), Ritzel (8), Zahnrad (10, 11, 12), Buchse (13).

Es empfiehlt sich, von diesen Teilen einen Vorrat zu halten.

### 8

#### Rollgeschwindigkeit

Je nach Werkstoff und vorhandener Spindeldrehzahl sind Rollgeschwindigkeiten von 20–60 m/min zu verwenden. Wir empfehlen ca. 20–30 m/min für hohe Werkstofffestigkeiten und große Umformleistungen.

### 5

#### Mounting attachment

##### On multispindle attachment with cross slide

Mount Setting Gauge on Bolt #31-4 and mount them in the T Type Holder. Attach Holder to Cross Slide. Advance Cross Slide to high point of the special Thread Rolling Cam designed for this component. The cam must have been designed to complete the threading operation in 15/20 revolutions. The return must be completed in no more than 5 revolutions. The length of the Feed Stroke, AV, is marked on the setting gauge. Push the slide forward until the end of the Setting Gauge contacts the OD of the Blank. When the gauge is removed and the Attachment mounted on the Bolt in the Holder, the Center Line of the Rolls will be on the centerline of the component. A positive stop should be set to ensure that the slide cannot advance beyond this point. Remove Setting gage from attachment holder and mount the pre-set rolling attachment to the holder. Tighten #31-12 locking Screws in order to retain Bolt.

For more information please refer to chapter "Application on Cam controlled Machine Tool" (see pages 395, 396).

##### On turning centers

Mount Holder complete with Attachment and Rolls on turret and carefully index in order to ensure adequate clearance. Replace Setting Gage in Holder with pre-set Attachment and lock bolt (#31-4) in place with set screws (#31-12).

Programme the control system of the CNC lathe. For the correct measures, look at the structural dimensions of the holder as well as the internet.

For more information, see chapter "Application on CNC INC Machine Tools" (see pages 397, 398).

### 6

#### Installing a new set of rolls

When replacing a worn set of thread rolls during production process, make sure to check the outer diameter of the rolls. You can level out any diameter deviations by changing the setting of the attachment.

### 7

#### Wear Parts

In case the rolling results are not satisfying despite the fact that the rolls work properly, parts of the rolling attachment could be worn out.

Main wear parts are Washer #15, Shaft #3, Pinion #8, Gears #10, 11 & 12, Bushing #13. It is recommended to stock spareparts.

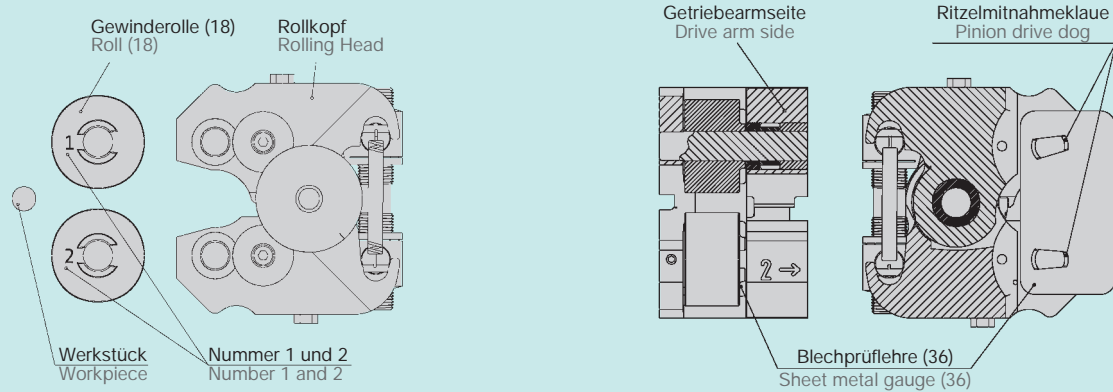
### 8

#### Rolling Speed

Depending upon material to be rolled and given number of spindle revolutions, we recommend a rolling speed of 20-60 SSFM. We recommend appr. 20-30 SSFM for high material strengths and large rolling operations.

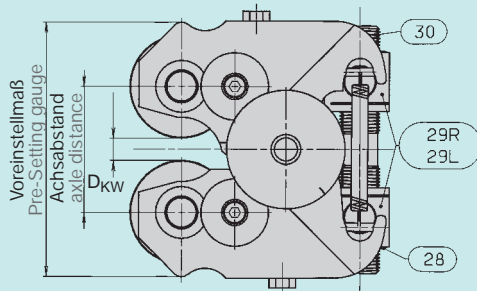
### 1

#### Einbau der Rollen Assembling of rolls



### 2

#### Einrichten des Rollkopfes Set up of rolling attachment

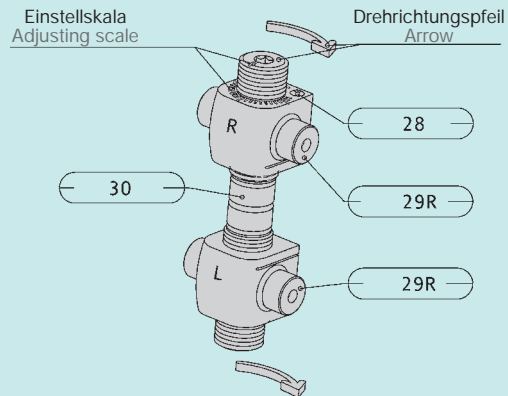


#### Voreinstellmaß Pre-setting gauge

| Rollkopf<br>Attachment | Gewinde<br>Thread | Steigung<br>Pitch | Rollengangzahl<br>Number of Speed |
|------------------------|-------------------|-------------------|-----------------------------------|
| T220F                  | M22               | 1.5               | 2                                 |

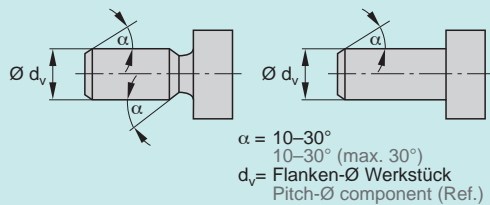
### 3

#### Feineinstellung des Rollkopfes Arm adjustment of rolling attachment



### 4

#### Vorbereitung des Werkstückes Component preparation



#### Einstellmaß Setting gauges

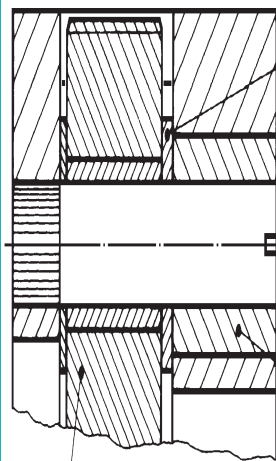
| Rollkopf<br>Attachment | Gewinde<br>Thread | Steigung<br>Pitch | Geschwindigkeit<br>Number of Speed | Voreinstellmaß<br>Pre-setting gauge | Av<br>Av | F-Maß<br>F-Gauge | DFW<br>DFW |
|------------------------|-------------------|-------------------|------------------------------------|-------------------------------------|----------|------------------|------------|
| T220F                  | M22               | 1.5               | 2                                  | 107.31                              | 5.18     | 32.74            | 20.99      |

**Einbauanweisung für Tangential-Rollköpfe zum Einsatz bei Rändelungen und Oberflächenglättung**  
**Installation of Fette Tangential Rolling Attachments for Knurling and Burnishing**

**Rändelpaket**

Kit for knurling and burnishing  
 Knurls, Serrations

| Artikelnummer der Rollköpfe      |                   |
|----------------------------------|-------------------|
| Ident No. for Rolling Attachment |                   |
| T120R                            | Ident No. 2407194 |
| T160R                            | Ident No. 2407196 |
| T18R                             | Ident No. 2173972 |
| T27R                             | Ident No. 2173973 |
| T42R                             | Ident No. 2173974 |
| T220R                            | Ident No. 2407199 |
| T350R                            | Ident No. 2408855 |



Distanzscheibe nach Code-Nr.  
 Spacer as per Code No.

|            |                   |
|------------|-------------------|
| T120R - 38 | Ident No. 2173975 |
| T160R - 38 | Ident No. 2407197 |
| T18R - 38  | Ident No. 2173977 |
| T27R - 38  | Ident No. 2173979 |
| T42R - 38  | Ident No. 2173982 |
| T220R - 38 | Ident No. 2407200 |
| T350R - 38 | Ident No. 2408856 |

Buchse nach Code-Nr.  
 Spacer as per Code No.

|            |                   |
|------------|-------------------|
| T120R - 39 | Ident No. 2407195 |
| T160R - 39 | Ident No. 2407198 |
| T18R - 39  | Ident No. 2173978 |
| T27R - 39  | Ident No. 2173980 |
| T42R - 39  | Ident No. 2173981 |
| T220R - 39 | Ident No. 2407201 |
| T350R - 39 | Ident No. 2408857 |

Rolle  
 max. Breite entspricht der normalen Rollenbreite  
 siehe Seiten 000  
 Rolls  
 Maximum width corresponds to standard roll width. See pages 000.

Mit Fette-Tangential-Gewinde-Rollköpfen können auch Werkstücke mit Rändelungen hergestellt werden. Es sind auch Oberflächenglättungen möglich. Bei Glättoperationen ist Voraussetzung, dass der Vorbearbeitungs-Ø innerhalb einer Toleranz von ± 0,015 mm liegt. Beim Gebrauch eines Tangential-Rollkopfes zum Rändeln bzw. Glätten ist folgendermaßen vorzugehen:  
 Die Ritzel (8),<sup>1)</sup> Zahnräder (10), Buchsen (13), sowie Lagerbuchsen (7), (17) sind aus dem Rollkopf auszubauen.  
 Dafür ist für jede Rollenlagerung eine neue Buchse (39) einzusetzen.  
 Die Rolle hat keine Mitnahmenut. Dafür ist eine Distanzscheibe (38) einzusetzen.  
 Diese Teile werden als Rändelpaket bezeichnet. Es besteht aus 2 Distanzscheiben und 2 Buchsen, die passend zu dem betreffenden Rollkopf zu bestellen sind.

Wird ein Tangential-Gewinde-Rollkopf für Rändelungen oder Oberflächenglättungen ab Werk ausgeliefert, so lautet die Kopfbezeichnung T120R, T160R, T18R, T220R, T27R, T350R, T42R.

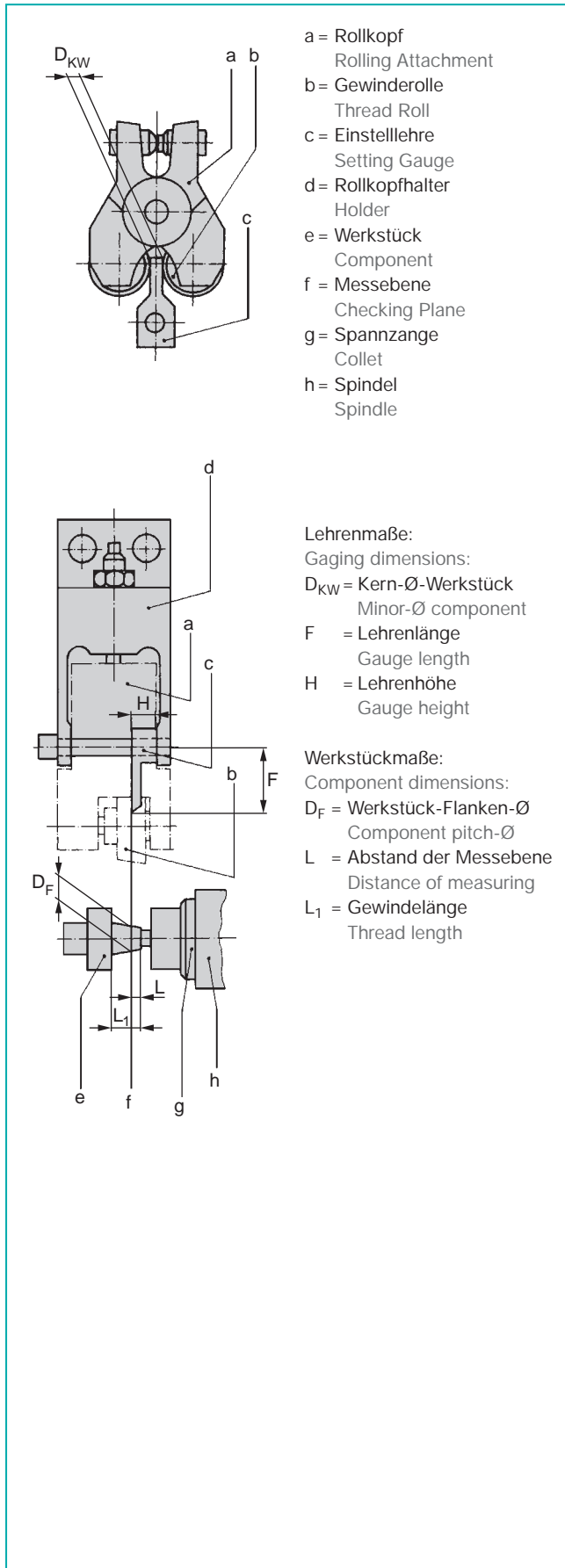
Der Einsatz des Rollkopfes ist genauso vorzunehmen, wie beim Gewinderollen. Siehe Einbauanweisung, Seiten 384 und 385. Anstatt der Einstelllehre wird ein Einstellmeister verwendet. Vorbereitung des Werkstückes zum Rändeln. Nach DIN 82, Ausgabe 1973, wird bei Rändelungen der Nenn-Ø d<sub>1</sub> = Außen-Ø des Werkstückes angegeben. Der Ausgangs-Ø d<sub>2</sub> des Werkstückes für die Formen RAA (Rändel mit achsparallelen Riefen), RBL (Linksrändel), RBR (Rechtsrändel), RGE (Links-Rechtsrändel) und RKE (Kreuzrändel) errechnet sich annähernd Werkstückaußen-Ø minus 1 x Zahnhöhe = Ausgangs-Ø.

When Attachment will be used solely for Burnishing or Knurling T Type R, specially modified should be used. See below. It is possible to modify a Standard Thread Rolling Attachment by removing parts #8, 10 and 13 Pinion, Gear and Bushing. Replace these parts with #38 and 39 (37 and 39 for T42). These rolls have no drive slots

The application of the Attachment is similar to that of the Thread Rolling Attachment as shown on pages 384, 385. The blank diameter for burnishing should be the nominal diameter of the component ± 0.001" For Knurling the blank spelling is the nominal diameter of the component less 1 tooth height. See table below. All Fette standard knurl rolls are to DIN 82 with 90° gap angle.

| Teilung t |        | Zahnhöhe h     |        |
|-----------|--------|----------------|--------|
| Pitch t   |        | Tooth height h |        |
| 0,5       | 0.02"  | 0,23           | 0.009" |
| 0,6       | 0.024" | 0,25           | 0.01"  |
| 0,8       | 0.031" | 0,37           | 0.015" |
| 1,0       | 0.039" | 0,47           | 0.018" |
| 1,2       | 0.047" | 0,5            | 0.02"  |
| 1,5       | 0.059" | 0,64           | 0.025" |
| 1,6       | 0.063" | 0,75           | 0.03"  |
| 2,0       | 0.079" | 0,95           | 0.037" |

<sup>1)</sup> Diese Zahlen entsprechen den Ersatzteil-Nr. auf den Seiten 315, 319, 323.  
<sup>1)</sup> These numbers correspond to the spare part no. on pages 315, 319, 323.



**1**

**Einstellen des Rollkopfes**

Der Rollkopf muss so eingestellt werden, dass die größten Rollen-Ø auf Einstellehrenbreite zur Anlage kommen.

**2**

**Einrichten des Rollkopfhalters**

Einstellehre mit Bundfläche an die Rollkopfhalterseite legen, an der die Spindel liegt. Rollkopfhalter nun so einrichten, dass die Spitze der Lehre auf Messebene liegt. Weiteres Einrichten siehe Seite 386 Punkt 4.

**1**

**Adjusting the rolling head**

The rolling head must be adjusted in such a way that the largest roller diameters come to rest at the width of the setting gauge.

**2**

**Adjusting the rolling head holder**

Place the setting gauge with the shoulder surface against the side of the rolling head holder where the spindle is. Now adjust the rolling head holder so there the tip of the gauge is located at the measuring plane. See Point 4 on page 386 for further adjustment.

Der Mittenabstand der Gewinderollen ist durch Verstellen zweier Gewindestifte Teil 30 (bei Rollkopf T 42 Teil 14) auf das erforderliche Werkstückkernmaß einzustellen. Die Einstelllehre (32) entspricht in ihrer Breite dem Werkstückkernmaß. Dazu Gewindestift (28) lösen, Gewindestift Teil 30 (bei Rollkopf T 42 Teil 14) solange verstellen, bis Einstelllehre stramm zwischen Rollen passt und Gewindestift (28) wieder festziehen. Es ist darauf zu achten, dass die beiden Gewindestifte gleichmäßig in Ober- und Unterteil verstellt werden.

### Maschine und Rollkopf

#### Einsatz auf konventionellen Drehautomaten mit Querschlitten

Einstelllehre in Rollkopfhalter auf Bolzen (31-4) schieben. Rollkopfhalter auf Querschlitten festspannen. Schlitten in höchste Stellung der Vorschubkurve bringen. Kurve muss so ausgelegt sein, dass innerhalb von 15–30 Werkstückumdrehungen der Rollvorgang beendet ist. Der Rücklauf des Rollkopfes muss innerhalb von max. 5 weiteren Werkstückumdrehungen erfolgt sein. Die Länge des Arbeitsweges, die man zur Auslegung der Kurve braucht, und auch die Lehrenlänge „F“ sind auf der Einstelllehre signiert. Der Schlitten muss so lange verschoben werden, bis die Einstelllehre den Werkstückvordreh-Ø eben berührt. Hier ist der Festanschlag zu setzen. Einstelllehre aus Rollkopfhalter nehmen und eingestellten Rollkopf in Rollkopfhalter einsetzen. Bolzen (31-4) einführen und mit Gewindestift (31-12) festklemmen.

#### Einsatz auf NC-, CNC-Drehautomaten mit Revolverzscheibe

Eingestellten Rollkopf im Rollkopfhalter aufnehmen. Rolleinheit in Revolverscheibe einbauen. Prüfen, ob Rollkopf bzw. Rollen innerhalb des max. möglichen Schaltkreis-Ø liegen. Bei verstellbarem Halter Seitenabstand auf vorher ausgemessenen Schaltkreisabstand einstellen (min. Verstellung 1,5 mm). Rollkopf ausbauen, dafür Einstelllehre einbauen. Revolver mit Rollkopfhalter und Lehre soweit verfahren, bis Vorderkante Lehre gegen den Roll-Ø stößt. Dieses Maß fixieren, soweit muss der Revolver bei folgendem Rollvorgang in x-Achse verfahren. Verfahrweg programmieren siehe Seite 397. Die Länge des Arbeitsweges „Av“ und die Lehrenlänge „F“ sind auf der Einstelllehre signiert. Dann Einstelllehre aus Rollkopfhalter nehmen und eingestellten Rollkopf im Rollkopfhalter setzen. Bolzen (31-4) einführen und mit Gewindestift (31-12) festklemmen.

### Der Rollvorgang

Es muss die Gewinderolle zuerst das Werkstück berühren, die mit der auf dem Rollkopf signierten Pfeilrichtung und der Werkstückumdrehung gleichen Drehsinn hat a) Rollkopfhalter mit Federbolzen-Ausführung (31-2). Der Federbolzen (31-2) im Rollkopfhalter ist mit der zuerst anlaufenden Gewinderolle am Werkstück in gleicher Höhe einzusetzen. Der Anschlagbolzen (31-3) muss so eingestellt sein, dass, wenn beide Gewinderollen eben das Werkstück berühren, ca. 0,5 mm Spiel zum Rollkopf vorhanden ist. Dann kontern mit Mutter (31-11). In Sonderfällen Spielveränderungen möglich b) Rollkopfhalter mit Federblech-Ausführung (31-7). Beim Einsatz eines Rollkopfhalters mit Federblech ist durch Verdrehen des Gewindestiftes Teil 30 (bei Rollkopf T 42 Teil 14) das Zuerstberühren einer Rolle mit dem Werkstück zu erreichen. Es ist aber darauf zu achten, dass der Achsabstand des Rollkopfes wieder neu eingestellt werden muss. Zeigt die nun folgende Rolloperation noch kein ausgerolltes Gewinde, dann ist Gewindestift (28) zu lösen und Gewindestift (29 oder 30, bei Rollkopf T 42 Teil 14 oder 15) etwas im Uhrzeigersinn zu verdrehen. Gewindestift (28) festziehen. 1 Teilstrich auf dem Gewindestift entspricht für T 12 u. T 18 ca. 0,15 mm, für T 27 u. T 42 ca. 0,2 mm Zustellung. Dieses wiederholt man so lange, bis das Gewinde maßhaltig ist. Stellt es sich heraus, dass das Gewinde leicht konisch wird, so lässt sich durch Verdrehen beider Achsen (3) ein paralleles Gewinde erreichen. Dreht man den Schlitz beider Achsen zur Außenseite des Rollkopfes, wird der Werkstück-Flanken-Ø an der schmalen Armseite des Rollkopfes kleiner. Umgekehrt wird der Werkstück-Ø an der schmalen Armseite größer. Es ist unbedingt wichtig, dass die Achsen mit Zylinderschraube (25) sehr fest angezogen werden müssen. Achsenverdrehung während des Rollens ergibt Rollen- und Getriebebruch.

Weitere Erläuterungen siehe Seite 384.

The center clearance of the thread rollers is to be set to the required workpiece core dimension by adjusting a pair of stud bolts, part 30 (part 14 on the T 42 rolling head). The width of the setting gauge (#32) corresponds to the dimension of the workpiece core. To do this, loosen the stud bolt (#28), and adjust stud bolt part 30 (part 14 on the T 42 rolling head) until the setting gauge fits tightly between the rollers, then tighten stud bolt (#28) again. Make sure that the two stud bolts are evenly adjusted in the upper and lower parts.

### Machine and rolling head

#### Used on conventional automatic lathes with cross slides

Push the setting gauge in the rolling head holder onto the bolts (#31-4). Clamp the rolling head holder onto the cross slide. Place the slide block in the highest position of the feed cam. The cam must be designed in such a way that the rolling process is completed within 15–30 rotations of the workpiece. The rolling head must return within a maximum of 5 further workpiece rotations. The length of the working path that is necessary for the design of the cam is marked on the setting gauge, as is the gauge length “F”. The slide block must be pushed along until the setting gauge evenly touches the pre-turning diameter of the workpiece. The fixed stop should be positioned here. Take the setting gauge out of the rolling head holder and insert the adjusted rolling head into the rolling head holder. Insert bolt (#31-4) and fix with stud bolt (#31-12).

#### Used on automatic NC and CNC lathes with turret plate

Mount the adjusted rolling head in the rolling head holder. Fit the rolling unit into the turret plate. Check that rolling head and/or rollers are positioned within the maximum possible swing diameter. Adjustable holders should have the side clearance set to the previously measured swing circle clearance (min. offset 1.5 mm). Remove the rolling head, and fit the setting gauge in its place. Turn the turret with the rolling head holder and the gauge until the front edge of the gauge meets the rolling diameter. Note this dimension; the turret must move this far on the x-axis during the subsequent rolling operation. Program the transit distance – see page 397. The length of the working transit “Av” and the gauge length “F” are marked on the setting gauge. Then take the setting gauge out of the rolling head holder and insert the adjusted rolling head into the rolling head holder. Insert bolt (31-4) and fix with stud bolt (31-12).

### The rolling operation

The thread roller that rotates in the same direction as the arrow marked on the rolling head and the rotation of the workpiece must be the first to contact the workpiece.

a) Rolling head holder version with spring pin (#31-2). The spring pin (#31-2) in the rolling head holder is to be set to the same height as the thread roller that first runs onto the workpiece. The stop bolt (#31-3) must be adjusted so that there is a clearance from the rolling head of about 0.5 mm when the two thread rollers contact the workpiece evenly. Then lock with the nut (#31-11). Variations in the clearance are possible in special cases.

b) Rolling head holder version with spring clip (#31-7). When using a rolling head holder with a spring clip, the threaded pin, part 30 (part 14 on the T42 rolling head), should be turned in order to ensure that one roller is the first to contact the workpiece. It must, however, be noted that the clearance between the axis and the rolling head must be adjusted again. If the rolling operation that now follows still does not produce a rolled thread, the stud bolt (#28) should be loosened, and the stud bolt (#29 or 30, part 14 or 15 on the T 42) turned some distance clockwise. Tighten the stud bolt (#28). 1 graduation on the stud bolt corresponds to an adjustment of approx. 0.15 mm on the T 12 and the T 18, and to approx. 0.2 mm for the T 27 and T 42. This process is to be repeated until the thread has the correct dimensions. If it is found that the thread is slightly conical, a parallel thread can be achieved by turning the two axes (#3). If the slot on the two axes is turned towards the outer side of the rolling head, the workpiece flank diameter becomes smaller on the side of the rolling head with the narrow lever. The opposite movement will increase the workpiece diameter on the side with the narrow lever. It is extremely important that the axes are tightened very firmly with the cheese head screw (#25). Movement of the axes during the rolling process will result in damaged rollers and gearing.

See page 384 for further explanations.

### METRISCH | METRIC

1. Wenn mit Drehzahl gerechnet wird By using spindle speed:

$$t_r = \frac{60}{n} \cdot (n_W + W_V) \quad [s]$$

2. Wenn mit Rollgeschwindigkeit gerechnet wird:  
By using rolling speed:

$$t_r = \frac{0,06 \cdot d \cdot \pi}{v} \cdot (n_W + W_V) \quad [s]$$

d = Ausgangs-Ø oder Flanken-Ø Werkstück [mm]  
Blank-Ø or pitch-Ø of component

n = Maschinendrehzahl [min<sup>-1</sup>]  
Machine spindle revolution

$$= \frac{1000 \cdot v}{d \cdot \pi} \quad [min^{-1}]$$

v = Rollgeschwindigkeit Rolling speed [m/min]

$$= \frac{d \cdot \pi \cdot n}{1000} \quad [m/min]$$

n<sub>W</sub> = Werkstückumdrehungen (10–35 siehe Seite 393)  
Component revolutions (10–35) (see page 393)

W<sub>V</sub> = Verweilzeitumdrehungen (2–5)  
Dwell revolutions (2–5)

#### Beispiel Example

|   |                       |
|---|-----------------------|
| Gewinde-Ø Thread-Ø and Pitch              | M 16 x 1,5            |
| Flanken-Ø Werkstück Pitch-Ø component     | 15,03 mm              |
| Maschinendrehzahl Machine spindle rev.    | 635 min <sup>-1</sup> |
| Rollgeschwindigkeit Rolling speed         | 30 m/min              |
| Werkstückumdrehungen Component revolution | 20                    |
| Verweilzeitumdrehungen Dwell revolution   | 3                     |

$$t_r = \frac{60}{635} \cdot (20 + 3) = 2,17 \text{ s}$$

oder or

$$t_r = \frac{0,06 \cdot 15,03 \cdot \pi}{30} \cdot (20 + 3) = 2,17 \text{ s}$$

### ZOLL | INCH

1. Wenn mit Drehzahl gerechnet wird By using spindle speed:

$$t_r = \frac{60}{n} \cdot (n_W + W_V) \quad [s]$$

2. Wenn mit Rollgeschwindigkeit gerechnet wird:  
By using rolling speed:

$$t_r = \frac{5 \cdot d \cdot \pi}{v} \cdot (n_W + W_V) \quad [s]$$

d = Ausgangs-Ø oder Flanken-Ø Werkstück [inch]  
Blank-Ø or pitch-Ø of component

n = Maschinendrehzahl [RPM]  
Machine spindle revolution

$$= \frac{12 \cdot v}{d \cdot \pi} \quad [RPM]$$

v = Rollgeschwindigkeit Rolling speed [SFM]

$$= \frac{d \cdot \pi \cdot n}{12} \quad [SFM]$$

n<sub>W</sub> = Werkstückumdrehungen (10–35 siehe Seite 393)  
Component revolutions (10–35) (see page 393)

W<sub>V</sub> = Verweilzeitumdrehungen (2–5)  
Dwell revolutions (2–5)

#### Beispiel Example

|   |                 |
|---|-----------------|
| Gewinde-Ø Thread-Ø and Pitch              | 5/8 x 18 UNF 2A |
| Flanken-Ø Werkstück Pitch-Ø component     | 0.585"          |
| Maschinendrehzahl Machine spindle rev.    | 751 RPM         |
| Rollgeschwindigkeit Rolling speed         | 115 SFM         |
| Werkstückumdrehungen Component revolution | 20              |
| Verweilzeitumdrehungen Dwell revolution   | 3               |

$$t_r = \frac{60}{751} \cdot (20 + 3) = 1,84 \text{ s}$$

oder or

$$t_r = \frac{5 \cdot 0,585 \cdot \pi}{115} \cdot (20 + 3) = 1,84 \text{ s}$$



Abhängig vom Werkstückmaterial, dem Gewindedurchmesser und der Gewindeteilung treten unterschiedlich große Kräfte beim Gewinderollen auf.

Daher lassen sich nicht alle Gewinde in maximaler Rollenbreite rollen.

Nach unten aufgeführten Formeln kann die maximal rollbare Gewindelänge berechnet werden.

L = max. rollbare Gewindelänge (mm)

P = Gewindesteigung

(bei mehrgängigen Gewinden – Gewindeteilung) (mm)

d = Gewinde-Nenn-Ø (mm)

Alle Werte sind Richtwerte und können im Einzelfall abweichen.

The magnitude of the forces to which the thread rollers are subjected depends on the workpiece material, thread diameter and pitch. Not every thread can therefore be rolled to the maximum roller width.

The maximum rollable thread length can be calculated by means of the formula below.

L = max. rollable thread length (inch)

P = thread lead

(on multiple threads – the thread pitch) (inch)

d = nominal thread diameter (inch)

All values quoted are guides only, and can vary in individual cases.

| Rollkopf T 120 F                 |                             |
|----------------------------------|-----------------------------|
| max. rollbare Gewindelänge in mm | Werkstoffzugfestigkeit      |
| $L = \frac{155}{p \cdot d}$      | bis 500 N/mm <sup>2</sup>   |
| $L = \frac{129}{p \cdot d}$      | > 500–700 N/mm <sup>2</sup> |
| $L = \frac{119}{p \cdot d}$      | > 700–900 N/mm <sup>2</sup> |
| $L = \frac{110}{p \cdot d}$      | > 900 N/mm <sup>2</sup>     |
| Rollkopf T 18 + T 160 F          |                             |
| $L = \frac{580,5}{p \cdot d}$    | bis 500 N/mm <sup>2</sup>   |
| $L = \frac{483}{p \cdot d}$      | > 500–700 N/mm <sup>2</sup> |
| $L = \frac{446}{p \cdot d}$      | > 700–900 N/mm <sup>2</sup> |
| $L = \frac{414}{p \cdot d}$      | > 900 N/mm <sup>2</sup>     |
| Rollkopf T 27 + T 220 F          |                             |
| $L = \frac{1255,5}{p \cdot d}$   | bis 500 N/mm <sup>2</sup>   |
| $L = \frac{1046}{p \cdot d}$     | > 500–700 N/mm <sup>2</sup> |
| $L = \frac{965}{p \cdot d}$      | > 700–900 N/mm <sup>2</sup> |
| $L = \frac{896}{p \cdot d}$      | > 900 N/mm <sup>2</sup>     |
| Rollkopf T 42 + T 350 F          |                             |
| $L = \frac{3402}{p \cdot d}$     | bis 500 N/mm <sup>2</sup>   |
| $L = \frac{2825}{p \cdot d}$     | > 500–700 N/mm <sup>2</sup> |
| $L = \frac{2617}{p \cdot d}$     | > 700–900 N/mm <sup>2</sup> |
| $L = \frac{2430}{p \cdot d}$     | > 900 N/mm <sup>2</sup>     |

| Rolling attachment T 120 F          |                   |
|-------------------------------------|-------------------|
| max. rollable thread length in inch | Material strength |
| $L = \frac{6,102}{p \cdot d}$       | up to 72 PSI      |
| $L = \frac{5,079}{p \cdot d}$       | 72–101 PSI        |
| $L = \frac{4,685}{p \cdot d}$       | 101–130 PSI       |
| $L = \frac{4,331}{p \cdot d}$       | over 130 PSI      |
| Rolling attachment T 18 + T 160 F   |                   |
| $L = \frac{22,854}{p \cdot d}$      | up to 72 PSI      |
| $L = \frac{19,016}{p \cdot d}$      | 72–101 PSI        |
| $L = \frac{17,559}{p \cdot d}$      | 101–130 PSI       |
| $L = \frac{16,299}{p \cdot d}$      | over 130 PSI      |
| Rolling attachment T 27 + T 220 F   |                   |
| $L = \frac{49,429}{p \cdot d}$      | up to 72 PSI      |
| $L = \frac{41,181}{p \cdot d}$      | 72–101 PSI        |
| $L = \frac{37,992}{p \cdot d}$      | 101–130 PSI       |
| $L = \frac{35,276}{p \cdot d}$      | over 130 PSI      |
| Rolling attachment T 42 + T 350 F   |                   |
| $L = \frac{133,937}{p \cdot d}$     | up to 72 PSI      |
| $L = \frac{111,614}{p \cdot d}$     | 72–101 PSI        |
| $L = \frac{103,031}{p \cdot d}$     | 101–130 PSI       |
| $L = \frac{95,669}{p \cdot d}$      | over 130 PSI      |

### Tangential-Gewinde-Rollkopf

Beim Tangential-Verfahren wird das Gewinde in seiner gesamten Länge mit mehreren Umdrehungen erzeugt. Deshalb ist die Antriebsleistung an der Spindel meistens nicht das entscheidende Kriterium. Die Kraft zum Einrollen des Profils muss vom Scheitelschlitten bzw. Revolverschlitten aufgebracht werden. Bei kurven-gesteuerten Drehautomaten ist das meistens kein Problem. Bei hydraulisch oder elektrisch angetriebenen Schlitten ist es nötig, die Tangentialkraft zu erreichen.

Die erforderliche **Antriebsleistung**  
 $N \approx 0,105 \cdot 10^{-5} \cdot n \cdot F_T$  [kW]

Die **Tangentialkraft**

$$F_T \approx 2340 \cdot L \cdot \frac{K}{n_W} \cdot (0,06 \cdot d^{0,82} + 0,46 \cdot p - 0,1 \cdot z + 1) \text{ [N]}$$

Das **Drehmoment**

$$M \approx 0,01 \cdot F_T \text{ [Nm]}$$

| Zugfestigkeit $\delta_B$     | K   |
|------------------------------|-----|
| bis 500 N/mm <sup>2</sup>    | 1   |
| bis 700 N/mm <sup>2</sup>    | 1,2 |
| bis 900 N/mm <sup>2</sup>    | 1,3 |
| größer 900 N/mm <sup>2</sup> | 1,4 |
| Kupfer                       | 1,1 |
| Messing                      | 0,9 |

**Rechenbeispiel:** M 22 x 2,5 – 18 mm lang

|                         |                                   |
|-------------------------|-----------------------------------|
| Gewinde-Ø               | d = 22 mm                         |
| Werkstücksteigung       | p = 2,5 mm                        |
| Werkstückdrehzahl       | n = 480 min <sup>-1</sup>         |
| Werkstückkonstante      | K = 1,2                           |
| Gewindelänge            | L = 18 mm                         |
| Eingriffsumdrehungszahl | $n_W = 30$ (siehe auch Seite 393) |
| Rollenganzzahl          | z = 3                             |

**Tangentialkraft**

$$F_T \approx 2340 \cdot 18 \cdot \frac{1,2}{30} \cdot (0,06 \cdot 22^{0,82} + 0,46 \cdot 2,5 - 0,1 \cdot 3 + 1)$$

$$F_T \approx 4391,8 \text{ N}$$

**Antriebsleistung**

$$N \approx 0,105 \cdot 10^{-5} \cdot 480 \cdot 4391,8$$

$$N \approx 2,21 \text{ kW}$$

**Drehmoment**

$$M \approx 0,01 \cdot 4391,8$$

$$M \approx 43,92 \text{ Nm}$$

### Tangential thread rolling attachment

In the tangential method, the thread is formed in its whole length, with a controlled number of component revolutions. Therefore, the power requirement on the spindle is not that relevant. The power needed to form the profile must be supplied by the cross slide, respectively turret slide. On cam controlled automatics, this is normally not a problem. On hydraulic or electric controlled slides, the tangential power needed must be available.

Required **drive power**:

$$N \approx .626 \cdot 10^{-5} \cdot n \cdot F_T \text{ [hp]}$$

The tangential **force**:

$$F_T \approx 2340 \cdot L \cdot \frac{K}{n_W} \cdot (0,06 d^{0,82} + 0,46 p - 0,1 z + 1) \text{ [N]}$$

The **Torque**:

$$M \approx .03937 \cdot F_T \text{ [forceinch]}$$

| Tensile strength $\delta_B$ | K   |
|-----------------------------|-----|
| up to 500 N/mm <sup>2</sup> | 1   |
| up to 700 N/mm <sup>2</sup> | 1.2 |
| up to 900 N/mm <sup>2</sup> | 1.3 |
| over 900 N/mm <sup>2</sup>  | 1.4 |
| Copper                      | 1.1 |
| Brass                       | 0.9 |

**Calculation example:** M 22 x 2.5, 0.709" long

|                                   |                              |
|-----------------------------------|------------------------------|
| Given:                            |                              |
| thread diameter                   | d = 0.866 inches             |
| thread pitch                      | p = 0.098 inches             |
| machine spindle speed             | n = 480 RPM                  |
| material constant                 | K = 1                        |
| thread length                     | L = 0.709 inches             |
| number of revolutions for rolling | $n_W = 30$ see also page 393 |
| thread starts on roll             | z = 3                        |

Find:

$F_T$  = tangential force = poundsforce

N = drive power = horsepower

M = torque = poundsforceinch

**Tangential force:**

$$F_T \approx 2340 \cdot 18 \cdot \frac{1,2}{30} \cdot (0,06 \cdot 22^{0,82} + 0,46 \cdot 2,5 - 0,1 \cdot 3 + 1)$$

$$F_T \approx 4391,8 \text{ N}$$

**Drive power:**

$$N = 0,626 \cdot 10^{-5} \cdot n \cdot F_T$$

$$N = 0,626 \cdot .00001 \cdot 480 \cdot 987,3$$

$$N = 2,97 \text{ hp}$$

**Torque:**

$$M = 0,03937 \cdot F_T = 0,03937 \cdot 987,3$$

$$M = 38,87 \text{ forceinch}$$

**Richtwerte für die Anzahl der Werkstückumdrehungen  
in Abhängigkeit von Steigung und Gewindelänge**  
Recommended number of component revolutions  
in relation to thread pitch and length

| Steigung<br>Pitch<br>mm   inch            | Rollkopf<br>Rolling attachment             |   |  |   |  |   |
|---|--|---|--|---|--|---|
|   | T120F                                      |   | T160F                                      |   | T18  |   |
|   | Gewindelänge<br>Thread length<br>mm   inch | Werkstück-<br>umdrehungen<br>Component<br>revolution<br>$n_w$ | Gewindelänge<br>Thread length<br>mm   inch | Werkstück-<br>umdrehungen<br>Component<br>revolution<br>$n_w$ | Gewindelänge<br>Thread length<br>mm   inch | Werkstück-<br>umdrehungen<br>Component<br>revolution<br>$n_w$ |
| bis up to<br>0,5   0.02                   | < 8<br>< 0.315                             | 10-12   | < 9<br>< 0.354                             | 10-12   | < 10<br>< 0.394                            | 10-12   |
|   | > 8-12<br>> 0.315-0.472                    | 15-18   | > 9-14<br>> 0.354-0.551                    | 15-20   | > 10-16<br>> 0.394-0.63                    | 15-20   |
|   | > 12-15.5<br>> 0.472-0.61                  | 18-20   | > 14-18,5<br>> 0.551-0.728                 | 20-25   | > 16-21,5<br>> 0.63-0.846                  | 20-25   |
| > 0,5   0.02<br>bis up to<br>0,8   0.031  | < 8<br>< 0.315                             | 12-15   | < 9<br>< 0.354                             | 12-15   | < 10<br>< 0.394                            | 12-15   |
|   | > 8-12<br>> 0.315-0.472                    | 15-20   | > 9-14<br>> 0.354-0.551                    | 15-20   | > 10-16<br>> 0.394-0.63                    | 15-20   |
|   | > 12-15.5<br>> 0.472-0.61                  | 20-25   | > 14-18,5<br>> 0.551-0.728                 | 20-25   | > 16-21,5<br>> 0.63-0.846                  | 20-25   |
| > 0,8   0.031<br>bis up to<br>1,1   0.043 | < 8<br>< 0.315                             | 15-18   | < 9<br>< 0.354                             | 15-18   | < 10<br>< 0.394                            | 15-18   |
|   | > 8-12<br>> 0.315-0.472                    | 18-22   | > 9-14<br>> 0.354-0.551                    | 18-22   | > 10-16<br>> 0.394-0.63                    | 18-22   |
|   | > 12-15.5<br>> 0.472-0.61                  | 22-28   | > 14-18,5<br>> 0.551-0.728                 | 22-30   | > 16-21,5<br>> 0.63-0.846                  | 22-30   |
| > 1,1   0.043<br>bis up to<br>1,5   0.059 | < 8<br>< 0.315                             | 18-20   | < 9<br>< 0.354                             | 18-20   | < 10<br>< 0.394                            | 18-20   |
|   | > 8-12<br>> 0.315-0.472                    | 20-25   | > 9-14<br>> 0.354-0.551                    | 20-25   | > 10-16<br>> 0.394-0.63                    | 20-25   |
|   | > 12-15.5<br>> 0.472-0.61                  | 25-30   | > 14-18,5<br>> 0.551-0.728                 | 25-30   | > 16-21,5<br>> 0.63-0.846                  | 25-30   |
| > 1,5   0.059<br>bis up to<br>1,8   0.071 |  |   | < 9<br>< 0.354                             | 18-20   | < 10<br>< 0.394                            | 18-20   |
|   |  |   | > 9-14<br>> 0.354-0.551                    | 20-25   | > 10-16<br>> 0.394-0.63                    | 20-25   |
|   |  |   | > 14-18,5<br>> 0.551-0.728                 | 25-30   | > 16-21,5<br>> 0.63-0.846                  | 25-30   |
| > 1,8   0.071<br>bis up to<br>2,0   0.079 |  |   |  |   | < 10<br>< 0.394                            | 20-25   |
|   |  |   |  |   | > 10-16<br>> 0.394-0.63                    | 23-28   |
|   |  |   |  |   | > 16-21,5<br>> 0.63-0.846                  | 25-35   |
| > 2,0   0.079<br>bis up to<br>2,5   0.098 |  |   |  |   |  |   |
|   |  |   |  |   |  |   |
|   |  |   |  |   |  |   |
| > 2,5   0.098<br>bis up to<br>3,2   0.126 |  |   |  |   |  |   |
|   |  |   |  |   |  |   |
|   |  |   |  |   |  |   |

Die Anzahl der Werkstückumdrehungen ( $n_w$ ) während des Rollvorganges sind von gravierender Bedeutung. Sie sind abhängig von Rollkopfgöße, Gewindesteigung (bei mehrgängigen Gewinden von der Teilung), Gewindelänge und Werkstofffestigkeit. Allgemein gilt: Je geringer die Umformung, umso kleiner sind auch die Werkstückumdrehungen festzulegen. Festzulegende Anzahl: min. 10, max. 35 Die Angaben in der Tabelle sind Richtwerte. Je nach vorliegendem Arbeitsfall sind Abweichungen möglich.

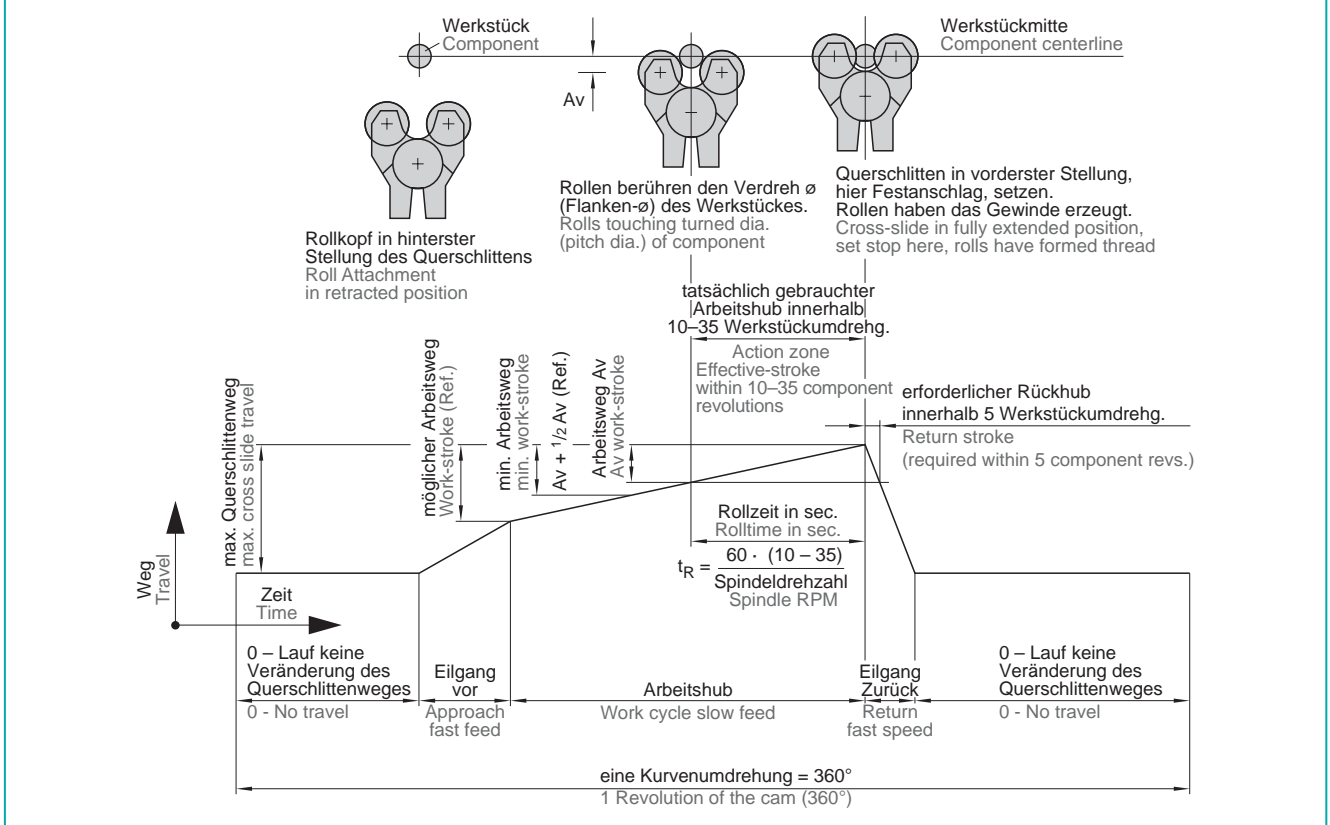
During the rolling operation, the number of component revolutions ( $n_w$ ) is very important. It depends on the rolling attachment size, thread pitch, lead (for threads with multiple starts), thread length and material tensile strength. As a rule: the smaller the forming factor is, a reduced number of component revolutions can be used. Range: min. 10, max. 35. The recommendations in the table are reference. Deviations are allowed according to operation.



**Richtwerte für die Anzahl der Werkstückumdrehungen  
in Abhängigkeit von Steigung und Gewindelänge**  
Recommended number of component revolutions  
in relation to thread pitch and length

| Rollkopf<br>Rolling attachment             |   |  |   |  |   |  |   |
|--|---|--|---|--|---|--|---|
| T220F                                      |   | T27  |   | T350F                                      |   | T42  |   |
| Gewindelänge<br>Thread length<br>mm   inch | Werkstück-<br>umdrehungen<br>Component<br>revolution<br>$n_w$ | Gewindelänge<br>Thread length<br>mm   inch | Werkstück-<br>umdrehungen<br>Component<br>revolution<br>$n_w$ | Gewindelänge<br>Thread length<br>mm   inch | Werkstück-<br>umdrehungen<br>Component<br>revolution<br>$n_w$ | Gewindelänge<br>Thread length<br>mm   inch | Werkstück-<br>umdrehungen<br>Component<br>revolution<br>$n_w$ |
| < 12<br>< 0.472                            | 12-15   | < 14<br>< 0.551                            | 12-15   | < 16<br>< 0.63                             | 12-15   | < 18<br>< 0.709                            | 12-15   |
| > 12-19<br>> 0.472-0.748                   | 15-20   | > 14-22<br>> 0.551-0.866                   | 18-20   | > 16-26<br>> 0.63-1.024                    | 18-20   | > 18-28<br>> 0.709-1.102                   | 18-20   |
| > 19-26<br>> 0.748-1.024                   | 20-25   | > 22-31<br>> 0.866-1.22                    | 20-25   | > 26-36<br>> 1.024-1.417                   | 20-25   | > 28-40,5<br>> 1.102-1.594                 | 20-25   |
| < 12<br>< 0.472                            | 15-18   | < 14<br>< 0.551                            | 15-18   | < 16<br>< 0.63                             | 15-18   | < 18<br>< 0.709                            | 15-18   |
| > 12-19<br>> 0.472-0.748                   | 18-22   | > 14-22<br>> 0.551-0.866                   | 18-22   | > 16-26<br>> 0.63-1.024                    | 18-22   | > 18-28<br>> 0.709-1.102                   | 18-22   |
| > 19-26<br>> 0.748-1.024                   | 22-25   | > 22-31<br>> 0.866-1.22                    | 22-25   | > 26-36<br>> 1.024-1.417                   | 22-25   | > 28-40,5<br>> 1.102-1.594                 | 22-25   |
| < 12<br>< 0.472                            | 18-20   | < 14<br>< 0.551                            | 18-20   | < 16<br>< 0.63                             | 18-20   | < 18<br>< 0.709                            | 18-20   |
| > 12-19<br>> 0.472-0.748                   | 20-25   | > 14-22<br>> 0.551-0.866                   | 20-25   | > 16-26<br>> 0.63-1.024                    | 20-25   | > 18-28<br>> 0.709-1.102                   | 20-25   |
| > 19-26<br>> 0.748-1.024                   | 25-30   | > 22-31<br>> 0.866-1.22                    | 25-30   | > 26-36<br>> 1.024-1.417                   | 25-28   | > 28-40,5<br>> 1.102-1.594                 | 25-28   |
| < 12<br>< 0.472                            | 20-23   | < 14<br>< 0.551                            | 20-23   | < 16<br>< 0.63                             | 20-25   | < 18<br>< 0.709                            | 20-25   |
| > 12-19<br>> 0.472-0.748                   | 23-26   | > 14-20<br>> 0.551-0.787                   | 23-26   | > 16-26<br>> 0.63-1.024                    | 25-30   | > 18-28<br>> 0.709-1.102                   | 25-30   |
| > 19-26<br>> 0.748-1.024                   | 25-30   | > 20-31<br>> 0.787-1.22                    | 26-30   | > 26-36<br>> 1.024-1.417                   | 25-30   | > 28-40,5<br>> 1.102-1.594                 | 25-30   |
| < 12<br>< 0.472                            | 20-25   | < 14<br>< 0.551                            | 20-25   | < 16<br>< 0.63                             | 20-25   | < 18<br>< 0.709                            | 20-25   |
| > 12-19<br>> 0.472-0.748                   | 23-26   | > 14-20<br>> 0.551-0.787                   | 23-26   | > 16-26<br>> 0.63-1.024                    | 25-30   | > 18-28<br>> 0.709-1.102                   | 25-30   |
| > 19-26<br>> 0.748-1.024                   | 26-30   | > 20-31<br>> 0.787-1.22                    | 26-30   | > 26-36<br>> 1.024-1.417                   | 25-30   | > 28-40,5<br>> 1.102-1.594                 | 25-30   |
| < 12<br>< 0.472                            | 20-25   | < 14<br>< 0.551                            | 20-23   | < 16<br>< 0.63                             | 20-25   | < 18<br>< 0.709                            | 20-25   |
| > 12-19<br>> 0.472-0.748                   | 23-28   | > 14-20<br>> 0.551-0.787                   | 23-26   | > 16-26<br>> 0.63-1.024                    | 25-30   | > 18-28<br>> 0.709-1.102                   | 25-30   |
| > 19-26<br>> 0.748-1.024                   | 28-32   | > 20-31<br>> 0.787-1.22                    | 26-30   | > 26-36<br>> 1.024-1.417                   | 25-30   | > 28-40,5<br>> 1.102-1.594                 | 25-30   |
| < 12<br>< 0.472                            | 20-25   | < 14<br>< 0.551                            | 20-25   | < 16<br>< 0.63                             | 20-25   | < 18<br>< 0.709                            | 20-25   |
| > 12-19<br>> 0.472-0.748                   | 25-30   | > 14-20<br>> 0.551-0.787                   | 25-30   | > 16-26<br>> 0.63-1.024                    | 25-30   | > 18-28<br>> 0.709-1.102                   | 25-30   |
| > 19-26<br>> 0.748-1.024                   | 25-35   | > 20-31<br>> 0.787-1.22                    | 25-30   | > 26-36<br>> 1.024-1.417                   | 25-30   | > 28-40,5<br>> 1.102-1.594                 | 25-30   |
|  |   |  |   | < 16<br>< 0.63                             | 22-28   | < 18<br>< 0.709                            | 22-28   |
|  |   |  |   | > 16-26<br>> 0.63-1.024                    | 25-30   | > 18-28<br>> 0.709-1.102                   | 25-30   |
|  |   |  |   | > 26-36<br>> 1.024-1.417                   | 25-35   | > 28-40,5<br>> 1.102-1.594                 | 25-35   |

Kurven-Prinzipzeichnung für den Einsatz eines Fette-Tangential-Gewinde-Rollkopfes  
Cam Design Elements for the application of Fette Tangential Thread Rolling Attachment



Eine richtige Auslegung der Kurve ist äußerst wichtig für das Gewinderollen mit Fette-Tangential-Gewinde-Rollköpfen. In der Kurvenprinzipzeichnung ist der Ablauf des Querschlittenweges schematisch skizziert. Der Weg des Querschlittens mit Rollkopf setzt sich aus Eilgang vor, Arbeitshub und schnellen Rückhub zusammen.

Der **Eilgang** vor ist als max. Weg so auszulegen, dass er ca 50 % vor Beginn des eigentlichen Arbeitsweges beendet ist. Der **wirkliche Arbeitsweg** (für jeden Arbeitsfall verschieden) muss innerhalb von 10 bis 35 Werkstückumdrehungen beendet sein. Dieser Weg ist als  $A_v$ -Wert auf der Einstellehre signiert, bzw. in den Tabellen im Internet angegeben. Bei Gewindelängen größer als 75 % der max. Rollenbreite, großer Gewindesteigung und hoher Werkstofffestigkeit empfehlen wir 30-35 Werkstückumdrehungen. Der Arbeitsvorschub errechnet sich, indem man den in den Tabellen angegebenen  $A_v$ -Wert durch die geforderten 10 bis 35 Werkstückumdrehungen dividiert. Empfohlene Werkstückumdrehungen siehe Seiten 393, 394.

Correct cam design is important in the operation of Fette Tangential Threading Attachments. As shown above, the ideal movements of the attachment during one complete cycle are: rapid advance, a controlled power feed rate until the centerline of the rolls are on the centerline of the component, zero dwell, and rapid turn.

The **Rapid Advance** is the majority of the total attachment travel. The **Actual Working Stroke** ( $A_v$ ) must be completed within 10-35 revolutions of the component. The actual feed rate (in/rev) is calculated by dividing the value "Av", by the selected 10-35 component revolutions. (See component revolutions on page 61). The distance ( $A_v$ ) is noted on the Setting Gauge (32). 50+Internet. For thread lengths greater than 75 % of the max. roll width, coarser pitches, and harder materials, utilize 30-35 revolutions. see pages 393, 394.

**Beispiel:**

$A_v = 4,7$ ; Werkstückumdrehungen  $n_W = 15$

**Kurvengesteuerte Automaten**

$$\text{Vorschub } s = \frac{A_v}{n_W} = \frac{4,7}{15} = 0,31 \text{ mm/U}$$

**Kurvenlos gesteuerte Automaten**

Die Vorschubgeschwindigkeit bei Spindeldrehzahl  $n = 1200 \text{ min}^{-1}$

$$V = \frac{A_v \cdot n}{n_W} = \frac{4,7 \cdot 1200}{15} = 376 \text{ mm/min}$$

Einrichtzeit für kurvenlos gesteuerte Automaten mit bestimmter Messstrecke „L“ = 100 mm

$$t_e = \frac{L \cdot 60 \cdot n_W}{n \cdot A_v} \text{ [s]}$$

$$t_e = \frac{100 \cdot 60 \cdot 15}{1200 \cdot 4,7} = 15,96 \text{ s}$$

Die reine Rollzeit für diesen Arbeitsfall beträgt

$$t_r = \frac{60 \cdot n_W}{n} = \frac{60 \cdot 15}{1200} = 0,75 \text{ s}$$

**Example:**

$A_v = 4.7$  (0.185"); Work stroke  $n_W = 15$

**Cam controlled Machine Tool**

$$\text{Feed } s = \frac{A_v}{n_W} = \frac{4.7 (0.185")}{15} = 0.31 \text{ mm/rev (0.012 in./rev)}$$

Der **Rückhub** muss innerhalb von 5 weiteren Werkstückumdrehungen erfolgen. Es darf also keine Verweilzeit vorhanden sein. Eine Kurvenrolle muss so klein wie möglich gehalten werden. Der Rückhub muss durch eine Rückholkurve bzw. durch eine Rückholeinrichtung gewährleistet sein.

Es ist unbedingt wichtig, dass die Vorschubbewegung des Querschlittens, nachdem der höchste Punkt der Kurve erreicht ist, durch einen Festanschlag begrenzt wird. Die Gewinderollen dürfen auf keinen Fall über Werkstückmitte kommen. Die Herstellung einer Kurve zum Gewinderollen sollte vom Automatenhersteller vorgenommen werden. Folgende Daten sind dafür erforderlich:

1. Automatenhersteller, Maschinen-Typ und Serien-Nr.
2. Spindellage (Rollstation)
3. Gewindeabmessung und Werkstoff
4. Werkstückumdrehung beim Rollen (10–35)
5. Spindeldrehzahl
6. Arbeitsweg für das Gewinde  
(hier sind 50 % des  $A_v$ -Wertes zuzugeben. Die Rollen dürfen im Eilgang nicht das Werkstück berühren)

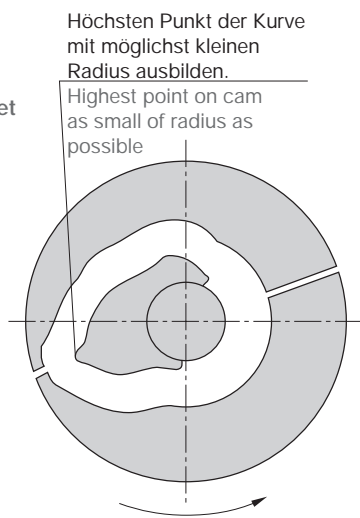
The **Return Stroke** must be completed within 5 revolutions of the component. The rolls should not stay in contact (dwell) with the component any longer than absolutely necessary, so the radius on the high point of the cam should be as small as possible. The Return Stroke must be controlled by a Return Cam or by some other positive return method.

The end of the Work Stroke **must** be controlled by a positive, fixed, mechanical stop. The centerline of the Thread Rolls must **Never** go beyond the centerline of the component.

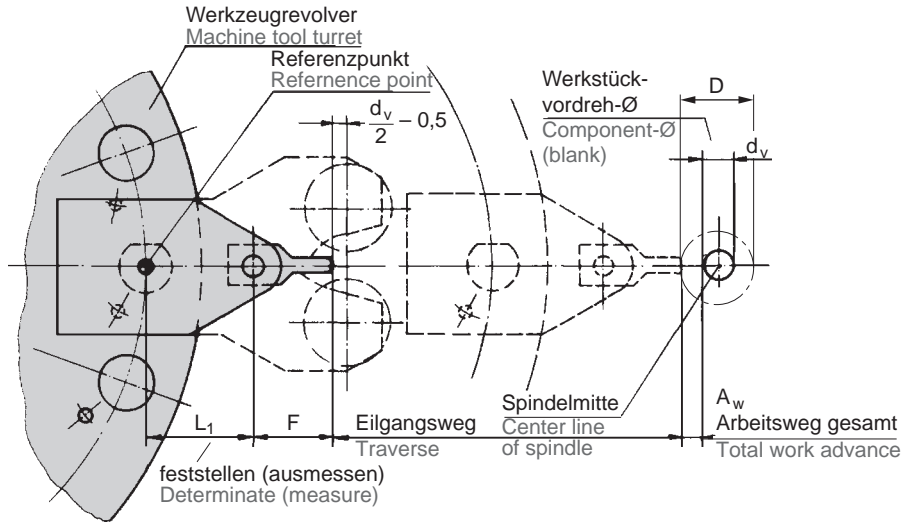
Cams should be ordered from a qualified manufacturer. The following information should be provided:

1. Make, model, size, and serial number of machine
2. Thread Rolling position
3. Thread specifications and material
4. Suggested Work Stroke revolutions (10–35)
5. Spindle Speed
6. Work Stroke, plus safety distance, of the attachment. Rolls must not contact component while in rapid advance!

**Beispiel eines Rollkurvensatzes**  
Example of a thread rolling disc cam set



Prinzipskizze für den Einsatz eines Fette-Tangential-Gewinde-Rollkopfes auf CNC-Drehmaschinen  
Basic Sketch for the application of Fette Tangential Thread Rolling Attachments on CNC-lathes



Rechendaten zur Festlegung der Einstellparameter auf einer CNC-Drehmaschine:

1. Vordreh-Ø:  $d_v = \text{ca. Flanken-Ø Werkstück}$  [mm]
  2. Rollgeschwindigkeit:  $v = \frac{d_v \cdot \pi \cdot n}{1000}$  [m/min]
  3. Drehzahl:  $n = \frac{1000 \cdot v}{d_v \cdot \pi}$  [ $\text{min}^{-1}$ ]
  4. Werkstückumdrehungen:  $n_w = 10 - 35$  siehe Seite 000
  5. Verweilzeitumdrehungen:  $W_v = 2 - 5$
  6. Arbeitsweg:  $A_v = \text{siehe Signierung Einstelllehre}$  [mm]
  7. Arbeitsweg gesamt:  $A_w = A_v \cdot 1,5$  [mm]
  8. Vorschub:  $f = \frac{A_v}{n_w}$  [mm/U]
  9. Verweilzeit:  $t_v = \frac{60 \cdot W_v}{n}$  [sec]
  10. Sicherheits-Ø:  $D = 2 \left( \frac{d_v}{2} + 1,5 \cdot A_v \right)$  [mm]
  11. Lehrenlänge:  $F = \text{siehe Signierung Einstelllehre}$  [mm]
  12. Rollzeit:  $t_r = \frac{60 \cdot (n_w + W_v)}{n}$  [sec]
- oder
- $$t_r = \frac{0,06 \cdot d_v \cdot \pi}{v} \cdot (n_w + W_v) \quad [\text{sec}]$$

Calculations to determine the set-up parameters on a CNC-lathe:

1. Blank-Ø:  $d_v = \text{approx. pitch-Ø component}$  [inch]
  2. Rolling Speed:  $M \quad v = \frac{d_v \cdot \pi \cdot n}{12}$  [SFM]
  3. Spindle speed:  $M \quad n = \frac{12 \cdot v}{d_v \cdot \pi}$  [RPM]
  4. Component revolutions:  $n_w = 10 - 35$  (see pages 000)
  5. Dwell time revolutions:  $W_v = 2 - 5$  (5 max.)
  6. Rolling advance:  $A_v = \text{see marking on gauge}$  [inch]
  7. totale work advance:  $A_w = A_v \cdot 1,5$  [inch]
  8. Feed:  $f = \frac{A_v}{n_w}$  [in./rev.]
  9. Dwell time:  $t_v = \frac{60 \cdot W_v}{n}$  [sec]
  10. Safety-Ø:  $D = 2 \cdot A_w + d_v$  [inch]
  11. Gauge length:  $F = \text{see marking on gauge}$  [inch]
  12. Rolling time:  $t_r = \frac{60 \cdot (n_w + W_v)}{n}$  [sec]
- or
- $$t_r = \frac{5 \cdot d_v \cdot \pi}{v} \cdot (n_w + W_v) \quad [\text{sec}]$$

### Beispiel der Rolldatenfestlegung für Gewinde M 12 x 1,75; 12 mm lang für Rollkopf T18 nach obigen Angaben

|                            |                                |
|----------------------------|--------------------------------|
| 1. Vordreh-Ø:              | $d_v = 10,86 \text{ mm}$       |
| 2. Rollgeschwindigkeit:    | $v = 50 \text{ m/min}$ gewählt |
| 3. Drehzahl:               | $n = 1465 \text{ min}^{-1}$    |
| 4. Werkstückumdrehungen:   | $n_W = 20$ gewählt             |
| 5. Verweilzeitumdrehungen: | $W_v = 3$ gewählt              |
| 6. Arbeitsweg:             | $A_v = 5,2 \text{ mm}$         |
| 7. Arbeitsweg gesamt:      | $A_W = 7,8 \text{ mm}$         |
| 8. Vorschub:               | $f = 0,26 \text{ mm/U}$        |
| 9. Verweilzeit:            | $t_v = 0,12 \text{ sec}$       |
| 10. Sicherheits-Ø:         | $D = 26,5 \text{ mm}$          |
| 11. Lehrenlänge:           | $F = 29,47 \text{ mm}$         |
| 12. Rollzeit:              | $t_r = 0,94 \text{ sec}$       |

### Example of rolling parameters for thread M 12 x 1.75; 0.472" long for Rolling Attachment T18, as above

|                           |                          |
|---------------------------|--------------------------|
| 1. Starting-Ø:            | $d_v = 0.5874"$          |
| 2. Rolling speed:         | $v = 150 \text{ SFM}$    |
| 3. Spindle speed:         | $n = 975 \text{ RPM}$    |
| 4. Component revolution:  | $n_W = 12$ selected      |
| 5. Dwell time revolution: | $W_v = 5$ selected       |
| 6. Rolling advance:       | $A_v = 0.217"$           |
| 7. Total work advance:    | $A_W = 0.3255"$          |
| 8. Feed:                  | $f = 0.018"$             |
| 9. Dwell time:            | $t_v = 0.3 \text{ sec}$  |
| 10. Safety-Ø              | $D = 0.651"$             |
| 11. Gauge length:         | $F = 1.16"$              |
| 12. Rolling time:         | $t_r = 1.11 \text{ sec}$ |

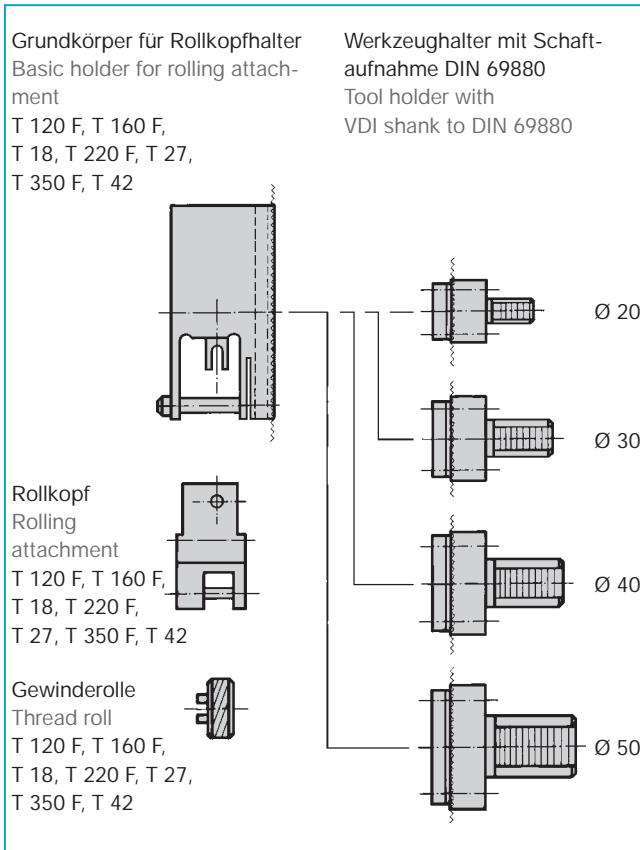
### Programmbeispiel für vorliegenden Arbeitsfall

```
N 100 T707 S1465 M3 (M4)
N 110 GO Z-12
N 120 X26,5 M8
N 130 G1 x 10,86 F0,26
N 140 GO4 x 0,12
N 150 GO x 300 M9
N 160 Z 400
```

### Program example for this case:

```
N 100 T0707 S975 M3 (M4)
N 200 GO Z-.5
N 300 X.651 M8
N 400 G1 x 0 F.018
N 500 G4 x .3
N 600 GO x .651 M9
N 700 Z 1.
```



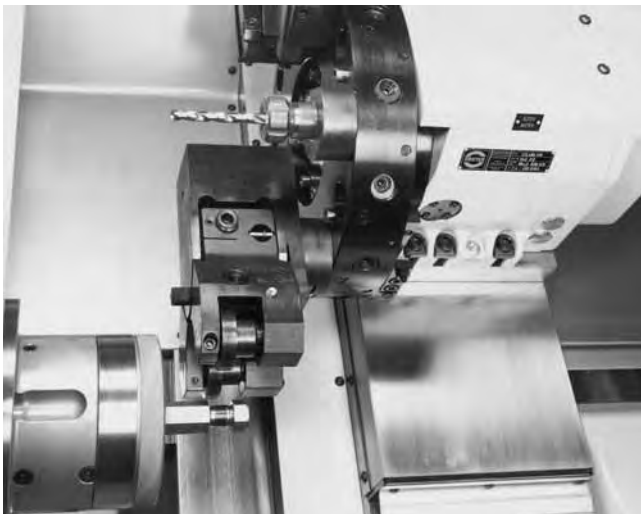


Zur rationellen spanlosen Kaltumformung von Profilen auf Drehautomaten CNC-Maschinen haben sich Fette-Tangential-Gewinde-Rollköpfe bewährt. Um die Aufnahme der Tangential-Gewinde-Rollköpfe bei den verschiedenen Maschinentypen zu vereinfachen, hat Fette einen universellen Rollkopfhalter entwickelt. Die Werkzeugaufnahme bietet dem Anwender durch den möglichen Verstellbereich einen optimalen Ausnutzungsgrad für seinen jeweiligen Bearbeitungsfall.

Der Grundkörper ist für eine große Anzahl von CNC-Drehautomaten ausgelegt und kann durch Änderung der Außenkontur individuell auf den jeweiligen Maschinentyp abgestimmt werden.

- Austauschbarer VDI-Schaft (DIN 69880) Ø 20, Ø 25, Ø 30, Ø 40, Ø 50
- Gleiche Anschlussmaße bei Grundkörper und Zylinderschaft
- 90° Verzahnung
- Verstellsprünge von 1,5 mm
- Formschlüssige Spannung
- Genaue Positionierung und Einstellung des Halters
- Integrierter Kühlmittelanschluss

Der verstellbare Rollkopfhalter besteht aus je einem Grundkörper für die 7 Tangential-Rollkopfbaugrößen T 120 F T 160 F, T 18, T 220 F, T 27, T 350 F und T 42 sowie einem Werkzeughalter mit Zylinderschaft nach DIN 69880 mit eingepasster Prismenleiste. Die Werkzeughalter und die Grundkörper sind an den Anflanschseiten mit einer 90° Verzahnung versehen, die zur Aufnahme der beim Rollen auftretenden Tangentialkräfte sowie zur genauen Positionierung und Einstellung der Teile dienen.



*Tangential-Gewinde-Rollkopf T 27 mit verstellbarem Rollkopfhalter im Einsatz auf einer CNC-Drehmaschine.*

*Tangential Thread Rolling Attachment T 27 with adjustable tool holder mounted on a CNC-Lathe*

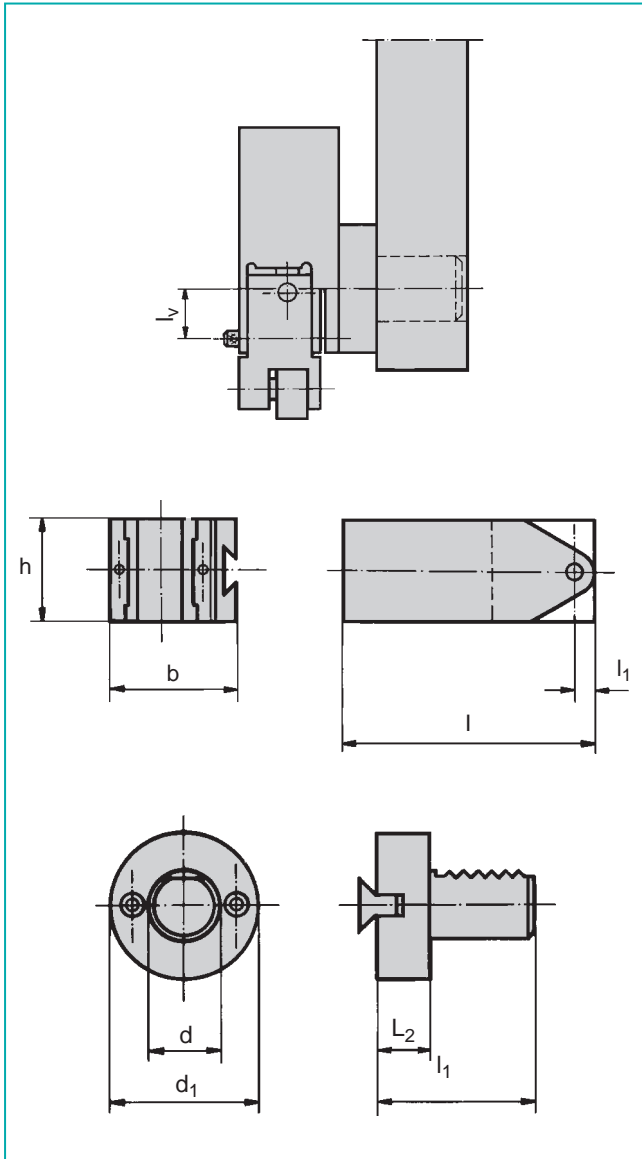
The Fette Tangential Thread Rolling Attachments have been recognized for the economical cold forming of profiles on auto-matics and CNC-lathes. Fette developed a universal rolling attachment holder, to simplify the mounting of the tangential thread rolling attachments on the different machines.

This holder offers to the user more versatility profit grade for each application case, due to its adjustment range. The adapter is designed to fit a large number of NC-CNC-Lathes and can be adapted individually to each machine by means of adjusting of its outer shape.

- Interchangeable VDI-shank (DIN 69880) Ø 20, Ø 25, Ø 30, Ø 40, Ø 50
- Same coupling dimensions at basic holder and cylindrical shaft
- 90° serration
- Adjusting pitch of 0.059"
- Close Fit
- Accurate positioning of the holder
- Integrated coolant supply

The adjustable attachment holder consists of one basic holder for each of the 7 tangential attachment sizes T 120 F, T 160 F, T 18, T 220 F, T 27, T 350 F, T 42, and a tool holder with cylindrical shank to DIN 69880, in different sizes, with adapted serrated coupling. In order to support the tangential forces originated by rolling and also for an accurate positioning and adjusting of both parts, the coupling faces of the tool holders and basic holders have a 90° serration.

Fette Tangential Attachments have a proven history of reducing costs when Rolling Threads or Profiles on CNC-lathes.



| Arbeitsbereiche<br>Application range |   |          |                               |
|--------------------------------------|---|----------|-------------------------------|
| Haltergröße<br>Attachment size       | Verstellbereich (l <sub>v</sub> ) in mm<br>(Abstand der Revolveraufnahme zur Rollkopfaufnahme)<br>Adjustment range (l <sub>v</sub> ) in mm/inch<br>(Distance of turret coupling to rolling attachment coupling) |          |                               |
|                                      | T 120 F   | 0-138 mm | 0-5.433"                      |
| T 160 F                              | 0-128 mm  | 0-5.039" | Teilung Pitch 1,5 mm   0.059" |
| T 18                                 | 0-126 mm  | 0-4.961" | Teilung Pitch 1,5 mm   0.059" |
| T 220 F                              | 0-120 mm  | 0-4.724" | Teilung Pitch 1,5 mm   0.059" |
| T 27                                 | 0-114 mm  | 0-4.488" | Teilung Pitch 1,5 mm   0.059" |
| T 350 F                              | 0-114 mm  | 0-4.488" | Teilung Pitch 1,5 mm   0.059" |
| T 42                                 | 0-111 mm  | 0-4.370" | Teilung Pitch 1,5 mm   0.059" |

| Baumaße: Grundkörper für Rollkopfhalter<br>Dimensions: basic holder for rolling attachment holder |     |        |     |        |     |        |                |           |
|---|-----|--------|-----|--------|-----|--------|----------------|-----------|
| Haltergröße<br>Attachment size  | l   |        | b   |        | h   |        | l <sub>1</sub> | Ident No. |
|   | mm  | inch   | mm  | inch   | mm  | inch   |                |           |
| T 120 F   | 155 | 6.102" | 60  | 2.362" | 50  | 1.968" | 8   0.315"     | 2407090   |
| T 160 F   | 148 | 5.827" | 67  | 2.638" | 60  | 2.362" | 10   0.394"    | 2406792   |
| T 18  | 150 | 5.906" | 75  | 2.953" | 60  | 2.362" | 12   0.472"    | 2176118   |
| T 220 F   | 150 | 5.906" | 87  | 3.425" | 70  | 2.756" | 15   0.591"    | 2406904   |
| T 27  | 150 | 5.906" | 100 | 3.937" | 70  | 2.756" | 18   0.709"    | 2176119   |
| T 350 F   | 150 | 5.906" | 116 | 4.567" | 90  | 3.543" | 23,5   0.925"  | 2408858   |
| T 42  | 180 | 5.906" | 130 | 5.118" | 100 | 3.937" | 29   1.142"    | 2176120   |

| Werkzeughalter mit Zylinderschaft nach DIN 69880<br>Tool holder with cylindrical shank to DIN 69880 (VDI) |                |        |                |        |                |        |           |
|---|----------------|--------|----------------|--------|----------------|--------|-----------|
| Schaftgröße<br>Shank size   | d <sub>1</sub> |        | l <sub>1</sub> |        | l <sub>2</sub> |        | Ident No. |
|   | mm             | inch   | mm             | inch   | mm             | inch   |           |
| 20  | 50             | 1.968" | 68             | 2.677" | 28             | 1.102" | 2176102   |
| 25  | 58             | 2.283" | 76             | 2.992" | 28             | 1.102" | 2171221   |
| 30  | 68             | 1.968" | 83             | 3.268" | 28             | 1.102" | 2176103   |
| 40  | 83             | 3.268" | 91             | 3.583" | 28             | 1.102" | 2176104   |
| 50  | 98             | 3.858" | 106            | 4.173" | 28             | 1.102" | 2176105   |

**Fehler, deren Ursache und Lösungen,  
bei eventuellen Schwierigkeiten beim Tangential-Gewinderollen**  
Problems – their cause and elimination in case of trouble occurring  
in thread rolling with Tangential Side Rolling Attachments

| Fehler<br>Problems   | Ursache<br>Probable Cause  | Lösung<br>Solutions   |
|--|--|---|
| 1. Flanken- und Außen-Ø des Gewindes zu groß <sup>1)</sup><br>Pitch and major diameter of thread too large <sup>1)</sup>   | Ausgangs-Ø zu groß gewählt<br>Blank diameter selected too large  | Ausgangs-Ø verkleinern, Achsabstand der Rollen im Rollkopf verkleinern<br>Reduce blank diameter, reduce distance between rolls in rolling attachment  |
| 2. Flanken- und Außen-Ø des Gewindes zu klein <sup>1)</sup><br>Pitch and major diameter of thread too small <sup>1)</sup>  | Ausgangs-Ø zu klein gewählt, und setting of rolls too small  | Ausgangs-Ø vergrößern, Achsabstand der Rollen im Rollkopf vergrößern<br>Increase blank diameter, increase centre distance of rolls in rolling attachment  |
| 3. Flanken-Ø des Gewindes zu groß, Außen-Ø im Toleranzbereich <sup>1)</sup><br>Pitch diameter of thread too large, major diameter within permissible tolerances <sup>1)</sup>    | Ausgangs-Ø zu groß gewählt, Rollenprofil falsch<br>Blank diameter selected too large or roll profile incorrect   | Falls Außen-Ø im Größtmaß liegt, Ausgangs-Ø verkleinern, Achsabstand der Rollen im Rollkopf verkleinern, evtl. Außen-Ø nicht ganz ausrollen, sonst neuen Rollensatz einsetzen<br>In case outside diameter is at maximum size, reduce blank diameter, reduce centre distance of rolls in rolling attachment, perhaps do not o. d. to full depth, or install a new set of rolls |
| 4. Flanken-Ø des Gewindes zu groß, Außen-Ø zu klein <sup>1)</sup><br>Pitch diameter of thread too large, major diameter too small <sup>1)</sup>                                  | Rollenprofil falsch<br>Head adjustment incorrect   | Neuen Rollensatz einsetzen<br>Reduce spacing between rolls  |
| 5. Flanken-Ø des Gewindes zu klein, Außen-Ø im Toleranzbereich <sup>1)</sup><br>Pitch diameter of thread too small, outside diameter within permissible tolerances <sup>1)</sup> | Ausgangs-Ø zu klein gewählt, Rollenprofil falsch<br>Blank diameter selected too small or roll profile incorrect  | Falls Außen-Ø im Kleinstmaß liegt, Ausgangs-Ø vergrößern, Achsabstand der Rollen im Rollkopf vergrößern, evtl. Außen-Ø nicht ganz ausrollen, sonst neuen Rollensatz einsetzen<br>In case outside diameter is at minimum size, increase blank diameter, increase distance of rolls in rolling attachment, perhaps do not roll o. d. to full depth, or use a new set of rolls   |
| 6. Flanken-Ø des Gewindes zu klein, Außen-Ø zu groß <sup>1)</sup><br>Pitch diameter of thread too small, outside diameter too large <sup>1)</sup>                                | Ausgangs-Ø zu klein gewählt, Rollenprofil falsch<br>Centre distance of rolls too small or roll profile incorrect | Ausgangs-Ø vergrößern, Achsabstand der Rollen im Rollkopf vergrößern, Außen-Ø des Werkstücks nicht ganz ausrollen, sonst neuen Rollensatz einsetzen<br>Increase blank diameter, increase centre distance of rolls in rolling attachment, perhaps do not roll o. d. to full depth, or use a new set of rolls   |
| 7. Flanken-Ø des Gewindes im Toleranzbereich, Außen-Ø zu groß <sup>1)</sup><br>Pitch diameter of thread within permissible tolerances, major diameter too large <sup>1)</sup>    | Ausgangs-Ø zu groß gewählt, Rollenprofil falsch<br>Blank diameter selected too large or roll profile incorrect   | Falls Flanken-Ø im Größtmaß liegt, Ausgangs-Ø verkleinern, Achsabstand der Rollen im Rollkopf verkleinern, evtl. nicht ganz ausrollen, sonst neuen Rollensatz einsetzen<br>In case pitch diameter is at maximum size, reduce blank diameter, reduce center distance of rolls in rolling attachment, perhaps do not roll o. d. to full depth, or use a new set of rolls        |
| 8. Flanken-Ø des Gewindes im Toleranzbereich, Außen-Ø zu klein <sup>1)</sup><br>Pitch diameter of thread within permissible tolerances, major diameter too small <sup>1)</sup>   | Ausgangs-Ø zu klein gewählt, Rollenprofil falsch<br>Blank diameter selected too small or roll profile incorrect  | Falls Flanken-Ø im Kleinstmaß liegt, Ausgangs-Ø vergrößern, Achsabstand der Rollen im Rollkopf vergrößern, sonst neuen Rollensatz einsetzen<br>In case pitch diameter is at minimum size, increase blank diameter, increase center distance of rolls in rolling attachment, or use a new set of rolls   |

<sup>1)</sup> Vorbedingung: Werkstücke sind voll ausgerollt, d. h. Zahnsitzen sind

<sup>1)</sup> Condition: Components are rolled to "Over-Rolled", that means the thread crest is radiused and burnished (shiny)

## Fehler, deren Ursache und Lösungen, bei eventuellen Schwierigkeiten beim Tangential-Gewinderollen Problems – their cause and elimination in case of trouble occurring in thread rolling with Tangential Side Rolling Attachments

| Fehler<br>Problems   | Ursache<br>Probable Cause  | Lösung<br>Solutions  |
|--|--|--|
| <p><b>9. Unsauberes Gewinde, Späne beim Rollen, Risse am Werkstück, Markierungen in den Gewindegängen des Werkstückes</b><br/>Thread not smooth, chips produced when rolling, cracks on component, markings in the thread of the component</p> <p><b>9.a Splitter oder Risse</b><br/>Slivers or flakes</p> | <p>a) Rollensätze vertauscht<br/>Roll sets mixed up by mistake</p> <p>b) Rollen nicht richtig im Rollkopf eingebaut<br/>Rolls assembled incorrectly in rolling attachment</p> <p>c) Gewindeanfänge der Rollen stehen falsch zueinander<br/>Thread starts of rolls are incorrectly positioned to each other</p> <p>d) Werkstückachse nicht parallel mit Rollenachse<br/>Component axis not parallel to rolling attachment axis</p> <p>e) Spitzenhöhe der Rolleinheit falsch<br/>Centre height of attachment unit is wrong</p> <p>f) Hubbewegung des Querschlitzens falsch, d. h. Rollen zu lang bzw. zu kurz im Eingriff während der Rolloperation<br/>Stroke of cross slide turret incorrect, i. e. rolls engaged for too many revolutions and/or not enough during rolling operation<br/>Worn # 15 bushing correct roll not touching blank first.<br/>Worn bolt misalignment rough finish on blank material has poor rollability</p> <p>g) Gewinderollen und Zahnradzug im Rollkopf klemmen<br/>Thread rolls and gear-train in rolling attachment are jamming</p> <p>h) Rollen sind abgenutzt oder ausgebrochen<br/>Rolls are worn or broken</p> <p>i) schlechte Oberflächengüte beim Vordrehen<br/>Poor surface quality of blank</p> | <p>a) Beschriftung der Rollen überprüfen, Satz-Nr. muss gleich sein<br/>Check markings on rolls, set No. must be the same on all rolls</p> <p>b) Einbau der Gewinderollen siehe Bedienungsanleitung Abs. 1<br/>For assembly of thread rolls, refer to operating instructions, Section 1</p> <p>c) Getriebe nicht richtig montiert, Stellung der Ritzelnasen (Rollenaufnahme) mit Prüflinse überprüfen<br/>Gears incorrectly assembled, check position of pinion tags (roll mount) with checking gauge</p> <p>d) Parallelität der Rollenachse herstellen<br/>Align roll axes in parallel</p> <p>e) Spitzenhöhe korrigieren, Höhentoleranz max. <math>\pm 0,5</math> mm<br/>Adjust centre height, maximum vertical tolerance <math>\pm 0.020</math>"</p> <p>f) Vorschubbewegung des Schlittens überprüfen. Für große Unformarbeit größere Werkstückumdrehung festlegen. Arbeitsweg ist auf der Einstelllehre signiert. Dieser Arbeitsweg muss innerhalb von 15–30 Werkstückumdrehungen erfolgen<br/>Kontrolle: Gestoppte Rolleneingriffszeit in Sek. multipliziert mit vorhandener Spindelumdrehung in Sek. muss zwischen 15 und 30 Umdrehungen ergeben. Rücklauf des Schlittens innerhalb 5 Umdrehungen. Rollen dürfen nicht über Mitte Werkstück kommen. Festanschlag setzen.<br/>Check feed movement of slide.<br/>For large-scale forming jobs, establish higher rate of component revolution. Stroke is marked on setting gauge. This cycle must be completed within 15 to 35 revolutions of the component. Means of checking: Time roll engagement in seconds multiplied by the available rate of speed of spindle in seconds, must be equal to 15 to 35 revolutions. Slide must return within 5 revolutions. Rolls not to pass beyond center of component. Set fixed stop</p> <p>g) Getriebe bzw. Rollenlagerung verschmutzt. Ausgleichsfeder im Doppelzahnrad evtl. neu spannen.<br/>Gears and/or roll bearing are dirty. Compensating spring in dual gear must be replaced</p> <p>h) neue Rollen einsetzen<br/>Install new rolls</p> <p>i) Oberfläche am Werkstück verbessern<br/>Improve surface finish on blank</p> |

**Fehler, deren Ursache und Lösungen,  
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Problems – their cause and elimination in case of trouble occurring  
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| Fehler<br>Problems   | Ursache<br>Probable Cause   | Lösung<br>Solutions   |
|--|---|---|
| <p><b>9. Unsauberes Gewinde, Späne beim Rollen, Risse am Werkstück, Markierungen in den Gewindegängen des Werkstückes</b><br/>Thread not smooth, chips produced when rolling, cracks on component, markings in the thread of the component</p> | <p>j) Werkstückdurchbiegung beim Gewinderollen<br/>Component bends through during rolling operation</p> <p>k) Material hat vor dem Rollen schon Walzrisse<br/>Blank material furnished by steel mill shows cracks prior to rolling</p> <p>l) Werkstoff ungeeignet für Kaltumformung<br/>Material not suitable for cold forming</p>  | <p>j) Werkstück abstützen<br/>Support component</p> <p>k) Nicht geeignet zum Rollen<br/>Not suitable for thread rolling</p> <p>l) Materialänderung, wenn möglich<br/>Change material, if possible</p>   |
| <p><b>10. Unrundes Gewinde</b><br/>Thread out of round</p>   | <p>a) Vordreh-Ø ist unrund<br/>Blank diameter is out of round</p> <p>b) Rollenachse nicht parallel mit Werkstückachse<br/>Roll axis not parallel to component axis</p> <p>c) der Arbeitshub des Querschlittens pro Werkstückumdrehung ist zu groß<br/>Operating stroke of cross slide is too great</p> <p>d) Rollgeschwindigkeit zu niedrig<br/>RPM is too low</p> <p>e) Werkstoff ungeeignet für Kaltumformung<br/>Material not suitable for cold forming</p> <p>f) Mit Überdruck gerollt<br/>Rolled with overload (over rolling)</p> <p>g) Axialscheibe verschlissen<br/>worn # 15 bushing</p>  | <p>a) Werkstück rund vordrehen<br/>Component to be machined properly</p> <p>b) Parallelität herstellen<br/>Establish parallelism</p> <p>c) Prüfen siehe 9.f), evtl. korrigieren<br/>Check 9.f), correct if necessary</p> <p>d) Rollgeschwindigkeit sollte nicht kleiner als 20 m/min betragen<br/>Rolling speed should not be less than 20 m (65.6 ft.) per minute</p> <p>e) Materialänderung, wenn möglich<br/>Change material if possible</p> <p>f) Vordreh-Ø verkleinern<br/>Reduce blank diameter</p> <p>g) Teil 15 ersetzen<br/>replace # 15 bushing</p> |
| <p><b>11. Gewinde mit Taumel</b><br/>Drunken thread</p>  | <p>a) Rollensätze vertauscht<br/>Roll sets mixed up by mistake</p> <p>b) Rollensätze nicht richtig im Rollkopf eingebaut<br/>Roll sets assembled incorrectly in rolling attachment</p> <p>c) Gewindeanfänge der Rollen stehen falsch zu einander<br/>Thread starts of rolls positioned incorrectly in relation to each other</p> <p>d) Rollenachse nicht parallel zur Werkstückachse<br/>Roll axis not parallel to component axis</p> <p>e) Durchbiegung des Werkstückes beim Rollen<br/>Bending of component during thread rolling operation</p> <p>f) Hubbewegung des Querschlittens falsch<br/>Operating stroke of cross slide is incorrect</p> <p>g) mit Überdruck gerollt<br/>Rolled with overload</p> | <p>a) siehe 9.a)<br/>See 9.a)</p> <p>b) siehe 9.b)<br/>See 9.b)</p> <p>c) siehe 9.c)<br/>See 9.c)</p> <p>d) siehe 9.d)<br/>See 9.d)</p> <p>e) siehe 9.i)<br/>See 9.i)</p> <p>f) siehe 9.f)<br/>See 9.f)</p> <p>g) Vordrehdurchmesser verkleinern<br/>Reduce blank diameter</p>  |
| <p><b>12. Rollenzähne brechen nach kurzem Einsatz aus</b><br/>Threads on rolls break off after short use</p>   | <p>a) falsche Anfasung des Werkstückes<br/>Incorrect chamfer on component</p>   | <p>a) Anfasung unter max. 30°, zur Achse gesehen, anbringen auch im Auslauf, falls vorhanden.<br/>Nach dem Rollen erhält man dann ca. 45°<br/>Make chamfer under 30° max. in relation to axis, as well as runout end if any. About 45° will be generated after rolling</p>  |



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| Fehler<br>Problems   | Ursache<br>Probable Cause   | Lösung<br>Solutions   |
|--|---|---|
| <p><b>12. Rollenzähne brechen nach kurzem Einsatz aus</b><br/>Threads on rolls break off after short use</p>   | <p>b) Rollensätze vertauscht<br/>Roll sets mixed up by mistake</p> <p>c) Rollensätze nicht richtig im Rollkopf eingebaut<br/>Roll sets assembled incorrectly in rolling attachment</p> <p>d) Gewindeanfänge der Rollen stehen falsch zueinander<br/>Thread starts of rolls are positioned incorrectly in relation to each other</p> <p>e) Hubbewegung des Querschlitzens falsch<br/>Operating stroke of cross slide/turret incorrect</p> <p>f) mit Überdruck gerollt<br/>Rolled with overload (over-rolled)</p> | <p>b) siehe unter 9.a)<br/>See 9.a)</p> <p>c) siehe unter 9.b)<br/>See 9.b)</p> <p>d) siehe unter 9.c)<br/>See 9.c)</p> <p>e) siehe unter 9.f)<br/>See 9.f)</p> <p>f) Vordreh-Ø verkleinern<br/>Reduce blank diameter</p>   |
| <p><b>13. Bei kurzen Gewindelängen stark abfallendes Profil im Ein- und Auslauf</b><br/>On short lengths of thread, heavily tapered profile at start and run out</p> | <p>Werkstoff fließt zu stark in Achsrichtung<br/>Too much material flowing into direction of axis</p>   | <p>Durchmesservergrößerung im Ein- und Auslauf vornehmen (Formstahl)<br/>Increase diameter of blank at start and run-out end of component</p>   |
| <p><b>14. Schlechte Rollergebnisse an Werkstücken mit dünnen Wandstärken (Rohre)</b><br/>Poor rolling results on components with thin walls (example: pipes)</p>     | <p>a) Verbleibende Wandstärke ist zum Rollen zu klein<br/>Remaining wall thickness too thin for rolling</p> <p>b) Hubbewegung des Querschlitzens falsch<br/>Operating stroke of cross slide incorrect</p> <p>c) Werkstückdurchbiegung beim Rollen<br/>Bending of component during thread rolling operation</p> <p>d) Rohre haben eine Schweißnaht, oder durch Überdrehen ungleichmäßige Wandstärke<br/>Pipes have a welding seam or non-uniform wall thickness</p>  | <p>a) Bohrung verkleinern oder nach dem Rollen bohren. Dorn beim Rollen in Bohrung legen.<br/>Reduce bore, or drill after thread rolling, place arbor into bore when thread rolling</p> <p>b) Siehe unter 9.f), evtl. Rollen länger im Eingriff lassen<br/>See 9.f), leave rolls in engagement longer</p> <p>c) Werkstück abstützen<br/>Support component</p> <p>d) Geschweißte Rohre meistens ungeeignet zum Rollen, Rohrwandstärke muss gleichmäßig sein<br/>Welded pipes are mostly unsuitable for rolling, pipe walls must have uniform thickness</p> |
| <p><b>15. Zylindrische Gewinde nach dem Rollen konisch</b><br/>Parallel thread comes out tapered after rolling</p>   | <p>a) Konisch vorgedreht<br/>Pre-machined with taper</p> <p>b) Rollenachse nicht parallel mit Werkstückachse<br/>Roll axis not parallel with component axis</p> <p>c) Werkstückdurchbiegung beim Gewinderollen<br/>Component bends during rolling operation</p> <p>d) Durchbiegung der Rollachsen<br/>Bending of roll axles</p>   | <p>a) Zylindrisch vordrehen<br/>Make certain there is no taper on blank</p> <p>b) Parallelität herstellen<br/>Establish parallelism</p> <p>c) Werkstück abstützen<br/>Support component properly</p> <p>d) Achsenverstellung vornehmen<br/>siehe Bedienungsanleitung<br/>Adjust axles, see operating instructions</p>   |
| <p><b>16. Zahnradbruch bzw. Rollenmitnahmeklauen abgeschert</b><br/>Gear breakage and/or roll driving dogs sheared off</p>   | <p>Mit starkem Überdruck gerollt:<br/>Rolled with excessive overpressure</p> <p>a) Zu großer Vordreh-Ø<br/>Blank diameter too large</p> <p>b) Verdrehen der Achsen<br/>Twisting of axles</p>  | <p>a) Vordreh-Ø verkleinern<br/>Reduce blank diameter</p> <p>b) Achsen haben Exzenter. Darum sehr stark festklemmen, nach kurzem Einsatz nachziehen. Für T18, T27, T42.<br/>Axle eccentric must be clamped very firmly, and retightened after short operation. For T18, T27, T42.</p>   |

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| Fehler<br>Problems   | Ursache<br>Probable Cause   | Lösung<br>Solutions  |
|--|---|--|
| <p><b>16. Zahnradbruch bzw. Rollenmitnahme-<br/>klauen abgeschert</b><br/>Gear breakage and/or roll driving<br/>dogs sheared off</p> | <p>c) Querschlitzen ist im Vorlauf nicht durch<br/>einen Festanschlag begrenzt<br/>Cross slide/turret in travel not restricted<br/>by fixed stop</p> <p>d) Falscher Einbau der Zahnräder<br/>Gears assembled incorrectly</p> <p>e) Achsen haben gefressen<br/>Axles have seized</p> | <p>c) höchster Punkt der Kurve = Umkehrpunkt<br/>des Schlittens mit Einstellehre festlegen.<br/>Dann muss ein Festanschlag gesetzt<br/>werden.<br/>Rollen dürfen nicht über Werkstückmitte<br/>kommen.<br/>Establish highest cam point = return point<br/>of slide to be set by means of setting gau-<br/>ge. The stationary stop must be set. Rolls<br/>must not travel beyond center of compo-<br/>nent</p> <p>d) Rollen müssen durch Zahnräder synchro-<br/>nisiert sein. Leichter Rollenlauf muss vor-<br/>handen sein. Beim Festhalten einer Rolle<br/>muss die andere sich zum Kopffinneren<br/>verdrehen lassen. Diese Rolle muss<br/>selbsttätig wieder zurückschnellen.<br/>Rolls must be synchronized by means of<br/>gears, rolls must move freely and smooth-<br/>ly. When holding one roll back, the other<br/>must be able to rotate towards the inside<br/>of the attachment. This roll must spring<br/>back automatically</p> <p>e) Kühlung bzw. Schmierung muss während<br/>des Rollens ausreichend vorhanden sein.<br/>Evtl. Rollkopf an Zentralschmierung<br/>anschließen. Kühlung muss frei von<br/>Spänen sein. Werkstückumdrehungen<br/>während des Rollens zu klein. Dadurch zu<br/>große Kraftverhältnisse. Änderung der<br/>Werkstückumdrehungen vornehmen. Rol-<br/>len müssen etwas länger im Eingriff sein.<br/>Cooling and/or lubrication must be<br/>sufficiently available during thread rolling.<br/>Connect rolling attachment to central<br/>lubrication system, if any. Coolant must be<br/>free of chips. Component revolutions too<br/>low during rolling operation, resulting in<br/>too much of a force ratio. Change number<br/>of revolutions of component. Rolls must<br/>remain in engagement for a slightly longer<br/>period.</p> |





# Schälköpfe Turning Heads

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| <b>N = Anzahl der Schneidkanten</b><br><b>N = Number of cutting edges</b> |      |      |   |                |   |          |          | Schneidstoffsorten Ident. No.<br>Cutting materials Ident. No. |                  |                  |                            |
|---|------|------|---|----------------|---|----------|----------|---|------------------|------------------|----------------------------|
|   | l    | s    | d | d <sub>1</sub> | b | r        | Cat.-No. | LW225<br>LW415<br>LW610                                       | LC225S<br>LC415S | LC225T<br>LC610T | LC225I<br>KHSS-E<br>LC610E |
|   | 12,7 | 4,76 |   |                |   | 1,2      | 1180-11  | 1059395   |                  |                  |                            |
|   | 12,7 | 4,76 |   |                |   | 0,4      | 1180-96  | 1059368<br>1059787  | 1059341          |                  |                            |
|   | 12,7 | 4,76 |   |                |   | 1,6      | 1180-97  | 1059830   |                  |                  |                            |
|   | 12,7 | 4,76 |   |                |   | 1,2      | 1181-11  | 1059992<br>1059965  | 2216269          |                  | 1060025<br>1063200         |
|   |      |      |   |                |   |          |          |   |                  |                  |                            |
|   | 12,7 | 4,76 |   |                |   | 1,2      | 1181-81  |   |                  |                  | 1062005                    |
|   |      |      |   |                |   |          |          |   |                  |                  |                            |
|   | 12,7 | 4,76 |   |                |   | 3        | 1181-88  | 1060187<br>1060150  | 2129491          |                  | 1061934<br>1063219         |
|   |      |      |   |                |   |          |          |   |                  |                  |                            |
|   | 12,7 | 4,76 |   |                |   | 0,5      | 1181-89  | 1060221<br>1060196  | 1061927          |                  | 1061925<br>1063228         |
|   |      |      |   |                |   |          |          |   |                  |                  |                            |
|   | 12,7 | 4,76 |   |                |   | 0,5      | 1181-91  |   |                  |                  | 1060230                    |
|   | 12,7 | 4,76 |   |                |   | 0,2 max. | 1181-99  | 1060506   | 1059342          |                  | 1060463                    |

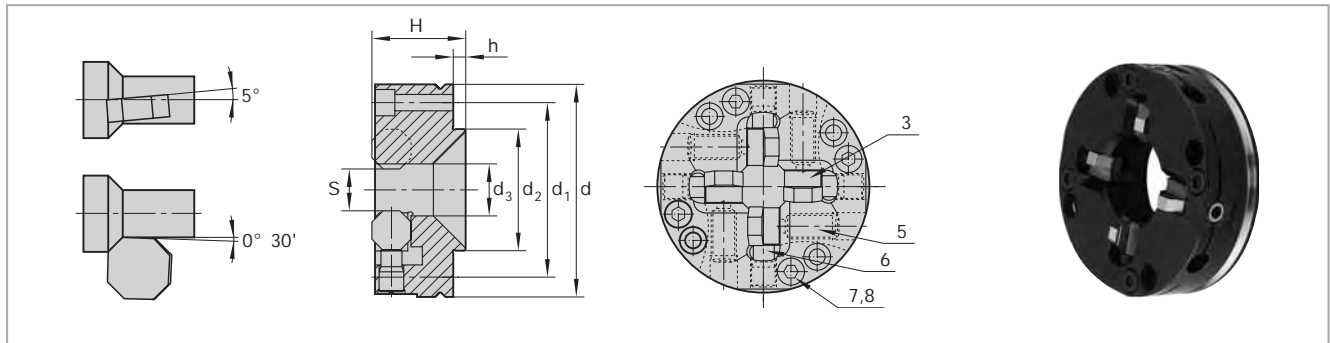
| N = Anzahl der Schneidkanten<br>N = Number of cutting edges   |      |      |   |                |   |          |          | Schneidstoffsorten Ident. No.<br>Cutting materials Ident. No. |                  |                  |                            |
|---|------|------|---|----------------|---|----------|----------|---|------------------|------------------|----------------------------|
|   | l    | s    | d | d <sub>1</sub> | b | r        | Cat.-No. | LW225<br>LW415<br>LW610                                       | LC225S<br>LC415S | LC225T<br>LC610T | LC225I<br>KHSS-E<br>LC610E |
| <p>0,1 Schutzfase Land</p> <p>90°   max. 2,5</p> <p>N = 4</p> | 12,7 | 4,76 |   |                |   | 0,2 max. | 1181-92  | 1060310   |                  |                  | 1061943                    |
|   | 12,7 | 4,76 |   |                |   | 0,5      | 1181-93  | 1060356   |                  |                  | 1061952                    |
|   |      |      |   |                |   |          |          |   | 1060329          |                  |                            |
| <p>3,5   30°</p> <p>N = 4</p>                                 | 12,7 | 4,76 |   |                |   | 0,5      | 1181-95  | 1060409   | 1060411          |                  |                            |
|   |      |      |   |                |   |          |          |   | 1060374          |                  |                            |
| <p>90°   max. 2,5</p> <p>N = 8</p>                            | 12,7 | 4,76 |   |                |   | 0,2 max. | 1181-96  | 1060490   | 2305180          |                  |                            |
|   | 12,7 | 4,76 |   |                |   | 0,5      | 1181-97  | 1060524   |                  |                  |                            |
| <p>max. 1</p> <p>N = 8</p>                                    | 12,7 | 4,76 |   |                |   | 1,6      | 1181-98  | 1060454   |                  |                  | 1060418                    |
|   |      |      |   |                |   |          |          |   | 1060427          |                  |                            |

**Farbschlüssel der Werkstoffgruppen**  
 Colour Key for Material Groups

- Stahl, Stahlguss, rostfreier Stahl, ferritisch und martensitisch  
 steel, cast steel, stainless steel, ferritic and martensitic
- rostfreier Stahl und Stahlguss, austenitisch und austenitisch/ferritisch  
 stainless steel and cast steel, austenitic and austenitic/ferritic
- Grauguss, Sphäroguss, Temperguss  
 grey cast iron, cast iron with spheroidal graphite, malleable cast iron
- Aluminium und andere Nichteisenmetalle, Kunststoffe, Graphit  
 aluminium and other non ferrous metals, plastics, graphite
- Hochwarmfeste Stähle, Super- und Titanlegierungen  
 high temperature alloys, super and titanium alloys
- Gehärteter Stahl und Stahlguss  
 hardened steel and cast steel

In den Bestelltabellen finden Sie einen farbigen Balken entsprechend der ISO-Klassifizierung. Rechts davon finden Sie die Bestellnummer der für Sie optimalen Wendeplatte: z. B. 1059395 für LW225. On the ordering tables, you find a coloured line bar according to ISO-classification. To the right, you find the ordering number of the indexable insert, most suitable for you: e. g. 1059395 for LW225.

| Cat.-No. | Schneidstoffsorten Ident. No.<br>Cutting materials Ident. No. |                  |                  |                            |
|----------|---|------------------|------------------|----------------------------|
|          | LW225<br>LW415<br>LW610                                       | LC225S<br>LC415S | LC225T<br>LC610T | LC225I<br>KHSS-E<br>LC610E |
| 1180-11  | 1059395   |                  |                  |                            |
|          | 1059368   |                  |                  |                            |
| 1180-96  | 1059787   | 1059341          |                  |                            |



| Katalog-Nr. |      | Cat.-No. |     |                |                |                |    |   |   | 1107      |
|-------------|------|----------|-----|----------------|----------------|----------------|----|---|---|-----------|
| Typ         | Type | s        | d   | d <sub>1</sub> | d <sub>2</sub> | d <sub>3</sub> | H  | h | z | Ident No. |
| FS-00       |      | 2- 5     | 60  | 48             | 30             | 6              | 31 | 4 | 2 | 1022709   |
| FS-10       |      | 5-10     | 65  | 53             | 35             | 12             | 31 | 5 | 4 | 1022718   |
| FS-20       |      | 10-15    | 70  | 58             | 40             | 17             | 31 | 5 | 4 | 1022727   |
| FS-30       |      | 15-20    | 75  | 63             | 45             | 22             | 31 | 5 | 4 | 1022736   |
| FS-40       |      | 20-25    | 80  | 68             | 50             | 27             | 31 | 5 | 4 | 1022745   |
| FS-50       |      | 25-30    | 85  | 73             | 55             | 32             | 31 | 5 | 4 | 1022754   |
| FS-60       |      | 30-35    | 92  | 79             | 70             | 37             | 35 | 6 | 4 | 1022763   |
| FS-70       |      | 35-40    | 97  | 84             | 75             | 42             | 35 | 6 | 4 | 1022772   |
| FS-80       |      | 40-45    | 102 | 89             | 80             | 47             | 35 | 6 | 4 | 1022781   |
| FS-90       |      | 45-50    | 107 | 94             | 85             | 52             | 35 | 6 | 4 | 1022790   |

| Teil Nr.<br>Part No. | 3                              | 5       | 6       | 7       | 8       |         |
|----------------------|--------------------------------|---------|---------|---------|---------|---------|
|                      |                                |         |         |         |         |         |
|                      | <b>Ident No.</b>               |         |         |         |         |         |
|                      | 2125738                        | 2125740 | 2123500 | 2142998 | 2129086 | 1048317 |
|                      | 2125739<br>für FS-10 for FS-10 |         |         |         |         |         |

Schnittwertempfehlungen ab Seite 237  
Cutting data recommendations starting from page 237

### Perfekte Konstruktion

#### – hohe Schälgenauigkeit

Auch bei großen Spanabnahmen kein radiales Ausweichen der Wendepplatten.

### Geringer Einstellauwand

#### – einfache Handhabung

Jede Wendepplatte besitzt eine Einstellschraube, mit der sich Rundlaufgenauigkeiten von 0,01 mm exakt einstellen lassen.

### Exakter Rundlauf

#### – optimale Zerspanungsvoraussetzungen

Rundlaufprüfung durch spezielle Prüflöhre mit Messuhr einfach und schnell durchführbar. Genaue Rundlaufeinstellung mittels Justierschrauben am Schälkopf.

### Proven design

#### – close tolerance turning

Radial deflection of the inserts is prevented by the sturdy design of the head. Inserts are clamped both radially and axially.

### Reduced set-up work

#### – easy handling

It is very simple to set the turning head for the required diameter and to reset worn inserts. There is an adjusting screw for each insert that can be set in ents of 0.01 mm.

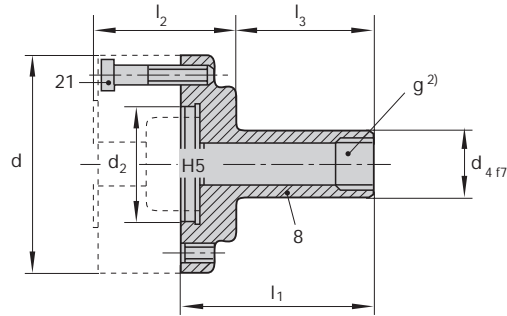
### Precise true running

#### – optimized machining conditions

A special dial indicator gauge is used to ensure each cutting edge is correctly positioned to do its exact share of work.



## Anbauschäfte Mounting Shafts



Katalog-Nr. Cat.-No.

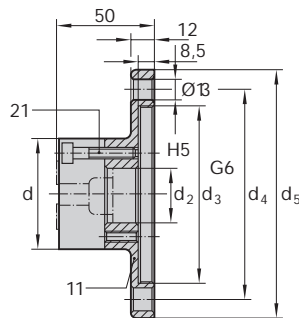
9701

| Typ Type | d   | d <sub>2</sub> | d <sub>4</sub> <sup>1)</sup> | g             | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | Ident No. |
|----------|-----|----------------|------------------------------|---------------|----------------|----------------|----------------|-----------|
| FS-00    | 60  | 30             | 16                           | M 12 x 1,5    | 50             | 40             | 36             | 1023003   |
| FS-10    | 65  | 35             | 20                           | M 14 x 1,5    | 56             | 42             | 40             | 1023021   |
| FS-20    | 70  | 40             | 25                           | M 20 x 1,5    | 66             | 42             | 50             | 1023049   |
| FS-30    | 75  | 45             | 30                           | M 24 x 1,5    | 73             | 44             | 55             | 1023067   |
| FS-40    | 80  | 50             | 40                           | M 30 x 1,5 li | 78             | 44             | 60             | 1023085   |
| FS-50    | 85  | 55             | 40                           | M 33 x 1,5 li | 88             | 44             | 70             | 1023101   |
| FS-60    | 92  | 70             | 50                           | Ø 36          | 100            | 50             | 80             | 1023129   |
| FS-70    | 97  | 75             | 56                           | Ø 41          | 100            | 50             | 80             | 1023138   |
| FS-80    | 102 | 80             | 60                           | Ø 46          | 110            | 50             | 90             | 1023147   |
| FS-90    | 107 | 85             | 63                           | Ø 51          | 110            | 50             | 90             | 1023156   |

1) Zoll- und Sonderausführungen sowie Automatschäfte auf Anfrage.  
Inch sizes and specials as well as shanks for automatics on request.

2) Ab FS 60 ohne Gewinde.  
FS 60 and bigger without thread.

## Anbauf lansche Mounting Flanges



Katalog-Nr. Cat.-No.

9702

| Typ Type | d   | d <sub>2</sub> | d <sub>3</sub> | d <sub>4</sub> | d <sub>5</sub> | Ident No. |
|----------|-----|----------------|----------------|----------------|----------------|-----------|
| FS-00    | 60  | 30             | 92             | 110            | 140            | 1023165   |
| FS-10    | 65  | 35             | 92             | 110            | 140            | 1023174   |
| FS-20    | 70  | 40             | 92             | 110            | 140            | 1023183   |
| FS-30    | 75  | 45             | 92             | 110            | 140            | 1023192   |
| FS-40    | 80  | 50             | 92             | 110            | 140            | 1023209   |
| FS-50    | 85  | 55             | 92             | 110            | 140            | 1023218   |
| FS-60    | 92  | 70             | 92             | 110            | 140            | 1023227   |
| FS-70    | 97  | 75             | 140            | 170            | 200            | 1023236   |
| FS-80    | 102 | 80             | 140            | 170            | 200            | 1023245   |
| FS-90    | 107 | 85             | 140            | 170            | 200            | 1023254   |



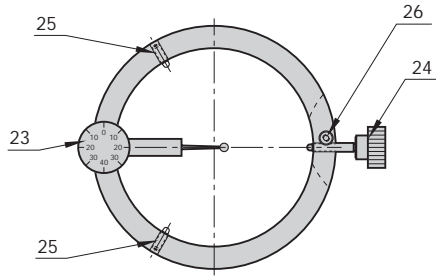
FS-10-FS-50

FS-60-FS-90




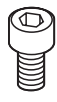
Ident No.

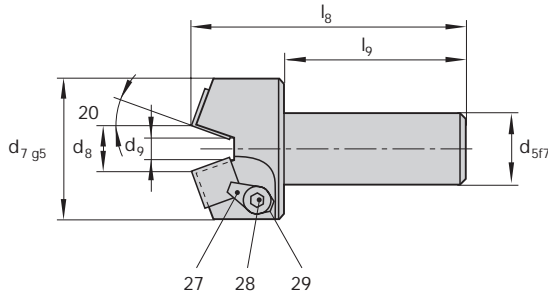
2141901

2141914







|                 |          |                  |
|-----------------|----------|------------------|
| Katalog-Nr.     | Cat.-No. | 8807             |
| <b>Typ Type</b> | <b>s</b> | <b>Ident No.</b> |
| FS-00           | 2- 5     | 1022905          |
| FS-10           | 5-10     | 1022914          |
| FS-20           | 10-15    | 1022923          |
| FS-30           | 15-20    | 1022932          |
| FS-40           | 20-25    | 1022941          |
| FS-50           | 25-30    | 1022950          |
| FS-60           | 30-35    | 1022969          |
| FS-70           | 35-40    | 1022978          |
| FS-80           | 40-45    | 1022987          |
| FS-90           | 45-50    | 1022996          |

|                      |  |  |   |  |
|----------------------|--|--|---|--|
|                      |  |  |  |  |
| Teil Nr.<br>Part No. | 23   | 24   | 25  | 26   |
| <b>Ident No.</b>     |  |  |   |  |
|                      | 212982   | 2123910  | 2123935   | 2141882  |



| Katalog-Nr. | Cat.-No. |    |                              |                |                |                |                | 1108           |           |
|-------------|----------|----|------------------------------|----------------|----------------|----------------|----------------|----------------|-----------|
| Typ         | Type     | S  | d <sub>5</sub> <sup>1)</sup> | d <sub>7</sub> | d <sub>8</sub> | d <sub>q</sub> | l <sub>g</sub> | l <sub>q</sub> | Ident No. |
| FS-10       | 5-10     | 5  | 20                           | 45             | 10,5           | 2,2            | 80             | 50             | 1022807   |
| FS-20       | 10-15    | 10 | 25                           | 50             | 15,5           | 7,2            | 92             | 62             | 1022816   |
| FS-30       | 15-20    | 15 | 25                           | 55             | 20,5           | 12,2           | 92             | 62             | 1022825   |
| FS-40       | 20-25    | 20 | 25                           | 60             | 25,5           | 17,2           | 97             | 67             | 1022834   |
| FS-50       | 25-30    | 25 | 25                           | 65             | 30,5           | 22,2           | 112            | 82             | 1022843   |
| FS-60       | 30-35    | 30 | 35                           | 69             | 35,5           | 27,2           | 127            | 95             | 1022852   |
| FS-70       | 35-40    | 35 | 40                           | 74             | 40,5           | 32,2           | 137            | 105            | 1022861   |
| FS-80       | 40-45    | 40 | 45                           | 79             | 45,5           | 37,2           | 157            | 125            | 1022870   |
| FS-90       | 45-50    | 45 | 50                           | 84             | 50,5           | 42,2           | 157            | 125            | 1022889   |

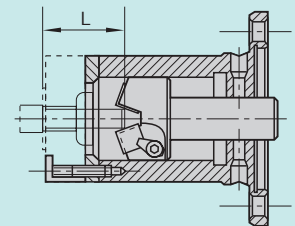
1) Zoll- und Sonderausführungen sowie Automaten-schäfte auf Anfrage. Inch sizes and specials as well as shanks for automatics on request.

|                      |  |  |   |  |
|----------------------|--|--|---|--|
|                      |  |  |  |  |
| Teil Nr.<br>Part No. | 27   | 28   | 29  |  |
| <b>Ident No.</b>     |  |  |   |  |
|                      | 2120487  | 2120488  | 2120489   | 1048317  |

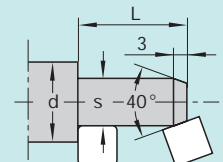
## Minimale und maximale Schällänge bei Verwendung als Einbau-Anfaser Minimum and maximum turning length when using Mounted Chamfering Tool

| Typ   | Schälbereich  | s  | L <sub>min</sub> | L <sub>max</sub> |
|-------|---------------|----|------------------|------------------|
| Type  | Turning range |    |                  |                  |
| FS-10 | 5-10          | 5  | 38               | 71               |
|       |               | 10 | 32               | 64               |
| FS-20 | 10-15         | 10 | 38               | 82               |
|       |               | 15 | 32               | 75               |
| FS-30 | 15-20         | 15 | 38               | 82               |
|       |               | 20 | 32               | 75               |
| FS-40 | 20-25         | 20 | 38               | 85               |
|       |               | 25 | 32               | 78               |
| FS-50 | 25-30         | 25 | 38               | 101              |
|       |               | 30 | 32               | 94               |
| FS-60 | 30-35         | 30 | 41               | 112              |
|       |               | 35 | 35               | 105,5            |
| FS-70 | 35-40         | 35 | 41               | 122              |
|       |               | 40 | 35               | 115,5            |
| FS-80 | 40-45         | 40 | 41               | 132              |
|       |               | 45 | 35               | 125,5            |
| FS-90 | 45-50         | 45 | 41               | 142              |
|       |               | 50 | 35               | 135,5            |

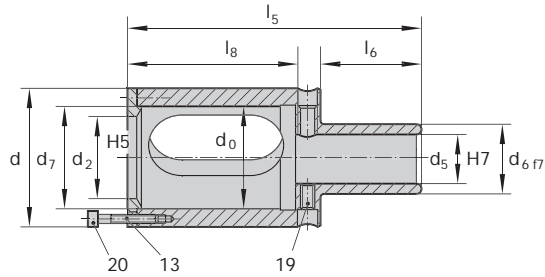
Der Einbau des Anfasers in den Anfassschaft bzw. Anfassflansch erfolgt vor dem Montieren des Schälkopfes.  
Die Lage des Anfasers wird zweckmäßigerweise mit einem Musterwerkstück bestimmt.



Chamfering tool has to be mounted in the shank of flange before the turning head is mounted.  
The positioning of the chamfering tool is in general defined with one master piece.



## Anfasschäfte Chamfering Tools Shafts



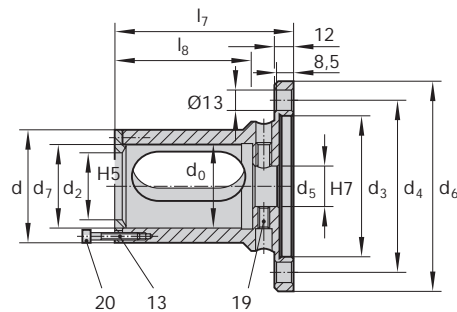
Katalog-Nr. Cat.-No.

9703

| Typ Type | d   | d <sub>0</sub> | d <sub>2</sub> | d <sub>5</sub> | d <sub>6</sub> <sup>1)</sup> | d <sub>7</sub> | l <sub>5</sub> | l <sub>6</sub> | l <sub>8</sub> | Ident No. |
|----------|-----|----------------|----------------|----------------|------------------------------|----------------|----------------|----------------|----------------|-----------|
| FS-10    | 65  | -              | 35             | 20             | 30                           | 45             | 130            | 50             | 65             | 1023263   |
| FS-20    | 70  | -              | 40             | 25             | 40                           | 50             | 151            | 60             | 76             | 1023272   |
| FS-30    | 75  | -              | 45             | 25             | 40                           | 55             | 161            | 70             | 76             | 1023281   |
| FS-40    | 80  | -              | 50             | 25             | 40                           | 60             | 164            | 70             | 79             | 1023290   |
| FS-50    | 85  | -              | 55             | 25             | 40                           | 65             | 180            | 70             | 95             | 1023307   |
| FS-60    | 92  | 69             | -              | 35             | 50                           | 70             | 200            | 80             | 105            | 1023316   |
| FS-70    | 97  | 74             | -              | 40             | 56                           | 75             | 210            | 80             | 115            | 1023325   |
| FS-80    | 102 | 79             | -              | 45             | 60                           | 80             | 230            | 90             | 125            | 1023334   |
| FS-90    | 107 | 84             | -              | 50             | 63                           | 85             | 240            | 90             | 135            | 1023343   |

1) Zoll- und Sonderausführungen sowie Automatschäfte auf Anfrage.  
Inch sizes and specials as well as shanks for automatics on request.




## Anfasflansche Chamfering Tools Flanges



Katalog-Nr. Cat.-No.

9704

| Typ Type | d   | d <sub>0</sub> | d <sub>2</sub> | d <sub>5</sub> | d <sub>7</sub> | l <sub>7</sub> | l <sub>8</sub> | l   | d <sub>3</sub> | d <sub>4</sub> | d <sub>6</sub> | Ident No. |
|----------|-----|----------------|----------------|----------------|----------------|----------------|----------------|-----|----------------|----------------|----------------|-----------|
| FS-10    | 65  | -              | 35             | 20             | 45             | 93             | 60             | 18  | 92             | 110            | 140            | 1023352   |
| FS-20    | 70  | -              | 40             | 25             | 50             | 104            | 71             | 60  | 92             | 110            | 140            | 1023361   |
| FS-30    | 75  | -              | 45             | 25             | 55             | 104            | 71             | 71  | 92             | 110            | 140            | 1023370   |
| FS-40    | 80  | -              | 50             | 25             | 60             | 107            | 74             | 71  | 92             | 110            | 140            | 1023389   |
| FS-50    | 85  | -              | 55             | 25             | 65             | 123            | 90             | 74  | 92             | 110            | 140            | 1023398   |
| FS-60    | 92  | 69             | -              | 35             | 70             | 138            | 105            | 90  | 92             | 110            | 140            | 1023405   |
| FS-70    | 97  | 74             | -              | 40             | 75             | 148            | 115            | 105 | 140            | 170            | 200            | 1023414   |
| FS-80    | 102 | 79             | -              | 45             | 80             | 148            | 125            | 115 | 140            | 170            | 200            | 1023423   |
| FS-90    | 107 | 84             | -              | 50             | 85             | 168            | 135            | 125 | 140            | 170            | 200            | 1023432   |

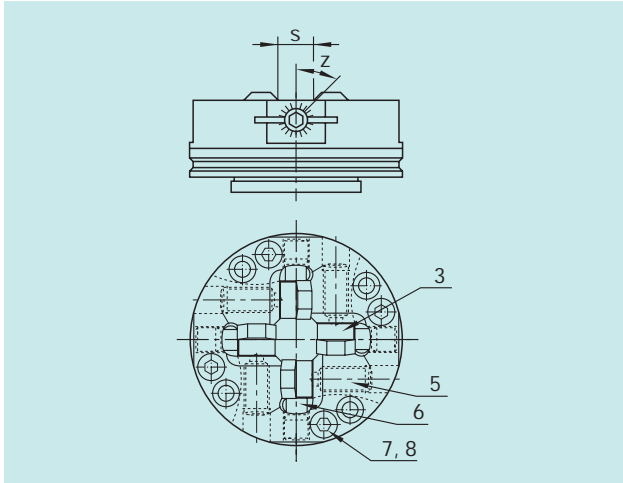
|                      |   |         |         |         |         |   |         |   |  |
|----------------------|---|---------|---------|---------|---------|---|---------|---|--|
|                      |  |         |         |         |         |  |         |  |  |
| Teil Nr.<br>Part No. | 13  |         |         |         |         | 19  |         | 20  |  |
|                      | FS-10   | FS-20   | FS-30   | FS-40   | FS-50   | FS-10-FS-50 FS-60-FS-90   |         |   |  |
|                      | Ident No.   |         |         |         |         |   |         |   |  |
|                      | 2129254   | 2125667 | 2121678 | 2121191 | 2129255 | 2142092   | 2141902 | 2141915   |  |



| ISO-Code      | Werkstückmaterial   | Material of the workpiece                            | Rm/UTS<br>(N/mm <sup>2</sup> ) | Schnitt-<br>geschwindigkeit<br>Cutting speed<br>$v_c$<br>= m/min | Vorschub pro<br>Umdrehung<br>Feed per<br>revolution<br>f |
|---------------|---|--|--------------------------------|--|--|
| <b>P</b>      | Unlegierter Baustahl  | Plain carbon steel                                   | - 700                          | 120  | 0,2 – 0,8  |
|               | Automatenstahl  | Free cutting steel                                   | - 700                          | 120  | 0,2 – 0,8  |
|               | Baustahl  | Structural alloy steel                               | 500 – 950                      | 120  | 0,2 – 0,8  |
|               | Vergütungsstahl,<br>mittelfest                                    | Heat-treatable steel,<br>medium strength             | 500 – 950                      | 100  | 0,2 – 1,0  |
|               | Stahlguss   | Cast steel   | - 950                          | 120  | 0,4 – 1,2  |
|               | Einsatzstahl  | Case harding steel                                   | - 950                          | 100  | 0,2 – 0,8  |
|               | Rost- und säurebeständiger Stahl,<br>ferritisch,<br>martensitisch | Stainless steel,<br>ferritic,<br>martensitic         | 500 – 950                      | 100 <sup>1)</sup>  | 0,2 – 0,8  |
|               | Vergütungsstahl,<br>hochfest                                      | Heat-treatable steel,<br>high strength               | 950 – 1400                     | 100  | 0,1 – 0,4  |
|               | Nitrierstahl, vergütet  | Nitriding steel                                      | 950 – 1400                     | 100  | 0,1 – 0,4  |
| Werkzeugstahl | Tool steel  | 950 – 1400   | 100                            | 0,1 – 0,4  |  |
| <b>M</b>      | Rost- und säurebeständiger Stahl,<br>austentisch                  | Stainless steel,<br>austentic                        | 500 – 950                      | 100 <sup>1)</sup>  | 0,1 – 0,4  |
|               | Martensitaushärtbarer Stahl                                       | Maraging steel                                       |                                |  |  |
| <b>K</b>      | Grauguss  | Grey cast iron                                       | 100 – 400<br>(120 – 260 HB)    | 150  | 0,2 – 0,8  |
|               | Legierter Grauguss  | Alloyed grey cast iron                               | 150 – 300<br>(160 – 230 HB)    | 150  | 0,2 – 0,8  |
|               | Sphäroguss  | Nodular cast iron                                    | 400 – 800<br>(120 – 310 HB)    | 150  | 0,2 – 0,8  |
|               | Temperguss  | Malleable cast iron                                  | 350 – 700<br>(150 – 280 HB)    | 150  | 0,2 – 0,8  |
| <b>N</b>      | Rein-Metalle, weich   | Pure metals, soft                                    | - 500                          | 120  | 0,2 – 0,8  |
|               | Aluminium-Legierungen,<br>langspanend                             | Alluminium alloys,<br>long chipping                  | - 550                          | 120  | 0,2 – 0,8  |
|               | Aluminium-Legierungen,<br>kurzspanend                             | Aluminium alloys,<br>short chipping                  | - 400                          | 120  | 0,2 – 0,8  |
|               | Kupfer-Legierungen,<br>langspanend                                | Copper alloys,<br>long chipping                      | 300 – 700                      | 120  | 0,2 – 0,8  |
|               | Kupfer-Legierungen,<br>kurzspanend                                | Copper alloys,<br>short chipping                     | - 500                          | 120  | 0,2 – 0,8  |
|               | Magnesium-Legierungen   | Magensium alloys                                     | 160 – 300                      | 100  | 0,4 – 0,8  |
|               | Thermoplaste  | Thermoplastics                                       | 40 – 70                        | 120  | 0,4 – 1,0  |
|               | Duroplaste  | Duroplastics   | 20 – 40                        | 100  | 0,2 – 0,8  |
| Graphit       | Graphite  |  |                                |  |  |
| <b>S</b>      | Titan-Legierungen,<br>mittelfest                                  | Titanium alloys,<br>medium strength                  | - 950                          | 100  | 0,2 – 0,8  |
|               | Titan-Legierungen,<br>hochfest                                    | Titanium alloys,<br>hight strength                   | 900 – 1400                     | 80   | 0,2 – 0,8  |
|               | Nickelbasis-Legierungen,<br>mittelfest                            | Nickel based alloys,<br>medium strength              | - 950                          | 80   | 0,2 – 0,8  |
|               | Nickel-Basis-Legierungen,<br>hochwarmfest                         | Heat resistant nickel based<br>alloys, high strength | 900 – 1400                     | 80   | 0,2 – 0,6  |
| <b>H</b>      | Hartguss  | Chilled cast iron                                    | 300 – 600 HB                   | 100  | 0,2 – 0,6  |

<sup>1)</sup> Bei Verwendung von Kühlschmierstoffen  
When using liquid coolants

Beim Einsatz unbeschichteter Sorten Schnittgeschwindigkeit um 30 % reduzieren.  
Werte für Schnittgeschwindigkeiten können nach unterschiedlichen Beschichtungsarten abweichen (± 30 %).  
When using uncoated grades reduce cutting speed by 30 %.  
Cutting speed values may vary according to coating type (± 30 %).



Fette-Schälköpfe besitzen einen Grundkörper mit geschliffenen Sitzen zur Aufnahme der Wendepplatten. Die radiale Einstellung der Wendepplatten auf den Schäldurchmesser S geschieht durch jeweils eine Einstellschraube (6), die gegen Verdrehen durch Klemmung mittels einer Schraube (7) gesichert wird. Das Spannen der Wendepplatten erfolgt mit den Druckschrauben (5) über die Spannstücke (3).

Fette turning heads have a body with ground seats to accept the indexable inserts. Each indexable insert is adjusted to the peeling diameter S by an adjusting screw (6) which is clamped by means of a screw (7) to prevent it from turning. The indexable inserts are clamped by the clamping nuts (5) acting upon the clamping elements (3).

### Einstellvorgang

1. Wendepplatte ausspannen durch Lösen der Druckschraube (5).
2. Schraube (7) lösen.
3. Einstellschraube (6) in Ausgangsstellung drehen. Hierbei muss die Stirnfläche der Einstellschraube mit der Skalenfläche abschließen und die Markierung auf Null stehen. In dieser Stellung würde eine Wendepplatte ohne Eckradius das Größtmaß  $S_{max}$  des Schälbereiches erzeugen.
4. Durch Rechtsdrehen der Einstellschraube (6) den Schäldurchmesser S mit Hilfe der Ringskala einstellen. Die Ringskala weist 20 Teilstriche auf, ein Teilstrich entspricht einer radialen Zustellung von 0,025 mm.  
Zustellung in Teilstrichen pro Wendepplatte:  
 $Z = (S_{max} - S) \times 20$   
Beispiel: Schälkopf FS-20 für Schälbereich 10 – 15 mm  
Größtmaß  $S_{max} = 15 \text{ mm } \varnothing$ ,  
Schäldurchmesser  $S = 12,4 \text{ mm}$   
Zustellung der Einstellschraube:  
 $Z = (15 - 12,4) \times 20 = 52 \text{ Teilstriche} =$   
2 Umdrehungen + 12 Teilstriche
5. Einstellschraube (6) blockieren durch Spannen der Schraube (7). Die vorstehenden Arbeitsgänge sind entsprechend für die übrigen Wendepplatten durchzuführen.
6. Wendepplatten im Sitz gegen die Einstellschraube schieben und Druckschrauben (5) spannen.

### Anmerkung

Die Einstellschrauben (6) sind untereinander nicht austauschbar. Bei einer Ersatzlieferung muss die Markierung in Nullstellung angebracht werden, wobei die Stirnfläche der Einstellschraube mit der Skalenfläche abschließen muss.

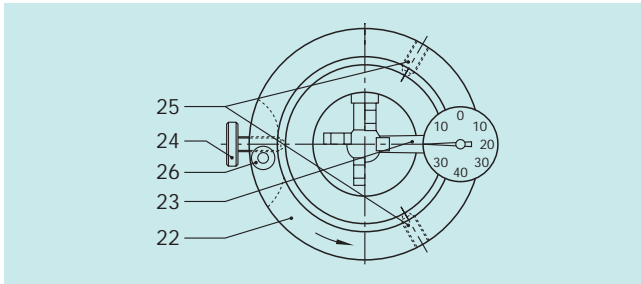
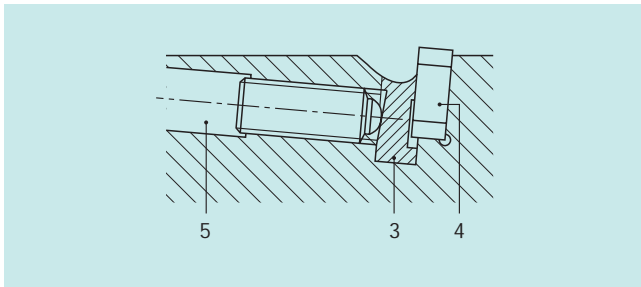
### Setting procedure

1. Release insert by releasing clamp screw (5).
2. Release screw (7).
3. Adjusting screw (6), release end position in direction of exit direction. At this point the adjusting screw must be locked with the scale ring set to zero. In this position, the indexable insert will produce a diameter of  $S_{max}$  assuming the insert has no corner radii.
4. Turn the adjusting screw (6) clockwise, the peeling diameter will be adjusted with the aid of the setting scale. The setting scale has 20 graduation one division is equal to 0.025 mm change in radial direction.  
Adjustment in graduation per insert.  
 $Z = (S_{max} - S) \times 20$   
Example: Turning head FS-20 for peeling dia. 10 – 15 mm  
Largest dia.  $S_{max} = 15 \text{ mm } \varnothing$   
Turned dia.  $S = 12.4 \text{ mm}$   
Adjustment of screw  
 $Z = (15 - 12,4) \times 20 = 52 \text{ graduation} =$   
2 turns + 12 graduations.
5. Adjusting screw (6) is blocked via clamping of screw (7). Repeat the aforementioned process for all other inserts.
6. Seat the inserts and clamp via screw (5).

### Note

Adjusting screw (6) are not interchangeable within the turning head. When exchanging spare parts, this must be done with the setting ring set to zero, the head of the adjusting screw must be locked against the setting ring.

## Technische Hinweise Technical hints



## Wechseln oder Wenden von Wendepplatten Changing or Indexing of the Inserts

Zum Wechseln oder Wenden der Wendepplatten ist lediglich das Lösen der Druckschrauben (5) erforderlich, wobei die Einstellung der Wendepplatten erhalten bleibt. Es ist auf Sauberkeit aller Teile zu achten. Evtl. gebildete Aufbauschneiden sind zu entfernen.

In order to change or index the inserts the clamp screw (5) must be released. The insert remains positionally correct. All parts must be cleaned, note that built up edges must be cleaned.

### Rundlaufprüfung mit Einstellehre

Nach dem Einstellen ist eine Rundlaufprüfung der Schneidkanten mit der Einstellehre (Kat.-Nr. 8807) vorzunehmen. Hierfür wird die Einstellehre mit Hilfe der zwei festen Stiftschrauben (25) und der beweglichen Rändelschraube (24) spielfrei in der Zentrierrille des Schälkopfes aufgenommen. Die Rändelschraube (24) kann mit einer Zylinderschraube (26) blockiert werden. Die Rundlaufprüfung erfolgt durch die Messuhr (23), wobei durch Drehen des Ringes (22) die Schneidkanten abgetastet werden. Der Rundlauffehler sollte einen Wert von 0,015 mm nicht übersteigen. Andernfalls ist die Wendep Platteneinstellung zu korrigieren.

### Radial cutting level confirmation using with a setting gauge

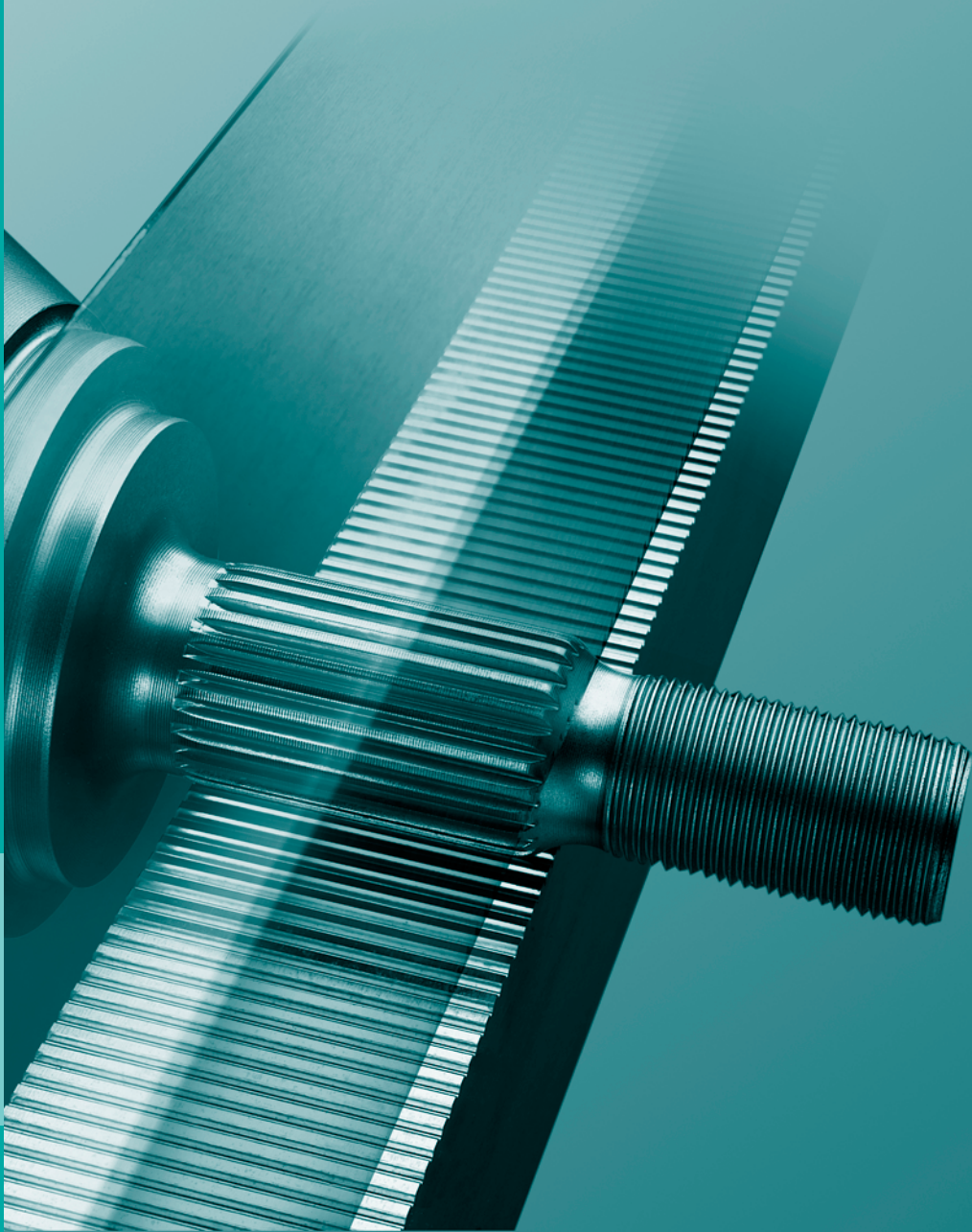
Following insert setting the cutting level must be checked using the equipment listed with catalogue number (Cat.-No. 8807). To achieve the above, the two clamped grub screws (25) and the movable knurled screw (24) without play in the centralizing groove of the turning head. The knurled screw (24) can be means of the cylindrical screw (26) be blocked. The concentricity or cutting level may be checked with the D.T.I. (23). Rotating the ring (22) the inserts may be checked. The cutting level should not be greater than 0,015 mm. If the level is greater than specified the head must be re-callibrated.

### Einstellen der Schällänge

Die maximale Schällänge beträgt etwa 6 x Schäldurchmesser; unter günstigen Bedingungen können auch größere Schällängen erreicht werden.

### Setting the turning length

Maximum turning length is equal to 6 x D under certain or special circumstances longer lengths may be achieved.





### Nutzen Sie unser Know how zu Ihrem Vorteil!

- Minimale Taktzeiten
- Maximale Werkzeug-Standzeiten
- Steigerung der Festigkeit
- Hohe Oberflächengüte
- Bündiges Walzen bis an die Schulter
- Gleichzeitiges Formen mehrerer Profile in einem Arbeitsgang
- Sonderprofile
- Fette Nachschleif-Service für Wiederinstandsetzung!

### Use our know how for your advantage!

- Minimum cycle times
- Maximum durability
- Increased toughness
- High surface quality
- Concise rolling to the shoulder
- Simultaneous forming of several profiles in a single processing step
- Special profiles
- Fette regrinding service for resharpening!

### Die Kaltumformung

- Mehr Werkstofffestigkeit
- Mehr Oberflächenqualität
- Mehr Genauigkeit für das Profil
- Mehr Produktivität

Durch Kaltumformung gefertigte Werkstückprofile zeichnen sich durch hohe Genauigkeit und verbessertes Verschleißverhalten aus. Denn eine Verzahnungs- oder Gewindeflanke, die ohne Zerstörung des Faserverlaufs kalt verfestigt wurde, lässt eine höhere Belastung zu als ein geschnittenes Profil.

Als führender Hersteller von hochwertigen Werkzeugen für die Kaltumformung verfügt Fette über das spezielle Know how in Sachen Fertigung von Walzstangen. Ein technologisch ausgereiftes, auf vielseitige Anwendungsmöglichkeiten ausgerichtetes Sortiment steht zur Verfügung.

### The cold forming

- More material firmness
- More surface quality
- More accuracy for the profile
- More productivity

By cold forming manufactured workpiece profiles are characterised by high accuracy, reliability and durability. Because of the rolling process, the formed threads and flanks allow an increased load to be applied in use.

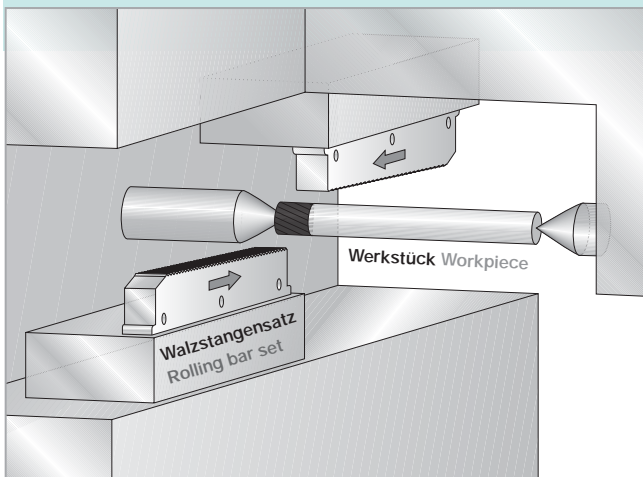
Fette is a well known market leader within the cold forming industrial sector. Fette has the specialized know how in the production of rolling racks.

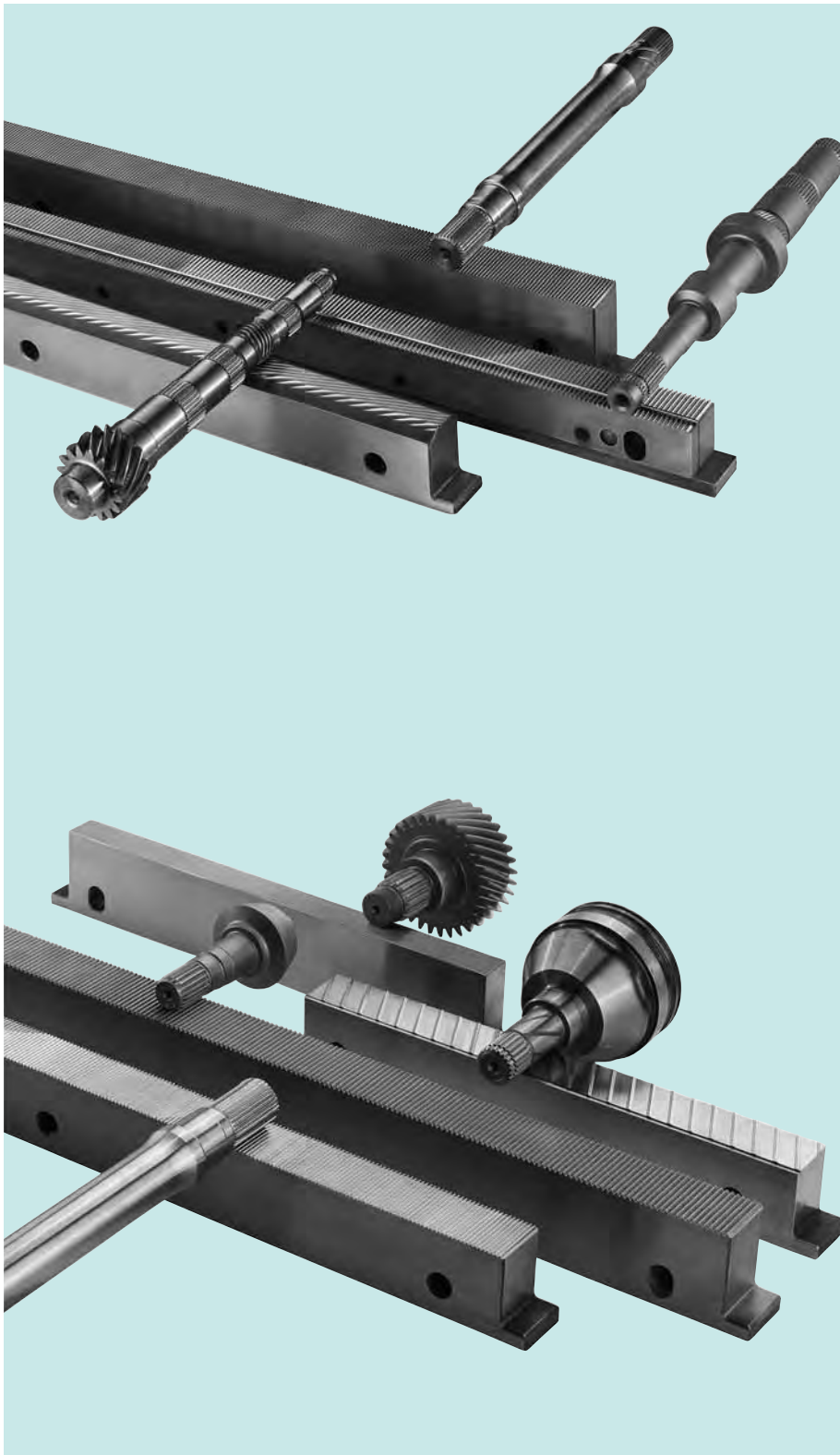
### Die Funktionsweise

Zwei, sich gegenläufig synchron bewegende Walzstangen aus verschleißfestem Kaltarbeitsstahl treffen auf das eingespannte Werkstück und versetzen es in Drehung. Die Profilformung erfolgt über die gesamte Walzstangenlänge und die einzelnen Zonen wie Anlauf, Kalibrierung und Dekompression. Die maximale Profillänge entspricht der Walzstangenbreite.

### The function mode

The two component parts of rack rolls move in synchronicity with each other to roll and rotate the product which forms the workpiece. The profile is generated and completed when the rack has passed over the workpiece over its total length. The maximum profile width is equal to the rack width.





**Anwendungsbeispiele**

- Spanlose Profilformung von
- Gewinden
  - Ölnuten
  - Ringnuten & Rändelungen
  - Steckverzahnungen
  - Schrägverzahnungen
  - weitere Profile
- auf zylindrischen Werkstücken.

**Sample applications**

- Non-cutting profile figuration of
- Threads
  - Oil grooves
  - Anular grooves & knurling
  - Splines
  - Helical gears
  - further, similar profiles
- on cylindrical workpieces.

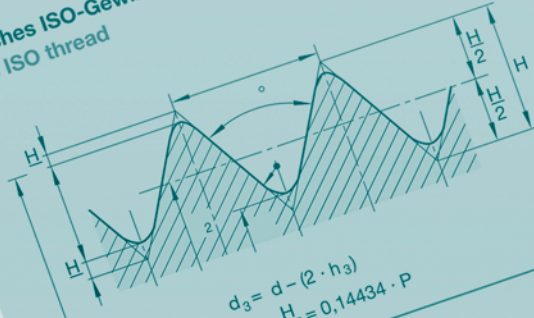
Fette Walzstangen sind in Längen von 300 bis 1800 mm und in unterschiedlichen Breiten verfügbar.

Fette rolling bars are available in lengths from 300 to 1800 mm and in different widths.

Profilmaße für gängige Gewinde  
Profile Dimensions for Popular Threads

Anhang  
Attachment

**Metrisches ISO-Gewinde**  
Metric ISO thread



$$H = 0,86603 \cdot P$$

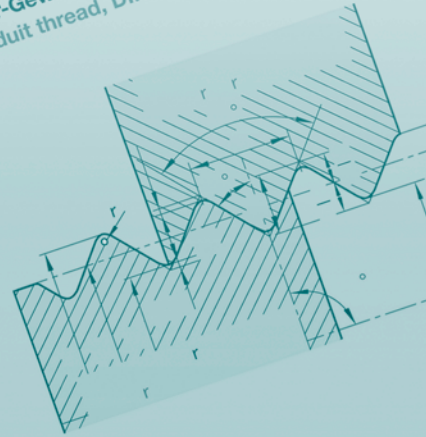
$$h_3 = 0,61343 \cdot P$$

$$d_2 = d - (0,6495 \cdot P)$$

$$d_3 = d - (2 \cdot h_3)$$

$$r = \frac{H}{6} = 0,14434 \cdot P$$

**Stahlpanzerrohr-Gewinde, DIN 40 430**  
Steel pipe conduit thread, DIN 40 430



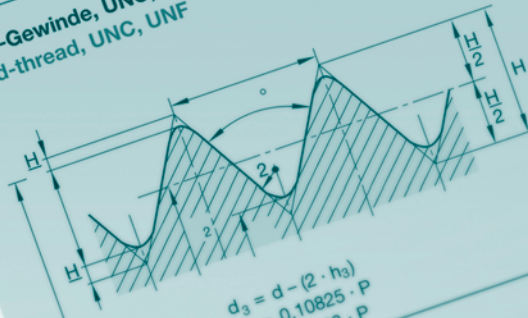
$$P = \frac{25,4}{z}$$

$$r = 0,107 \cdot P$$

$$H = 0,595875 \cdot P$$

$$H_1 = 0,8 H = 0,4767 \cdot P$$

**Unified-Gewinde, UNC, UNF**  
Unified-thread, UNC, UNF



$$H = 0,86603 \cdot P$$

$$h_3 = 0,61343 \cdot P$$

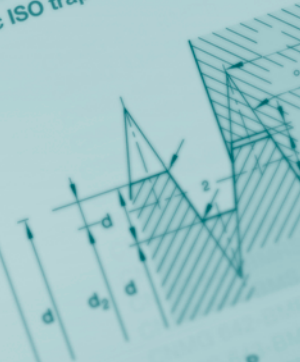
$$d_2 = d - (0,6495 \cdot P)$$

$$d_3 = d - (2 \cdot h_3)$$

$$r_1 = 0,10825 \cdot P$$

$$r_2 = 0,1443 \cdot P$$

**Metrisches ISO-Trapezgewinde, DIN 103**  
Metric ISO trapezoidal thread, DIN 103



$$D_1 = d - 2 H_1 = d - P$$

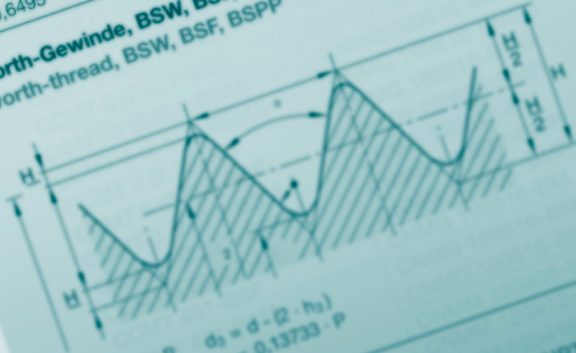
$$H_1 = 0,5 \cdot P$$

$$H_2 = H_1 + ac = 0,5 \cdot P + ac$$

$$h_3 = H_1 + ac = 0,5 \cdot P + ac$$

$$z = 0,25 P = \frac{H_1}{2}$$

**Whitworth-Gewinde, BSW, BSF, BSPP**  
Whitworth-thread, BSW, BSF, BSPP



$$H = 0,96049 \cdot P$$

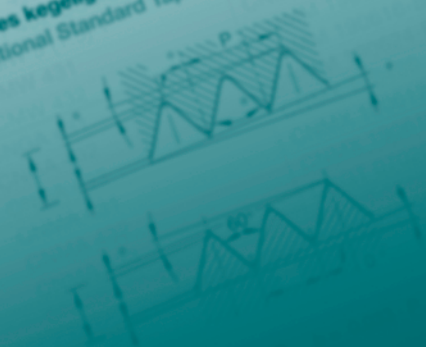
$$h_3 = 0,64033 \cdot P$$

$$d_2 = d - h_3$$

$$d_3 = d - (2 \cdot h_3)$$

$$r = 0,13733 \cdot P$$

**Amerikanisches kegeliges Rohrgewinde**  
American National Standard Taper pipe thread NPT



**Rundgewinde, R**  
Knuckle thread

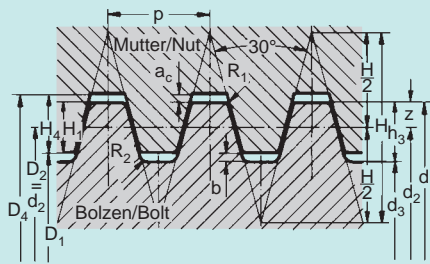
ISO

- CCGT 060204
- CCGT 060206
- CCGT 09T304
- CCGT 09T306
- CCGT 120404
- CCGT 120406
- CCGW 060204
- CCGW 060206
- CCGW 09T304
- CCGW 09T306
- CCGW 120404
- CCGW 120406
- CCMT 060204
- CCMT 060206
- CCMT 060208
- CCMT 060210
- CCMT 060212
- CCMT 060214
- CCMT 060216
- CCMT 060218
- CCMT 060220
- CCMT 09T304
- CCMT 09T306
- CCMT 09T308
- CCMT 09T310
- CCMT 09T312
- CCMT 09T314
- CCMT 09T316
- CCMT 09T318
- CCMT 09T320
- CCMT 120404
- CCMT 120406
- CCMT 120408
- CCMT 120410
- CCMT 120412
- CCMT 120414
- CCMT 120416
- CCMT 120418
- CCMT 120420



|   |     |
|---|-----|
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### Trapezgewinde DIN 103 Trapezoidal Thread to DIN 103



$$\begin{aligned}
 H &= 1,866 \cdot P \\
 H_1 &= 0,5 \cdot P \\
 H_4 &= 0,5 \cdot P + a_c \\
 h_3 &= 0,5 \cdot P + b \\
 z &= 0,25 \cdot P \\
 D_4 &= d + 2 \cdot a_c \\
 d_3 &= d - 2 \cdot h_3 \\
 d_2 &= D_2 = d - 2 \cdot z
 \end{aligned}$$

Bezeichnung eines Gewindes von Durchmesser 34 mm und Steigung 6 mm Tr. 34 x 6  
Nomenclature of a Thread having a diameter of 34 mm/1.339" pitch: TR 34 x 6

| Steigung<br>Pitch | Gewindetiefe<br>Thread Depth |               | Spiel<br>Clearance      | Rundung<br>Radii |                         |                           |             |
|-------------------|------------------------------|---------------|-------------------------|------------------|-------------------------|---------------------------|-------------|
|                   | Bolzen<br>Bolz               | Mutter<br>Nut |                         | $a_c$            | $b$                     | $R_2$                     | $R_1$       |
| P<br>mm           | $h_3$ <sup>2)</sup><br>mm    | $H_4$<br>mm   | $z$ <sup>2)</sup><br>mm | $a_c$<br>mm      | $b$ <sup>1)</sup><br>mm | $R_2$ <sup>1)</sup><br>mm | $R_1$<br>mm |
| 1,5               | 0,965                        | 0,90          | 0,419                   | 0,15             | 0,25                    | 0,25                      | 0,25        |
| 2                 | 1,320                        | 1,25          | 0,546                   | 0,25             | 0,25                    | 0,25                      | 0,25        |
| 3                 | 1,877                        | 1,75          | 0,849                   | 0,25             | 0,40                    | 0,40                      | 0,25        |
| 3                 | 1,840                        | 1,75          | (> Ø 44) 0,807          | 0,25             | 0,40                    | 0,40                      | 0,25        |
| 4                 | 2,397                        | 2,25          | 1,114                   | 0,25             | 0,50                    | 0,55                      | 0,25        |
| 4                 | 2,350                        | 2,25          | (> Ø 95) 1,060          | 0,25             | 0,50                    | 0,55                      | 0,25        |
| 5                 | 2,908                        | 2,75          | 1,373                   | 0,25             | 0,50                    | 0,55                      | 0,25        |
| 6                 | 3,685                        | 3,50          | 1,653                   | 0,50             | 0,75                    | 0,90                      | 0,25        |
| 7                 | 4,196                        | 4,00          | 1,901                   | 0,50             | 0,75                    | 0,90                      | 0,25        |
| 8                 | 4,705                        | 4,50          | 2,160                   | 0,50             | 0,75                    | 0,90                      | 0,25        |

<sup>1)</sup> Aus rolltechnischen Gründen sind die nach DIN 103 Abs. 5 zulässigen Abweichungen vom Profil ausgenutzt.

<sup>1)</sup> For reason of rolling technique all permissible deviations on the Profile according to DIN 103 Para. 5 have been utilized.

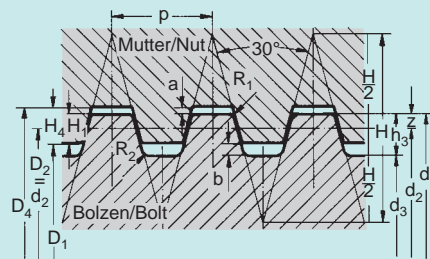
<sup>2)</sup> Im Regelfall werden die Gewinderollen nach Toleranzklasse

4 h für den Außen-Ø und  
7 e für den Flanken-Ø ausgelegt.

<sup>2)</sup> Normally the Thread Rolls are class

4 h – for outside dia  
7 e – for effective dia.

### Trapezgewinde mit gekürzter Gewindetiefe nach Fette-Werksnorm Trapezoidal Thread with reduced thread depth to Fette Work Standard (FN)

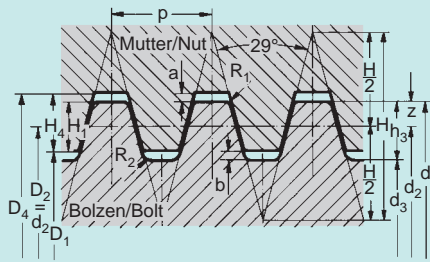


$$\begin{aligned}
 H &= 1,866 \cdot P \\
 H_1 &= 0,3 \cdot P \\
 H_4 &= 0,3 \cdot P + a = H_1 + a \\
 h_3 &= 0,3 \cdot P + b = H_1 + b \\
 z &= 0,15 \cdot P \\
 D_4 &= d + 2 \cdot a \\
 d_3 &= d - 2 \cdot h_3 \\
 d_2 &= D_2 = d - 2 \cdot z \\
 &= d - 0,3 \cdot P
 \end{aligned}$$

Bezeichnung eines Gewindes von Durchmesser 34 mm und Steigung 6 mm Tr. 34 x 6  
Nomenclature of a Thread having a diameter of 34 mm/1.339" pitch: TR 34 x 6

| Steigung<br>Pitch | Gewindetiefe<br>Thread Depth |               | Spiel<br>Clearance | Rundung<br>Radii |           |             |             |
|-------------------|------------------------------|---------------|--------------------|------------------|-----------|-------------|-------------|
|                   | Bolzen<br>Bolz               | Mutter<br>Nut |                    | $a$              | $b$       | $R_2$       | $R_1$       |
| P<br>mm           | $h_3$<br>mm                  | $H_4$<br>mm   | $z$<br>mm          | $a$<br>mm        | $b$<br>mm | $R_2$<br>mm | $R_1$<br>mm |
| 2                 | 0,85                         | 0,85          | 0,30               | 0,25             | 0,25      | 0,30        | 0,15        |
| 3                 | 1,15                         | 1,15          | 0,45               | 0,25             | 0,25      | 0,30        | 0,15        |
| 4                 | 1,45                         | 1,45          | 0,60               | 0,25             | 0,25      | 0,30        | 0,15        |
| 5                 | 2,00                         | 1,75          | 0,75               | 0,25             | 0,50      | 0,55        | 0,25        |
| 6                 | 2,30                         | 2,05          | 0,90               | 0,25             | 0,50      | 0,55        | 0,25        |
| 7                 | 2,60                         | 2,35          | 1,05               | 0,25             | 0,50      | 0,55        | 0,25        |
| 8                 | 3,15                         | 2,65          | 1,20               | 0,25             | 0,75      | 0,90        | 0,25        |
| 9                 | 3,45                         | 2,95          | 1,35               | 0,25             | 0,75      | 0,90        | 0,25        |
| 10                | 3,75                         | 3,25          | 1,50               | 0,25             | 0,75      | 0,90        | 0,25        |
| 12                | 4,35                         | 3,85          | 1,80               | 0,25             | 0,75      | 0,90        | 0,25        |

### Acme-Gewinde ANSI B 1.5 – 1977 Acme Thread ANSI B 1.5 – 1988 (R 1991)



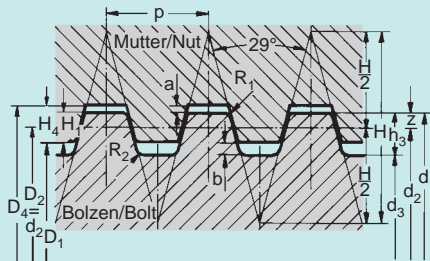
$$\begin{aligned}
 H &= 1,933 \cdot P \\
 H_1 &= 0,5 \cdot P \\
 H_4 &= 0,5 \cdot P + a = H_1 + a \\
 h_3 &= 0,5 \cdot P + b = H_1 + b \\
 z &= 0,25 \cdot P \\
 D_4 &= d + 2 \cdot a \\
 d_3 &= d - 2 \cdot h_3 \\
 d_2 &= D_2 = d - 2 \cdot z
 \end{aligned}$$

Bezeichnung eines Gewindes von Durchmesser  $1/2$ , Steigung 10 Gang /  $1 \frac{1}{2}$  – 10 Acme  
Nomenclature of a Thread having a diameter of  $1/2$ " with 10 TPI pitch:  $1 \frac{1}{2}$  – 10 Acme

| Gangzahl<br>auf<br>1 Zoll<br>Threads<br>per inch | Steigung<br>Pitch<br>mm | Gewindetiefe<br>Thread Depth                         |                                       | z <sup>2)</sup><br>mm | Spiel<br>Clearance |                       | Rundung<br>Radii                   |                      |
|--|-------------------------|--|---------------------------------------|-----------------------|--------------------|-----------------------|------------------------------------|----------------------|
|  |                         | Bolzen<br>Bolz<br>h <sub>3</sub> <sup>2)</sup><br>mm | Mutter<br>Nut<br>H <sub>4</sub><br>mm |                       | a<br>mm            | b <sup>1)</sup><br>mm | R <sub>2</sub> <sup>1)</sup><br>mm | R <sub>1</sub><br>mm |
| 16   | 1,588                   | 1,057  | 0,919                                 | 0,517                 | 0,127              | 0,1905                | 0,15                               | 0,11                 |
| 14   | 1,814                   | 1,187  | 1,034                                 | 0,585                 | 0,127              | 0,1905                | 0,15                               | 0,13                 |
| 12   | 2,117                   | 1,357  | 1,186                                 | 0,685                 | 0,127              | 0,1905                | 0,15                               | 0,15                 |
| 10   | 2,540                   | 1,722  | 1,524                                 | 0,818                 | 0,254              | 0,254                 | 0,30                               | 0,18                 |
| 8  | 3,175                   | 2,055  | 1,842                                 | 0,991                 | 0,254              | 0,254                 | 0,30                               | 0,22                 |
| 6  | 4,233                   | 2,598  | 2,371                                 | 1,261                 | 0,254              | 0,254                 | 0,30                               | 0,30                 |
| 5  | 5,080                   | 3,037  | 2,794                                 | 1,491                 | 0,254              | 0,508                 | 0,30                               | 0,36                 |
| 4  | 6,350                   | 3,691  | 3,429                                 | 1,825                 | 0,254              | 0,508                 | 0,30                               | 0,44                 |
| 3  | 8,467                   | 4,776  | 4,487                                 | 2,391                 | 0,254              | 0,505                 | 0,30                               | 0,59                 |

- <sup>1)</sup> Aus rolltechnischen Gründen weicht das Profil von ANSI B 1.5 – 1977 geringfügig ab.  
<sup>1)</sup> For reason of rolling technique the profile deviates slightly from Standard ANSI B 1.5 – 1977.  
<sup>2)</sup> Im Regelfall werden die Gewinderollen nach Toleranzklasse 2 G ausgelegt.  
<sup>2)</sup> Normally the Thread Rolls are class 2 G.

### Stub-Acme-Gewinde ANSI B 1.8 – 1977 Stub-Acme Thread ANSI B 1.8 – 1988 (R 1992)



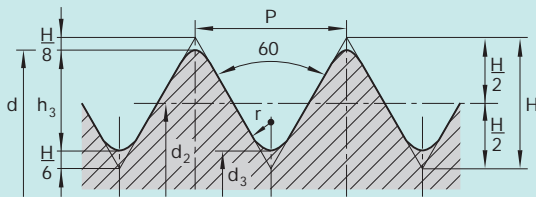
$$\begin{aligned}
 H &= 1,933 \cdot P \\
 H_1 &= 0,3 \cdot P \\
 H_4 &= 0,3 \cdot P + a = H_1 + a \\
 h_3 &= 0,3 \cdot P + b = H_1 + b \\
 z &= 0,15 \cdot P \\
 D_4 &= d + 2 \cdot a \\
 d_3 &= d - 2 \cdot h_3 \\
 d_2 &= D_2 = d - 2 \cdot z \\
 &= d - 0,3 \cdot P
 \end{aligned}$$

Bezeichnung eines Gewindes von Durchmesser  $1/2$ , Steigung 10 Gang /  $1 \frac{1}{2}$  – 10 Acme  
Nomenclature of a Thread having a diameter of  $1/2$ " with 10 TPI pitch:  $1 \frac{1}{2}$  – 10 Acme

| Gangzahl<br>auf<br>1 Zoll<br>Threads<br>per inch | Steigung<br>Pitch<br>mm | Gewindetiefe<br>Thread Depth                         |                                       | z <sup>2)</sup><br>mm | Spiel<br>Clearance |                       | Rundung<br>Radii                   |                      |
|--|-------------------------|--|---------------------------------------|-----------------------|--------------------|-----------------------|------------------------------------|----------------------|
|  |                         | Bolzen<br>Bolz<br>h <sub>3</sub> <sup>2)</sup><br>mm | Mutter<br>Nut<br>H <sub>4</sub><br>mm |                       | a<br>mm            | b <sup>1)</sup><br>mm | R <sub>2</sub> <sup>1)</sup><br>mm | R <sub>1</sub><br>mm |
| 16   | 1,588                   | 0,699  | 0,603                                 | 0,384                 | 0,127              | 0,1905                | 0,20                               | 0,15                 |
| 14   | 1,814                   | 0,770  | 0,671                                 | 0,422                 | 0,127              | 0,1905                | 0,20                               | 0,15                 |
| 12   | 2,117                   | 0,865  | 0,762                                 | 0,483                 | 0,127              | 0,1905                | 0,20                               | 0,15                 |
| 10   | 2,540                   | 1,127  | 1,016                                 | 0,564                 | 0,254              | 0,254                 | 0,30                               | 0,25                 |
| 8  | 3,175                   | 1,323  | 1,207                                 | 0,673                 | 0,254              | 0,254                 | 0,30                               | 0,25                 |
| 6  | 4,233                   | 1,639  | 1,524                                 | 0,838                 | 0,254              | 0,254                 | 0,30                               | 0,25                 |
| 5  | 5,080                   | 1,897  | 1,778                                 | 0,983                 | 0,254              | 0,508                 | 0,55                               | 0,25                 |
| 4  | 6,350                   | 2,280  | 2,159                                 | 1,193                 | 0,254              | 0,508                 | 0,55                               | 0,25                 |
| 3  | 8,467                   | 2,916  | 2,794                                 | 1,544                 | 0,254              | 0,508                 | 0,55                               | 0,25                 |

- <sup>1)</sup> Aus rolltechnischen Gründen weicht das Profil von ANSI B 1.8 – 1977 geringfügig ab.  
<sup>1)</sup> For reason of rolling technique the profile deviates slightly from Standard ANSI B 1.8 – 1977.  
<sup>2)</sup> Im Regelfall werden die Gewinderollen nach Toleranzklasse 2 G ausgelegt.  
<sup>2)</sup> Normally the Thread Rolls are class 2 G.

### Metrisches ISO-Gewinde Metric ISO thread



$$H = 0,86603 \cdot P$$

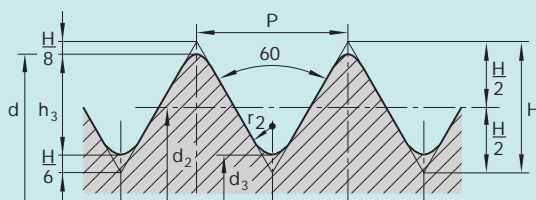
$$h_3 = 0,61343 \cdot P$$

$$d_2 = d - (0,6495 \cdot P)$$

$$d_3 = d - (2 \cdot h_3)$$

$$r = \frac{H}{6} = 0,14434 \cdot P$$

### Unified-Gewinde, UNC, UNF, UNR Unified-thread, UNC, UNF, UNR



$$H = 0,86603 \cdot P$$

$$h_3 = 0,61343 \cdot P$$

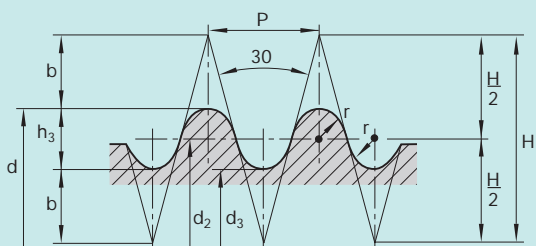
$$d_2 = d - (0,6495 \cdot P)$$

$$d_3 = d - (2 \cdot h_3)$$

$$r_1 = 0,10825 \cdot P$$

$$r_2 = 0,1443 \cdot P$$

### Rundgewinde, DIN 405 Knuckle thread, DIN 405



$$H = 1,86603 \cdot P$$

$$h_3 = 0,5 \cdot P$$

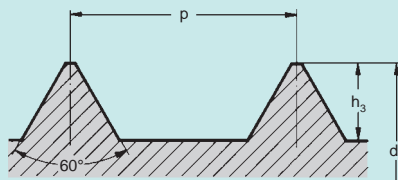
$$d_2 = d - h_3$$

$$d_3 = d - (2 \cdot h_3)$$

$$r = 0,23851 \cdot P$$

$$b = 0,68301 \cdot P$$

### Holzgewinde (Fette-Werksnorm) Wood Screw Thread to Fette Work Standard



| P   | h <sub>3</sub> |
|-----|----------------|
| 1,5 | 0,65           |
| 2   | 0,9            |
| 2,5 | 1              |
| 3   | 1,25           |
| 3,5 | 1,5            |
| 4   | 1,8            |
| 4,5 | 2              |
| 5   | 2,2            |
| 6   | 2,7            |
| 7   | 3              |

### Whitworth-Gewinde, BSW, BSF, G Whitworth-thread, BSW, BSF, G

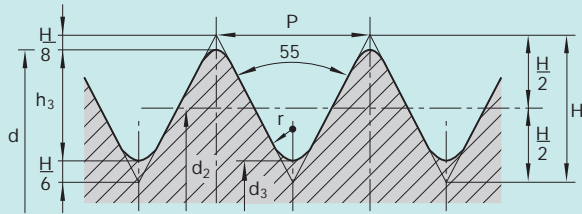
$$H = 0,96049 \cdot P$$

$$h_3 = 0,64033 \cdot P$$

$$d_2 = d - h_3$$

$$d_3 = d - (2 \cdot h_3)$$

$$r = 0,13733 \cdot P$$



### British Association Gewinde BA British Association Threads BA

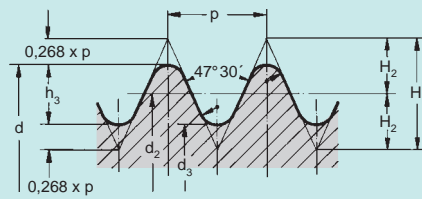
$$H = 1,1364 \cdot P$$

$$h_3 = 0,6000 \cdot P$$

$$d_2 = d - h_3$$

$$d_3 = d - (2 \cdot h_3)$$

$$r = \frac{22 \cdot P}{11}$$



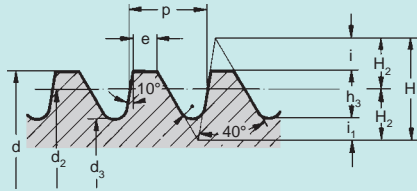
### Sägewinde (Fette Werksnorm) Buttress Threads to Fette Work Standard

$$H = 1,327 \cdot P$$

$$h_3 = 0,6263 \cdot P$$

$$d_2 = d - 0,5 \cdot P$$

$$d_3 = d - 1,2526 \cdot P$$



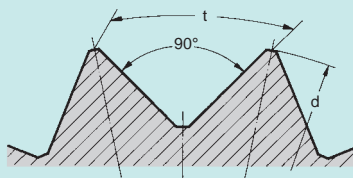
$$i = 0,4135 \cdot P$$

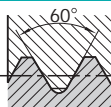
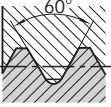
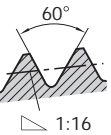
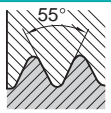
$$i_1 = 0,2872 \cdot P$$

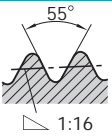
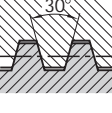
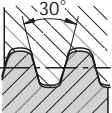
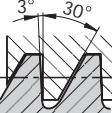
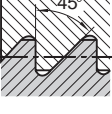
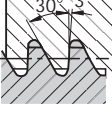
$$r = 0,1528 \cdot P$$

$$e = 0,312 \cdot P$$

### Rändel – DIN 82, Kerbverzahnung Straight Knurls – DIN 82, Serrations



| Gewindebenennung<br>Thread designation   | Gewindeprofil<br>(Skizze)<br>Thread profile<br>(Sketch)                             | Bezeichnung/Kurzbezeichnung (Beispiel) <sup>1)</sup><br>Designation or abbreviated designation (Example) | Nenn Durchmesserbereich oder Gewindegröße<br>Nominal diameter range or thread size | nach Standard<br>to Standard   | Anwendung<br>Application   | Abkürzung der Benennung<br>Abbreviation of the designation |
|--|---|--|--|--|--|--|
| Metrisches ISO-Gewinde<br>Metric ISO threads   |    | M 0,8  | 0,3 bis 0,9 mm<br>0.3 to 0.9 mm  | DIN 14, Teil 1-4<br>DIN 14, Part 1-4   | Für Uhren und Feinwerktechnik<br>For Clocks and precision engineering  | M  |
|  |   | M 30   | 1 bis 68 mm<br>1 to 68 mm  | DIN 13 Teil 1<br>DIN 13 Part 1   | Allgemein (Regelgewinde)<br>General (conventional thread)  |  |
|  |   | M 20 x 1<br>M 30 x 2-LH <sup>2)</sup>  | 1 bis 1000 mm<br>1 to 1000 mm  | DIN 13<br>Blatt 2 bis 11<br>DIN 13<br>Part 2 to 11   | Allgemein, wenn Steigung des Regelgewindes zu groß ist<br>General, if pitch of conventional thread too high                  |  |
|  |   | M 30 Sn 4<br>M 30 Sk 6   | 1 bis 150 mm<br>1 to 150 mm  | DIN 13 und<br>DIN 14 Beiblatt 14 (wird DIN 13 Teil 51)<br>DIN 13 Part 51 (at present in draft stage) | Für Einschraubende an Stiftschrauben<br>For tip end of locking set-screws  |  |
| Metrisches ISO-Gewinde für Festsitz, nicht dichte Verbindungen<br>Metric ISO thread  |   |  |  | DIN 13 und<br>DIN 14 Beiblatt 15 (wird DIN 13 Teil 51)<br>DIN 13 Part 51 (at present in draft stage) | dichtend<br>sealing  |  |
| Metrisches Gewinde für Festsitz, dichte Verbindungen<br>Metric thread  |   | M 30 Sn 4 dicht<br>M 30 Sn 4 tight   | 1 bis 150 mm<br>1 to 150 mm  | DIN 13 und<br>DIN 14 Beiblatt 15 (wird DIN 13 Teil 51)<br>DIN 13 Part 51 (at present in draft stage) |  |  |
| Metrisches Gewinde mit großem Spiel<br>Metric thread with large clearance  |   | DIN 2510-M 36  | 12 bis 180 mm<br>12 to 180 mm  | DIN 2510 Teil 2<br>DIN 2510 Part 2   | Für Schraubenverbindungen mit Dehnschaft<br>For screwed joints with reduced shaft  |  |
| MJ-Gewinde<br>MJ-Thread  |  | MJ 6 x 1-4h6h  | 1,6 bis 39 mm<br>1.6 to 39 mm  | DIN EN 2158<br>Teil 2<br>Part 2  | Luft- und Raumfahrt<br>Aeronautics and spacetravel   | MJ   |
|  |   | MJ 6 x 1-4h5h  |  |  |  |  |
| Metrisches kegeliges Außengewinde<br>Metric tapered external thread  |  | DIN 158<br>M 30 x 2 keg<br>M 30 x 2 keg kurz<br>M 30 x 2 tapered<br>M 30 x 2 tapered short               | 6 bis 60 mm<br>6 to 60 mm  | DIN 158  | Für Verschlußschrauben und Schmiernippel<br>For screw plugs and lubricating nipples  | M  |
| Rohrgewinde für nicht im Gewinde dichtende Verbindungen (zylindrisch)<br>Cylindrical pipe thread for threads where pressure-light joints are not made on the threads |  | G 1 1/2 A<br>G 1 1/2 B   | 1/16 bis R 6<br>1/16 to R 6  | DIN ISO 228<br>Teil 1<br>Part 1  | Außengewinde für Rohre und Rohrverbindungen<br>External thread for pipes and pipe joints                                     | G  |
|  |   | G 1 1/2  |  |  |  |  |
| Whitworth-Rohrgewinde, zylindrisch<br>Cylindrical Whitworth-Pipe thread  |   | R 3/4  | 1/8 bis R 6<br>1/8 to R 6  | DIN 259<br>Teil 1<br>Part 1  | Für Rohre und Rohrverbindungen nicht für Neukonstruktionen <sup>3)</sup><br>For pipes, pipe joints not for new constructions | R<br>Rp  |
| Whitworth-Rohrgewinde, zylindrisches Innengewinde<br>Tapered Whitworth-pipe threads  |   | DIN 2999 – R 1/2   | 1/16 bis 6<br>1/16 to 6  | DIN 2999<br>Teil 1<br>Part 1   | Für Gewinderohre und Fittings<br>Thread for threaded pipes and fittings  |  |
|  |   | DIN 3858 – R 1/8   | 1/8 bis 1 1/2<br>1/8 to 1 1/2  | DIN 3858   | Für Rohrverschraubungen<br>Thread for pipe unions  |  |

| Gewindebenennung<br>Thread designation  | Gewindeprofil<br>(Skizze)<br>Thread profile<br>(Sketch)                             | Bezeichnung/Kurzbezeichnung (Beispiel) <sup>1)</sup><br>Designation or abbreviated designation (Example) | Nenn Durchmesserbereich oder Gewindegröße<br>Nominal diameter range or thread size | nach Standard<br>to Standard                                      | Anwendung<br>Application  | Abkürzung der Benennung<br>Abbreviation of the designation |
|---|---|--|--|---|---|--|
| Whitworth-Rohrgewinde, kegliges Außengewinde<br>Tapered Whitworth-pipe threads  |    | DIN 2999 – R 1/2   | 1/16 bis 6<br>1/16 to 6  | DIN 2999<br>ISO 7-1   | Für Gewinderohre und Fittings<br>Thread for threaded pipes and fittings | R<br>Rp  |
|   |   | DIN 3858 – R 1/8 – 1   | 1/8 bis 1 1/2<br>1/8 to 1 1/2  | DIN 3858<br>ISO 7-1   | Für Rohrverschraubungen<br>Thread for pipe unions                       |  |
| Metrisches ISO-Trapezgewinde (ein- und mehrgängig)<br>Metric ISO trapezoidal thread (single and multi start)<br><br>Flaches Metrisches ISO-Trapezgewinde (ein- und mehrgängig)<br>Flat metric ISO trapezoidal thread (single and multi start)<br><br>Trapezgewinde (ein- und zweigängig) mit Spiel<br>Trapezoidal threads (single and two start) with large clearance<br><br>Trapezgewinde<br>Trapezoidal threads |    | Tr 40 x 7 – LH <sup>2)</sup>   | 8 bis 300 mm<br>8 to 300 mm  | DIN 103<br>Teil 2<br>ISO 2901<br>ISO 2902<br>ISO 2903<br>ISO 2904 | Allgemein<br>General  | Tr   |
|   |   | Tr 40 x 14 P7 <sup>4)</sup>  |  |   |   |  |
|   |   | DIN 380 – Tr 48 x 8  | 48 mm  | DIN 380<br>Teil 2   |   |  |
|   |   | DIN 380 – Tr 40 x 14 P7 <sup>4)</sup>  |  |   |   |  |
|   |   | DIN 263 – Tr 48 x 12   | 48 mm  | DIN 263<br>Teil 1   | Für Schienenfahrzeuge<br>For rail vehicles                              |  |
|   |   | DIN 263 – Tr 40 x 16 P8  |  |   |   |  |
| DIN 6341 – Tr 32 x 1,5  | 10 bis 56 mm<br>10 to 56 mm   | DIN 6341<br>Teil   Part 2<br>ISO 2901<br>ISO 2902<br>ISO 2903<br>ISO 2904                                | Für Zug-Spannzangen<br>For draw-in collets   |   |   |  |
| Gerundetes Trapezgewinde<br>Rounded trapezoidal thread  |  | DIN 30 295 – Tr 40 x 5   | 26 bis 80 mm<br>26 to 80 mm  | DIN 30 295<br>Teil 1<br>Part 1                                    | Für Schienenfahrzeuge<br>For rail vehicles                              | Tr   |
| Metrisches Sägewinde (Ein- und mehrgängig)<br>Metric buttress thread (single and multi start)   |  | S 48 x 8   | 10 bis 640 mm<br>10 to 640 mm  | DIN 513<br>Teil/Part 2  | Allgemein<br>General  | S  |
|   |   | S 40 x 14 P7 <sup>4)</sup>   |  |   |   |  |
| Sägewinde 45°<br>Buttress thread 45°  |  | DIN 2781<br>S 630 x 20   | 100 bis 1250 mm<br>100 to 1250 mm  | DIN 2781  | Für hydraulische Pressen<br>For hydraulic presses                       |  |
| Sägewinde<br>Buttress thread  |  | DIN 20 401 – S 25 x 1,5  | 6 bis 40 mm<br>6 to 40 mm  | DIN 20 401<br>Teil 1<br>Part 1                                    | Im Bergbau<br>In mining   |  |

<sup>1)</sup> Gegebenenfalls ist hinter das Kurzzeichen die Zusatzangabe für das Toleranzfeld zu setzen, z. B. M 20 x 2 – 6 H

<sup>1)</sup> Sporadically, the figure for the tolerance class has to be given behind the abbreviation, e. g. M 20 x 2 – 6 H

<sup>2)</sup> Für Linksgewinde sollte hinter das Kurzzeichen die international übliche Zusatzangabe L.H. = Left Hand gesetzt werden. Bei Teilen, die mit Rechts- oder Linksgewinde versehen sind, sollte auch hinter das Kurzzeichen des Rechtsgewindes die Zusatzangabe R.H. = Right Hand gesetzt werden.

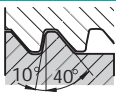
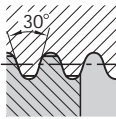

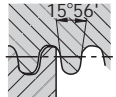
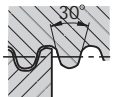

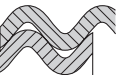
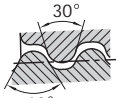

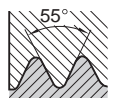
<sup>2)</sup> For L.H. thread the thread symbol should be indicated additionally L.H. = Left Hand. For parts with R.H. or L.H. thread designation, the thread symbol R.H. res. L.H. should be indicated additionally.

<sup>3)</sup> Verwechslungsgefahr wegen identischer Gewinde-Kurzzeichen in ISO 7/I. Ersetzt durch DIN ISO 228 mit geänderten Kurzzeichen. Näheres siehe DIN ISO 228 Teil 1.

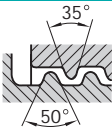
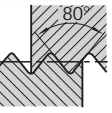

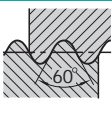
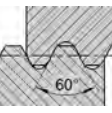

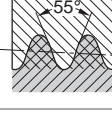
<sup>3)</sup> There might be dangerous confusion due to identical thread abbreviation in ISO 7/I. Substituted by DIN ISO 228 with changed abbreviation. For further information see DIN ISO 228 part 1

<sup>4)</sup> Hinter dem Kennbuchstaben und dem Gewinde-Nenn-Ø oder der Gewindegröße folgen die Steigerung Ph des mehrgängigen Gewindes in mm, der Buchstabe P (Teilung) und die Teilung in mm.

<sup>4)</sup> Behind the abbreviation and nominal diameter or thread size, follows the pitch of the multiple start thread in mm, the letter P (pitch) and the pitch in mm.

| Gewindebenennung<br>Thread designation | Gewindeprofil<br>(Skizze)<br>Thread profile<br>(Sketch)                             | Bezeichnung/Kurzbezeichnung (Beispiel) <sup>1)</sup><br>Designation or abbreviated designation (Example) | Nenn Durchmesserbereich oder Gewindegröße<br>Nominal diameter range or thread size | nach Standard<br>to Standard                       | Anwendung<br>Application  | Abkürzung der Benennung<br>Abbreviation of the designation |
|--|---|--|--|--|---|--|
| Sägengewinde<br>Buttress thread        |    | DIN 6063 – KS 22   | 10 bis 50 mm<br>10 to 50 mm  | DIN 6063 Teil 1<br>DIN 6063 Part 1                 | Für Kunststoffbehältnisse<br>For plastic containers   | KS   |
| Rundgewinde<br>Round thread            |    | Rd 40 x 1/6<br>Rd 40 x 1/3 P 1/6 <sup>2)</sup>   | 8 bis 200 mm<br>8 to 200 mm  | DIN 405<br>Teil 1 und 2<br>DIN 405<br>Part 1 und 2 | Allgemein<br>General  | Rd   |
|  |   | Rd 40 x 5  | 10 bis 300 mm<br>10 to 300 mm  | DIN 20400  | Für Rundgewinde mit großer Tragtiefe<br>For Round thread with large load-bearing  |  |
|  |    | DIN 15403 – RD 80 x 10<br>DIN 7273 – Rd 70   | 50 bis 320 mm<br>50 to 320 mm<br>20 bis 100 mm<br>20 to 100 mm                     | DIN 15403<br>DIN 7273<br>Teil 1<br>Part 1          | Für Lasthaken<br>For crane hooks<br>Für Teile aus Blech und zugehörige Verschraubungen<br>For parts in sheet metal and corresponding unions |  |
|  |    | DIN 262 – Rd 59 x 7<br>DIN 262 – Rd 59 x 7 links   | 34 bis 179 mm<br>34 to 79 mm   | DIN 262<br>Teil 1<br>Part 1                        | Für Schienenfahrzeuge<br>For rail vehicles  |  |
|  |   | DIN 264 – Rd 50 x 7<br>DIN 264 – Rd 59 x 7 links   | 50 mm  | DIN 264<br>Teil 1<br>Part 1                        |   |  |
|  |  | DIN 3182 – Rd 40 x 1/7   | 40, 80, 100 mm   | DIN 3182<br>Teil 1<br>Part 1                       | Für Atemschutzgeräte<br>For breathing apparatus   |  |
|  |  | DIN 70156 – 48   | 48 und 72 mm<br>48 and 72 mm   | DIN 70156  | Für Kraftfahrzeuge<br>For motor vehicles  | –  |
|  |  | DIN 168 – GL 25 x 3  | 8 bis 45 mm<br>8 to 45 mm  | DIN 168<br>Teil 1<br>Part 1                        | Für Glasbehältnisse<br>For glass containers   | GL   |
| Elektrogewinde<br>Electrical thread    |  | DIN 40400 – E 27   | E 14, E 16, E 18, E 27, E 33 mm  | DIN 40400<br>IEG 60061-1                           | Für D-Sicherungen E 14 und E 22, auch für Lampensockel und -fassungen<br>For D-fuses E 14 and E 22 also for lamp bases and lamp socket      | E  |
|  |   | DIN 49689 – 28 x 2   | 28 und 40 mm<br>28 and 40 mm   | DIN 49689<br>DIN EN 60399                          | Außengewinde für Lampenfassungen und Innengewinde für Schirmträger<br>External thread for lamp bases and internal lampstand                 | –  |
| Whitworth-Gewinde<br>Whitworth-Thread  |  | DIN 49301 – W <sup>3/1</sup>   | 3/16   | DIN 49301  | für D-Schraub-Paßeinsätze D II und D III in der Elektrotechnik<br>For D screw – in gange rings D II and D III in metrical engineering       | W  |



| Gewindebenennung<br>Thread designation                                   | Gewindeprofil<br>(Skizze)<br>Thread profile<br>(Sketch)                             | Bezeichnung/Kurzbezeichnung (Beispiel) <sup>1)</sup><br>Designation or abbreviated designation (Example) | Nenn Durchmesserbereich oder<br>Gewindegröße<br>Nominal diameter range or thread size | nach Standard<br>to Standard | Anwendung<br>Application   | Abkürzung der Benennung<br>Abbreviation of the designation |
|--|---|--|---|------------------------------|--|--|
| Glasgewinde<br>Glass thread  |    | DIN 40450 –<br>Glasg 74,5  | 74,5 mm<br>84,5 mm<br>99 mm<br>123,5 mm<br>158 mm<br>188 mm                           | DIN 40450                    | In der Elektrotechnik für<br>Schutzgläser und Kappen<br>In electrical engineering<br>for protective glass covers<br>and caps | Glasg  |
| Stahlpanzerrohrgewinde<br>Steel pipe<br>conduit thread                   |    | DIN 40430 – Pg 21  | 7 bis 48 mm<br>7 to 48 mm   | DIN 40430                    | In der Elektrotechnik<br>In electrical engineering   | Pg   |
| Blechschaubengewinde<br>Sheet metal (self-tapping) screw thread          |    | DIN 7970 – 3,5   | 2,2 bis 8 mm<br>2.2 to 8 mm   | DIN 7970                     | Für Blechschaubenschrauben<br>For sheet metal screws   | –  |
|  |   | ISO 1478 – ST 3,5  |   | DIN ISO 1478                 |  | ST   |
| Holzschraubengewinde<br>Wood screw thread                                |   | DIN 7998 – 4   | 1,6 bis 20 mm<br>1.6 to 20 mm   | DIN 7998                     | Für Holzschrauben<br>For wood screws   | –  |
| Fahrradgewinde<br>Bicycle thread   |    | FG 9,5   | 2 bis 34,8 mm<br>2 to 34.8 mm   | DIN 79012<br>DIN ISO 6696    | Für Fahrräder und Mopeds<br>For bicycles and motorbikes  | FG   |
| Ventilgewinde<br>Valve thread  |   | DIN 7756 – Vg 12   | 5 bis 12 mm<br>5 to 12 mm   | DIN 7756                     | Ventile für Fahrzeugbereifungen<br>Valves for pneumatic inner<br>valves for the motorcar<br>industry                         | Vg   |
| Whitworth-Gewinde<br>(kegelig)<br>Whitworth thread<br>(tapered)          |  | DIN 477 –<br>W 28,8 x 1/14 keg<br>W 28.8 x 1/14 tapered  | 19,8 mm<br>28,8 mm<br>31,3 mm   | DIN 477<br>Teil 1<br>Part 1  | Stutzen Gasflaschenventilen<br>Connection of gas cylinder<br>valves  | W  |
|  |   | DIN 477 –<br>W 28,1 – 1/14   | 21,8 mm<br>24,32 mm<br>25,4 mm  |                              |  |  |
| Whitworth-Gewinde<br>(zylindrisch)<br>Whitworth threads<br>(cylindrical) |  |  |   |                              |  |  |

<sup>1)</sup> Gegebenenfalls ist hinter das Kurzzeichen die Zusatzangabe für das Toleranzfeld zu setzen, z. B. M 20 x 2 – 6 H

<sup>1)</sup> Sporadically, the figure for the tolerance class has to be given behind the abbreviation, e. g. M 20 x 2 – 6 H

<sup>2)</sup> Hinter dem Kennbuchstaben und dem Gewinde-Nenn-Ø oder der Gewindegröße folgen die Steigerung Ph des mehrgängigen Gewindes in mm, der Buchstabe P (Teilung) und die Teilung in mm.

<sup>2)</sup> Behind the abbreviation and nominal diameter or thread size, follows the pitch of the multiple start thread in mm, the letter P (pitch) and the pitch in mm.

| Gewindebenennung<br>Thread designation   | Bezeichnung/Kurzbezeichnung<br>(Beispiel)<br>Designation or abbreviated<br>(Example) | nach Norm<br>Acc. to Standard                                       | Ursprungsland<br>Country of origin                              | Abkürzung der Benennung<br>Abbreviation of the<br>designation    |
|--|--|---|---|--|
| Unified Schraubengewinde<br>Unified screw thread   | 0,80 UNM   | ASA B 1.10-1958   | USA   | UNM  |
|  | 1/4-20 UNC-2A<br>1/4-20 UNC-3A-LH  | ANSI B 1.1-1974<br>(1982)<br>B.S.1580: Part 1 & 2<br>CSA B 1.1-1949 | USA, Großbritannien,<br>Kanada<br>USA, Great Britain,<br>Canada | UN, UNC, UNF, UNEF, UNS  |
|  | 7/16-20 UNRF-2A  | ANSI B 1.1-1974<br>(1982)   | USA   | UNR, UNRC, UNRF,<br>UNREF, UNRS <sup>1)</sup>                    |
|  | 6(0,138)-32 UNC-2A   | B.S. 1580-1960<br>Part 3: 1965                                      | Großbritannien<br>Great Britain                                 | UNC, UNF, UNEF <sup>2)</sup>                                     |
|  | 1/4-28 UNJF-3A   | B.S. 4084: 1978   |   | UNJF, UNJC   |
| Amerikanisches Schraubengewinde (veraltet)<br>American screw thread (out of date)  | 12-32 NEF  | ASA 1.1-1960  | USA   | NC, NF, NEF, NS,<br>8 N, 12 N, 16 N                              |
| Whitworth-Gewinde<br>Whitworth thread  | 1/4 in.-20 B.S.W.  | B.S. 84: 1956   | Großbritannien<br>Great Britain                                 | BSW, BSF   |
| B.A. Gewinde<br>B.A. thread  | 11 B.A.  | B.S. 93: 1951   | Großbritannien<br>Great Britain                                 | B.A.   |
| Rohrgewinde, zylindrisch<br>Pipe thread, cylindrical   | 1/8-27 NPSC  | USAS B2.1-1968<br>ANSI B 1.20.1-1983                                | USA   | NPSC, NPSM,<br>NPSL, NPSH  |
|  | 1/8-27 NPSF  | ANSI B 1.20.3-1976  |   | Dryseal NPSF,<br>Dryseal NPSJ                                    |
|  | G1 1/4   | B.S. 2779:1973  | Großbritannien<br>Great Britain                                 | G (früher BSP)   |
|  | Rp 1/2   | B.S. 21:1973  |   | Rp <sup>3)</sup> (früher BSPP)                                   |
| Rohrgewinde, kegelig<br>Pipe thread, tapered   | 3/8-18 NPT   | USAS B 2.1-1968<br>ANSI B 1.20.1-1983                               | USA   | NPT, NPTR  |
|  | 1/8-27-1 NPTF-1  | ANSI B 1.20.3-1976  |   | Dryseal NPTF,<br>Dryseal PTF-SAE, SHORT                          |
|  | R 1/2  | B.S. 21: 1973   | Großbritannien<br>Great Britain                                 | R (früher BSPT)  |
|  | Rc 1/2   |   |   | Rc <sup>3)</sup> (früher BSPP)                                   |
| Trapezgewinde<br>Trapezoidal thread  | 1 3/4-4 ACME - 2G  | ANSI B 1.5-1977<br>B.S. 1104: 1957                                  | USA<br>Großbritannien<br>Great Britain                          | Acme   |
|  | 1/2-20 STUB-ACME   | ANSI B 1.8-1977   | USA   | Stub-Acme  |
| Sägewinde<br>Buttress thread   | 2.5-8 BUTT-2A  | ANSI B.S. 1.9-1973  | USA   | Butt   |
|  | 2.0 B.S. Buttress thread<br>8 tpi medium class                                       | B.S. 1657: 1950   | Großbritannien<br>Great Britain                                 | Buttress   |
| Fahrradgewinde<br>Bicycle thread   | 1/4-26. BSC-Med.   | B.S. 811: 1950  | Großbritannien<br>Great Britain                                 | BSC  |
| Amerikanisches Petroleumgewinde, API<br>(Gewinde für die Erdölindustrie)<br>American oil thread<br>(thread for the mineral oil industry) | 4 1/2 API TBG  | API Std 5B-1979<br>(1987)   | USA   | CSG, LCSG, BCSG, XCSG,<br>LP, TBG, UP TBG                        |
|  | API 4 IF THD   | API Spec 7 - 1979<br>(1985)   |   | NC ROTARY, REG ROTARY,<br>REG LH ROTARY, FH<br>ROTARY, IF ROTARY |
|  | 3/4 API  | API Spec 11B-1974<br>(1986)   |   |  |

<sup>1)</sup> Nur für Außengewinde mit gerundetem Gewindegrund.

<sup>1)</sup> Only for external threads with rounded root.

<sup>2)</sup> Für Gewindeinnendurchmesser unter 1/4 Zoll.

<sup>2)</sup> For internal threads below 1/4 inch.

<sup>3)</sup> Innengewinde

<sup>3)</sup> Internal threads

**Anmerkung: Das Whitworth-Gewinde nach der Norm B.S. 84: 1956 (British Standard), ist vergleichbar mit dem Whitworth-Gewinde der zurückgezogenen Norm DIN 11, Ausgabe 1923x.**

Remark: the Whitworth thread to standard B.S. 84 (British Standard) is comparable with the Whitworth thread to old standard DIN 11, issue 1923x.

Grundabmaße und Toleranzen für Bolzengewinde siehe DIN 13 Teil 15  
Basic dimensions and tolerances for bolt (male) threads see DIN 13 part 15

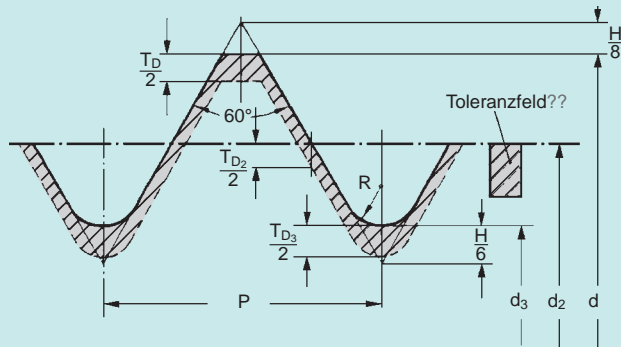


Abb. 1: Bolzengewinde mit Grundabmaß 0 (Toleranzlage h)

Fig. 1: Male thread with basic dimension 0 (tolerance class h)

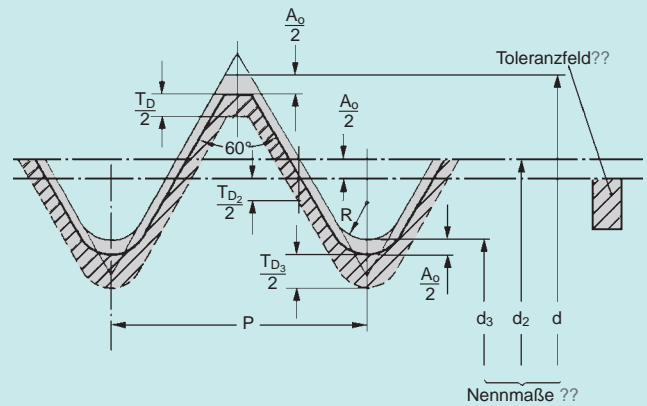


Abb. 2: Bolzengewinde mit negativem Grundabmaß (Toleranzlage e, f, g)

Fig. 1: Male thread with negative basic dimension (tolerance class e, f, g)

| Grundabmaß $A_0$<br>Basic dimension $A_0$ |        |   |        |   |      |                   |        |   |   |     |        |                   |        |   |  |  |  |
|---|--------|---|--------|---|------|-------------------|--------|---|---|-----|--------|-------------------|--------|---|--|--|--|
| Steigung<br>Pitch                         |        | Grundabmaß $A_0$<br>bei Toleranzlage<br>Basic dimension $A_0$<br>at tolerance class |        |   |      | Steigung<br>Pitch |        | Grundabmaß $A_0$<br>bei Toleranzlage<br>Basic dimension $A_0$<br>at tolerance class |   |     |        | Steigung<br>Pitch |        | Grundabmaß $A_0$<br>bei Toleranzlage<br>Basic dimension $A_0$<br>at tolerance class |  |  |  |
| P   | e      | f   | g      | h | P    | e                 | f      | g   | h | P   | e      | f                 | g      | h   |  |  |  |
| 0,2                                       | -0,045 | -0,032  | -0,017 | 0 | 0,7  | -0,056            | -0,038 | -0,022  | 0 | 2,5 | -0,080 | -0,058            | -0,042 | 0   |  |  |  |
| 0,25                                      | -0,045 | -0,033  | -0,018 | 0 | 0,75 | -0,056            | -0,038 | -0,022  | 0 | 3   | -0,085 | -0,063            | -0,048 | 0   |  |  |  |
| 0,3                                       | -0,046 | -0,033  | -0,018 | 0 | 0,8  | -0,060            | -0,038 | -0,024  | 0 | 3,5 | -0,090 | -0,070            | -0,053 | 0   |  |  |  |
| 0,35                                      | -0,046 | -0,034  | -0,019 | 0 | 1    | -0,060            | -0,040 | -0,026  | 0 | 4   | -0,095 | -0,075            | -0,060 | 0   |  |  |  |
| 0,4                                       | -0,048 | -0,034  | -0,019 | 0 | 1,25 | -0,063            | -0,042 | -0,028  | 0 | 4,5 | -0,100 | -0,080            | -0,063 | 0   |  |  |  |
| 0,45                                      | -0,048 | -0,035  | -0,020 | 0 | 1,5  | -0,067            | -0,045 | -0,032  | 0 | 5   | -0,106 | -0,085            | -0,071 | 0   |  |  |  |
| 0,5                                       | -0,050 | -0,036  | -0,020 | 0 | 1,75 | -0,071            | -0,048 | -0,034  | 0 | 5,5 | -0,112 | -0,090            | -0,075 | 0   |  |  |  |
| 0,6                                       | -0,053 | -0,036  | -0,021 | 0 | 2    | -0,071            | -0,052 | -0,038  | 0 | 6   | -0,118 | -0,095            | -0,080 | 0   |  |  |  |
|   |        |   |        |   |      |                   |        |   |   | 8   | -0,140 | -0,118            | -0,100 | 0   |  |  |  |

| Bolzenaußen-Ø – Toleranzen $T_d$<br>Bolt external-Ø – tolerances $T_d$ |       |   |   |      |                   |       |   |     |       |                   |       |   |   |   |   |
|--|-------|---|---|------|-------------------|-------|---|-----|-------|-------------------|-------|---|---|---|---|
| Steigung<br>Pitch  |       | Grundabmaß $T_d$<br>bei Toleranzlage<br>Basic dimension $T_d$<br>at tolerance class |   |      | Steigung<br>Pitch |       | Grundabmaß $T_d$<br>bei Toleranzlage<br>Basic dimension $T_d$<br>at tolerance class |     |       | Steigung<br>Pitch |       | Grundabmaß $T_d$<br>bei Toleranzlage<br>Basic dimension $T_d$<br>at tolerance class |   |   |   |
| P  | 4     | 6   | 8 | P    | 4                 | 6     | 8   | P   | 4     | 6                 | 8     | P   | 4 | 6 | 8 |
| 0,2  | 0,036 | 0,056   | - | 0,7  | 0,090             | 0,140 | -   | 2,5 | 0,212 | 0,335             | 0,530 |   |   |   |   |
| 0,25   | 0,042 | 0,067   | - | 0,75 | 0,090             | 0,140 | -   | 3   | 0,236 | 0,375             | 0,600 |   |   |   |   |
| 0,3  | 0,048 | 0,075   | - | 0,8  | 0,095             | 0,150 | 0,236   | 3,5 | 0,265 | 0,425             | 0,670 |   |   |   |   |
| 0,35   | 0,053 | 0,085   | - | 1    | 0,112             | 0,180 | 0,280   | 4   | 0,300 | 0,475             | 0,750 |   |   |   |   |
| 0,4  | 0,060 | 0,095   | - | 1,25 | 0,132             | 0,212 | 0,335   | 4,5 | 0,315 | 0,500             | 0,800 |   |   |   |   |
| 0,45   | 0,063 | 0,100   | - | 1,5  | 0,150             | 0,236 | 0,375   | 5   | 0,335 | 0,530             | 0,850 |   |   |   |   |
| 0,5  | 0,067 | 0,106   | - | 1,75 | 0,170             | 0,265 | 0,425   | 5,5 | 0,355 | 0,560             | 0,900 |   |   |   |   |
| 0,6  | 0,080 | 0,125   | - | 2    | 0,180             | 0,280 | 0,450   | 6   | 0,375 | 0,600             | 0,950 |   |   |   |   |
|  |       |   |   |      |                   |       |   | 8   | 0,450 | 0,710             | 1,180 |   |   |   |   |

| Gewinde-Nenn-Ø d<br>Thread nominal-Ø d |             | Steigung<br>Pitch | Bolzen-Flanken-Ø-Toleranz T <sub>d2</sub> bei Toleranzqualität (mm)<br>Pitch-Ø-tolerance T <sub>d2</sub> at tolerance quality (mm) |       |       |       |       |       |       |  |
|--|-------------|-------------------|--|-------|-------|-------|-------|-------|-------|--|
| über   over                            | bis   up to | P (mm)            | 3  | 4     | 5     | 6     | 7     | 8     | 9     |  |
| 0,99                                   | 1,4         | 0,2               | 0,024  | 0,030 | 0,038 | 0,048 | -     | -     | -     |  |
|  |             | 0,25              | 0,026  | 0,034 | 0,042 | 0,053 | -     | -     | -     |  |
|  |             | 0,3               | 0,028  | 0,036 | 0,045 | 0,056 | -     | -     | -     |  |
| 1,4                                    | 2,8         | 0,2               | 0,025  | 0,032 | 0,040 | 0,050 | -     | -     | -     |  |
|  |             | 0,25              | 0,028  | 0,036 | 0,045 | 0,056 | -     | -     | -     |  |
|  |             | 0,35              | 0,032  | 0,040 | 0,050 | 0,063 | 0,080 | -     | -     |  |
|  |             | 0,4               | 0,034  | 0,042 | 0,053 | 0,067 | 0,085 | -     | -     |  |
|  |             | 0,45              | 0,036  | 0,045 | 0,056 | 0,071 | 0,090 | -     | -     |  |
| 2,8                                    | 5,6         | 0,2               | 0,026  | 0,034 | 0,042 | 0,053 | -     | -     | -     |  |
|  |             | 0,25              | 0,030  | 0,038 | 0,048 | 0,060 | -     | -     | -     |  |
|  |             | 0,35              | 0,034  | 0,042 | 0,053 | 0,067 | 0,085 | -     | -     |  |
|  |             | 0,5               | 0,038  | 0,048 | 0,060 | 0,075 | 0,095 | -     | -     |  |
|  |             | 0,6               | 0,042  | 0,053 | 0,067 | 0,085 | 0,106 | -     | -     |  |
|  |             | 0,7               | 0,045  | 0,056 | 0,071 | 0,090 | 0,112 | -     | -     |  |
|  |             | 0,75              | 0,045  | 0,056 | 0,071 | 0,090 | 0,112 | -     | -     |  |
|  |             | 0,8               | 0,048  | 0,060 | 0,075 | 0,095 | 0,118 | 0,150 | 0,190 |  |
| 5,6                                    | 11,2        | 0,25              | 0,032  | 0,040 | 0,050 | 0,063 | -     | -     | -     |  |
|  |             | 0,35              | 0,036  | 0,045 | 0,056 | 0,071 | -     | -     | -     |  |
|  |             | 0,5               | 0,042  | 0,053 | 0,067 | 0,085 | 0,106 | -     | -     |  |
|  |             | 0,75              | 0,050  | 0,063 | 0,080 | 0,100 | 0,125 | -     | -     |  |
|  |             | 1                 | 0,056  | 0,071 | 0,090 | 0,112 | 0,140 | 0,180 | 0,224 |  |
|  |             | 1,25              | 0,060  | 0,075 | 0,095 | 0,118 | 0,150 | 0,190 | 0,236 |  |
|  |             | 1,5               | -  | 0,085 | 0,106 | 0,132 | 0,170 | 0,212 | 0,265 |  |
| 11,2                                   | 22,4        | 0,35              | 0,040  | 0,050 | 0,063 | 0,080 | -     | -     | -     |  |
|  |             | 0,5               | 0,045  | 0,056 | 0,071 | 0,090 | -     | -     | -     |  |
|  |             | 0,75              | 0,053  | 0,067 | 0,085 | 0,106 | -     | -     | -     |  |
|  |             | 1                 | 0,060  | 0,075 | 0,095 | 0,118 | 0,150 | 0,190 | 0,236 |  |
|  |             | 1,25              | 0,067  | 0,085 | 0,106 | 0,132 | 0,170 | 0,212 | 0,265 |  |
|  |             | 1,5               | -  | 0,090 | 0,112 | 0,140 | 0,180 | 0,224 | 0,280 |  |
|  |             | 1,75              | -  | 0,095 | 0,118 | 0,150 | 0,190 | 0,236 | 0,300 |  |
|  |             | 2                 | -  | 0,100 | 0,125 | 0,160 | 0,200 | 0,250 | 0,315 |  |
|  |             | 2,5               | -  | 0,106 | 0,132 | 0,170 | 0,212 | 0,265 | 0,335 |  |
| 22,4                                   | 45          | 0,5               | 0,048  | 0,060 | 0,075 | 0,095 | -     | -     | -     |  |
|  |             | 0,75              | 0,056  | 0,071 | 0,090 | 0,112 | 0,140 | -     | -     |  |
|  |             | 1                 | 0,063  | 0,080 | 0,100 | 0,125 | 0,160 | 0,200 | 0,250 |  |
|  |             | 1,5               | -  | 0,095 | 0,118 | 0,150 | 0,190 | 0,236 | 0,300 |  |
|  |             | 2                 | -  | 0,106 | 0,132 | 0,170 | 0,212 | 0,265 | 0,335 |  |
|  |             | 3                 | -  | 0,125 | 0,160 | 0,200 | 0,250 | 0,315 | 0,400 |  |
|  |             | 3,5               | -  | 0,132 | 0,170 | 0,212 | 0,265 | 0,335 | 0,425 |  |
|  |             | 4                 | -  | 0,140 | 0,180 | 0,224 | 0,280 | 0,355 | 0,450 |  |
| 45                                     | 90          | 0,5               | 0,053  | 0,067 | 0,085 | 0,106 | -     | -     | -     |  |
|  |             | 0,75              | 0,060  | 0,075 | 0,095 | 0,118 | -     | -     | -     |  |
|  |             | 1                 | 0,071  | 0,090 | 0,112 | 0,140 | 0,180 | 0,224 | -     |  |
|  |             | 1,5               | -  | 0,100 | 0,125 | 0,160 | 0,200 | 0,250 | 0,315 |  |
|  |             | 2                 | -  | 0,112 | 0,140 | 0,180 | 0,224 | 0,280 | 0,355 |  |
|  |             | 3                 | -  | 0,132 | 0,170 | 0,212 | 0,265 | 0,335 | 0,425 |  |
|  |             | 4                 | -  | 0,150 | 0,190 | 0,236 | 0,300 | 0,375 | 0,475 |  |
|  |             | 5                 | -  | 0,160 | 0,200 | 0,250 | 0,315 | 0,400 | 0,500 |  |
| 90                                     | 180         | 0,75              | 0,067  | 0,085 | 0,106 | 0,132 | -     | -     | -     |  |
|  |             | 1                 | 0,075  | 0,095 | 0,118 | 0,150 | -     | -     | -     |  |
|  |             | 1,5               | -  | 0,106 | 0,132 | 0,170 | -     | -     | -     |  |
|  |             | 2                 | -  | 0,118 | 0,150 | 0,190 | 0,236 | 0,300 | 0,375 |  |
|  |             | 3                 | -  | 0,140 | 0,180 | 0,224 | 0,280 | 0,355 | 0,450 |  |
|  |             | 4                 | -  | 0,160 | 0,200 | 0,250 | 0,315 | 0,400 | 0,500 |  |
|  |             | 6                 | -  | 0,190 | 0,236 | 0,300 | 0,375 | 0,475 | 0,600 |  |
|  |             | 8                 | -  | 0,212 | 0,265 | 0,335 | 0,425 | 0,530 | 0,670 |  |

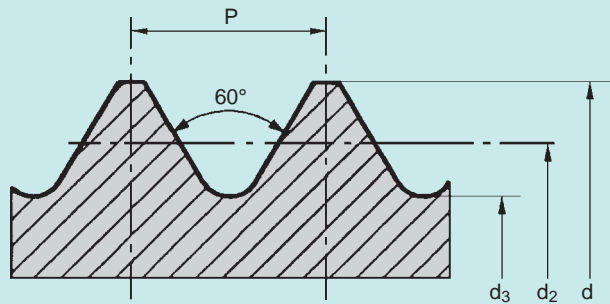
### Bolzenkerndurchmesser – Toleranzen T<sub>d3</sub>

Die Bolzenkern-Ø-Toleranz ist nach ISO zahlenmäßig nicht mehr festgelegt. Die kleinste Kernrundung soll  $0,125 \cdot P \approx H/7$  nicht unterschreiten (bisher  $H/8$ ).

### Bolt root diameter – tolerances T<sub>d3</sub>

The bolt root-Ø tolerance is no longer numerically defined to ISO. The smallest root rounding shall not be below  $0,125 \cdot P \approx H/7$  (so far  $H/8$ ).

Gewindegrenzmaße und Steigungswinkel für Bolzengewinde siehe DIN 13 Teil 20  
Thread limit dimensions and lead angle for bolt threads see DIN 13 part 20



d = Bolzen-Außen-Ø/Bolt major-Ø  
d<sub>2</sub> = Bolzen-Flanken-Ø/Bolt pitch-Ø  
d<sub>3</sub> = Bolzen-Kern-Ø/Bolt minor-Ø

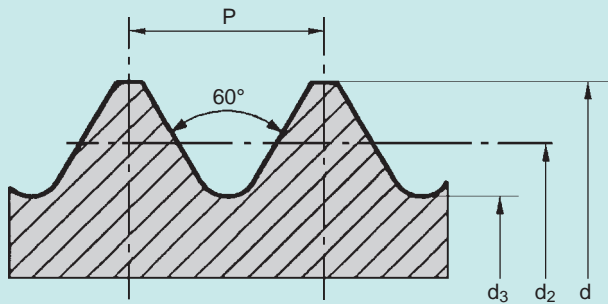
Steigungs- $\beta$  nach Nenn-Ø d<sub>2</sub>  
Lead  $\beta$  to nominal-Ø d<sub>2</sub>

$$\tan \beta = \frac{p}{d_2 \cdot \pi}$$

| Gewinde-<br>Nenn-<br>Ø<br>Thread | Steigung<br>Pitch<br>P | Toleranzfelder (mm)<br>Tolerance field (mm) |        |                |        |                |        |        |                |        |                |        |        |                |        |                | Steigungs-<br>$\beta$<br>Lead<br>$\beta$<br>Deg., min. |
|----------------------------------|------------------------|---|--------|----------------|--------|----------------|--------|--------|----------------|--------|----------------|--------|--------|----------------|--------|----------------|--|
|                                  |                        | 4 h   |        |                |        |                | 6 g    |        |                |        |                | 6 e    |        |                |        |                |  |
|                                  |                        | d   |        | d <sub>2</sub> |        | d <sub>3</sub> | d      |        | d <sub>2</sub> |        | d <sub>3</sub> | d      |        | d <sub>2</sub> |        | d <sub>3</sub> |  |
| max.                             | min.                   | max.  | min.   | max.           | max.   | min.           | max.   | min.   | max.           | max.   | min.           | max.   | min.   | max.           | max.   | min.           | max.   |
| M 1,6 x 0,35                     | 1,600                  | 1,547                                       | 1,373  | 1,333          | 1,170  | 1,581          | 1,496  | 1,354  | 1,291          | 1,151  | 1,554          | 1,469  | 1,327  | 1,264          | 1,124  | 4° 38'         |  |
| M 1,8 x 0,35                     | 1,800                  | 1,747                                       | 1,573  | 1,533          | 1,370  | 1,781          | 1,696  | 1,554  | 1,491          | 1,351  | 1,754          | 1,669  | 1,527  | 1,464          | 1,324  | 4° 3'          |  |
| M 2 x 0,4                        | 2,000                  | 1,940                                       | 1,740  | 1,698          | 1,509  | 1,981          | 1,886  | 1,721  | 1,654          | 1,490  | 1,952          | 1,857  | 1,692  | 1,625          | 1,461  | 4° 11'         |  |
| M 2,2 x 0,45                     | 2,200                  | 2,137                                       | 1,908  | 1,863          | 1,648  | 2,180          | 2,080  | 1,888  | 1,817          | 1,628  | 2,152          | 2,052  | 1,860  | 1,789          | 1,600  | 4° 17'         |  |
| M 2,5 x 0,45                     | 2,500                  | 2,437                                       | 2,208  | 2,163          | 1,948  | 2,480          | 2,380  | 2,188  | 2,117          | 1,928  | 2,452          | 2,352  | 2,160  | 2,089          | 1,900  | 3° 42'         |  |
| M 3 x 0,5                        | 3,000                  | 2,933                                       | 2,675  | 2,627          | 2,387  | 2,980          | 2,874  | 2,655  | 2,580          | 2,367  | 2,950          | 2,844  | 2,625  | 2,550          | 2,337  | 3° 24'         |  |
| M 3,5 x 0,6                      | 3,500                  | 3,420                                       | 3,110  | 3,057          | 2,764  | 3,479          | 3,354  | 3,089  | 3,004          | 2,743  | 3,447          | 3,322  | 3,057  | 2,972          | 2,711  | 3° 30'         |  |
| M 4 x 0,7                        | 4,000                  | 3,910                                       | 3,545  | 3,489          | 3,141  | 3,978          | 3,838  | 3,523  | 3,433          | 3,119  | 3,944          | 3,804  | 3,489  | 3,399          | 3,085  | 3° 36'         |  |
| M 4,5 x 0,75                     | 4,500                  | 4,410                                       | 4,013  | 3,957          | 3,580  | 4,478          | 4,338  | 3,991  | 3,901          | 3,558  | 4,444          | 4,304  | 3,957  | 3,867          | 3,524  | 3° 24'         |  |
| M 5 x 0,8                        | 5,000                  | 4,905                                       | 4,480  | 4,420          | 4,019  | 4,976          | 4,826  | 4,456  | 4,361          | 3,995  | 4,940          | 4,790  | 4,420  | 4,325          | 3,959  | 3° 15'         |  |
| M 6 x 1                          | 6,000                  | 5,888                                       | 5,350  | 5,279          | 4,773  | 5,974          | 5,794  | 5,324  | 5,212          | 4,747  | 5,940          | 5,760  | 5,290  | 5,178          | 4,713  | 3° 24'         |  |
| M 7 x 1                          | 7,000                  | 6,888                                       | 6,350  | 6,279          | 5,773  | 6,974          | 6,794  | 6,324  | 6,212          | 5,747  | 6,940          | 6,760  | 6,290  | 6,178          | 5,713  | 2° 52'         |  |
| M 8 x 1,25                       | 8,000                  | 7,868                                       | 7,188  | 7,113          | 6,466  | 7,972          | 7,760  | 7,160  | 7,042          | 6,438  | 7,937          | 7,725  | 7,125  | 7,007          | 6,403  | 3° 10'         |  |
| M 9 x 1,25                       | 9,000                  | 8,868                                       | 8,188  | 8,113          | 7,466  | 8,972          | 8,760  | 8,160  | 8,042          | 7,438  | 8,937          | 8,725  | 8,125  | 8,007          | 7,403  | 2° 46'         |  |
| M 10 x 1,5                       | 10,000                 | 9,850                                       | 9,026  | 8,941          | 8,160  | 9,968          | 9,732  | 8,994  | 8,862          | 8,128  | 9,933          | 9,697  | 8,959  | 8,827          | 8,093  | 3° 1'          |  |
| M 11 x 1,5                       | 11,000                 | 10,850                                      | 10,026 | 9,941          | 9,160  | 10,986         | 10,732 | 9,994  | 9,862          | 9,128  | 10,933         | 10,697 | 9,959  | 9,827          | 9,093  | 2° 43'         |  |
| M 12 x 1,75                      | 12,000                 | 11,830                                      | 10,863 | 10,768         | 9,853  | 11,966         | 11,701 | 10,829 | 10,679         | 9,819  | 11,929         | 11,664 | 10,792 | 10,642         | 9,782  | 2° 56'         |  |
| M 14 x 2                         | 14,000                 | 13,820                                      | 12,701 | 12,601         | 11,546 | 13,962         | 13,682 | 12,663 | 12,503         | 11,508 | 13,929         | 13,649 | 12,630 | 12,470         | 11,475 | 2° 52'         |  |
| M 16 x 2                         | 16,000                 | 15,820                                      | 14,701 | 14,601         | 13,546 | 15,962         | 15,682 | 14,663 | 14,503         | 13,508 | 15,929         | 15,649 | 14,630 | 14,470         | 13,475 | 2° 28'         |  |
| M 18 x 2,5                       | 18,000                 | 17,788                                      | 16,376 | 16,270         | 14,933 | 17,958         | 17,623 | 16,334 | 16,164         | 14,891 | 17,920         | 17,585 | 16,296 | 16,126         | 14,853 | 2° 46'         |  |
| M 20 x 2,5                       | 20,000                 | 19,788                                      | 18,367 | 18,270         | 16,933 | 19,958         | 19,623 | 18,334 | 18,164         | 16,891 | 19,920         | 19,585 | 18,269 | 18,126         | 16,853 | 2° 28'         |  |
| M 22 x 2,5                       | 22,000                 | 21,788                                      | 20,376 | 20,270         | 18,933 | 21,958         | 21,623 | 20,334 | 20,164         | 18,891 | 21,920         | 21,585 | 20,296 | 20,126         | 18,853 | 2° 14'         |  |
| M 24 x 3                         | 24,000                 | 23,764                                      | 22,051 | 21,926         | 20,319 | 23,952         | 23,577 | 22,003 | 21,803         | 20,271 | 23,915         | 23,540 | 21,996 | 21,766         | 20,234 | 2° 28'         |  |
| M 27 x 3                         | 27,000                 | 26,764                                      | 25,051 | 24,926         | 23,319 | 26,952         | 26,577 | 25,003 | 24,803         | 23,271 | 26,915         | 26,540 | 24,966 | 24,766         | 23,234 | 2° 10'         |  |
| M 30 x 3,5                       | 30,000                 | 29,735                                      | 27,727 | 27,595         | 25,706 | 29,947         | 29,522 | 27,674 | 27,462         | 25,653 | 29,910         | 29,485 | 27,637 | 27,425         | 25,616 | 2° 18'         |  |
| M 33 x 3,5                       | 33,000                 | 32,735                                      | 30,727 | 30,595         | 28,706 | 32,947         | 32,522 | 30,674 | 30,462         | 28,653 | 32,910         | 32,485 | 30,637 | 30,425         | 28,616 | 2° 4'          |  |
| M 36 x 4                         | 36,000                 | 35,700                                      | 33,402 | 33,262         | 31,093 | 35,940         | 35,465 | 33,342 | 33,118         | 31,033 | 35,905         | 35,430 | 33,307 | 33,083         | 30,998 | 2° 11'         |  |
| M 39 x 4                         | 39,000                 | 38,700                                      | 36,402 | 36,262         | 34,093 | 38,940         | 38,465 | 36,342 | 36,118         | 34,033 | 38,905         | 38,430 | 36,307 | 36,083         | 33,988 | 2°             |  |
| M 42 x 4,5                       | 42,000                 | 41,685                                      | 39,077 | 38,927         | 36,479 | 41,937         | 41,437 | 39,014 | 38,778         | 36,416 | 41,900         | 41,400 | 38,977 | 38,741         | 36,379 | 2° 6'          |  |
| M 45 x 4,5                       | 45,000                 | 44,685                                      | 42,077 | 41,927         | 39,479 | 44,397         | 44,437 | 42,014 | 41,778         | 39,416 | 44,900         | 44,400 | 41,977 | 41,741         | 39,379 | 1° 57'         |  |
| M 48 x 5                         | 48,000                 | 47,665                                      | 44,752 | 44,592         | 41,866 | 47,929         | 47,399 | 44,681 | 44,431         | 41,795 | 47,894         | 47,364 | 44,646 | 44,396         | 41,790 | 2° 2'          |  |
| M 52 x 5                         | 52,000                 | 51,665                                      | 48,752 | 48,592         | 45,866 | 51,929         | 51,399 | 48,681 | 48,431         | 45,795 | 51,894         | 51,364 | 48,646 | 48,396         | 45,760 | 1° 52'         |  |
| M 56 x 5,5                       | 56,000                 | 55,645                                      | 52,428 | 52,258         | 49,252 | 55,925         | 55,365 | 52,353 | 52,088         | 49,177 | 55,888         | 55,328 | 52,316 | 52,051         | 49,140 | 1° 54'         |  |
| M 60 x 5,5                       | 60,000                 | 59,645                                      | 56,428 | 56,258         | 53,252 | 59,925         | 59,365 | 56,353 | 56,088         | 53,177 | 59,888         | 59,328 | 56,316 | 56,051         | 53,140 | 1° 46'         |  |
| M 64 x 6                         | 64,000                 | 63,625                                      | 60,103 | 59,923         | 56,639 | 63,920         | 63,320 | 60,023 | 59,743         | 56,559 | 63,882         | 63,282 | 59,985 | 59,705         | 56,521 | 1° 49'         |  |
| M 68 x 6                         | 68,000                 | 67,625                                      | 64,103 | 63,923         | 60,639 | 67,920         | 67,320 | 64,023 | 64,743         | 60,559 | 67,882         | 67,282 | 63,985 | 63,705         | 60,521 | 1° 42'         |  |

Bezeichnungsbeispiel für Bolzengewinde (Toleranz mitte): M 20 – 6 g  
 Bezeichnungsbeispiel für Bolzen-Linksgewinde (Toleranz mitte): M 20 – 6 g – LH  
 Designation example for bolt thread (middle tolerance): M 20 – 6 g  
 Designation example for left-hand bolt thread (middle tolerance): M 20 – 6 g – LH

Gewindegrenzmaße und Steigungswinkel für Bolzensgewinde siehe DIN 13 Teil 20  
Thread limit dimensions and lead angle for bolt threads see DIN 13 part 20



d = Bolzen-Außen-Ø/Bolt major-Ø  
d<sub>2</sub> = Bolzen-Flanken-Ø/Bolt pitch-Ø  
d<sub>3</sub> = Bolzen-Kern-Ø/Bolt minor-Ø

Steigungs- $\beta$  nach Nenn-Ø d<sub>2</sub>  
Lead  $\beta$  to nominal-Ø d<sub>2</sub>

$$\tan \beta = \frac{P}{d_2 \cdot \pi}$$

| Gewinde-<br>Nenn-<br>Ø<br>Thread | Steigung<br>Pitch<br>P | Toleranzfelder (mm)<br>Tolerance field (mm) |        |                |        |                |        |        |                |        |                |        |        |                |        |                | Steigungs-<br>$\beta$<br>Lead<br>$\beta$<br>Deg. min. |
|----------------------------------|------------------------|---|--------|----------------|--------|----------------|--------|--------|----------------|--------|----------------|--------|--------|----------------|--------|----------------|---|
|                                  |                        | 4 h   |        |                |        |                | 6 g    |        |                |        |                | 6 e    |        |                |        |                |   |
|                                  |                        | d   |        | d <sub>2</sub> |        | d <sub>3</sub> | d      |        | d <sub>2</sub> |        | d <sub>3</sub> | d      |        | d <sub>2</sub> |        | d <sub>3</sub> |   |
| max.                             | min.                   | max.  | min.   | max.           | max.   | min.           | max.   | min.   | max.           | max.   | min.           | max.   | min.   | max.           |        |                |   |
| M 2,5x 0,35                      | 0,35                   | 2,500                                       | 2,447  | 2,273          | 2,233  | 2,070          | 2,481  | 2,396  | 2,254          | 2,191  | 2,051          | 2,454  | 2,369  | 2,227          | 2,164  | 2,024          | 2° 48'  |
| M 3 x 0,35                       | 0,35                   | 3,000                                       | 2,947  | 2,773          | 2,731  | 2,570          | 2,981  | 2,896  | 2,754          | 2,687  | 2,551          | 2,954  | 2,869  | 2,727          | 2,660  | 2,524          | 2° 18'  |
| M 3,5x 0,35                      | 0,35                   | 3,500                                       | 3,447  | 3,273          | 3,231  | 3,070          | 3,481  | 3,396  | 3,254          | 3,187  | 3,051          | 3,454  | 3,369  | 3,227          | 3,160  | 3,024          | 1° 57'  |
| M 4 x 0,5                        | 0,5                    | 4,000                                       | 3,933  | 3,675          | 3,627  | 3,387          | 3,980  | 3,874  | 3,655          | 3,580  | 3,367          | 3,950  | 3,844  | 3,625          | 3,550  | 3,337          | 2° 28'  |
| M 4,5x 0,5                       | 0,5                    | 4,500                                       | 4,433  | 4,175          | 4,127  | 3,887          | 4,480  | 4,378  | 4,155          | 4,080  | 3,867          | 4,450  | 4,344  | 4,125          | 4,050  | 3,837          | 2° 10'  |
| M 5 x 0,5                        | 0,5                    | 5,000                                       | 4,933  | 4,675          | 4,627  | 4,387          | 4,980  | 4,874  | 4,655          | 4,580  | 4,367          | 4,950  | 4,844  | 4,625          | 4,550  | 4,337          | 1° 57'  |
| M 5,5x 0,5                       | 0,5                    | 5,500                                       | 5,433  | 5,175          | 5,127  | 4,887          | 5,480  | 5,374  | 5,155          | 5,080  | 4,867          | 5,450  | 5,344  | 5,125          | 5,050  | 4,837          | 1° 45'  |
| M 6 x 0,5                        | 0,5                    | 6,000                                       | 5,933  | 5,675          | 5,627  | 5,387          | 5,980  | 5,784  | 5,655          | 5,570  | 5,367          | 5,950  | 5,844  | 5,625          | 5,550  | 5,337          | 1° 36'  |
| M 6 x 0,75                       | 0,75                   | 6,000                                       | 5,910  | 5,513          | 5,450  | 5,080          | 5,978  | 5,838  | 5,491          | 5,391  | 5,058          | 5,944  | 5,804  | 5,457          | 5,357  | 5,024          | 2° 28'  |
| M 7 x 0,75                       | 0,75                   | 7,000                                       | 6,910  | 6,513          | 6,450  | 6,080          | 6,978  | 6,838  | 6,491          | 6,391  | 6,058          | 6,944  | 6,804  | 6,457          | 6,357  | 6,024          | 2° 6'   |
| M 8 x 0,75                       | 0,75                   | 8,000                                       | 7,910  | 7,513          | 7,450  | 7,080          | 7,978  | 7,838  | 7,491          | 7,391  | 7,058          | 7,944  | 7,804  | 7,457          | 7,357  | 7,024          | 1° 49'  |
| M 8 x 1                          | 1                      | 8,000                                       | 7,888  | 7,350          | 7,279  | 6,773          | 7,974  | 7,794  | 7,324          | 7,212  | 6,747          | 7,940  | 7,760  | 7,290          | 7,178  | 6,713          | 2° 28'  |
| M 9 x 0,75                       | 0,75                   | 9,000                                       | 8,910  | 8,513          | 8,450  | 8,080          | 8,978  | 8,838  | 8,491          | 8,391  | 8,058          | 8,944  | 8,804  | 8,457          | 8,357  | 8,024          | 1° 36'  |
| M 9 x 1                          | 1                      | 9,000                                       | 8,888  | 8,350          | 8,279  | 7,773          | 8,974  | 8,794  | 8,324          | 8,212  | 7,747          | 8,940  | 8,760  | 8,290          | 8,178  | 7,713          | 2° 10'  |
| M 10 x 0,75                      | 0,75                   | 10,000                                      | 9,910  | 9,513          | 9,450  | 9,080          | 9,978  | 9,838  | 9,491          | 9,391  | 9,058          | 9,944  | 9,804  | 9,457          | 9,357  | 9,024          | 1° 26'  |
| M 10 x 1                         | 1                      | 10,000                                      | 9,888  | 9,350          | 9,279  | 8,773          | 9,974  | 9,794  | 9,324          | 9,212  | 8,747          | 9,940  | 9,760  | 9,290          | 9,178  | 8,713          | 1° 57'  |
| M 10 x 1,25                      | 1,25                   | 10,000                                      | 9,868  | 9,188          | 9,113  | 8,466          | 9,972  | 9,760  | 9,160          | 9,042  | 8,438          | 9,937  | 9,725  | 9,125          | 9,007  | 8,403          | 2° 28'  |
| M 11 x 0,75                      | 0,75                   | 11,000                                      | 10,910 | 10,513         | 10,450 | 10,080         | 10,978 | 10,838 | 10,491         | 10,391 | 10,058         | 10,944 | 10,804 | 10,457         | 10,357 | 10,024         | 1° 18'  |
| M 11 x 1                         | 1                      | 11,000                                      | 10,888 | 10,350         | 10,279 | 9,773          | 10,974 | 10,794 | 10,234         | 10,212 | 9,747          | 10,490 | 10,760 | 10,290         | 10,178 | 9,713          | 1° 45'  |
| M 12 x 0,75                      | 0,75                   | 12,000                                      | 12,910 | 11,513         | 11,446 | 11,080         | 11,978 | 11,838 | 11,491         | 11,385 | 11,058         | 11,944 | 11,804 | 11,457         | 11,351 | 11,024         | 1° 11'  |
| M 12 x 1                         | 1                      | 12,000                                      | 11,888 | 11,350         | 11,275 | 10,773         | 11,974 | 11,794 | 11,324         | 11,206 | 10,747         | 11,940 | 11,760 | 11,290         | 11,172 | 10,713         | 1° 36'  |
| M 12 x 1,25                      | 1,25                   | 12,000                                      | 11,868 | 11,188         | 11,103 | 10,466         | 11,972 | 11,760 | 11,160         | 11,028 | 10,438         | 11,937 | 11,725 | 11,125         | 10,933 | 10,403         | 2° 2'   |
| M 12 x 1,5                       | 1,5                    | 12,000                                      | 11,850 | 11,026         | 10,936 | 10,160         | 11,968 | 11,732 | 10,994         | 10,854 | 10,128         | 11,933 | 11,697 | 10,959         | 10,819 | 10,093         | 2° 28'  |
| M 14 x 1                         | 1                      | 14,000                                      | 13,888 | 13,350         | 13,275 | 12,773         | 13,974 | 13,794 | 13,324         | 13,206 | 12,747         | 13,940 | 13,760 | 13,290         | 13,172 | 12,713         | 1° 22'  |
| M 14 x 1,5                       | 1,5                    | 14,000                                      | 13,850 | 13,026         | 12,936 | 12,160         | 13,968 | 13,732 | 12,994         | 12,854 | 12,128         | 13,933 | 13,697 | 12,959         | 12,819 | 12,093         | 2° 6'   |
| M 16 x 1                         | 1                      | 16,000                                      | 15,888 | 15,350         | 15,275 | 14,773         | 15,974 | 15,794 | 15,324         | 15,206 | 14,747         | 15,940 | 15,760 | 15,290         | 15,172 | 14,713         | 1° 11'  |
| M 16 x 1,5                       | 1,5                    | 16,000                                      | 15,850 | 15,026         | 14,936 | 14,160         | 15,968 | 15,732 | 14,994         | 14,854 | 14,128         | 15,933 | 15,697 | 14,959         | 14,819 | 14,093         | 1° 49'  |
| M 18 x 1                         | 1                      | 18,000                                      | 17,888 | 17,350         | 17,275 | 16,773         | 17,974 | 17,794 | 17,324         | 17,206 | 16,747         | 17,940 | 17,760 | 17,290         | 17,172 | 16,713         | 1° 3'   |
| M 18 x 1,5                       | 1,5                    | 18,000                                      | 17,850 | 17,026         | 16,936 | 16,160         | 17,968 | 17,732 | 16,994         | 16,854 | 16,128         | 17,933 | 17,697 | 16,959         | 16,819 | 16,093         | 1° 36'  |
| M 18 x 2                         | 2                      | 18,000                                      | 17,820 | 16,701         | 16,601 | 15,546         | 17,962 | 17,682 | 16,663         | 16,503 | 15,508         | 17,929 | 17,649 | 16,630         | 16,470 | 15,475         | 2° 10'  |
| M 20 x 1                         | 1                      | 20,000                                      | 19,888 | 19,350         | 19,275 | 18,773         | 19,974 | 19,794 | 19,324         | 19,206 | 18,747         | 19,940 | 19,760 | 19,290         | 19,172 | 18,713         | 0° 56'  |
| M 20 x 1,5                       | 1,5                    | 20,000                                      | 19,850 | 19,026         | 18,936 | 18,160         | 19,968 | 19,732 | 18,994         | 18,854 | 18,128         | 19,933 | 19,697 | 18,959         | 18,819 | 18,093         | 1° 26'  |
| M 20 x 2                         | 2                      | 20,000                                      | 19,820 | 18,701         | 18,601 | 17,546         | 19,962 | 19,682 | 18,663         | 18,503 | 17,508         | 19,929 | 19,649 | 18,630         | 18,470 | 17,475         | 1° 57'  |
| M 22 x 1                         | 1                      | 22,000                                      | 21,888 | 21,350         | 21,275 | 20,773         | 21,974 | 21,794 | 21,324         | 21,206 | 20,747         | 21,940 | 21,760 | 21,290         | 21,172 | 20,713         | 0° 51'  |
| M 22 x 1,5                       | 1,5                    | 22,000                                      | 21,850 | 21,026         | 20,936 | 20,160         | 21,968 | 21,732 | 20,994         | 20,854 | 20,128         | 21,933 | 21,697 | 20,959         | 20,819 | 20,093         | 1° 18'  |
| M 22 x 2                         | 2                      | 22,000                                      | 21,820 | 20,701         | 20,601 | 19,546         | 21,962 | 21,682 | 20,663         | 20,503 | 19,508         | 21,929 | 21,649 | 20,630         | 20,470 | 19,475         | 1° 45'  |

Bezeichnungsbeispiel für Bolzensgewinde (Toleranz mitte): M 20 – 6 g

Bezeichnungsbeispiel für Bolzen-Linksgewinde (Toleranz mitte): M 20 – 6 g – LH

Designation example for bolt thread (middle tolerance): M 20 – 6 g

Designation example for left-hand bolt thread (middle tolerance): M 20 – 6 g – LH

| Gewinde-<br>Nenn-<br>Ø<br>Thread<br>Nominal Ø | Steigung<br>Pitch<br>P | Toleranzfelder (mm)<br>Tolerance field (mm) |        |                |        |                |        |        |                |        |                |        |        |                |        |                | Steigungs-<br>Lead<br>β<br>Deg., min. |
|---|------------------------|---|--------|----------------|--------|----------------|--------|--------|----------------|--------|----------------|--------|--------|----------------|--------|----------------|---------------------------------------|
|   |                        | 4 h   |        |                |        |                | 6 g    |        |                |        |                | 6 e    |        |                |        |                |                                       |
|   |                        | d   |        | d <sub>2</sub> |        | d <sub>3</sub> | d      |        | d <sub>2</sub> |        | d <sub>3</sub> | d      |        | d <sub>2</sub> |        | d <sub>3</sub> |                                       |
| max.  | min.                   | max.  | min.   | max.           | max.   | min.           | max.   | min.   | max.           | max.   | min.           | max.   | min.   | max.           |        |                |                                       |
| M 24 x 1                                      |                        | 24,000                                      | 23,888 | 23,350         | 23,270 | 22,773         | 23,974 | 23,794 | 23,324         | 23,199 | 22,747         | 23,940 | 23,760 | 23,290         | 23,165 | 22,713         | 0° 47'                                |
| M 24 x 1,5                                    |                        | 24,000                                      | 23,850 | 23,026         | 22,931 | 22,160         | 23,968 | 23,732 | 22,994         | 22,844 | 22,128         | 23,933 | 23,697 | 22,959         | 22,809 | 22,093         | 1° 11'                                |
| M 24 x 2                                      |                        | 24,000                                      | 23,820 | 22,701         | 22,595 | 21,546         | 23,962 | 23,682 | 22,663         | 22,493 | 21,508         | 23,929 | 23,649 | 22,630         | 22,460 | 21,475         | 1° 36'                                |
| M 27 x 1                                      |                        | 27,000                                      | 26,888 | 26,350         | 26,270 | 25,773         | 26,974 | 26,794 | 26,234         | 26,199 | 25,747         | 26,940 | 26,760 | 26,290         | 26,165 | 25,173         | 0° 41'                                |
| M 27 x 1,5                                    |                        | 27,000                                      | 26,850 | 26,026         | 25,931 | 25,160         | 26,968 | 26,732 | 25,994         | 25,844 | 25,128         | 26,933 | 26,697 | 25,959         | 25,809 | 25,093         | 1° 3'                                 |
| M 27 x 2                                      |                        | 27,000                                      | 26,820 | 25,701         | 25,595 | 24,546         | 26,962 | 26,682 | 25,663         | 25,493 | 24,508         | 26,929 | 26,649 | 25,630         | 25,460 | 24,475         | 1° 25'                                |
| M 30 x 1                                      |                        | 30,000                                      | 29,888 | 29,350         | 29,270 | 28,773         | 29,974 | 29,794 | 29,324         | 29,199 | 28,747         | 29,940 | 29,760 | 29,290         | 29,165 | 28,713         | 0° 37'                                |
| M 30 x 1,5                                    |                        | 30,000                                      | 29,850 | 29,026         | 28,931 | 28,160         | 29,968 | 29,732 | 28,994         | 28,844 | 28,128         | 29,933 | 29,697 | 28,959         | 28,809 | 28,093         | 0° 56'                                |
| M 30 x 2                                      |                        | 30,000                                      | 29,820 | 28,701         | 28,595 | 27,546         | 29,962 | 29,682 | 28,663         | 28,493 | 27,508         | 29,929 | 29,649 | 28,630         | 28,460 | 27,475         | 1° 16'                                |
| M 30 x 3                                      |                        | 30,000                                      | 29,764 | 28,051         | 27,926 | 26,319         | 29,952 | 29,577 | 28,003         | 27,803 | 26,271         | 29,915 | 29,540 | 27,966         | 27,766 | 26,234         | 1° 57'                                |
| M 33 x 1,5                                    |                        | 33,000                                      | 32,850 | 32,026         | 31,931 | 31,160         | 32,968 | 32,732 | 31,994         | 31,844 | 31,128         | 32,933 | 32,697 | 31,959         | 31,809 | 31,093         | 0° 51'                                |
| M 33 x 2                                      |                        | 33,000                                      | 32,820 | 31,701         | 31,595 | 30,546         | 32,962 | 32,682 | 31,663         | 31,493 | 30,508         | 32,929 | 32,649 | 31,630         | 31,460 | 30,475         | 1° 9'                                 |
| M 33 x 3                                      |                        | 33,000                                      | 32,764 | 31,051         | 30,926 | 29,319         | 32,952 | 32,577 | 31,003         | 30,803 | 29,271         | 32,915 | 32,540 | 30,966         | 30,766 | 29,234         | 1° 45'                                |
| M 36 x 1,5                                    |                        | 36,000                                      | 35,850 | 35,026         | 34,931 | 34,160         | 35,968 | 35,732 | 34,994         | 34,844 | 34,128         | 35,933 | 35,697 | 34,959         | 34,809 | 34,093         | 0° 47'                                |
| M 36 x 2                                      |                        | 36,000                                      | 35,820 | 34,701         | 34,595 | 33,546         | 35,962 | 35,682 | 34,663         | 34,493 | 33,508         | 35,929 | 35,649 | 34,630         | 34,460 | 33,475         | 1° 3'                                 |
| M 36 x 3                                      |                        | 36,000                                      | 35,764 | 34,051         | 33,926 | 32,319         | 35,952 | 35,577 | 34,003         | 33,803 | 32,271         | 35,915 | 35,540 | 33,966         | 33,766 | 32,234         | 1° 36'                                |
| M 39 x 1,5                                    |                        | 39,000                                      | 38,850 | 38,026         | 37,931 | 37,160         | 38,968 | 38,732 | 37,994         | 37,844 | 37,128         | 38,933 | 38,697 | 37,959         | 37,809 | 37,092         | 0° 43'                                |
| M 39 x 2                                      |                        | 39,000                                      | 38,820 | 37,701         | 37,595 | 36,546         | 38,962 | 38,682 | 37,663         | 37,493 | 36,508         | 38,929 | 38,649 | 37,630         | 37,460 | 36,475         | 0° 58'                                |
| M 39 x 3                                      |                        | 39,000                                      | 38,764 | 37,051         | 36,926 | 35,319         | 38,952 | 38,577 | 37,003         | 36,803 | 35,271         | 38,915 | 38,540 | 36,966         | 36,766 | 35,234         | 1° 28'                                |
| M 42 x 1,5                                    |                        | 42,000                                      | 41,850 | 41,026         | 40,931 | 40,160         | 41,968 | 41,732 | 40,994         | 40,844 | 40,128         | 41,933 | 41,697 | 40,959         | 40,809 | 40,093         | 0° 40'                                |
| M 42 x 2                                      |                        | 42,000                                      | 41,820 | 40,701         | 40,595 | 39,546         | 41,962 | 41,682 | 40,663         | 40,493 | 39,508         | 41,929 | 41,649 | 40,630         | 40,460 | 39,475         | 0° 53'                                |
| M 42 x 3                                      |                        | 42,000                                      | 41,764 | 40,051         | 39,926 | 38,319         | 41,952 | 41,577 | 40,003         | 39,803 | 38,271         | 41,915 | 41,540 | 39,966         | 39,766 | 38,234         | 1° 22'                                |
| M 42 x 4                                      |                        | 42,000                                      | 41,700 | 39,402         | 39,262 | 37,093         | 41,940 | 41,465 | 39,342         | 39,118 | 37,033         | 41,905 | 41,430 | 39,307         | 39,083 | 36,998         | 1° 51'                                |
| M 45 x 1,5                                    |                        | 45,000                                      | 44,850 | 44,026         | 43,931 | 43,160         | 44,968 | 44,732 | 43,994         | 43,844 | 43,128         | 44,933 | 44,697 | 43,959         | 43,809 | 43,093         | 0° 37'                                |
| M 45 x 2                                      |                        | 45,000                                      | 44,820 | 43,701         | 43,595 | 42,546         | 44,962 | 44,682 | 43,663         | 43,493 | 42,508         | 44,929 | 44,649 | 43,630         | 43,460 | 42,475         | 0° 50'                                |
| M 45 x 3                                      |                        | 45,000                                      | 44,764 | 43,051         | 42,926 | 41,319         | 44,952 | 44,577 | 43,003         | 42,803 | 41,271         | 44,915 | 44,540 | 42,966         | 42,766 | 41,234         | 1° 16'                                |
| M 45 x 4                                      |                        | 45,000                                      | 44,700 | 42,402         | 42,262 | 40,093         | 44,940 | 44,465 | 42,342         | 42,118 | 40,033         | 44,905 | 44,430 | 42,307         | 42,083 | 39,998         | 1° 43'                                |
| M 48 x 1,5                                    |                        | 48,000                                      | 47,850 | 47,026         | 46,926 | 46,160         | 47,968 | 47,732 | 46,994         | 46,834 | 46,128         | 47,933 | 47,697 | 46,959         | 46,799 | 46,093         | 0° 35'                                |
| M 48 x 2                                      |                        | 48,000                                      | 47,820 | 46,701         | 46,589 | 45,546         | 47,962 | 47,682 | 46,663         | 46,483 | 45,508         | 47,929 | 47,649 | 46,630         | 46,450 | 45,475         | 0° 47'                                |
| M 48 x 3                                      |                        | 48,000                                      | 47,764 | 46,051         | 45,919 | 44,319         | 47,952 | 47,577 | 46,003         | 45,791 | 44,271         | 47,915 | 47,540 | 45,966         | 45,754 | 44,234         | 1° 11'                                |
| M 48 x 4                                      |                        | 48,000                                      | 47,700 | 45,402         | 45,252 | 43,903         | 47,940 | 47,465 | 45,342         | 45,106 | 43,033         | 47,905 | 47,430 | 45,307         | 45,071 | 42,998         | 1° 36'                                |
| M 52 x 1,5                                    |                        | 52,000                                      | 51,850 | 51,026         | 50,926 | 50,160         | 51,968 | 51,732 | 50,994         | 50,834 | 50,128         | 51,933 | 51,697 | 50,959         | 50,799 | 50,093         | 0° 32'                                |
| M 52 x 2                                      |                        | 52,000                                      | 51,820 | 50,701         | 50,589 | 49,546         | 51,962 | 51,682 | 50,663         | 50,483 | 49,508         | 51,929 | 51,649 | 50,630         | 50,450 | 49,475         | 0° 43'                                |
| M 52 x 3                                      |                        | 52,000                                      | 51,764 | 50,051         | 49,919 | 48,319         | 51,952 | 51,577 | 50,003         | 49,791 | 48,271         | 51,915 | 51,540 | 49,966         | 49,754 | 48,234         | 1° 5'                                 |
| M 52 x 4                                      |                        | 52,000                                      | 51,700 | 49,402         | 49,252 | 47,093         | 51,940 | 51,465 | 48,342         | 49,106 | 47,033         | 51,905 | 51,430 | 49,307         | 49,071 | 46,998         | 1° 28'                                |
| M 56 x 1,5                                    |                        | 56,000                                      | 55,850 | 55,026         | 54,926 | 54,160         | 55,968 | 55,732 | 54,994         | 54,834 | 54,128         | 55,933 | 55,697 | 54,959         | 54,799 | 54,093         | 0° 29'                                |
| M 56 x 2                                      |                        | 56,000                                      | 55,820 | 54,701         | 54,589 | 53,546         | 55,962 | 55,682 | 54,663         | 54,483 | 53,508         | 55,929 | 55,649 | 54,630         | 54,450 | 53,475         | 0° 40'                                |
| M 56 x 3                                      |                        | 56,000                                      | 55,764 | 54,051         | 53,919 | 52,319         | 55,952 | 55,577 | 54,003         | 53,791 | 52,271         | 55,915 | 55,540 | 53,966         | 53,754 | 52,234         | 1°                                    |
| M 56 x 4                                      |                        | 56,000                                      | 55,700 | 53,402         | 53,252 | 51,093         | 55,940 | 55,465 | 53,342         | 53,106 | 51,033         | 55,905 | 55,430 | 53,307         | 53,071 | 50,998         | 1° 22'                                |
| M 60 x 1,5                                    |                        | 60,000                                      | 59,850 | 59,026         | 58,926 | 58,160         | 59,968 | 59,732 | 58,994         | 58,834 | 58,128         | 59,933 | 59,697 | 58,959         | 58,799 | 58,093         | 0° 28'                                |
| M 60 x 2                                      |                        | 60,000                                      | 59,820 | 58,701         | 58,589 | 57,546         | 59,962 | 59,682 | 58,663         | 58,483 | 57,508         | 59,929 | 59,649 | 58,630         | 58,450 | 57,475         | 0° 37'                                |
| M 60 x 3                                      |                        | 60,000                                      | 59,764 | 58,051         | 57,919 | 56,319         | 59,952 | 59,577 | 58,003         | 57,791 | 56,271         | 59,915 | 59,540 | 57,966         | 57,754 | 56,234         | 0° 56'                                |
| M 60 x 4                                      |                        | 60,000                                      | 59,700 | 57,402         | 57,252 | 55,093         | 59,940 | 59,465 | 57,342         | 57,106 | 55,033         | 59,905 | 59,430 | 57,307         | 57,071 | 54,998         | 1° 16'                                |
| M 64 x 2                                      |                        | 64,000                                      | 63,820 | 62,701         | 62,589 | 61,546         | 63,962 | 63,682 | 62,663         | 62,483 | 61,508         | 63,929 | 63,649 | 62,630         | 62,450 | 61,475         | 0° 35'                                |
| M 64 x 3                                      |                        | 64,000                                      | 63,764 | 62,051         | 61,919 | 60,319         | 63,952 | 63,577 | 62,003         | 61,791 | 60,271         | 63,915 | 63,540 | 61,966         | 61,754 | 60,234         | 0° 53'                                |
| M 64 x 4                                      |                        | 64,000                                      | 63,700 | 61,402         | 61,252 | 59,093         | 63,940 | 63,465 | 61,342         | 61,106 | 59,033         | 63,905 | 63,430 | 61,307         | 61,071 | 58,998         | 1° 11'                                |
| M 68 x 2                                      |                        | 68,000                                      | 67,820 | 66,701         | 66,589 | 65,546         | 67,962 | 67,682 | 66,663         | 66,483 | 65,508         | 67,929 | 67,649 | 66,630         | 66,450 | 65,475         | 0° 32'                                |
| M 68 x 3                                      |                        | 68,000                                      | 67,764 | 66,051         | 65,919 | 64,319         | 67,952 | 67,577 | 66,033         | 65,791 | 64,271         | 67,915 | 67,540 | 65,966         | 65,754 | 64,234         | 0° 49'                                |
| M 68 x 4                                      |                        | 68,000                                      | 67,700 | 65,402         | 65,252 | 63,093         | 67,940 | 67,465 | 65,342         | 65,106 | 63,033         | 67,905 | 67,430 | 65,307         | 65,071 | 62,998         | 1° 7'                                 |
| M 72 x 2                                      |                        | 72,000                                      | 71,820 | 70,701         | 70,589 | 69,546         | 71,962 | 71,682 | 70,663         | 70,483 | 69,508         | 71,929 | 71,649 | 70,630         | 70,450 | 69,475         | 0° 31'                                |
| M 72 x 3                                      |                        | 72,000                                      | 71,764 | 70,051         | 69,919 | 68,319         | 71,952 | 71,577 | 70,003         | 69,791 | 68,271         | 71,915 | 71,540 | 69,966         | 69,754 | 68,234         | 0° 47'                                |
| M 72 x 4                                      |                        | 72,000                                      | 71,700 | 69,402         | 69,252 | 67,093         | 71,940 | 71,465 | 69,342         | 69,106 | 67,033         | 71,905 | 71,430 | 69,307         | 69,071 | 66,998         | 1° 3'                                 |
| M 72 x 6                                      |                        | 72,000                                      | 71,625 | 68,103         | 67,923 | 64,639         | 71,920 | 71,320 | 68,023         | 67,743 | 64,559         | 71,882 | 71,282 | 67,985         | 67,705 | 64,521         | 1° 36'                                |

Bezeichnungsbeispiel für Bolzensgewinde (Toleranz mitte): M 20 – 6 g. Bezeichnungsbeispiel für Bolzen-Linksgewinde (Toleranz mitte): M 20 – 6 g – LH  
 Designation example for bolt thread (middle tolerance): M 20 – 6 g. Designation example for left-hand bolt thread (middle tolerance): M 20 – 6 g – LH

| Gewinde-<br>Nenn-<br>Ø<br>Thread | Steigung<br>Pitch<br>P | Toleranzfelder (mm)<br>Tolerance field (mm) |        |                |        |                |        |        |                |        |                |        |        |                |        |                | Steigungs-<br>∠<br>Lead<br>∠<br>β<br>Deg., min. |
|----------------------------------|------------------------|---|--------|----------------|--------|----------------|--------|--------|----------------|--------|----------------|--------|--------|----------------|--------|----------------|---|
|                                  |                        | 4 h   |        |                |        |                | 6 g    |        |                |        |                | 6 e    |        |                |        |                |   |
|                                  |                        | d   |        | d <sub>2</sub> |        | d <sub>3</sub> | d      |        | d <sub>2</sub> |        | d <sub>3</sub> | d      |        | d <sub>2</sub> |        | d <sub>3</sub> |   |
| max.                             | min.                   | max.  | min.   | max.           | max.   | min.           | max.   | min.   | max.           | max.   | min.           | max.   | min.   | max.           |        |                |   |
| M 76 x 3                         |                        | 76,000                                      | 75,764 | 74,051         | 73,919 | 72,319         | 75,952 | 75,577 | 74,003         | 73,791 | 72,271         | 75,915 | 75,540 | 73,966         | 73,754 | 72,234         | 0° 44'  |
| M 76 x 4                         |                        | 76,000                                      | 75,700 | 73,402         | 73,252 | 71,093         | 75,940 | 75,465 | 73,342         | 73,106 | 71,033         | 75,905 | 75,430 | 73,307         | 73,071 | 70,998         | 0° 59'  |
| M 76 x 6                         |                        | 76,000                                      | 75,625 | 72,103         | 71,923 | 68,639         | 75,920 | 75,320 | 72,023         | 71,743 | 75,882         | 75,559 | 75,282 | 71,985         | 71,705 | 68,521         | 1° 31'  |
| M 80 x 2                         |                        | 80,000                                      | 79,820 | 78,701         | 78,589 | 77,546         | 79,962 | 79,682 | 78,663         | 78,483 | 77,508         | 79,929 | 79,649 | 78,630         | 78,450 | 77,475         | 0° 27'  |
| M 80 x 3                         |                        | 80,000                                      | 79,764 | 78,051         | 77,919 | 76,319         | 79,952 | 79,577 | 78,003         | 77,791 | 76,271         | 79,915 | 79,540 | 77,966         | 77,754 | 76,234         | 0° 42'  |
| M 80 x 4                         |                        | 80,000                                      | 79,700 | 77,402         | 77,252 | 75,093         | 79,940 | 79,465 | 77,342         | 77,106 | 75,033         | 79,905 | 79,430 | 77,307         | 77,071 | 74,998         | 0° 56'  |
| M 80 x 6                         |                        | 80,000                                      | 79,625 | 76,103         | 75,923 | 77,639         | 79,920 | 79,320 | 76,023         | 75,743 | 72,559         | 79,882 | 79,282 | 75,985         | 75,705 | 72,521         | 1° 26'  |
| M 85 x 2                         |                        | 85,000                                      | 84,820 | 83,701         | 83,589 | 82,546         | 84,962 | 84,682 | 83,663         | 83,483 | 82,508         | 84,929 | 84,649 | 83,630         | 83,450 | 82,475         | 0° 26'  |
| M 85 x 3                         |                        | 85,000                                      | 84,764 | 83,051         | 82,919 | 81,319         | 84,952 | 84,577 | 83,003         | 82,791 | 81,271         | 84,195 | 84,540 | 82,966         | 82,754 | 81,234         | 0° 39'  |
| M 85 x 4                         |                        | 85,000                                      | 84,700 | 82,402         | 82,252 | 80,093         | 84,940 | 84,465 | 82,342         | 82,106 | 80,033         | 84,905 | 84,430 | 82,307         | 82,071 | 79,998         | 0° 53'  |
| M 85 x 6                         |                        | 85,000                                      | 84,625 | 81,103         | 80,923 | 77,639         | 84,920 | 84,320 | 81,023         | 80,743 | 77,559         | 84,882 | 84,282 | 80,985         | 80,705 | 77,521         | 1° 21'  |
| M 90 x 2                         |                        | 90,000                                      | 89,820 | 88,701         | 88,589 | 87,546         | 89,962 | 89,682 | 88,663         | 88,483 | 87,508         | 89,929 | 89,649 | 88,630         | 88,450 | 87,475         | 0° 24'  |
| M 90 x 3                         |                        | 90,000                                      | 89,764 | 88,051         | 87,919 | 86,319         | 89,952 | 89,577 | 88,003         | 87,791 | 86,271         | 89,915 | 89,540 | 87,966         | 87,754 | 86,234         | 0° 37'  |
| M 90 x 4                         |                        | 90,000                                      | 89,700 | 87,402         | 87,252 | 85,093         | 89,940 | 89,465 | 87,243         | 87,106 | 85,033         | 89,905 | 89,430 | 87,307         | 87,071 | 84,998         | 0° 50'  |
| M 90 x 6                         |                        | 90,000                                      | 89,625 | 86,103         | 85,923 | 82,639         | 89,920 | 89,320 | 86,023         | 85,743 | 82,559         | 89,882 | 89,282 | 85,985         | 85,705 | 82,521         | 1° 16'  |
| M 95 x 2                         |                        | 95,000                                      | 94,820 | 93,701         | 93,583 | 92,546         | 94,962 | 94,682 | 93,663         | 93,473 | 92,508         | 94,929 | 94,649 | 93,630         | 93,440 | 92,475         | 0° 23'  |
| M 95 x 3                         |                        | 95,000                                      | 94,764 | 93,051         | 92,911 | 91,319         | 94,952 | 94,577 | 93,003         | 92,779 | 91,271         | 94,915 | 94,540 | 92,966         | 92,742 | 91,234         | 0° 35'  |
| M 95 x 4                         |                        | 95,000                                      | 94,700 | 94,402         | 92,242 | 90,093         | 94,490 | 94,465 | 92,342         | 92,092 | 90,033         | 94,905 | 94,430 | 92,307         | 92,057 | 89,998         | 0° 47'  |
| M 95 x 6                         |                        | 95,000                                      | 94,625 | 91,103         | 90,913 | 87,639         | 94,920 | 94,320 | 91,023         | 90,723 | 87,559         | 94,882 | 94,282 | 90,985         | 90,685 | 87,521         | 1° 12'  |
| M 100 x 2                        |                        | 100,000                                     | 99,820 | 98,701         | 98,583 | 97,546         | 99,962 | 99,682 | 98,663         | 98,473 | 97,508         | 99,929 | 99,649 | 98,630         | 98,440 | 97,475         | 0° 23'  |
| M 100 x 3                        |                        | 100,000                                     | 99,764 | 98,051         | 97,911 | 96,319         | 99,952 | 99,577 | 98,003         | 97,779 | 96,271         | 99,915 | 99,540 | 97,966         | 97,742 | 96,234         | 0° 53'  |
| M 100 x 4                        |                        | 100,000                                     | 99,700 | 97,402         | 97,242 | 95,093         | 99,940 | 99,465 | 97,342         | 97,092 | 95,033         | 99,905 | 99,430 | 97,307         | 97,057 | 94,998         | 0° 45'  |
| M 100 x 6                        |                        | 100,000                                     | 99,625 | 96,103         | 95,913 | 92,639         | 99,920 | 99,320 | 96,023         | 95,723 | 92,559         | 99,882 | 99,282 | 95,985         | 95,685 | 95,521         | 1° 8'   |

Bezeichnungsbeispiel für Bolzengewinde (Toleranz mitte): M 20 – 6 g

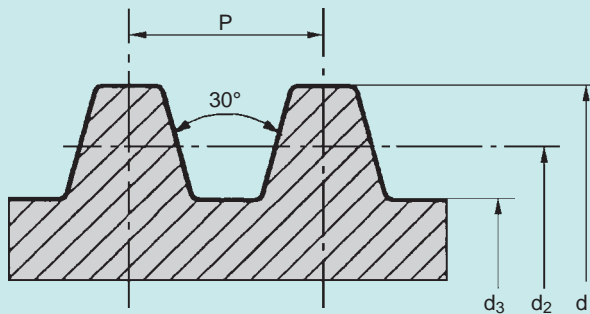
Bezeichnungsbeispiel für Bolzen-Linksgewinde (Toleranz mitte): M 20 – 6 g – LH

Designation example for bolt thread (middle tolerance): M 20 – 6 g

Designation example for left-hand bolt thread (middle tolerance): M 20 – 6 g – LH



Gewindegrenzmaße und Steigungswinkel für Bolzengewinde siehe DIN 13 Teil 20  
Thread limit dimensions and lead angle for bolt threads see DIN 13 part 20



- d = Bolzen-Außen-Ø  
Bolt major-Ø
- d<sub>2</sub> = Bolzen-Flanken-Ø  
Bolt pitch-Ø
- d<sub>3</sub> = Bolzen-Kern-Ø  
Bolt minor-Ø
- Steigungs- $\beta$  nach Nenn-Ø d<sub>2</sub>  
Lead  $\beta$  to nominal-Ø d<sub>2</sub>
- $$\tan \beta = \frac{p}{d_2 \cdot \pi}$$

| Gewinde-<br>Nenn-Ø   Steigung<br>Thread<br>Nominal<br>Ø   Pitch<br>P | d<br>mm                  |        | d <sub>2</sub><br>mm |        |        | d <sub>3</sub><br>mm |                  | Steigungs-<br>$\beta$<br>Lead $\beta$<br>Deg., min. |        |        |
|--|--------------------------|--------|----------------------|--------|--------|----------------------|------------------|---|--------|--------|
|  | 4h                       |        | Nenn-Ø<br>Nom.-Ø     | 7e, 8e | 7e     | 8e                   | Nenn-Ø<br>Nom.-Ø |   | 7e     | 8e     |
|  | Nenn-Ø<br>Nom.-Ø<br>max. | min.   |                      | max.   | min.   | min.                 |                  |   | max.   | min.   |
| Tr 8 x 1,5   | 8,000                    | 7,850  | 7,250                | 7,183  | 7,013  | 6,971                | 6,200            | 5,921   | 5,868  | 3° 46' |
| Tr 9 x 1,5   | 9,000                    | 8,850  | 8,250                | 8,183  | 8,013  | 7,971                | 7,200            | 6,921   | 6,868  | 3° 18' |
| Tr 9 x 2   | 9,000                    | 8,820  | 8,000                | 7,929  | 7,739  | 7,693                | 6,500            | 6,191   | 6,134  | 4° 33' |
| Tr 10 x 1,5  | 10,000                   | 9,850  | 9,250                | 9,183  | 9,013  | 8,971                | 8,200            | 7,921   | 7,868  | 2° 57' |
| Tr 10 x 2  | 10,000                   | 9,820  | 9,000                | 8,929  | 8,739  | 8,693                | 7,500            | 7,191   | 7,134  | 4° 2'  |
| Tr 11 x 2  | 11,000                   | 10,820 | 10,000               | 9,929  | 9,739  | 9,693                | 8,500            | 8,191   | 8,134  | 3° 38' |
| Tr 11 x 3  | 11,000                   | 10,764 | 9,500                | 9,415  | 9,203  | 9,150                | 7,500            | 7,150   | 7,084  | 5° 44' |
| Tr 12 x 2  | 12,000                   | 11,820 | 11,000               | 10,929 | 10,729 | 10,679               | 9,500            | 9,179   | 9,117  | 3° 18' |
| Tr 12 x 3  | 12,000                   | 11,764 | 10,500               | 10,415 | 10,191 | 10,135               | 8,500            | 8,135   | 8,065  | 5° 11' |
| Tr 14 x 2  | 14,000                   | 13,820 | 13,000               | 12,929 | 12,729 | 12,679               | 11,500           | 11,179  | 11,117 | 2° 48' |
| Tr 14 x 3  | 14,000                   | 13,764 | 12,500               | 12,415 | 12,191 | 12,135               | 10,500           | 10,135  | 10,065 | 4° 22' |
| Tr 16 x 2  | 16,000                   | 15,820 | 15,000               | 14,929 | 14,729 | 14,679               | 13,500           | 13,179  | 13,117 | 2° 25' |
| Tr 16 x 4  | 16,000                   | 15,700 | 14,000               | 13,905 | 13,640 | 13,570               | 11,500           | 11,074  | 10,986 | 5° 11' |
| Tr 18 x 2  | 18,000                   | 17,820 | 17,000               | 16,929 | 16,729 | 16,679               | 15,500           | 15,179  | 15,117 | 2° 8'  |
| Tr 18 x 4  | 18,000                   | 17,700 | 16,000               | 15,905 | 15,640 | 15,570               | 13,500           | 13,074  | 12,986 | 4° 33' |
| Tr 20 x 2  | 20,000                   | 19,820 | 19,000               | 18,929 | 18,729 | 18,679               | 17,500           | 17,179  | 17,117 | 1° 55' |
| Tr 20 x 4  | 20,000                   | 19,700 | 18,000               | 17,905 | 17,640 | 17,570               | 15,500           | 15,074  | 14,986 | 4° 2'  |
| Tr 22 x 3  | 22,000                   | 21,764 | 20,500               | 20,415 | 20,191 | 20,135               | 18,500           | 18,135  | 18,065 | 2° 40' |
| Tr 22 x 5  | 22,000                   | 21,665 | 19,500               | 19,394 | 19,114 | 19,039               | 16,500           | 16,044  | 15,950 | 4° 40' |
| Tr 24 x 3  | 24,000                   | 23,764 | 22,500               | 22,415 | 22,165 | 22,100               | 20,500           | 20,103  | 20,021 | 2° 25' |
| Tr 24 x 5  | 24,000                   | 23,665 | 21,500               | 21,394 | 21,094 | 21,019               | 18,500           | 18,019  | 17,925 | 4° 14' |
| Tr 26 x 3  | 26,000                   | 25,764 | 24,500               | 24,415 | 24,165 | 24,100               | 22,500           | 22,103  | 22,021 | 2° 14' |
| Tr 26 x 5  | 26,000                   | 25,665 | 23,500               | 23,394 | 23,094 | 23,019               | 20,500           | 20,019  | 19,925 | 3° 52' |
| Tr 28 x 3  | 28,000                   | 27,764 | 26,500               | 26,415 | 26,165 | 26,100               | 24,500           | 24,103  | 24,021 | 2° 3'  |
| Tr 28 x 5  | 28,000                   | 27,665 | 25,500               | 25,394 | 25,094 | 25,019               | 22,500           | 22,019  | 21,925 | 3° 34' |
| Tr 30 x 3  | 30,000                   | 29,764 | 28,500               | 28,415 | 28,165 | 28,100               | 26,500           | 26,103  | 26,021 | 1° 55' |
| Tr 30 x 6  | 30,000                   | 29,625 | 27,000               | 26,882 | 26,547 | 26,457               | 23,000           | 22,463  | 22,351 | 4° 2'  |
| Tr 32 x 3  | 32,000                   | 31,764 | 30,500               | 30,415 | 30,165 | 30,100               | 28,500           | 28,103  | 28,021 | 1° 47' |
| Tr 32 x 6  | 32,000                   | 31,625 | 29,000               | 28,882 | 28,547 | 28,457               | 25,000           | 24,463  | 24,351 | 3° 46' |
| Tr 34 x 3  | 34,000                   | 33,764 | 32,500               | 32,415 | 32,165 | 32,100               | 30,500           | 30,103  | 30,021 | 1° 41' |
| Tr 34 x 6  | 34,000                   | 33,625 | 31,000               | 30,882 | 30,547 | 30,457               | 27,000           | 26,463  | 26,351 | 3° 31' |
| Tr 36 x 3  | 36,000                   | 35,764 | 34,500               | 34,415 | 34,165 | 34,100               | 32,500           | 32,103  | 32,021 | 1° 35' |
| Tr 36 x 6  | 36,000                   | 35,625 | 33,000               | 32,882 | 32,547 | 32,457               | 29,000           | 28,463  | 28,351 | 3° 18' |
| Tr 38 x 3  | 38,000                   | 37,764 | 36,500               | 36,415 | 36,165 | 36,100               | 34,500           | 34,103  | 34,021 | 1° 30' |
| Tr 38 x 7  | 38,000                   | 37,575 | 34,500               | 34,375 | 34,020 | 33,925               | 30,000           | 29,431  | 29,312 | 3° 41' |

Bezeichnungsbeispiel für Bolzengewinde (Toleranz mittel = 7 e): Tr 16 x 4; (Toleranz mittel = 8 e): Tr 16 x 4 - 8 e

Bezeichnungsbeispiel für Bolzen-Linksgewinde (Toleranz mittel = 7 e): Tr 16 x 4 - LH; (Toleranz mittel = 8 e): Tr 16 x 4 - 8 e - LH

Bezeichnungsbeispiel für mehrgängige Bolzengewinde (z. B. 2gängig): Tr 16 x 8 P 4; (Gangzahl =  $\frac{PH}{P} = \frac{8}{4} = 2$ )

Designation example for bolt thread (middle tolerance = 7 e): Tr 16 x 4; (middle tolerance = 8 e): Tr 16 x 4 - 8 e

Designation example for bolt left-hand thread (middle tolerance = 7 e): Tr 16 x 4 - LH; (middle tolerance = 8 e): Tr 16 x 4 - 8 e - LH

Designation example for multiple starts bolt thread (e. g. 2 starts): Tr 16 x 8 P 4 (starts no. =  $\frac{PH}{P} = \frac{8}{4} = 2$ )

| Gewinde-<br>Nenn-Ø   Steigung<br>Thread<br>Nominal<br>Ø   Pitch<br>P |   |   | d<br>mm                  |        | d <sub>2</sub><br>mm |        |        | d <sub>3</sub><br>mm |                          |        | Steigungs-<br>β<br>Lead β<br>Deg., min. |        |
|--|---|---|--------------------------|--------|----------------------|--------|--------|----------------------|--------------------------|--------|---|--------|
|  |   |   | 4h                       |        | Nenn-Ø<br>Nom.-Ø     | 7e, 8e | 7e     | 8e                   | 7e, 8e                   | 7e     |   | 8e     |
|  |   |   | Nenn-Ø<br>Nom.-Ø<br>max. | min.   |                      | max.   | min.   | min.                 | Nenn-Ø<br>Nom.-Ø<br>max. | min    |   | min.   |
| Tr 40  | x | 3 | 40,000                   | 39,764 | 38,500               | 38,415 | 38,165 | 38,100               | 36,500                   | 36,103 | 36,021                                  | 1° 25' |
| Tr 40  | x | 7 | 40,000                   | 39,575 | 36,500               | 36,375 | 36,020 | 35,925               | 32,000                   | 31,431 | 31,312                                  | 3° 29' |
| Tr 42  | x | 3 | 42,000                   | 41,764 | 40,500               | 40,415 | 40,165 | 40,100               | 38,500                   | 38,103 | 38,021                                  | 1° 21' |
| Tr 42  | x | 7 | 42,000                   | 41,575 | 38,500               | 38,375 | 38,020 | 37,925               | 34,000                   | 33,431 | 33,312                                  | 3° 18' |
| Tr 44  | x | 3 | 44,000                   | 43,764 | 42,500               | 42,415 | 42,165 | 42,100               | 40,500                   | 40,103 | 40,021                                  | 1° 17' |
| Tr 44  | x | 7 | 44,000                   | 43,575 | 40,500               | 40,375 | 40,020 | 39,925               | 36,000                   | 35,431 | 35,312                                  | 3° 9'  |
| Tr 46  | x | 3 | 46,000                   | 45,764 | 44,500               | 44,415 | 44,150 | 44,080               | 42,500                   | 42,084 | 41,996                                  | 1° 13' |
| Tr 46  | x | 8 | 46,000                   | 45,550 | 42,000               | 41,868 | 41,468 | 41,368               | 37,000                   | 36,368 | 36,243                                  | 3° 28' |
| Tr 48  | x | 3 | 48,000                   | 47,764 | 46,500               | 46,415 | 46,150 | 46,080               | 44,500                   | 44,084 | 43,996                                  | 1° 10' |
| Tr 48  | x | 8 | 48,000                   | 47,550 | 44,000               | 43,868 | 43,468 | 43,368               | 39,000                   | 38,368 | 38,243                                  | 3° 18' |
| Tr 50  | x | 3 | 50,000                   | 49,764 | 48,500               | 48,415 | 48,150 | 48,080               | 46,500                   | 46,084 | 45,996                                  | 1° 7'  |
| Tr 50  | x | 8 | 50,000                   | 49,550 | 46,000               | 45,868 | 45,468 | 45,368               | 41,000                   | 40,368 | 40,243                                  | 3° 10' |
| Tr 52  | x | 3 | 52,000                   | 51,764 | 50,500               | 50,415 | 50,150 | 50,080               | 48,500                   | 48,084 | 47,996                                  | 1° 5'  |
| Tr 52  | x | 8 | 52,000                   | 51,550 | 48,000               | 47,868 | 47,468 | 47,368               | 43,000                   | 42,368 | 42,243                                  | 3° 2'  |
| Tr 55  | x | 3 | 55,000                   | 54,764 | 53,500               | 53,415 | 53,150 | 53,080               | 51,500                   | 51,084 | 50,996                                  | 1° 1'  |
| Tr 55  | x | 9 | 55,000                   | 54,500 | 50,500               | 50,360 | 49,935 | 49,830               | 45,000                   | 44,329 | 44,197                                  | 3° 14' |
| Tr 60  | x | 3 | 60,000                   | 59,764 | 58,500               | 58,415 | 58,150 | 58,080               | 56,500                   | 56,084 | 55,996                                  | 0° 56' |
| Tr 60  | x | 9 | 60,000                   | 59,500 | 55,500               | 55,360 | 54,935 | 54,830               | 50,000                   | 49,329 | 49,197                                  | 2° 57' |

Bezeichnungsbeispiel für Bolzengewinde (Toleranz mittel = 7 e): Tr 16 x 4; (Toleranz mittel = 8 e): Tr 16 x 4 - 8 e

Bezeichnungsbeispiel für Bolzen-Linksgewinde (Toleranz mittel = 7 e): Tr 16 x 4 - LH; (Toleranz mittel = 8 e): Tr 16 x 4 - 8 e - LH

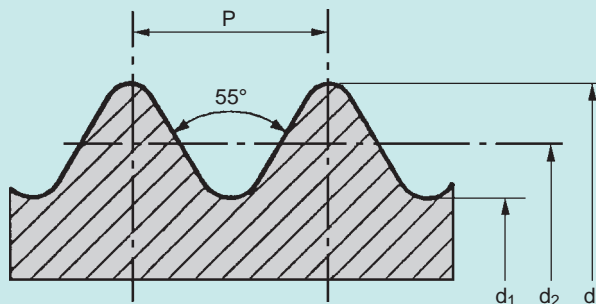
Bezeichnungsbeispiel für mehrgängige Bolzengewinde (z. B. 2gängig): Tr 16 x 8 P 4; (Gangzahl =  $\frac{PH}{P} = \frac{8}{4} = 2$ )

Designation example for bolt thread (middle tolerance = 7 e): Tr 16 x 4; (middle tolerance = 8 e): Tr 16 x 4 - 8 e

Designation example for bolt left-hand thread (middle tolerance = 7 e): Tr 16 x 4 - LH; (middle tolerance = 8 e): Tr 16 x 4 - 8 e - LH

Designation example for multiple starts bolt thread (e. g. 2 starts): Tr 16 x 8 P 4 (starts no. =  $\frac{PH}{P} = \frac{8}{4} = 2$ )

Gewindegrenzmaße und Steigungswinkel für zylindrische Bolzengewinde siehe DIN-ISO 228 und DIN 259  
Thread limit dimensions and lead angle for parallel Pipe Threads see DIN-ISO 228 and DIN 259



d = Bolzen-Außen-Ø  
Bolt major-Ø  
d<sub>2</sub> = Bolzen-Flanken-Ø  
Bolt pitch-Ø  
d<sub>3</sub> = Bolzen-Kern-Ø  
Bolt minor-Ø  
Steigungs- $\beta$  nach Nenn-Ø d<sub>2</sub>  
Lead  $\beta$  to nominal-Ø d<sub>2</sub>  
$$\tan \beta = \frac{p}{d_2 \cdot \pi}$$

| Gewinde-<br>Kurz-<br>zeichen<br>Thread<br>abbrevi-<br>ation | Gang-<br>zahl/1"<br>Threads<br>per inch<br><br>Z | Steigung<br>mm<br>Pitch<br>mm<br>P | d       |         | d <sub>2</sub> |   | d <sub>1</sub> |                                       | Steigungs- $\beta$<br>Lead $\beta$<br><br>$\beta$<br>Deg., min. |         |        |
|---|--|------------------------------------|---------|---------|----------------|---|----------------|---------------------------------------|---|---------|--------|
|   |  |                                    | max.    | min.    | max.           | mittel<br>Klasse A<br>middle<br>Class A |                | grob<br>Klasse B<br>coarse<br>Class B |   |         |        |
|   |  |                                    |         |         |                | min.                                    | min.           | max.                                  |   | min.    |        |
| R 1/16 <sup>1)</sup>  | 28   | 0,907                              | 7,723   | 7,509   | 7,142          | 7,035                                   | 6,928          | 6,591                                 | 6,427   | 6,293   | 2° 19' |
| G 1/8   | 28   | 0,907                              | 9,728   | 9,514   | 9,147          | 9,040                                   | 8,933          | 8,566                                 | 8,432   | 8,298   | 1° 48' |
| G 1/4   | 19   | 1,337                              | 13,157  | 12,907  | 12,301         | 12,176                                  | 12,051         | 11,445                                | 11,289  | 11,133  | 1° 59' |
| G 3/8   | 19   | 1,337                              | 16,662  | 16,412  | 15,806         | 15,681                                  | 15,556         | 14,950                                | 14,794  | 14,638  | 1° 32' |
| G 1/2   | 14   | 1,814                              | 20,955  | 20,671  | 19,793         | 19,651                                  | 19,509         | 18,631                                | 18,453  | 18,276  | 1° 40' |
| G 5/8   | 14   | 1,814                              | 22,911  | 22,627  | 21,749         | 21,607                                  | 21,465         | 20,587                                | 20,409  | 20,232  | 1° 31' |
| G 3/4   | 14   | 1,814                              | 26,441  | 26,157  | 25,279         | 25,137                                  | 24,995         | 24,117                                | 23,939  | 23,762  | 1° 18' |
| G 7/8   | 14   | 1,814                              | 30,201  | 29,917  | 29,039         | 28,897                                  | 28,755         | 27,877                                | 27,699  | 27,522  | 1° 8'  |
| G 1   | 11   | 2,309                              | 33,249  | 32,889  | 31,770         | 31,590                                  | 31,410         | 30,291                                | 30,066  | 29,841  | 1° 19' |
| G 1 1/8   | 11   | 2,309                              | 37,897  | 37,537  | 36,418         | 36,238                                  | 36,058         | 34,939                                | 34,714  | 34,489  | 1° 9'  |
| G 1 1/4   | 11   | 2,309                              | 41,910  | 41,550  | 40,431         | 40,251                                  | 40,071         | 38,952                                | 38,727  | 38,502  | 1° 2'  |
| G 1 3/8   | 11   | 2,309                              | 44,323  | 43,963  | 42,844         | 42,664                                  | 42,484         | 41,365                                | 41,140  | 40,915  | 0° 59' |
| G 1 1/2   | 11   | 2,309                              | 47,803  | 47,443  | 46,324         | 46,144                                  | 45,964         | 44,845                                | 44,620  | 44,395  | 0° 54' |
| G 1 3/4   | 11   | 2,309                              | 53,746  | 53,386  | 52,267         | 52,087                                  | 51,907         | 50,788                                | 50,563  | 50,338  | 0° 48' |
| G 2   | 11   | 2,309                              | 59,614  | 59,254  | 58,135         | 57,955                                  | 57,775         | 56,656                                | 56,431  | 56,206  | 0° 43' |
| G 2 1/4   | 11   | 2,309                              | 65,710  | 65,276  | 64,231         | 64,014                                  | 63,797         | 62,752                                | 62,481  | 62,210  | 0° 39' |
| G 2 1/2   | 11   | 2,309                              | 75,184  | 74,750  | 73,705         | 73,488                                  | 73,271         | 72,226                                | 71,955  | 71,684  | 0° 34' |
| G 2 3/4   | 11   | 2,309                              | 81,534  | 81,100  | 80,055         | 79,838                                  | 79,621         | 78,576                                | 78,305  | 78,034  | 0° 31' |
| G 3   | 11   | 2,309                              | 87,884  | 87,450  | 86,405         | 86,188                                  | 85,971         | 84,926                                | 84,655  | 84,384  | 0° 29' |
| G 3 1/4   | 11   | 2,309                              | 93,980  | 93,546  | 92,501         | 92,284                                  | 92,067         | 91,022                                | 90,751  | 90,480  | 0° 27' |
| G 3 1/2   | 11   | 2,309                              | 100,330 | 99,896  | 98,851         | 98,634                                  | 98,417         | 97,372                                | 97,101  | 96,830  | 0° 25' |
| G 3 3/4   | 11   | 2,309                              | 106,680 | 106,246 | 105,201        | 104,984                                 | 104,767        | 103,722                               | 103,451   | 103,180 | 0° 24' |
| G 4   | 11   | 2,309                              | 113,030 | 112,596 | 111,551        | 111,334                                 | 111,117        | 110,072                               | 109,801   | 109,530 | 0° 22' |
| G 4 1/2   | 11   | 2,309                              | 125,730 | 125,296 | 124,251        | 124,034                                 | 123,817        | 122,772                               | 122,501   | 122,230 | 0° 20' |
| G 5   | 11   | 2,309                              | 138,430 | 137,996 | 136,951        | 136,734                                 | 136,517        | 135,472                               | 135,201   | 134,930 | 0° 18' |
| G 5 1/2   | 11   | 2,309                              | 151,130 | 150,696 | 149,651        | 149,434                                 | 149,217        | 148,172                               | 147,901   | 147,630 | 0° 17' |
| G 6   | 11   | 2,309                              | 163,830 | 163,396 | 162,351        | 162,134                                 | 161,917        | 160,872                               | 160,601   | 160,330 | 0° 15' |

<sup>1)</sup> Nur für konische Gewinde nach DIN 2999.

<sup>1)</sup> Only for tapered threads to DIN 2999.

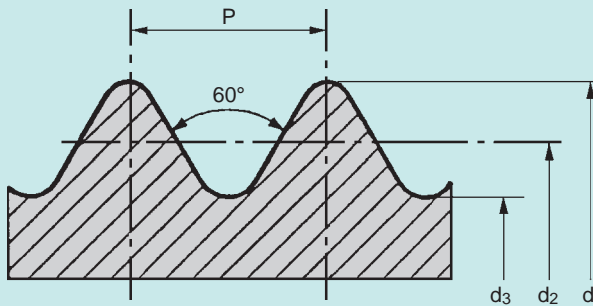
Bezeichnungsbeispiel für Bolzengewinde (Toleranz mittel – Klasse A): G 1 1/2 A

Bezeichnungsbeispiel für Bolzen-Linksgewinde (Toleranz mittel – Klasse A): G 1 1/2 A – LH

Designation example for pipe thread (middle tolerance – class A): G 1 1/2 A

Designation example for left-hand pipe thread (middle tolerance – class A): G 1 1/2 A – LH

Gewidegrenzmaße und Steigungswinkel für Bolzensgewinde siehe ANSI B 1.1  
Thread limit dimensions and lead angle for bolt threads see ANSI B 1.1



d = Bolzen-Außen-Ø  
Bolt major-Ø  
d<sub>2</sub> = Bolzen-Flanken-Ø  
Bolt pitch-Ø  
d<sub>3</sub> = Bolzen-Kern-Ø  
Bolt minor-Ø  
Steigungs- $\beta$  nach Nenn-Ø d<sub>2</sub>  
Lead  $\beta$  to nominal-Ø d<sub>2</sub>  
$$\tan \beta = \frac{P}{d_2 \cdot \pi}$$

| Gewinde-<br>bezeichnung<br><br>Thread<br>abbreviation<br><br>(Ø u. Gangzahl)<br>(Ø and starts) | Steigung<br><br>Pitch<br><br>mm<br>P | d                        |                 |         |         |         | d <sub>2</sub>           |                 |        |        |        | d <sub>3</sub>           |                 | Steigungs-<br>$\beta$<br>Lead<br>$\beta$<br>Deg.,<br>min. |
|--|--------------------------------------|--------------------------|-----------------|---------|---------|---------|--------------------------|-----------------|--------|--------|--------|--------------------------|-----------------|---|
|  |                                      | 3 A                      | 2 A, 1 A        | 3 A     | 2 A     | 1 A     | 3 A                      | 2 A, 1 A        | 3 A    | 2 A    | 1 A    | 3 A                      | 2 A, 1 A        |   |
|  |                                      | fein                     | mittel,<br>grob | fein    | mittel  | grob    | fein                     | mittel,<br>grob | fein   | mittel | grob   | fein                     | mittel,<br>grob |   |
|  |                                      | Nenn-Ø<br>Nom. Ø<br>max. | max.            | min.    | min.    | min.    | Nenn-Ø<br>Nom. Ø<br>max. | max.            | min.   | min.   | min.   | Nenn-Ø<br>Nom. Ø<br>max. | max.            |   |
| Nr. 1 – 64 UNC   | 0,397                                | 1,854                    | 1,839           | 1,758   | 1,742   | –       | 1,598                    | 1,582           | 1,560  | 1,532  | –      | 1,367                    | 1,351           | 4° 31'  |
| Nr. 2 – 56 UNC   | 0,454                                | 2,184                    | 2,169           | 2,080   | 2,065   | –       | 1,890                    | 1,875           | 1,849  | 1,821  | –      | 1,628                    | 1,613           | 4° 22'  |
| Nr. 3 – 48 UNC   | 0,529                                | 2,515                    | 2,497           | 2,400   | 2,383   | –       | 2,172                    | 2,154           | 2,129  | 2,096  | –      | 1,864                    | 1,847           | 4° 26'  |
| Nr. 4 – 40 UNC   | 0,635                                | 2,845                    | 2,824           | 2,715   | 2,695   | –       | 2,433                    | 2,413           | 2,385  | 2,350  | –      | 2,065                    | 2,045           | 4° 45'  |
| Nr. 5 – 40 UNC   | 0,635                                | 3,175                    | 3,155           | 3,045   | 3,025   | –       | 2,764                    | 2,743           | 2,715  | 2,677  | –      | 2,395                    | 2,375           | 4° 11'  |
| Nr. 6 – 32 UNC   | 0,794                                | 3,505                    | 3,485           | 3,353   | 3,332   | –       | 2,990                    | 2,969           | 2,936  | 2,898  | –      | 2,532                    | 2,512           | 4° 49'  |
| Nr. 8 – 32 UNC   | 0,794                                | 4,166                    | 4,143           | 4,013   | 3,990   | –       | 3,650                    | 3,627           | 3,594  | 3,553  | –      | 3,193                    | 3,170           | 3° 57'  |
| Nr. 10 – 24 UNC  | 1,058                                | 4,826                    | 4,801           | 4,643   | 4,618   | –       | 4,138                    | 4,112           | 4,074  | 4,028  | –      | 3,528                    | 3,503           | 4° 39'  |
| Nr. 12 – 24 UNC  | 1,058                                | 5,486                    | 5,461           | 5,304   | 5,278   | –       | 4,798                    | 4,773           | 4,732  | 4,686  | –      | 4,188                    | 4,163           | 4° 1'   |
| 1/4 – 20 UNC   | 1,270                                | 6,350                    | 6,322           | 6,144   | 6,116   | 6,012   | 5,524                    | 5,497           | 5,453  | 5,403  | 5,354  | 4,793                    | 4,765           | 4° 11'  |
| 5/16 – 18 UNC  | 1,411                                | 7,938                    | 7,907           | 7,717   | 7,686   | 7,574   | 7,021                    | 6,990           | 6,994  | 6,888  | 6,835  | 6,205                    | 6,175           | 3° 39'  |
| 3/8 – 16 UNC   | 1,588                                | 9,525                    | 9,492           | 9,286   | 9,253   | 9,131   | 8,494                    | 8,461           | 8,410  | 8,349  | 8,296  | 7,577                    | 7,544           | 3° 24'  |
| 7/16 – 14 UNC  | 1,814                                | 11,112                   | 11,077          | 10,851  | 10,815  | 10,683  | 9,934                    | 9,898           | 9,845  | 9,779  | 9,718  | 8,887                    | 8,852           | 3° 19'  |
| 1/2 – 13 UNC   | 1,954                                | 12,700                   | 12,662          | 12,423  | 12,385  | 12,248  | 11,430                   | 11,392          | 11,336 | 11,265 | 11,204 | 10,302                   | 10,264          | 3° 7'   |
| 9/16 – 12 UNC  | 2,117                                | 14,288                   | 14,247          | 13,998  | 13,957  | 13,810  | 12,913                   | 12,873          | 12,814 | 12,741 | 12,675 | 11,692                   | 11,651          | 2° 59'  |
| 5/8 – 11 UNC   | 2,309                                | 15,875                   | 15,834          | 15,568  | 15,527  | 15,372  | 14,376                   | 14,336          | 14,272 | 14,196 | 14,125 | 13,043                   | 13,002          | 2° 55'  |
| 3/4 – 10 UNC   | 2,540                                | 19,050                   | 19,004          | 18,722  | 18,677  | 18,512  | 17,399                   | 17,353          | 17,287 | 17,203 | 17,130 | 15,933                   | 15,888          | 2° 39'  |
| 7/8 – 9 UNC  | 2,822                                | 22,225                   | 22,177          | 21,872  | 21,824  | 21,648  | 20,391                   | 20,343          | 20,272 | 20,183 | 20,102 | 18,763                   | 18,715          | 2° 31'  |
| 1 – 8 UNC  | 3,175                                | 25,400                   | 25,349          | 25,019  | 24,968  | 24,778  | 23,338                   | 23,287          | 23,208 | 23,114 | 23,030 | 21,504                   | 21,543          | 2° 28'  |
| 1 1/8 – 7 UNC  | 3,629                                | 28,575                   | 28,519          | 28,158  | 28,103  | 27,894  | 26,218                   | 26,162          | 26,081 | 25,979 | 25,885 | 24,122                   | 24,066          | 2° 31'  |
| 1 1/4 – 7 UNC  | 3,629                                | 31,750                   | 31,694          | 31,333  | 31,278  | 31,069  | 29,393                   | 29,337          | 29,253 | 29,149 | 29,055 | 27,297                   | 27,242          | 2° 15'  |
| 1 3/8 – 6 UNC  | 4,233                                | 34,925                   | 34,864          | 34,463  | 34,402  | 34,171  | 32,174                   | 32,113          | 32,022 | 31,910 | 31,808 | 29,731                   | 29,670          | 2° 24'  |
| 1 1/2 – 6 UNC  | 4,233                                | 38,100                   | 38,039          | 37,638  | 37,577  | 37,346  | 35,349                   | 35,288          | 35,194 | 35,082 | 34,981 | 32,906                   | 32,845          | 2° 11'  |
| 1 3/4 – 5 UNC  | 5,080                                | 44,450                   | 44,381          | 43,929  | 43,861  | 43,599  | 41,151                   | 41,082          | 40,980 | 40,856 | 40,742 | 38,217                   | 38,148          | 2° 15'  |
| 2 – 4 1/2 UNC  | 5,644                                | 50,800                   | 50,726          | 50,241  | 50,168  | 49,888  | 47,135                   | 47,061          | 46,954 | 46,820 | 46,698 | 43,876                   | 43,802          | 2° 11'  |
| 2 1/4 – 4 1/2 UNC  | 5,644                                | 57,150                   | 57,076          | 56,591  | 56,518  | 56,238  | 53,485                   | 53,411          | 53,299 | 53,165 | 53,040 | 50,226                   | 50,152          | 1° 55'  |
| 2 1/2 – 4 UNC  | 6,350                                | 63,500                   | 63,421          | 62,895  | 62,817  | 62,514  | 59,375                   | 59,296          | 59,177 | 59,032 | 58,903 | 55,710                   | 55,631          | 1° 57'  |
| 2 3/4 – 4 UNC  | 6,350                                | 69,850                   | 69,769          | 69,245  | 69,164  | 68,862  | 65,725                   | 65,644          | 65,524 | 65,377 | 65,242 | 62,060                   | 61,979          | 1° 45'  |
| 3 – 4 UNC  | 6,350                                | 76,200                   | 76,119          | 75,595  | 75,514  | 75,212  | 72,075                   | 71,994          | 71,872 | 71,722 | 71,585 | 68,410                   | 68,329          | 1° 36'  |
| 3 1/4 – 4 UNC  | 6,350                                | 82,550                   | 82,466          | 81,945  | 81,862  | 81,559  | 78,425                   | 78,341          | 78,217 | 78,064 | 77,927 | 74,760                   | 74,676          | 1° 28'  |
| 3 1/2 – 4 UNC  | 6,350                                | 88,900                   | 88,816          | 88,295  | 88,212  | 87,909  | 84,775                   | 84,691          | 84,564 | 84,412 | 84,270 | 81,110                   | 81,026          | 1° 22'  |
| 3 3/4 – 4 UNC  | 6,350                                | 95,250                   | 95,164          | 94,645  | 94,559  | 94,257  | 91,125                   | 91,039          | 90,912 | 90,754 | 90,612 | 87,460                   | 87,373          | 1° 16'  |
| 4 – 4 UNC  | 6,350                                | 101,600                  | 101,514         | 100,995 | 100,909 | 100,607 | 97,475                   | 97,389          | 97,259 | 97,102 | 96,957 | 93,810                   | 93,723          | 1° 11'  |

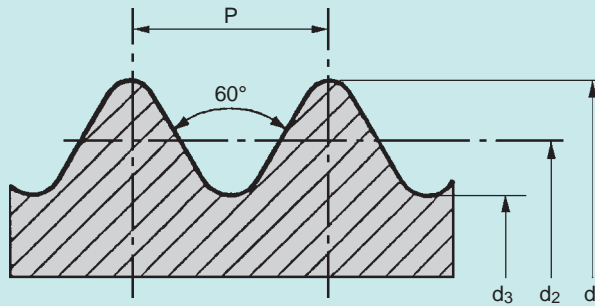
Bezeichnungsbeispiel für Bolzensgewinde (Toleranz mittel = 2 A): 1/4 – 20 UNC – 2 A oder 0,250 – 20 UNC – 2 A

Bezeichnungsbeispiel für Bolzen-Linksgewinde (Toleranz mittel = 2 A): 1/4 – 20 UNC – 2 A – LH oder 0,250 – 20 UNC – 2 A – LH

Designation example for male thread (middle tolerance = 2 A): 1/4 – 20 UNC – 2 A or 0,250 – 20 UNC – 2 A

Designation example for left-hand male thread (middle tolerance = 2 A): 1/4 – 20 UNC – 2 A – LH or 0,250 – 20 UNC – 2 A – LH

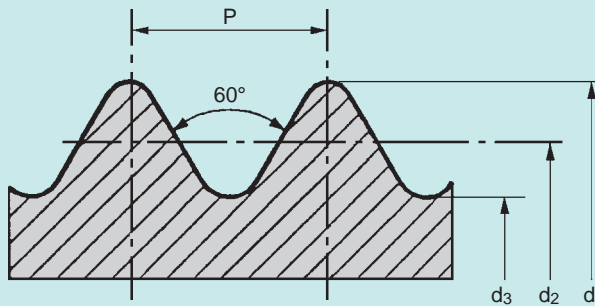
Gewindegrenzmaße und Steigungswinkel für Bolzensgewinde  
Thread limit dimensions and lead angle for bolt threads



d = Bolzen-Außen-Ø  
Bolt major-Ø  
d<sub>2</sub> = Bolzen-Flanken-Ø  
Bolt pitch-Ø  
d<sub>3</sub> = Bolzen-Kern-Ø  
Bolt minor-Ø  
Steigungs- $\beta$  nach Nenn-Ø d<sub>2</sub>  
Lead  $\beta$  to nominal-Ø d<sub>2</sub>  
$$\tan \beta = \frac{p}{d_2 \cdot \pi}$$

| Gewinde-<br>bezeichnung<br><br>Thread<br>abbreviation<br><br>(Ø u. Gangzahl)<br>(Ø and starts) | Steig-<br>ung<br><br>Pitch<br><br>mm<br>P | d      |                   |        |                          |        | d <sub>2</sub> |                   |        |                          |        | d <sub>3</sub> |                   | Steig-<br>ungs-<br>$\beta$<br>Lead<br>$\beta$<br>Deg.,<br>min. |
|--|---|--------|-------------------|--------|--------------------------|--------|----------------|-------------------|--------|--------------------------|--------|----------------|-------------------|--|
|  |   | 3 A    | 2 A,1A            | 3 A    | 2 A                      | 1 A    | 3 A            | 2A,1A             | 3 A    | 2 A                      | 1 A    | 3 A            | 2A,1A             |  |
|  |   | fein   | mittel,<br>grob   | fein   | mittel                   | grob   | fein           | mittel,<br>grob   | fein   | mittel                   | grob   | fein           | mittel,<br>grob   |  |
|  |   | fine   | middle,<br>coarse | fine   | middle                   | coarse | fine           | middle,<br>coarse | fine   | middle                   | coarse | fine           | middle,<br>coarse |  |
| Nenn-Ø<br>Nom. Ø<br>max.   | max.                                      | min.   | min.              | min.   | Nenn-Ø<br>Nom. Ø<br>max. | max.   | min.           | min.              | min.   | Nenn-Ø<br>Nom. Ø<br>max. | max.   |                |                   |  |
| Nr. 0 – 80 UNF   | 0,318                                     | 1,524  | 1,511             | 1,443  | 1,430                    | –      | 1,318          | 1,306             | 1,285  | 1,260                    | –      | 1,135          | 1,123             | 4° 23'   |
| Nr. 1 – 72 UNF   | 0,353                                     | 1,854  | 1,839             | 1,765  | 1,750                    | –      | 1,626          | 1,610             | 1,590  | 1,562                    | –      | 1,422          | 1,407             | 3° 57'   |
| Nr. 2 – 64 UNF   | 0,397                                     | 2,184  | 2,169             | 2,088  | 2,073                    | –      | 1,928          | 1,913             | 1,890  | 1,862                    | –      | 1,697          | 1,681             | 3° 45'   |
| Nr. 3 – 56 UNF   | 0,454                                     | 2,515  | 2,497             | 2,410  | 2,393                    | –      | 2,220          | 2,202             | 2,179  | 2,146                    | –      | 1,958          | 1,941             | 3° 43'   |
| Nr. 4 – 48 UNF   | 0,529                                     | 2,845  | 2,827             | 2,730  | 2,713                    | –      | 2,502          | 2,484             | 2,456  | 2,423                    | –      | 2,195          | 2,177             | 3° 51'   |
| Nr. 5 – 44 UNF   | 0,577                                     | 3,175  | 3,157             | 3,053  | 3,035                    | –      | 2,799          | 2,781             | 2,751  | 2,718                    | –      | 2,466          | 2,449             | 3° 45'   |
| Nr. 6 – 40 UNF   | 0,635                                     | 3,505  | 3,485             | 3,376  | 3,335                    | –      | 3,094          | 3,073             | 3,043  | 3,007                    | –      | 2,725          | 2,705             | 3° 44'   |
| Nr. 8 – 36 UNF   | 0,706                                     | 4,166  | 4,145             | 4,026  | 4,006                    | –      | 3,708          | 3,688             | 3,655  | 3,617                    | –      | 3,299          | 3,279             | 3° 28'   |
| Nr. 10 – 32 UNF  | 0,794                                     | 4,826  | 4,803             | 4,674  | 4,651                    | –      | 4,310          | 4,288             | 4,252  | 4,211                    | –      | 3,853          | 3,830             | 3° 21'   |
| Nr. 12 – 28 UNF  | 0,907                                     | 5,486  | 5,461             | 5,321  | 5,296                    | –      | 4,897          | 4,872             | 4,836  | 4,790                    | –      | 4,374          | 4,348             | 3° 22'   |
| 1/4 – 28 UNF   | 0,907                                     | 6,350  | 6,325             | 6,185  | 6,160                    | 6,076  | 5,761          | 5,735             | 5,697  | 5,652                    | 5,608  | 5,237          | 5,212             | 2° 52'   |
| 5/16 – 24 UNF  | 1,058                                     | 7,938  | 7,910             | 7,755  | 7,727                    | 7,635  | 7,249          | 7,221             | 7,181  | 7,127                    | 7,082  | 6,640          | 6,612             | 2° 39'   |
| 3/8 – 24 UNF   | 1,058                                     | 9,525  | 9,497             | 9,342  | 9,314                    | 9,223  | 8,837          | 8,809             | 8,763  | 8,712                    | 8,664  | 8,227          | 8,199             | 2° 11'   |
| 7/16 – 20 UNF  | 1,27                                      | 11,112 | 11,079            | 10,907 | 10,874                   | 10,770 | 10,287         | 10,254            | 10,208 | 10,147                   | 10,097 | 9,555          | 9,522             | 2° 15'   |
| 1/2 – 20 UNF   | 1,27                                      | 12,700 | 12,667            | 12,494 | 12,461                   | 12,357 | 11,874         | 11,841            | 11,793 | 11,732                   | 11,679 | 11,143         | 11,110            | 1° 57'   |
| 9/16 – 18 UNF  | 1,411                                     | 14,288 | 14,252            | 14,067 | 14,031                   | 13,919 | 13,371         | 13,335            | 13,284 | 13,221                   | 13,162 | 12,555         | 12,520            | 1° 55'   |
| 5/8 – 18 UNF   | 1,411                                     | 15,875 | 15,839            | 15,654 | 15,618                   | 15,507 | 14,958         | 14,992            | 14,869 | 14,803                   | 14,745 | 14,143         | 14,107            | 1° 43'   |
| 3/4 – 16 UNF   | 1,588                                     | 19,050 | 19,012            | 18,811 | 18,773                   | 18,651 | 18,019         | 17,981            | 17,922 | 17,854                   | 17,790 | 17,102         | 17,064            | 1° 36'   |
| 7/8 – 14 UNF   | 1,814                                     | 22,225 | 22,184            | 21,963 | 21,923                   | 21,791 | 21,046         | 21,006            | 20,942 | 20,869                   | 20,800 | 20,000         | 19,959            | 1° 34'   |
| 1 – 12 UNF   | 2,117                                     | 25,400 | 25,354            | 25,110 | 25,065                   | 24,917 | 24,026         | 23,980            | 23,914 | 23,830                   | 23,757 | 22,804         | 22,758            | 1° 36'   |
| 1 1/8 – 12 UNF   | 2,117                                     | 28,575 | 28,529            | 28,285 | 28,240                   | 28,092 | 27,201         | 27,155            | 27,087 | 27,003                   | 26,927 | 25,979         | 25,933            | 1° 25'   |
| 1 1/4 – 12 UNF   | 2,117                                     | 31,750 | 31,704            | 31,460 | 31,415                   | 31,267 | 30,376         | 30,330            | 30,259 | 30,173                   | 30,096 | 29,154         | 29,108            | 1° 16'   |
| 1 3/8 – 12 UNF   | 2,117                                     | 34,925 | 34,877            | 34,635 | 34,587                   | 34,440 | 33,551         | 33,503            | 33,431 | 33,343                   | 33,264 | 32,329         | 32,281            | 1° 9'  |
| 1 1/2 – 12 UNF   | 2,117                                     | 38,100 | 38,052            | 37,810 | 37,762                   | 37,615 | 36,726         | 36,678            | 36,604 | 36,515                   | 36,434 | 35,504         | 35,456            | 1° 3'  |

### Gewindengrenzmaße und Steigungswinkel für Bolzensgewinde Thread limit dimensions and lead angle for bolt threads



d = Bolzen-Außen-Ø  
Bolt major-Ø

d<sub>2</sub> = Bolzen-Flanken-Ø  
Bolt pitch-Ø

d<sub>3</sub> = Bolzen-Kern-Ø  
Bolt minor-Ø

Steigungs- $\beta$  nach Nenn-Ø d<sub>2</sub>  
Lead  $\beta$  to nominal-Ø d<sub>2</sub>

$$\tan \beta = \frac{P}{d_2 \cdot \pi}$$

| Gewinde-<br>bezeichnung<br>Thread<br>abbreviation<br><br>(Ø u. Gangzahl)<br>(Ø and starts) | Steigung<br>Pitch<br><br>mm<br>P | d                        |                         |                     |                         | d <sub>2</sub>           |                         |                     |                         | d <sub>3</sub>           |                         | Steigungs-<br>$\beta$<br>Lead $\beta$<br>Deg.,<br>min. |
|--|----------------------------------|--------------------------|-------------------------|---------------------|-------------------------|--------------------------|-------------------------|---------------------|-------------------------|--------------------------|-------------------------|--|
|  |                                  | 3 A<br>fein<br>fine      | 2 A<br>mittel<br>middle | 3 A<br>fein<br>fine | 2 A<br>mittel<br>middle | 3 A<br>fein<br>fine      | 2 A<br>mittel<br>middle | 3 A<br>fein<br>fine | 2 A<br>mittel<br>middle | 3 A<br>fein<br>fine      | 2 A<br>mittel<br>middle |  |
|  |                                  | Nenn-Ø<br>Nom. Ø<br>max. | max.                    | min.                | min.                    | Nenn-Ø<br>Nom. Ø<br>max. | max.                    | min.                | min.                    | Nenn-Ø<br>Nom. Ø<br>max. | max.                    |  |
| Nr. 12 – 32 UNEF   | 0,794                            | 5,486                    | 5,464                   | 5,334               | 5,311                   | 4,971                    | 4,948                   | 4,910               | 4,869                   | 4,514                    | 4,491                   | 2° 54'   |
| 1/4 – 32 UNEF  | 0,794                            | 6,350                    | 6,325                   | 6,198               | 6,172                   | 5,834                    | 5,809                   | 5,773               | 5,728                   | 5,377                    | 5,352                   | 2° 28'   |
| 5/16 – 32 UNEF   | 0,794                            | 7,938                    | 7,912                   | 7,785               | 7,760                   | 7,422                    | 7,396                   | 7,361               | 7,315                   | 6,965                    | 6,939                   | 1° 57'   |
| 3/8 – 32 UNEF  | 0,794                            | 9,525                    | 9,500                   | 9,373               | 9,347                   | 9,009                    | 8,984                   | 8,946               | 8,898                   | 8,552                    | 8,527                   | 1° 36'   |
| 7/16 – 28 UNEF   | 0,907                            | 11,112                   | 11,085                  | 10,947              | 10,919                  | 10,523                   | 10,495                  | 10,455              | 10,404                  | 10,000                   | 9,972                   | 1° 34'   |
| 1/2 – 28 UNEF  | 0,907                            | 12,700                   | 12,672                  | 12,535              | 12,507                  | 12,111                   | 12,083                  | 12,040              | 11,989                  | 11,587                   | 11,560                  | 1° 22'   |
| 9/16 – 24 UNEF   | 1,058                            | 14,288                   | 14,257                  | 14,105              | 14,074                  | 13,599                   | 13,569                  | 13,525              | 13,470                  | 12,990                   | 12,959                  | 1° 25'   |
| 5/8 – 24 UNEF  | 1,058                            | 15,875                   | 15,845                  | 15,692              | 15,662                  | 15,187                   | 15,156                  | 15,110              | 15,055                  | 14,577                   | 14,547                  | 1° 16'   |
| 11/16 – 24 UNEF  | 1,058                            | 17,462                   | 17,432                  | 17,280              | 17,249                  | 16,774                   | 16,744                  | 16,698              | 16,642                  | 16,165                   | 16,134                  | 1° 9'  |
| 3/4 – 20 UNEF  | 1,27                             | 19,050                   | 19,017                  | 18,844              | 18,811                  | 18,224                   | 18,191                  | 18,141              | 18,080                  | 17,493                   | 17,460                  | 1° 16'   |
| 13/16 – 20 UNEF  | 1,27                             | 20,638                   | 20,604                  | 20,432              | 20,399                  | 19,812                   | 19,779                  | 19,728              | 19,667                  | 19,080                   | 19,045                  | 1° 10'   |
| 7/8 – 20 UNEF  | 1,27                             | 22,225                   | 22,192                  | 22,019              | 21,986                  | 21,400                   | 21,366                  | 21,316              | 21,255                  | 20,668                   | 20,635                  | 1° 5'  |
| 15/16 – 20 UNEF  | 1,27                             | 23,812                   | 23,777                  | 23,607              | 23,571                  | 22,987                   | 22,951                  | 22,901              | 22,837                  | 22,255                   | 22,220                  | 1°   |
| 1 – 20 UNEF  | 1,27                             | 25,400                   | 25,364                  | 25,194              | 25,159                  | 24,574                   | 24,539                  | 24,488              | 24,425                  | 23,843                   | 23,807                  | 0° 56'   |
| 11/16 – 18 UNEF  | 1,411                            | 26,988                   | 26,952                  | 26,767              | 26,731                  | 26,071                   | 26,035                  | 25,979              | 25,916                  | 25,255                   | 25,220                  | 0° 59'   |
| 11/8 – 18 UNEF   | 1,411                            | 28,575                   | 28,539                  | 28,354              | 28,318                  | 27,658                   | 27,622                  | 27,567              | 27,503                  | 26,843                   | 26,807                  | 0° 55'   |
| 13/16 – 18 UNEF  | 1,411                            | 30,162                   | 30,124                  | 29,942              | 29,903                  | 29,246                   | 29,207                  | 29,154              | 29,083                  | 28,430                   | 28,392                  | 0° 52'   |
| 11/4 – 18 UNEF   | 1,411                            | 31,750                   | 31,712                  | 31,529              | 31,491                  | 30,833                   | 30,795                  | 30,742              | 30,670                  | 30,018                   | 29,980                  | 0° 50'   |
| 15/16 – 18 UNEF  | 1,411                            | 33,338                   | 33,299                  | 33,117              | 33,078                  | 32,421                   | 32,382                  | 32,329              | 32,258                  | 31,605                   | 31,567                  | 0° 47'   |
| 13/8 – 18 UNEF   | 1,411                            | 34,925                   | 34,887                  | 34,704              | 34,666                  | 34,008                   | 33,970                  | 33,917              | 33,846                  | 33,193                   | 33,155                  | 0° 45'   |
| 17/16 – 18 UNEF  | 1,411                            | 36,512                   | 36,474                  | 36,292              | 36,253                  | 35,596                   | 35,557                  | 35,502              | 35,430                  | 34,780                   | 34,742                  | 0° 43'   |
| 11/2 – 18 UNEF   | 1,411                            | 38,100                   | 38,062                  | 37,879              | 37,841                  | 37,183                   | 37,145                  | 37,089              | 37,018                  | 36,368                   | 36,330                  | 0° 41'   |
| 19/16 – 18 UNEF  | 1,411                            | 39,688                   | 39,649                  | 39,467              | 39,428                  | 38,771                   | 38,732                  | 38,677              | 38,605                  | 37,955                   | 37,917                  | 0° 39'   |
| 15/8 – 18 UNEF   | 1,411                            | 41,275                   | 41,237                  | 41,054              | 41,016                  | 40,358                   | 40,320                  | 40,264              | 40,193                  | 39,543                   | 39,505                  | 0° 38'   |
| 111/16 – 18 UNEF   | 1,411                            | 42,862                   | 42,824                  | 42,642              | 42,603                  | 41,946                   | 41,907                  | 41,849              | 41,778                  | 41,130                   | 41,092                  | 0° 36'   |

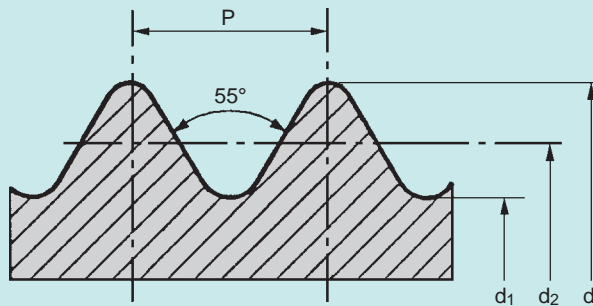
Bezeichnungsbeispiel für Bolzensgewinde UNEF (Toleranz mittel = 2 A): 3/4 – 20 UNEF – 2 A oder 0,750 – 20 UNEF – 2 A

Bezeichnungsbeispiel für Bolzen-Linksgewinde (Toleranz mittel = 2 A): 3/4 – 20 UNEF – 2 A – LH oder 0,750 – 20 UNEF – 2 A – LH

Designation example for male thread UNEF (middle tolerance = 2 A): 3/4 – 20 UNEF – 2 A or 0,750 – 20 UNEF – 2 A

Designation example for left-hand male thread (middle tolerance = 2 A): 3/4 – 20 UNEF – 2 A – LH or 0,750 – 20 UNEF – 2 A – LH

Gewinde-Nennmaße und Steigungswinkel für Bolzengewinde siehe B.S.84: 1956  
Thread nominal dimensions and lead angle for bolt threads see B.S.84: 1956

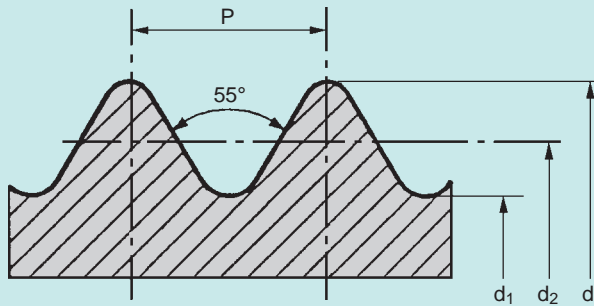


$d$  = Bolzen-Außen-Ø  
Bolt major-Ø  
 $d_2$  = Bolzen-Flanken-Ø  
Bolt pitch-Ø  
 $d_3$  = Bolzen-Kern-Ø  
Bolt minor-Ø  
Steigungs- $\beta$  nach Nenn-Ø  $d_2$   
Lead  $\beta$  to nominal-Ø  $d_2$   
$$\tan \beta = \frac{p}{d_2 \cdot \pi}$$

| Gewinde-<br>Bezeichnung<br>(Ø und Gangzahl)<br>Thread<br>abbreviation<br>(Ø and starts) | Steigung<br>Pitch<br><br>P | d                   | $d_2$               | $d_3$               | Stegungs- $\beta$<br>Lead $\beta$<br><br>$\beta$<br>Grad, Min<br>Deg., min |
|---|----------------------------|---------------------|---------------------|---------------------|--|
|   |                            | Nenn-Ø<br>Nominal-Ø | Nenn-Ø<br>Nominal-Ø | Nenn-Ø<br>Nominal-Ø |  |
| 1/8 – 40 BSW  | 0,635                      | 3,175               | 2,769               | 2,362               | 4° 10'   |
| 3/16 – 24 BSW   | 1,058                      | 4,763               | 4,084               | 3,406               | 4° 43'   |
| 1/4 – 20 BSW  | 1,270                      | 6,350               | 5,537               | 4,724               | 4° 10'   |
| 5/16 – 18 BSW   | 1,411                      | 7,938               | 7,033               | 6,129               | 3° 39'   |
| 3/8 – 16 BSW  | 1,588                      | 9,525               | 8,509               | 7,493               | 3° 24'   |
| 7/16 – 14 BSW   | 1,814                      | 11,112              | 9,952               | 8,791               | 3° 19'   |
| 1/2 – 12 BSW  | 2,117                      | 12,700              | 11,344              | 9,987               | 3° 24'   |
| 9/16 – 12 BSW   | 2,117                      | 14,288              | 12,931              | 11,575              | 2° 59'   |
| 5/8 – 11 BSW  | 2,309                      | 15,875              | 14,397              | 12,918              | 2° 55'   |
| 11/16 – 11 BSW  | 2,309                      | 17,462              | 15,984              | 14,506              | 2° 38'   |
| 3/4 – 10 BSW  | 2,540                      | 19,050              | 17,424              | 15,799              | 2° 39'   |
| 7/8 – 9 BSW   | 2,822                      | 22,225              | 20,419              | 18,613              | 2° 31'   |
| 1 – 8 BSW   | 3,175                      | 25,400              | 23,368              | 21,336              | 2° 28'   |
| 1 1/8 – 7 BSW   | 3,629                      | 28,575              | 26,251              | 23,927              | 2° 31'   |
| 1 1/4 – 7 BSW   | 3,629                      | 31,750              | 29,426              | 27,102              | 2° 15'   |
| 1 1/2 – 6 BSW   | 4,233                      | 38,100              | 35,390              | 32,680              | 2° 10'   |
| 1 3/4 – 5 BSW   | 5,080                      | 44,450              | 41,196              | 37,943              | 2° 15'   |
| 2 – 4,5 BSW   | 5,644                      | 50,800              | 47,186              | 43,571              | 2° 11'   |
| 2 1/4 – 4 BSW   | 6,350                      | 57,150              | 53,083              | 49,017              | 2° 11'   |
| 2 1/2 – 4 BSW   | 6,350                      | 63,500              | 59,433              | 55,367              | 1° 57'   |
| 2 3/4 – 3,5 BSW   | 7,257                      | 69,850              | 65,202              | 60,554              | 2° 1'  |
| 3 – 3,5 BSW   | 7,257                      | 76,200              | 71,552              | 66,904              | 1° 51'   |
| 3 1/4 – 3,25 BSW  | 7,815                      | 82,550              | 77,546              | 72,542              | 1° 50'   |
| 3 1/2 – 3,25 BSW  | 7,815                      | 88,900              | 83,896              | 78,892              | 1° 42'   |
| 3 3/4 – 3 BSW   | 8,467                      | 95,250              | 89,830              | 84,409              | 1° 43'   |
| 4 – 3 BSW   | 8,467                      | 101,600             | 96,180              | 90,759              | 1° 36'   |
| 4 1/2 – 2,875 BSW   | 8,835                      | 114,300             | 108,643             | 102,987             | 1° 29'   |
| 5 – 2,75 BSW  | 9,236                      | 127,000             | 121,087             | 115,174             | 1° 23'   |

Bezeichnungsbeispiel für Bolzengewinde: 1/4 – 20 BSW  
Bezeichnungsbeispiel für Bolzen-Linksgewinde: 1/4 – 20 BSW – LH  
Designation example for male thread: 1/4 – 20 BSW  
Designation example for left-hand male thread: 1/4 – 20 BSW – LH

### Gewinde-Nennmaße und Steigungswinkel für Bolzengewinde Thread nominal dimensions and lead angle for bolt threads



- $d$  = Bolzen-Außen-Ø  
Bolt major-Ø
- $d_2$  = Bolzen-Flanken-Ø  
Bolt pitch-Ø
- $d_3$  = Bolzen-Kern-Ø  
Bolt minor-Ø
- Steigungs- $\beta$  nach Nenn-Ø  $d_2$   
Lead  $\beta$  to nominal-Ø  $d_2$
- $\tan \beta = \frac{P}{d_2 \cdot \pi}$

| Gewinde-<br>Bezeichnung<br>(Ø und Gangzahl)<br>Thread<br>abbreviation<br>(Ø and starts) | Steigung<br>Pitch<br><br>P | d                   | d <sub>2</sub>      | d <sub>3</sub>      | Stegings- $\beta$<br>Lead $\beta$<br><br>$\beta$<br>Grad, Min<br>Deg., min |
|---|----------------------------|---------------------|---------------------|---------------------|--|
|   |                            | Nenn-Ø<br>Nominal-Ø | Nenn-Ø<br>Nominal-Ø | Nenn-Ø<br>Nominal-Ø |  |
| 3/16 - 32 BSF   | 0,794                      | 4,763               | 4,255               | 3,747               | 3° 24'   |
| 7/32 - 28 BSF   | 0,794                      | 5,558               | 4,976               | 4,394               | 3° 19'   |
| 1/4 - 26 BSF  | 0,977                      | 6,350               | 5,725               | 5,100               | 3° 6'  |
| 9/32 - 26 BSF   | 0,977                      | 7,142               | 6,518               | 5,893               | 2° 44'   |
| 5/16 - 22 BSF   | 1,155                      | 7,938               | 7,198               | 6,459               | 2° 55'   |
| 3/8 - 20 BSF  | 1,270                      | 9,525               | 8,712               | 7,899               | 2° 39'   |
| 7/16 - 18 BSF   | 1,411                      | 11,112              | 10,208              | 9,304               | 2° 31'   |
| 1/2 - 16 BSF  | 1,588                      | 12,700              | 11,684              | 10,668              | 2° 28'   |
| 9/16 - 16 BSF   | 1,588                      | 14,288              | 13,272              | 12,256              | 2° 10'   |
| 5/8 - 14 BSF  | 1,814                      | 15,875              | 14,714              | 13,553              | 2° 15'   |
| 11/16 - 14 BSF  | 1,814                      | 17,462              | 16,302              | 15,141              | 2° 1'  |
| 3/4 - 12 BSF  | 2,117                      | 19,050              | 17,694              | 16,337              | 2° 11'   |
| 7/8 - 11 BSF  | 2,309                      | 22,225              | 20,747              | 19,268              | 2° 1'  |
| 1 - 10 BSF  | 2,540                      | 25,400              | 23,774              | 22,149              | 1° 57'   |
| 1 1/8 - 9 BSF   | 2,822                      | 28,575              | 26,769              | 24,963              | 1° 55'   |
| 1 1/4 - 9 BSF   | 2,822                      | 31,750              | 29,944              | 28,138              | 1° 43'   |
| 1 3/8 - 8 BSF   | 3,175                      | 34,925              | 32,893              | 30,861              | 1° 45'   |
| 1 1/2 - 8 BSF   | 3,175                      | 38,100              | 36,068              | 34,036              | 1° 36'   |
| 1 5/8 - 8 BSF   | 3,175                      | 41,275              | 39,243              | 37,211              | 1° 28'   |
| 1 3/4 - 7 BSF   | 3,629                      | 44,450              | 42,126              | 39,802              | 1° 34'   |
| 2 - 7 BSF   | 3,629                      | 50,800              | 48,476              | 46,152              | 1° 22'   |
| 2 1/4 - 6 BSF   | 4,233                      | 57,150              | 54,440              | 51,730              | 1° 25'   |
| 2 1/2 - 6 BSF   | 4,233                      | 63,500              | 60,790              | 58,080              | 1° 16'   |
| 2 3/4 - 6 BSF   | 4,233                      | 69,850              | 67,140              | 64,430              | 1° 9'  |
| 3 - 5 BSF   | 5,080                      | 76,200              | 72,946              | 69,693              | 1° 16'   |
| 3 1/4 - 5 BSF   | 5,080                      | 82,550              | 79,296              | 76,043              | 1° 10'   |
| 3 1/2 - 4,5 BSF   | 5,644                      | 88,900              | 85,286              | 81,671              | 1° 12'   |
| 3 3/4 - 4,5 BSF   | 5,644                      | 95,250              | 91,636              | 88,021              | 1° 7'  |
| 4 - 4,5 BSF   | 5,644                      | 101,600             | 97,986              | 94,371              | 1° 3'  |
| 4 1/4 - 4 BSF   | 6,350                      | 107,950             | 103,883             | 99,817              | 1° 7'  |

Bezeichnungsbeispiel für Bolzengewinde: 1/2 - 16 BSF

Bezeichnungsbeispiel für Bolzen-Linksgewinde: 1/2 - 16 BSF - LH

Designation example for male thread: 1/2 - 16 BSW

Designation example for left-hand male thread: 1/2 - 16 BSF - LH



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### Werkstückabmessungen

#### Forming specifications and dimensions

Metrisches Gewinde Metric thread

Unified

Whitworth

Rohrgewinde Pipe thread

Konische Gewinde Tapered thread

Rändel Knurling

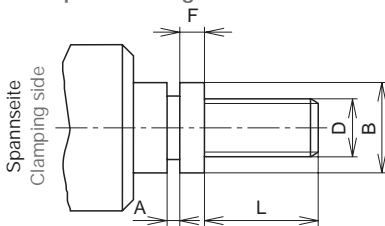
Formglätten Burnishing

Beschriften Marking

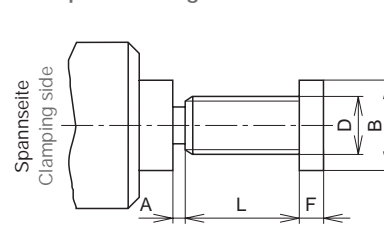
Sonstige Others \_\_\_\_\_

Bezeichnung  
Designation \_\_\_\_\_

### Beispiel 1: Vor dem Bund rollen Example 1: Rolling before shoulder



### Beispiel 2: Hinter dem Bund rollen Example 2: Rolling behind shoulder



Formlänge Thread length L = \_\_\_\_\_ mm | inch

Formdurchmesser Thread dia. D = \_\_\_\_\_ mm | inch

Bunddurchmesser Shoulder dia. B = \_\_\_\_\_ mm | inch

Bandlage Bsp.: 1 oder 2 \_\_\_\_\_  
Examples on shoulder positions: 1 or 2

Abstechstahlbreite Cutoff tool width A = \_\_\_\_\_ mm | inch

min/max Gewindeauslauf \_\_\_\_\_ mm | inch  
min/max thread run-out

### Kundenskizze: Customers sketch:



Für die Angebotsbearbeitung bitten wir um eine Skizze des Werkstückes mit Angabe der Maße + Toleranzen oder um eine Werkstückzeichnung mit Angabe zur Spannseite.

For a quotation, please furnish a sketch of the component with dimensions and tolerances, or a component drawing, noting of the clamping side.

**Maschinendaten:** (Einstellbarer Quervorschub und Eilrücklauf müssen vorhanden sein)

**Machine specifications:** (Controlled feed and fast return feed must be available for adaption of Tangential Side Rolling Attachments)

Maschine Machine<sup>1)</sup>: \_\_\_\_\_ Typ Type: \_\_\_\_\_

Spindellage + Rollstation Spindle position and rolling station: \_\_\_\_\_  
(nur bei Mehrspindelmaschinen) (only for multi-spindle machines)

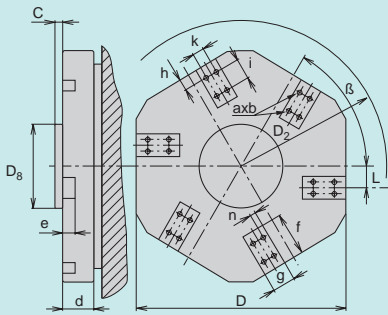
Revolvergröße + Art. Turret size and type: \_\_\_\_\_  
(Anzahl der Werkzeugaufnahmen) (number of stations)

Aufnahmeart Mounting system: \_\_\_\_\_ Maschinen-Nr. Machine no.: \_\_\_\_\_  
(z. B. Schaft 40 nach DIN 69880) (e. g. shank 40 to DIN 69880)

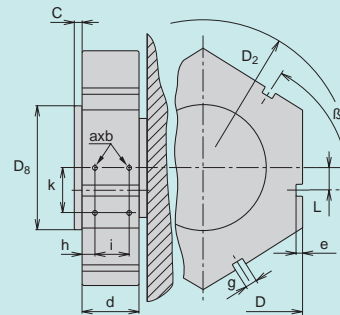
<sup>1)</sup> Für eine schnelle Auftragsabwicklung bitten wir um eine Maschinenraumzeichnung zwecks Überprüfung der Einsatzmöglichkeit der Rollköpfe. Bitte darauf achten, dass in den Zeichnungen Maßangaben für die Werkzeugaufnahme + Lage und Maßangaben die für eine Kollisionsbetrachtung (z. B. Durchschaltbarkeit) vorhanden sind. Falls keine Zeichnungen vorhanden, bitte Angaben in Schemazeichnung und auf umliegender Seite machen.

<sup>1)</sup> In order to check the possibility for the rolling head application and rush the order handling, we ask for a machine tool-space drawing. Please check if the drawing shows the dimensions for the tool clamping and position and information about the limited area for indexing clearance (e. g. free swing diameter). If there is no drawing available, please draft it on the back of the page.

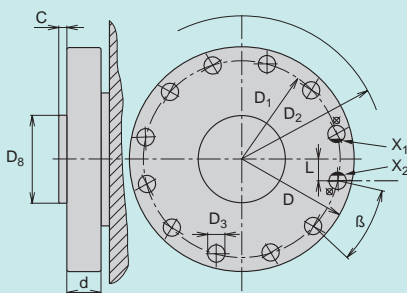
### 1 Revolver mit Vierkantschaftaufnahme Turret with for squareshank



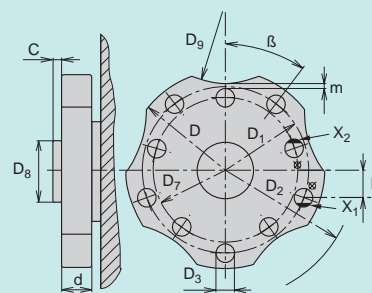
### 2 Revolver für anschraubbare Werkzeugaufnahmen Turret for fixable toolholder



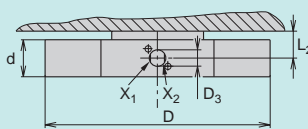
### 4 Revolver mit Rundschaftaufnahme nach DIN 69880 Turret with for roundshank



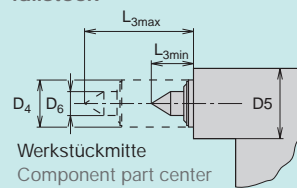
### 5 Revolver mit 2 Teilkreisen mit Rundschaftaufnahme nach DIN 69880 Turret with with 2 pitch circles for roundshank



### 5 Revolver mit Rundschaftaufnahme nach DIN 69880 Turret with for DIN 69880 shank



### 6 Reitstock Tailstock



#### Revolver entspricht Bauart-Nr.

Turret corresponds to Design Type No.

|  |                        |
|--|------------------------|
| Revolveraußen-Ø<br>Turret Outside-Ø          | D = _____              |
| Teilkreis-Ø<br>Pitch Circle-Ø                | D <sub>1</sub> = _____ |
| max. Schwingkreis-Ø<br>max. Swing Circle-Ø   | D <sub>2</sub> = _____ |
| Aufnahme-Ø<br>Mounting-Ø                     | D <sub>3</sub> = _____ |
| Pinolen-Ø<br>Sleeve-Ø                        | D <sub>4</sub> = _____ |
| Reitstock-Ø<br>Tailstock-Ø                   | D <sub>5</sub> = _____ |
| Spitzen-Ø<br>Center-Ø                        | D <sub>6</sub> = _____ |
| Innerer Teilkreis-Ø<br>Inner Pitch Circle-Ø  | D <sub>7</sub> = _____ |
| Flansch-Ø<br>Flange-Ø                        | D <sub>8</sub> = _____ |
| Radius der Freiarbeitung<br>Radius of Recess | D <sub>9</sub> = _____ |

Anzahl und Abmessungen der Bohrungen  
Number and Dimensions of the Bore Holes

Flanschhöhe  
Flange Height

Revolverscheibendicke  
Turret Plate Thickness

Nuttiefe  
Slot Depth

Nutlänge  
Slot Length

Nutbreite  
Slot Width

Abstand 1  
Distance 1

Abstand 2  
Distance 2

Abstand 3  
Distance 3

Versatz Revolver-,  
Werkstückmitte  
Offset Turret-  
Component Part center

axb = \_\_\_\_\_

c = \_\_\_\_\_

d = \_\_\_\_\_

e = \_\_\_\_\_

f = \_\_\_\_\_

g = \_\_\_\_\_

h = \_\_\_\_\_

i = \_\_\_\_\_

k = \_\_\_\_\_

L = \_\_\_\_\_

Abstand zur  
Maschinenrückwand  
Distance to Machine  
back wall side

L<sub>2</sub> = \_\_\_\_\_

min/max Ausfahr-  
länge  
der Pinole  
min/max extension length  
of the sleeve

L<sub>3</sub> = \_\_\_\_\_

Wanddicke  
Wall Thickness

m = \_\_\_\_\_

Abstand 4  
Distance 4

n = \_\_\_\_\_

Lage der Verzahnung  
in Arbeitsstellung  
Position of Gear  
in working position

x<sub>1</sub> = \_\_\_\_\_

von der Maschinenspin-  
del auf den Revolver ge-  
sehen  
Looking from the Machine  
Spindle towards the Turret

x<sub>2</sub> = \_\_\_\_\_

Teilungswert ohne Anzahl  
der Aufnahmebohrung  
Indexing Value without  
number of the Mounting  
Bore Holes

β/z = \_\_\_\_\_

### Axial-Gewinde-Rollkopf

Beim Axial-Verfahren wird das Gewinde axial fortschreitend erzeugt. Deshalb ist die Gewindelänge praktisch ohne Einfluss auf die benötigte Antriebsleistung.

#### Die erforderliche Antriebsleistung

$N \approx 0,174 \cdot 10^{-6} \cdot C \cdot \delta_B \cdot p \cdot d \cdot n$  [kW]  
 $C = 1$  für Spitzgewinde  
 $C = 2$  für Trapez- und Rundgewinde

#### Das Drehmoment

$$M = \frac{9740 \cdot N}{n} \text{ [Nm]}$$

**Rechenbeispiel:** M 20 x 2,5  
 Gewinde-Ø  $d = 20$  mm  
 Werkstücksteigung  $p = 2,5$  mm  
 Zugfestigkeit  $\delta_B = 700$  N/mm<sup>2</sup>  
 Werkstückdrehzahl  $n = 600$  min<sup>-1</sup>  
 Formfaktor  $C = 1$

#### Antriebsleistung

$$N \approx 0,174 \cdot 10^{-6} \cdot 1 \cdot 700 \cdot 2,5 \cdot 20 \cdot 600 \quad N \approx 3,65 \text{ kW}$$

#### Drehmoment

$$M \approx \frac{9740 \cdot 3,65}{600} \quad M \approx 59,25 \text{ Nm}$$

### Radial-Gewinde-Rollkopf

Hier wird das Gewinde in seiner gesamten Länge mit nur einer Rollenumdrehung erzeugt. Dazu wird kurzfristig ein hohes Drehmoment benötigt. Dies kann notfalls erreicht werden mittels verringern der Drehzahl, durch eine andere Getriebeuntersetzung oder auch schon durch eine Vergrößerung der Schwungmasse der Spindel. Es muss die Einspannung des Werkstückes dem Drehmoment angepasst sein.

#### Die erforderliche Arbeitsleistung

$$N \approx 0,105 \cdot 10^{-3} \cdot n \cdot M$$
 [kW]

#### Das Drehmoment

$$M \approx 8,8 \cdot 10^{-3} \cdot K_R \cdot K \cdot p \cdot L \cdot d^2$$
 [Nm]

| Typ   | E 8  | E 10 | E 13 | E 16 | E 23 |
|-------|------|------|------|------|------|
| $K_R$ | 2,7  | 1,8  | 1,3  | 1,0  | 0,7  |
| Typ   | E 30 | C 10 | C 16 | C 24 | C 36 |
| $K_R$ | 0,4  | 1,8  | 1,0  | 0,6  | 0,4  |

| Werkstoff             | K    |
|-----------------------|------|
| Automatenstahl        | 1,0  |
| unlegierter Stahl     | 1,25 |
| nicht rostender Stahl | 1,4  |
| legierter Stahl       | 1,8  |

**Rechenbeispiel:** M 16 x 2 – 20 mm lang  
 Gewinde-Ø  $d = 16$  mm  
 Werkstücksteigung  $p = 2$  mm  
 Werkstückdrehzahl  $n = 400$  min<sup>-1</sup>  
 Rollkopfkongstante  $K_R = 1,0$   
 Werkstoffkonstante  $K = 1,0$   
 Gewindelänge  $L = 20$  mm  
 Rollkopftyp E 16

#### Antriebsleistung

$$N \approx 0,105 \cdot 10^{-3} \cdot 400 \cdot 90,11 \quad N \approx 3,78 \text{ kW}$$

#### Drehmoment

$$M \approx 8,8 \cdot 10^{-3} \cdot 1,0 \cdot 1,0 \cdot 2 \cdot 20 \cdot 16^2 \quad M \approx 90,11 \text{ Nm}$$

### Axial thread rolling head

In the axial method, the thread is gradually generated in an axial direction. Therefore, the thread length does not influence the power requirement.

#### Required drive power

$N \approx 0,174 \cdot 10^{-6} \cdot C \cdot \delta_B \cdot p \cdot d \cdot n$  [kW]  
 $C = 1$  for V-type threads  
 $C = 2$  for trapezoidal and round threads

#### Required torque

$$M = \frac{9740 \cdot N}{n} \text{ [Nm]}$$

**Calculation example:** M 20 x 2.5  
 thread-Ø  $d = 0.787$  inch  
 thread pitch  $p = 0.098$  inch  
 tensile strength  $\delta_B = 700$  N/mm<sup>2</sup>  
 component revolution  $n = 600$  min<sup>-1</sup>  
 forming factor  $C = 1$

#### Drive power

$$N \approx 0,174 \cdot 10^{-6} \cdot 1 \cdot 700 \cdot 0.098 \cdot 0.787 \cdot 600 \quad N \approx ??? \text{ kW}$$

#### Torque

$$M \approx \frac{9740 \cdot 3,65}{600} \quad M \approx ??? \text{ Nm}$$

### Radial thread rolling head

In this case, the thread is formed in its whole length, with only one roll revolution. Therefore, high torque is needed for an instant. Under special circumstances, higher torque can be obtained by reducing the revolutions, another gear ratio or by increasing the mass on the spindle. The component clamping force must correspond to the torque.

#### Required drive power

$$N \approx 0,105 \cdot 10^{-3} \cdot n \cdot M$$
 [kW]

#### Required torque

$$M \approx 8,8 \cdot 10^{-3} \cdot K_R \cdot K \cdot p \cdot L \cdot d^2$$
 [Nm]

| Type  | E 8   | E 10  | E 13  | E 16  | E 23  |
|-------|-------|-------|-------|-------|-------|
| $K_R$ | 0.106 | 0.071 | 0.051 | 0.039 | 0.027 |
| Type  | E 30  | C 10  | C 16  | C 24  | C 36  |
| $K_R$ | 0.016 | 0.071 | 0.039 | 0.024 | 0.016 |

| Material           | K    |
|--------------------|------|
| free cutting steel | 1,0  |
| unalloyed steel    | 1,25 |
| stainless steel    | 1,4  |
| alloyed steel      | 1,8  |

**Calculation example:** M 16 x 2 – 0.787 inch long  
 Thread-Ø  $d = 0.629$  inch  
 Thread pitch  $p = 0.078$  inch  
 Component revolution  $n = 400$  min<sup>-1</sup>  
 Thread constant  $K_R = 1,0$   
 Material constant  $K = 1,0$   
 Thread length  $L = 0.787$   
 Head type E 16

#### Drive power

$$N \approx 0,105 \cdot 10^{-3} \cdot 400 \cdot 90,11 \quad N \approx ??? \text{ kW}$$

#### Torque

$$M \approx 8,8 \cdot 10^{-3} \cdot 1,0 \cdot 1,0 \cdot 0.078 \cdot 0.787 \cdot 16^2 \quad M \approx ??? \text{ Nm}$$

### Tangential-Gewinde-Rollkopf

Beim Tangential-Verfahren wird das Gewinde in seiner gesamten Länge mit mehreren Umdrehungen erzeugt. Deshalb ist die Antriebsleistung an der Spindel meistens nicht das entscheidende Kriterium. Die Kraft zum Einrollen des Profils muss vom Scheitelschlitten bzw. Revolverschlitten aufgebracht werden. Bei kurven-gesteuerten Drehautomaten ist das meistens kein Problem. Bei hydraulisch oder elektrisch angetriebenen Schlitten ist es nötig, die Tangentialkraft zu erreichen.

#### Die erforderliche Antriebsleistung

$$N \approx 0,105 \cdot 10^{-5} \cdot n \cdot F_T \text{ [kW]}$$

#### Die Tangentialkraft

$$F_T \approx 2340 \cdot L \cdot \frac{K}{n_w} \cdot (0,06 \cdot d^{0,82} + 0,46 \cdot p - 0,1 \cdot z + 1) \text{ [N]}$$

Siehe auch Nomogramm Seite 249.

#### Das Drehmoment

$$M \approx 0,01 \cdot F_T \text{ [Nm]}$$

| Zugfestigkeit $\delta_B$     | K   |
|------------------------------|-----|
| bis 500 N/mm <sup>2</sup>    | 1   |
| bis 700 N/mm <sup>2</sup>    | 1,2 |
| bis 900 N/mm <sup>2</sup>    | 1,3 |
| größer 900 N/mm <sup>2</sup> | 1,1 |
| Kupfer                       | 1,1 |
| Messing                      | 0,9 |

|                         |   |
|-------------------------|---|
| <b>Rechenbeispiel:</b>  | M 22 x 2,5 – 18 mm lang                 |
| Gewinde-Ø               | d = 22 mm                               |
| Werkstücksteigung       | p = 2,5 mm                              |
| Werkstückdrehzahl       | n = 480 min <sup>-1</sup>               |
| Werkstückkonstante      | K = 1,2                                 |
| Gewindelänge            | L = 18 mm                               |
| Eingriffsumdrehungszahl | $n_w = 30$ (siehe auch Seiten 393, 394) |
| Rollengangzahl          | z = 3 (siehe auch Internet)             |
| Rollkopftyp             | T 27                                    |

#### Tangentialkraft

$$F_T \approx 2340 \cdot 18 \cdot \frac{1,2}{30} \cdot (0,06 \cdot 22^{0,82} + 0,46 \cdot 2,5 - 0,1 \cdot 3 + 1)$$

$$F_T \approx 4391,8 \text{ N}$$

#### Antriebsleistung

$$N \approx 0,105 \cdot 10^{-5} \cdot 480 \cdot 4391,8$$

$$N \approx 2,21 \text{ kW}$$

#### Drehmoment

$$M \approx 0,01 \cdot 4391,8$$

$$M \approx 43,92 \text{ Nm}$$

### Tangential thread rolling attachment

In the tangential method, the thread is formed in its whole length, with a controlled number of component revolutions. Therefore, the power requirement on the spindle is not that relevant. The power needed to form the profile must be supplied by the cross slide, respectively turret slide. On cam controlled automatics, this is normally not a problem. On hydraulic or electric controlled slides, the tangential power needed must be available.

#### Required drive power

$$N \approx 0,105 \cdot 10^{-5} \cdot n \cdot F_T \text{ [kW]}$$

#### The tangential force

$$F_T \approx 2340 \cdot L \cdot \frac{K}{n_w} \cdot (0,06 \cdot d^{0,82} + 0,46 \cdot p - 0,1 \cdot z + 1) \text{ [N]}$$

See also nomograph on page 249.

#### The Torque

$$M \approx 0,01 \cdot F_T \text{ [Nm]}$$

| Tensile strength $\delta_B$ | K   |
|-----------------------------|-----|
| up to 500 N/mm <sup>2</sup> | 1   |
| up to 700 N/mm <sup>2</sup> | 1,2 |
| up to 900 N/mm <sup>2</sup> | 1,3 |
| over 900 N/mm <sup>2</sup>  | 1,1 |
| Copper                      | 1,1 |
| Brass                       | 0,9 |

|   |                                     |
|---|-------------------------------------|
| <b>Calculation example:</b>               | M 22 x 2,5 – 18 mm long             |
| Thread-Ø                                  | d = 22 mm                           |
| Thread pitch                              | p = 2,5 mm                          |
| Component revolution                      | n = 480 min <sup>-1</sup>           |
| Material constant                         | K = 1,2                             |
| Thread length                             | L = 18 mm                           |
| Number of revolutions for rolling         | $n_w = 30$ (see also page 393, 394) |
| Thread starts on the roll attachment type | z = 3 (see also internet)           |
|   | T 27                                |

#### Tangential force

$$F_T \approx 2340 \cdot 18 \cdot \frac{1,2}{30} \cdot (0,06 \cdot 22^{0,82} + 0,46 \cdot 2,5 - 0,1 \cdot 3 + 1)$$

$$F_T \approx 4391,8 \text{ N}$$

#### Drive power

$$N \approx 0,105 \cdot 10^{-5} \cdot 480 \cdot 4391,8$$

$$N \approx 2,21 \text{ kW}$$

#### Torque

$$M \approx 0,01 \cdot 4391,8$$

$$M \approx 43,92 \text{ Nm}$$

| Für UN-Gewinde<br>For UN Threads  |                                      |       |       |       |       |       |       |        |        |        |       |       |       |       |
|-----------------------------------|--------------------------------------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|
| Durchmesser<br>Diameter<br>Inches | Gewinde pro Zoll<br>Threads per Inch |       |       |       |       |       |       |        |        |        |       |       |       |       |
|                                   | 80                                   | 72    | 64    | 56    | 50    | 48    | 44    | 40     | 36     | 32     | 30    | 28    | 26    | 24    |
| 0(.060)                           | 4°23'                                | 4°57' | 5°42' | 6°42' | 7°43' | 8°8'  | 9°6'  | 10°21' | 11°55' | 14°6'  |       |       |       |       |
| 1(.073)                           | 3°30'                                | 3°57' | 4°31' | 5°17' | 6°3'  | 6°16' | 7°5'  | 8°2'   | 9°9'   | 10°43' |       |       |       |       |
| 2(.086)                           | 2°56'                                | 3°17' | 3°46' | 4°22' | 4°59' | 5°14' | 5°48' | 6°31'  | 7°25'  | 8°37'  | 9°23' |       |       |       |
| 3(.099)                           | 2°30'                                | 2°49' | 3°12' | 3°43' | 4°14' | 4°26' | 4°55' | 5°30'  | 6°14'  | 7°13'  | 7°44' | 8°32' | 9°25' | 9°16' |
| 4(.112)                           | 2°12'                                | 2°27' | 2°48' | 3°14' | 3°41' | 3°51' | 4°15' | 4°45'  | 5°23'  | 6°12'  | 6°43' | 7°18' | 8°2'  | 8°53' |
| 5(.125)                           | 1°57'                                | 2°11' | 2°29' | 2°52' | 3°16' | 3°24' | 3°45' | 4°11'  | 4°46'  | 5°26'  | 5°52' | 6°22' | 7°0'  | 7°43' |
| 6(.138)                           | 1°45'                                | 1°58' | 2°14' | 2°34' | 2°55' | 3°3'  | 3°21' | 3°44'  | 4°13'  | 4°50'  | 5°13' | 5°39' | 6°12' | 6°50' |
| 8(.164)                           | 1°28'                                | 1°38' | 1°51' | 2°5'  | 2°25' | 2°27' | 2°43' | 3°5'   | 3°28'  | 3°58'  | 4°32' | 4°37' | 5°2'  | 5°32' |
| 10(.190)                          | 1°15'                                | 1°24' | 1°35' | 1°49' | 2°5'  | 2°9'  | 2°22' | 2°37'  | 2°56'  | 3°21'  | 3°40' | 3°54' | 4°25' | 4°39' |
| 12(.216)                          | 1°6'                                 | 1°13' | 1°23' | 1°36' | 1°46' | 1°53' | 2°3'  | 2°17'  | 2°33'  | 2°55'  | 3°6'  | 3°22' | 3°37' | 4°1'  |
| 0.25                              | 0°57'                                | 1°3'  | 1°12' | 1°22' | 1°33' | 1°37' | 1°46' | 1°57'  | 2°11'  | 2°24'  | 2°40' | 2°53' | 3°7'  | 3°24' |
| 0.28                              | 0°50'                                | 0°56' | 1°3'  | 1°12' | 1°22' | 1°25' | 1°34' | 1°43'  | 1°56'  | 2°11'  | 2°21' | 2°31' | 2°44' | 3°0'  |
| 0.31                              | 0°45'                                | 0°50' | 0°57' | 1°5'  | 1°13' | 1°16' | 1°24' | 1°33'  | 1°43'  | 1°57'  | 2°5'  | 2°15' | 2°27' | 2°40' |
| 0.34                              | 0°40'                                | 0°45' | 0°51' | 0°59' | 1°6'  | 1°9'  | 1°15' | 1°24'  | 1°34'  | 1°46'  | 1°54' | 2°2'  | 2°12' | 2°11' |
| 0.38                              | 0°37'                                | 0°41' | 0°47' | 0°54' | 1°1'  | 1°3'  | 1°9'  | 1°16'  | 1°25'  | 1°37'  | 1°43' | 1°51' | 2°0'  | 2°11' |
| 0.41                              | 0°34'                                | 0°38' | 0°43' | 0°50' | 0°56' | 0°58' | 1°4'  | 1°10'  | 1°18'  | 1°29'  | 1°35' | 1°42' | 1°50' | 2°0'  |
| 0.44                              | 0°32'                                | 0°36' | 0°40' | 0°46' | 0°52' | 0°54' | 0°59' | 1°5'   | 1°12'  | 1°22'  | 1°27' | 1°34' | 1°42' | 1°51' |
| 0.47                              | 0°30'                                | 0°33' | 0°37' | 0°43' | 0°48' | 0°50' | 0°55' | 1°1'   | 1°8'   | 1°17'  | 1°22' | 1°27' | 1°35' | 1°43' |
| 0.50                              | 0°28'                                | 0°31' | 0°35' | 0°40' | 0°45' | 0°47' | 0°52' | 0°57'  | 1°3'   | 1°12'  | 1°16' | 1°22' | 1°29' | 1°37' |
| 0.53                              |                                      |       | 0°33' | 0°38' | 0°42' | 0°44' | 0°48' | 0°53'  | 0°59'  | 1°7'   | 1°11' | 1°17' | 1°24' | 1°30' |
| 0.56                              |                                      |       | 0°31' | 0°36' | 0°40' | 0°42' | 0°45' | 0°50'  | 0°56'  | 1°3'   | 1°8'  | 1°12' | 1°18' | 1°25' |
| 0.59                              |                                      |       | 0°29' | 0°34' | 0°38' | 0°39' | 0°43' | 0°47'  | 0°53'  | 1°0'   | 1°4'  | 1°9'  | 1°14' | 1°20' |
| 0.62                              |                                      |       | 0°28' | 0°32' | 0°36' | 0°37' | 0°41' | 0°47'  | 0°50'  | 0°57'  | 1°0'  | 1°5'  | 1°10' | 1°17' |
| 0.69                              |                                      |       | 0°25' | 0°29' | 0°33' | 0°34' | 0°37' | 0°41'  | 0°46'  | 0°51'  | 0°55' | 0°59' | 1°4'  | 1°9'  |
| 0.75                              |                                      |       | 0°23' | 0°27' | 0°30' | 0°31' | 0°34' | 0°37'  | 0°42'  | 0°47'  | 0°50' | 0°54' | 0°58' | 1°3'  |
| 0.81                              |                                      |       |       | 0°25' | 0°27' | 0°29' | 0°31' | 0°35'  | 0°38'  | 0°43'  | 0°46' | 0°50' | 0°53' | 0°58' |
| 0.88                              |                                      |       |       | 0°23' | 0°25' | 0°27' | 0°29' | 0°32'  | 0°36'  | 0°40'  | 0°43' | 0°46' | 0°50' | 0°54' |
| 0.94                              |                                      |       |       | 0°21' | 0°24' | 0°25' | 0°27' | 0°30'  | 0°33'  | 0°37'  | 0°40' | 0°43' | 0°46' | 0°50' |
| 1.00                              |                                      |       |       | 0°20' | 0°22' | 0°23' | 0°25' | 0°28'  | 0°31'  | 0°35'  | 0°37' | 0°40' | 0°43' | 0°47' |
| 1.06                              |                                      |       |       | 0°19' | 0°21' | 0°22' | 0°24' | 0°26'  | 0°29'  | 0°33'  | 0°35' | 0°38' | 0°41' | 0°44' |
| 1.12                              |                                      |       |       | 0°18' | 0°20' | 0°21' | 0°23' | 0°25'  | 0°28'  | 0°31'  | 0°33' | 0°36' | 0°38' | 0°42' |
| 1.19                              |                                      |       |       | 0°17' | 0°19' | 0°20' | 0°21' | 0°24'  | 0°26'  | 0°29'  | 0°31' | 0°34' | 0°36' | 0°39' |
| 1.25                              |                                      |       |       | 0°16' | 0°18' | 0°19' | 0°20' | 0°22'  | 0°25'  | 0°28'  | 0°30' | 0°32' | 0°35' | 0°37' |
| 1.31                              |                                      |       |       | 0°15' | 0°17' | 0°18' | 0°19' | 0°21'  | 0°24'  | 0°26'  | 0°28' | 0°30' | 0°33' | 0°36' |
| 1.38                              |                                      |       |       | 0°14' | 0°17' | 0°17' | 0°18' | 0°20'  | 0°23'  | 0°25'  | 0°27' | 0°29' | 0°31' | 0°34' |
| 1.44                              |                                      |       |       |       |       |       |       | 0°19'  | 0°22'  | 0°24'  | 0°26' | 0°28' | 0°30' | 0°32' |
| 1.50                              |                                      |       |       |       |       |       |       | 0°18'  | 0°21'  | 0°23'  | 0°25' | 0°27' | 0°29' | 0°31' |
| 1.62                              |                                      |       |       |       |       |       |       |        |        | 0°21'  | 0°23' | 0°24' | 0°26' | 0°29' |
| 1.75                              |                                      |       |       |       |       |       |       |        |        | 0°20'  | 0°21' | 0°22' | 0°24' | 0°27' |
| 1.88                              |                                      |       |       |       |       |       |       |        |        | 0°18'  | 0°20' | 0°21' | 0°23' | 0°25' |
| 2.00                              |                                      |       |       |       |       |       |       |        |        | 0°17'  | 0°18' | 0°20' | 0°21' | 0°23' |

| Für UN-Gewinde<br>For UN Threads  |                                      |        |        |        |       |        |        |       |       |       |       |       |        |        |
|-----------------------------------|--------------------------------------|--------|--------|--------|-------|--------|--------|-------|-------|-------|-------|-------|--------|--------|
| Durchmesser<br>Diameter<br>Inches | Gewinde pro Zoll<br>Threads per Inch |        |        |        |       |        |        |       |       |       |       |       |        |        |
|                                   | 20                                   | 18     | 16     | 14     | 13    | 12     | 11     | 10    | 9     | 8     | 7     | 6     | 5      | 4 1/2  |
| 3(.099)                           |                                      |        |        |        |       |        |        |       |       |       |       |       |        |        |
| 4(.112)                           |                                      |        |        |        |       |        |        |       |       |       |       |       |        |        |
| 5(.125)                           | 9°46'                                | 11°16' | 13°18' |        |       |        |        |       |       |       |       |       |        |        |
| 6(.138)                           | 8°35'                                | 9°51'  | 11°30' |        |       |        |        |       |       |       |       |       |        |        |
| 8(.164)                           | 6°55'                                | 7°50'  | 9°10'  | 10°57' | 12°9' | 13°36' |        |       |       |       |       |       |        |        |
| 10(.190)                          | 5°47'                                | 6°34'  | 7°36'  | 9°1'   | 9°56' | 11°4'  |        |       |       |       |       |       |        |        |
| 12(.216)                          | 4°58'                                | 5°37'  | 6°28'  | 7°39'  | 8°24' | 9°19'  | 10°29' |       |       |       |       |       |        |        |
| 0.25                              | 4°12'                                | 4°43'  | 5°26'  | 6°23'  | 6°59' | 7°43'  | 8°38'  | 9°47' |       |       |       |       |        |        |
| 0.28                              | 3°40'                                | 4°9'   | 4°43'  | 5°32'  | 6°3'  | 6°40'  | 7°26'  | 8°23' |       |       |       |       |        |        |
| 0.31                              | 3°15'                                | 3°40'  | 4°12'  | 4°53'  | 5°20' | 5°52'  | 6°32'  | 7°20' | 8°23' | 9°46' |       |       |        |        |
| 0.34                              | 2°51'                                | 3°17'  | 3°46'  | 4°26'  | 4°46' | 5°15'  | 5°49'  | 6°31' | 7°26' | 8°38' |       |       |        |        |
| 0.38                              | 2°47'                                | 3°0'   | 3°24'  | 3°58'  | 4°20' | 4°43'  | 5°15'  | 5°52' | 6°40' | 7°44' |       |       |        |        |
| 0.41                              | 2°27'                                | 2°44'  | 3°7'   | 3°37'  | 3°47' | 4°26'  | 4°46'  | 5°20' | 6°3'  | 6°59' | 8°16' | 10°7' |        |        |
| 0.44                              | 2°15'                                | 2°31'  | 2°53'  | 3°20'  | 3°37' | 3°58'  | 4°24'  | 4°53' | 5°32' | 6°23' | 7°32' | 9°10' | 11°43' |        |
| 0.47                              | 2°5'                                 | 2°20'  | 2°40'  | 3°60'  | 3°21' | 3°40'  | 4°3'   | 4°30' | 5°6'  | 5°52' | 6°55' | 8°26' | 10°40' |        |
| 0.50                              | 1°57'                                | 2°11'  | 2°29'  | 2°53'  | 3°7'  | 3°24'  | 3°46'  | 4°12' | 4°43' | 5°26' | 6°23' | 7°44' | 9°46'  | 11°16' |
| 0.53                              | 1°50'                                | 2°3'   | 2°20'  | 2°41'  | 2°55' | 3°12'  | 3°31'  | 3°57' | 4°24' | 5°3'  | 5°56' | 7°10' | 9°2'   | 10°3'  |
| 0.56                              | 1°43'                                | 1°55'  | 2°11'  | 2°31'  | 2°44' | 3°0'   | 3°17'  | 3°40' | 4°9'  | 4°44' | 5°32' | 6°40' | 8°23'  | 9°37'  |
| 0.59                              | 1°38'                                | 1°49'  | 2°4'   | 2°23'  | 2°35' | 2°49'  | 3°6'   | 3°27' | 3°59' | 4°27' | 5°12' | 6°15' | 7°50'  | 8°57'  |
| 0.62                              | 1°33'                                | 1°43'  | 1°57'  | 2°15'  | 2°27' | 2°40'  | 2°56'  | 3°15' | 3°40' | 4°11' | 4°53' | 5°52' | 7°20'  | 8°23'  |
| 0.69                              | 1°24'                                | 1°34'  | 1°46'  | 2°2'   | 2°12' | 2°24'  | 2°38'  | 2°56' | 3°17' | 3°46' | 4°24' | 5°14' | 6°31'  | 7°26'  |
| 0.75                              | 1°16'                                | 1°25'  | 1°37'  | 1°51'  | 2°0'  | 2°11'  | 2°24'  | 2°40' | 3°0'  | 3°24' | 3°58' | 4°43' | 5°52'  | 6°40'  |
| 0.81                              | 1°10'                                | 1°18'  | 1°29'  | 1°42'  | 1°50' | 2°0'   | 2°12'  | 2°27' | 2°44' | 3°7'  | 3°37' | 4°20' | 5°20'  | 6°3'   |
| 0.88                              | 1°5'                                 | 1°12'  | 1°22'  | 1°34'  | 1°42' | 1°51'  | 2°2'   | 2°15' | 2°32' | 2°53' | 3°20' | 3°28' | 4°53'  | 5°32'  |
| 0.94                              | 1°1'                                 | 1°8'   | 1°16'  | 1°27'  | 1°35' | 1°43'  | 1°54'  | 2°5'  | 2°20' | 2°40' | 3°6'  | 3°40' | 4°30'  | 5°6'   |
| 1.00                              | 0°57'                                | 1°3'   | 1°12'  | 1°22'  | 1°29' | 1°37'  | 1°46'  | 1°57' | 2°11' | 2°29' | 2°53' | 3°24' | 4°12'  | 4°44'  |
| 1.06                              | 0°53'                                | 0°59'  | 1°7'   | 1°17'  | 1°24' | 1°31'  | 1°39'  | 1°56' | 2°3'  | 2°20' | 2°41' | 3°12' | 3°55'  | 4°24'  |
| 1.12                              | 0°50'                                | 0°56'  | 1°3'   | 1°13'  | 1°18' | 1°25'  | 1°34'  | 1°43' | 1°56' | 2°11' | 2°32' | 3°0'  | 3°40'  | 4°8'   |
| 1.19                              | 0°47'                                | 0°53'  | 1°0'   | 1°9'   | 1°14' | 1°21'  | 1°28'  | 1°38' | 1°49' | 2°4'  | 2°23' | 2°49' | 3°27'  | 3°53'  |
| 1.25                              | 0°45'                                | 0°50'  | 0°57'  | 1°5'   | 1°10' | 1°16'  | 1°24'  | 1°33' | 1°43' | 1°57' | 2°15' | 2°40' | 3°15'  | 3°40'  |
| 1.31                              | 0°43'                                | 0°48'  | 0°54'  | 1°2'   | 1°7'  | 1°12'  | 1°19'  | 1°27' | 1°38' | 1°51' | 2°8'  | 2°31' | 3°6'   | 3°29'  |
| 1.38                              | 0°41'                                | 0°45'  | 0°51'  | 0°59'  | 1°4'  | 1°9'   | 1°15'  | 1°24' | 1°34' | 1°46' | 2°2'  | 2°24' | 2°56'  | 3°17'  |
| 1.44                              | 0°39'                                | 0°43'  | 0°49'  | 0°56'  | 1°1'  | 1°6'   | 1°12'  | 1°20' | 1°29' | 1°41' | 1°56' | 2°17' | 2°47'  | 3°8'   |
| 1.50                              | 0°37'                                | 0°42'  | 0°47'  | 0°54'  | 0°58' | 1°3'   | 1°9'   | 1°16' | 1°25' | 1°36' | 1°51' | 2°11' | 2°40'  | 3°0'   |
| 1.62                              | 0°34'                                | 0°38'  | 0°43'  | 0°50'  | 0°53' | 0°58'  | 1°4'   | 1°10' | 1°18' | 1°29' | 1°42' | 2°0'  | 2°26'  | 2°44'  |
| 1.75                              | 0°32'                                | 0°36'  | 0°40'  | 0°46'  | 0°50' | 0°54'  | 0°59'  | 1°5'  | 1°12' | 1°22' | 1°34' | 1°52' | 2°15'  | 2°31'  |
| 1.88                              | 0°30'                                | 0°33'  | 0°37'  | 0°43'  | 0°46' | 0°50'  | 0°55'  | 1°1'  | 1°8'  | 1°17' | 1°28' | 1°43' | 2°5'   | 2°20'  |
| 2.00                              | 0°28'                                | 0°31'  | 0°35'  | 0°40'  | 0°43' | 0°47'  | 0°51'  | 0°57' | 1°3'  | 1°11' | 1°22' | 1°37' | 1°57'  | 2°11'  |

| Für Schraubengewinde<br>For Metric Screw Threads M Profile |                   |       |       |       |       |       |       |       |       |       |       |
|--|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Durchmesser<br>Diameter<br>mm                              | Steigung<br>Pitch |       |       |       |       |       |       |       |       |       |       |
|  | .30               | .35   | .40   | .45   | .50   | .60   | .70   | .75   | .80   | 1.00  | 1.25  |
| 1,4  | 4°32'             | 5°26' | 6°22' | 7°22' |       |       |       |       |       |       |       |
| 1,6  | 3°53'             | 4°38' | 5°26' | 6°15' | 7°7'  |       |       |       |       |       |       |
| 1,8  | 3°24'             | 4°3'  | 4°44' | 5°26' | 6°9'  |       |       |       |       |       |       |
| 2,0  | 3°2'              | 3°36' | 4°11' | 4°48' | 5°36' | 6°46' |       |       |       |       |       |
| 2,2  | 2°44'             | 3°14' | 3°45' | 4°18' | 4°51' | 6°1'  | 7°17' |       |       |       |       |
| 2,5  | 2°22'             | 2°48' | 3°15' | 3°43' | 4°11' | 5°10' | 6°13' | 6°46' | 7°20' |       |       |
| 3,0  | 1°57'             | 2°18' | 2°40' | 3°2'  | 3°24' | 4°11' | 5°0'  | 5°26' | 5°52' |       |       |
| 3,5  | 1°39'             | 1°57' | 2°15' | 2°33' | 2°52' | 3°31' | 4°11' | 4°32' | 4°53' | 6°22' |       |
| 4,0  | 1°26'             | 1°41' | 1°57' | 2°13' | 2°29' | 3°2'  | 3°36' | 3°53' | 4°11' | 5°26' | 7°7'  |
| 4,5  | 1°16'             | 1°30' | 1°43' | 1°57' | 2°11' | 2°40' | 3°9'  | 3°24' | 3°40' | 4°44' | 6°9'  |
| 5,0  | 1°8'              | 1°20' | 1°32' | 1°45' | 1°57' | 2°22' | 2°48' | 3°2'  | 3°15' | 4°11' | 5°26' |
| 6,0  | 0°57'             | 1°6'  | 1°16' | 1°26' | 1°36' | 1°57' | 2°18' | 2°29' | 2°40' | 3°24' | 4°23' |
| 6,3  | 0°54'             | 1°3'  | 1°12' | 1°22' | 1°32' | 1°51' | 2°11' | 2°21' | 2°31' | 3°13' | 4°9'  |
| 8,0  | 0°42'             | 0°49' | 0°57' | 1°4'  | 1°11' | 1°26' | 1°41' | 1°49' | 1°57' | 2°29' | 3°10' |
| 10,0   | 0°33'             | 0°39' | 0°45' | 0°51' | 0°57' | 1°8'  | 1°20' | 1°26' | 1°32' | 1°57' | 2°29' |
| 12,0   | 0°28'             | 0°33' | 0°37' | 0°42' | 0°47' | 0°57' | 1°6'  | 1°11' | 1°16' | 1°36' | 2°2'  |
| 14,0   | 0°24'             | 0°28' | 0°32' | 0°36' | 0°40' | 0°48' | 0°57' | 1°1'  | 1°5'  | 1°22' | 1°44' |
| 16,0   | 0°21'             | 0°24' | 0°28' | 0°31' | 0°35' | 0°42' | 0°49' | 0°53' | 0°57' | 1°11' | 1°30' |
| 18,0   |                   | 0°22' | 0°25' | 0°28' | 0°31' | 0°37' | 0°44' | 0°47' | 0°50' | 1°3'  | 1°20' |
| 20,0   |                   |       | 0°22' | 0°25' | 0°28' | 0°33' | 0°39' | 0°42' | 0°45' | 0°57' | 1°11' |
| 22,0   |                   |       | 0°20' | 0°23' | 0°25' | 0°30' | 0°36' | 0°38' | 0°41' | 0°51' | 1°5'  |
| 24,0   |                   |       |       | 0°21' | 0°23' | 0°28' | 0°33' | 0°35' | 0°37' | 0°47' | 0°59' |
| 27,0   |                   |       |       |       | 0°21' | 0°25' | 0°29' | 0°31' | 0°33' | 0°42' | 0°52' |
| 30,0   |                   |       |       |       |       | 0°22' | 0°26' | 0°28' | 0°30' | 0°37' | 0°47' |
| 33,0   |                   |       |       |       |       | 0°20' | 0°24' | 0°25' | 0°27' | 0°34' | 0°42' |
| 36,0   |                   |       |       |       |       |       | 0°22' | 0°23' | 0°25' | 0°31' | 0°39' |
| 39,0   |                   |       |       |       |       |       | 0°20' | 0°21' | 0°23' | 0°29' | 0°36' |
| 42,0   |                   |       |       |       |       |       |       | 0°20' | 0°21' | 0°26' | 0°33' |
| 45,0   |                   |       |       |       |       |       |       |       | 0°20' | 0°25' | 0°31' |
| 48,0   |                   |       |       |       |       |       |       |       |       | 0°23' | 0°29' |
| 52,0   |                   |       |       |       |       |       |       |       |       | 0°21' | 0°27' |

| Für Schraubengewinde<br>For Metric Screw Threads M Profile |                   |       |       |       |       |       |       |       |       |       |       |
|--|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Durchmesser<br>Diameter<br>mm                              | Steigung<br>Pitch |       |       |       |       |       |       |       |       |       |       |
|  | 1.50              | 1.75  | 2.00  | 2.50  | 3.00  | 3.50  | 4.00  | 4.50  | 5.00  | 5.50  | 6.00  |
| 1,4  |                   |       |       |       |       |       |       |       |       |       |       |
| 1,6  |                   |       |       |       |       |       |       |       |       |       |       |
| 1,8  |                   |       |       |       |       |       |       |       |       |       |       |
| 2,0  |                   |       |       |       |       |       |       |       |       |       |       |
| 2,2  |                   |       |       |       |       |       |       |       |       |       |       |
| 2,5  |                   |       |       |       |       |       |       |       |       |       |       |
| 3,0  |                   |       |       |       |       |       |       |       |       |       |       |
| 3,5  |                   |       |       |       |       |       |       |       |       |       |       |
| 4,0  |                   |       |       |       |       |       |       |       |       |       |       |
| 4,5  |                   |       |       |       |       |       |       |       |       |       |       |
| 5,0  | 6°46'             |       |       |       |       |       |       |       |       |       |       |
| 6,0  | 5°26'             | 6°32' |       |       |       |       |       |       |       |       |       |
| 6,3  | 5°7'              | 6°9'  | 7°15' |       |       |       |       |       |       |       |       |
| 8,0  | 3°53'             | 4°38' | 5°26' | 7°7'  |       |       |       |       |       |       |       |
| 10,0   | 3°2'              | 3°36' | 4°11' | 5°26' | 6°46' |       |       |       |       |       |       |
| 12,0   | 2°29'             | 2°56' | 3°24' | 4°23' | 5°26' | 6°32' |       |       |       |       |       |
| 14,0   | 2°6'              | 2°29' | 2°52' | 3°41' | 4°32' | 5°26' | 6°22' | 7°22' |       |       |       |
| 16,0   | 1°49'             | 2°9'  | 2°29' | 3°10' | 3°53' | 4°38' | 5°26' | 6°15' | 7°7'  |       |       |
| 18,0   | 1°36'             | 1°54' | 2°11' | 2°47' | 3°24' | 4°3'  | 4°44' | 5°26' | 6°9'  | 6°55' |       |
| 20,0   | 1°26'             | 1°41' | 1°57' | 2°29' | 3°2'  | 3°36' | 4°11' | 4°48' | 5°26' | 6°5'  | 6°46' |
| 22,0   | 1°18'             | 1°32' | 1°46' | 2°14' | 2°44' | 3°14' | 3°45' | 4°18' | 4°51' | 5°26' | 6°1'  |
| 24,0   | 1°11'             | 1°24' | 1°36' | 2°2'  | 2°29' | 2°56' | 3°24' | 3°53' | 4°23' | 4°54' | 5°26' |
| 27,0   | 1°3'              | 1°14' | 1°25' | 1°48' | 2°11' | 2°35' | 2°59' | 3°24' | 3°50' | 4°16' | 4°44' |
| 30,0   | 0°57'             | 1°6'  | 1°16' | 1°36' | 1°57' | 2°18' | 2°40' | 3°2'  | 3°24' | 3°47' | 4°11' |
| 33,0   | 0°51'             | 1°0'  | 1°9'  | 1°27' | 1°46' | 2°5'  | 2°24' | 2°44' | 3°4'  | 3°24' | 3°45' |
| 36,0   | 0°47'             | 0°55' | 1°3'  | 1°20' | 1°36' | 1°54' | 2°11' | 2°29' | 2°47' | 3°5'  | 3°24' |
| 39,0   | 0°43'             | 0°51' | 0°58' | 1°13' | 1°29' | 1°44' | 2°0'  | 2°16' | 2°33' | 2°50' | 3°7'  |
| 42,0   | 0°40'             | 0°47' | 0°54' | 1°8'  | 1°22' | 1°36' | 1°51' | 2°6'  | 2°21' | 2°37' | 2°52' |
| 45,0   | 0°37'             | 0°44' | 0°50' | 1°3'  | 1°16' | 1°30' | 1°43' | 1°57' | 2°11' | 2°25' | 2°40' |
| 48,0   | 0°35'             | 0°41' | 0°47' | 0°59' | 1°11' | 1°24' | 1°36' | 1°49' | 2°2'  | 2°15' | 2°29' |
| 52,0   | 0°32'             | 0°38' | 0°43' | 0°54' | 1°6'  | 1°17' | 1°29' | 1°40' | 1°52' | 2°4'  | 2°16' |



| Ausgangs-<br>durchmesser<br>Blank<br>Diameter |          | Rollgeschwindigkeiten m/min            |       |       |       |       |       |       |       |       |       |       |
|---|----------|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|   |          | 20                                     | 25    | 30    | 35    | 40    | 50    | 60    | 70    | 80    | 90    | 100   |
| mm   inch                                     |          | Rolling Speed ft./min.                 |       |       |       |       |       |       |       |       |       |       |
|   |          | 66                                     | 82    | 98    | 115   | 131   | 164   | 197   | 230   | 262   | 295   | 328   |
|   |          | Werkstückdrehzahl in min <sup>-1</sup> |       |       |       |       |       |       |       |       |       |       |
|   |          | Component Rotating at r.p.m.           |       |       |       |       |       |       |       |       |       |       |
| 1   |          | 6370                                   | 7960  | 9550  | 11140 | 12730 | 15900 | 19100 | 22280 | 25470 | 28650 | 31830 |
|   | 1/32     | 8020                                   | 10025 | 12030 | 14036 | 16041 | 20051 | 24061 | 28071 | 32082 | 36092 | 40102 |
| 2   |          | 3180                                   | 3980  | 4780  | 5570  | 6370  | 7950  | 9590  | 11140 | 12740 | 14330 | 15920 |
|   | 5/64     | 3208                                   | 4010  | 4812  | 5614  | 6416  | 8020  | 9624  | 11229 | 12833 | 14437 | 16041 |
| 3   |          | 2120                                   | 2650  | 3180  | 3710  | 4240  | 5310  | 6370  | 7430  | 8490  | 9550  | 10610 |
|   | 1/8      | 2005                                   | 2506  | 3008  | 3509  | 4010  | 5013  | 6015  | 7018  | 8020  | 9023  | 10025 |
| 4   |          | 1590                                   | 1990  | 2390  | 2790  | 3190  | 3980  | 4780  | 5570  | 6370  | 7170  | 7960  |
|   | 5/32     | 1604                                   | 2005  | 2406  | 2807  | 3208  | 4010  | 4812  | 5614  | 6416  | 7218  | 8020  |
| 5   |          | 1270                                   | 1590  | 1910  | 2230  | 2540  | 3180  | 3820  | 4460  | 5090  | 5730  | 6370  |
|   | 3/16     | 1337                                   | 1672  | 2006  | 2341  | 2675  | 3344  | 4012  | 4681  | 5350  | 6018  | 6687  |
| 6   |          | 1060                                   | 1325  | 1590  | 1850  | 2120  | 2650  | 3180  | 3720  | 4250  | 4780  | 5310  |
|   | 1/4      | 1003                                   | 1253  | 1504  | 1754  | 2005  | 2506  | 3008  | 3509  | 4010  | 4511  | 5013  |
| 7   |          | 910                                    | 1135  | 1360  | 1590  | 1820  | 2270  | 2730  | 3180  | 3640  | 4090  | 4550  |
|   | 9/32     | 891                                    | 1114  | 1337  | 1560  | 1782  | 2228  | 2673  | 3119  | 3565  | 4010  | 4456  |
| 8   |          | 795                                    | 995   | 1190  | 1390  | 1590  | 1990  | 2390  | 2790  | 3180  | 3580  | 3980  |
|   | 5/16     | 802                                    | 1003  | 1203  | 1404  | 1604  | 2005  | 2406  | 2807  | 3208  | 3609  | 4010  |
| 9   |          | 710                                    | 885   | 1060  | 1240  | 1420  | 1770  | 2120  | 2480  | 2830  | 3180  | 3540  |
|   | 3/8      | 668                                    | 835   | 1000  | 1170  | 1340  | 1670  | 2000  | 2340  | 2670  | 3000  | 3340  |
| 10  |          | 635                                    | 795   | 995   | 1115  | 1270  | 1590  | 1910  | 2230  | 2550  | 2870  | 3180  |
|   | 7/16     | 573                                    | 716   | 859   | 1000  | 1146  | 1432  | 1720  | 2000  | 2290  | 2580  | 2865  |
| 12  |          | 530                                    | 665   | 795   | 930   | 1060  | 1330  | 1590  | 1860  | 2130  | 2390  | 2650  |
|   | 1/2      | 501                                    | 627   | 752   | 877   | 1002  | 1253  | 1504  | 1754  | 2005  | 2256  | 2506  |
| 14  |          | 445                                    | 570   | 680   | 795   | 910   | 1135  | 1360  | 1590  | 1820  | 2050  | 2270  |
|   | 9/16     | 446                                    | 557   | 668   | 780   | 891   | 1114  | 1337  | 1560  | 1782  | 2005  | 2228  |
| 15  |          | 425                                    | 530   | 635   | 730   | 850   | 1060  | 1270  | 1490  | 1700  | 1910  | 2120  |
|   | 19/32    | 422                                    | 528   | 633   | 739   | 844   | 1055  | 1266  | 1477  | 1689  | 1900  | 2111  |
| 16  |          | 400                                    | 500   | 595   | 695   | 795   | 995   | 1190  | 1390  | 1590  | 1790  | 1980  |
|   | 5/8      | 401                                    | 501   | 602   | 702   | 802   | 1003  | 1203  | 1404  | 1604  | 1805  | 2010  |
| 18  |          | 355                                    | 440   | 530   | 620   | 710   | 885   | 1060  | 1240  | 1420  | 1590  | 1770  |
|   | 3/4      | 334                                    | 418   | 501   | 585   | 668   | 835   | 1003  | 1170  | 1337  | 1504  | 1671  |
| 20  |          | 320                                    | 400   | 480   | 555   | 635   | 795   | 955   | 1115  | 1270  | 1430  | 1590  |
|   | 13/16    | 308                                    | 386   | 463   | 540   | 617   | 771   | 925   | 1080  | 1234  | 1388  | 1542  |
| 22  |          | 290                                    | 360   | 435   | 505   | 580   | 725   | 870   | 1015  | 1160  | 1300  | 1450  |
|   | 7/8      | 286                                    | 358   | 430   | 500   | 573   | 716   | 860   | 1000  | 1145  | 1290  | 1432  |
| 24  |          | 265                                    | 330   | 400   | 465   | 530   | 660   | 795   | 930   | 1060  | 1190  | 1330  |
|   | 15/16    | 267                                    | 334   | 401   | 468   | 535   | 668   | 802   | 936   | 1069  | 1203  | 1337  |
| 25  |          | 255                                    | 320   | 380   | 445   | 510   | 635   | 765   | 890   | 1020  | 1145  | 1270  |
|   | 63/64    | 255                                    | 318   | 382   | 446   | 509   | 637   | 764   | 891   | 1018  | 1146  | 1273  |
| 26  |          | 245                                    | 305   | 370   | 430   | 490   | 610   | 735   | 855   | 980   | 1100  | 1220  |
|   | 1"       | 251                                    | 313   | 376   | 439   | 501   | 627   | 752   | 877   | 1002  | 1128  | 1253  |
| 28  |          | 225                                    | 285   | 340   | 400   | 455   | 570   | 680   | 795   | 910   | 1020  | 1140  |
|   | 1 - 1/8  | 223                                    | 278   | 334   | 390   | 446   | 557   | 668   | 780   | 891   | 1002  | 1114  |
| 30  |          | 210                                    | 265   | 320   | 370   | 425   | 530   | 635   | 745   | 850   | 955   | 1060  |
|   | 1 - 3/16 | 211                                    | 264   | 317   | 369   | 422   | 528   | 633   | 739   | 844   | 950   | 1055  |
| 32  |          | 200                                    | 250   | 300   | 350   | 400   | 500   | 595   | 695   | 795   | 895   | 995   |
|   | 1 - 1/4  | 200                                    | 251   | 301   | 351   | 401   | 501   | 602   | 702   | 802   | 902   | 1003  |
| 34  |          | 187                                    | 235   | 280   | 330   | 375   | 470   | 560   | 655   | 750   | 845   | 935   |
|   | 1 - 5/16 | 191                                    | 239   | 286   | 334   | 382   | 477   | 573   | 668   | 764   | 859   | 955   |
| 35  |          | 182                                    | 227   | 270   | 320   | 365   | 455   | 545   | 635   | 730   | 820   | 910   |
|   | 1 - 3/8  | 182                                    | 228   | 273   | 319   | 365   | 456   | 547   | 638   | 729   | 820   | 911   |
| 36  |          | 177                                    | 221   | 265   | 310   | 355   | 440   | 530   | 620   | 705   | 795   | 885   |
|   | 1 - 7/16 | 174                                    | 218   | 262   | 305   | 349   | 436   | 523   | 610   | 697   | 785   | 872   |
| 38  |          | 168                                    | 209   | 250   | 290   | 335   | 420   | 505   | 585   | 670   | 755   | 840   |
|   | 1 - 1/2  | 167                                    | 209   | 251   | 292   | 334   | 418   | 501   | 585   | 668   | 752   | 835   |
| 40  |          | 159                                    | 199   | 239   | 280   | 320   | 400   | 480   | 555   | 635   | 715   | 795   |
|   | 1 - 9/16 | 160                                    | 201   | 241   | 281   | 321   | 401   | 481   | 561   | 642   | 722   | 802   |

| Ausgangs-<br>durchmesser<br>Blank<br>Diameter |           | Rollgeschwindigkeiten m/min  |     |     |     |     |     |     |     |     |     |     |
|---|-----------|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|   |           | 20   | 25  | 30  | 35  | 40  | 50  | 60  | 70  | 80  | 90  | 100 |
| mm   inch                                     |           | Rolling Speed ft./min.   |     |     |     |     |     |     |     |     |     |     |
|   |           | 66   | 82  | 98  | 115 | 131 | 164 | 197 | 230 | 262 | 295 | 328 |
|   |           | Werkstückdrehzahl in min <sup>-1</sup><br>Component Rotating at r.p.m. |     |     |     |     |     |     |     |     |     |     |
|   |           | 141  | 177 | 212 | 250 | 280 | 355 | 425 | 495 | 565 | 635 | 705 |
| 45<br>1 - 3/4                                 |           | 143  | 179 | 215 | 250 | 286 | 358 | 430 | 500 | 573 | 645 | 716 |
|   |           | 127  | 159 | 191 | 220 | 255 | 320 | 380 | 445 | 510 | 575 | 635 |
| 50<br>2"                                      |           | 125  | 157 | 188 | 219 | 251 | 313 | 376 | 439 | 501 | 564 | 627 |
|   |           | 116  | 145 | 174 | 202 | 232 | 290 | 345 | 405 | 465 | 520 | 580 |
| 55<br>2 - 1/4                                 |           | 111  | 139 | 167 | 195 | 223 | 278 | 334 | 390 | 446 | 501 | 557 |
|   |           | 106  | 133 | 159 | 186 | 212 | 265 | 320 | 370 | 425 | 480 | 530 |
| 60<br>2 - 3/8                                 |           | 106  | 132 | 158 | 185 | 211 | 264 | 317 | 369 | 422 | 475 | 528 |
|   |           | 98   | 122 | 147 | 171 | 196 | 245 | 295 | 340 | 390 | 440 | 490 |
| 65<br>2 - 1/2                                 |           | 100  | 125 | 150 | 175 | 201 | 251 | 301 | 351 | 401 | 451 | 501 |
|   |           | 91   | 113 | 136 | 159 | 182 | 227 | 270 | 320 | 365 | 410 | 455 |
| 70<br>2 - 3/4                                 |           | 91   | 114 | 137 | 159 | 182 | 228 | 273 | 319 | 365 | 410 | 456 |
|   |           | 85   | 106 | 127 | 148 | 170 | 212 | 255 | 300 | 340 | 380 | 425 |
| 75<br>3"                                      |           | 84   | 104 | 125 | 146 | 167 | 209 | 251 | 292 | 334 | 376 | 418 |
|   |           | 80   | 100 | 119 | 139 | 159 | 199 | 240 | 280 | 320 | 360 | 400 |
| 80<br>3 - 1/4                                 |           | 77   | 96  | 116 | 135 | 154 | 193 | 231 | 270 | 308 | 347 | 386 |
|   |           | 75   | 94  | 112 | 131 | 150 | 187 | 225 | 260 | 300 | 335 | 375 |
| 85<br>3 - 1/2                                 |           | 72   | 90  | 107 | 125 | 143 | 179 | 215 | 251 | 286 | 322 | 358 |
|   |           | 71   | 88  | 106 | 124 | 141 | 177 | 212 | 250 | 285 | 320 | 355 |
| 90<br>3 - 3/4                                 |           | 67   | 84  | 100 | 117 | 134 | 167 | 201 | 234 | 267 | 301 | 334 |
|   | 100<br>4" | 64   | 80  | 96  | 111 | 127 | 159 | 191 | 223 | 255 | 290 | 320 |
|   |           | 63   | 78  | 94  | 110 | 125 | 157 | 188 | 219 | 251 | 282 | 313 |

Grundsätzlich lassen sich Spitzgewinde mit höherer Rollgeschwindigkeit erzeugen als trapezförmige Gewinde. Weiterhin ist die Rollgeschwindigkeit bei Werkstoffen mit höherer Dehnung größer anzusetzen als bei kleinen Dehnungswerten. Höhere Werkstofffestigkeiten bedingen kleinere Rollgeschwindigkeiten. Je nach Werkstückprofil und vorhandener Werkstückdrehzahl werden für Spitzgewinde 20–60 m/min empfohlen. Für Trapezgewinde und ähnliche Profile 15–30 m/min. Beim Einsatz von Radial-Gewinde-Rollköpfen empfehlen wir 20–30 m/min. Für bestimmte Arbeitsfälle kann die Rollgeschwindigkeit auch bis 100 m/min sein.

On principle, the V-type threads can be rolled with higher rolling speeds than the trapezoidal thread forms. Further more, materials with higher elongation factors may also be rolled with higher rolling speeds than materials with low elongation coefficients. High tensile strength requires lower rolling speeds. Depending on component profile and available spindle revolution, we recommend for V-type threads 20–60 m/min. For trapezoidal threads and similar profiles, 15–30 m/min. For radial thread rolling heads, we recommend 20–30 m/min. For certain applications, the rolling speed can go up to 100 m/min.

### Berechnungsformel für die Rollgeschwindigkeit

$$V = \frac{d \cdot \pi \cdot n}{1000} \quad [\text{m/min}]$$

**Rechenbeispiel:** M 16 x 1,5  
Ausgangs-Ø (Flanken-Ø) d = 15,03 mm  
Werkstückdrehzahl n = 1270 min<sup>-1</sup>

$$V = \frac{15,03 \cdot \pi \cdot 1270}{1000}$$

$$V = 59,97 \text{ m/min}$$

### Formula to calculate the Rolling Speed

$$V = \frac{d \cdot \pi \cdot n}{1000} \quad [\text{m/min}]$$

**Calculation example:** M 16 x 1.5  
Blank-Ø (Pitch-Ø) d = 15,03 mm  
Component n = 1270 min<sup>-1</sup>

$$V = \frac{15,03 \cdot \pi \cdot 1270}{1000}$$

$$V = 59,97 \text{ m/min}$$

### Berechnungsformel für die Drehzahl:

$$n = \frac{1000 \cdot V}{d \cdot \pi} \quad [\text{m/min}^{-1}]$$

**Rechenbeispiel:** M 16 x 1,5  
Ausgangs-Ø (Flanken-Ø) d = 15,03 mm  
Rollgeschwindigkeit v = 60 m/min

$$n = \frac{1000 \cdot 60}{15,03 \cdot \pi}$$

$$n = 1270,7 \text{ m/min}$$

### Formula to calculate the Revolutions

$$n = \frac{1000 \cdot V}{d \cdot \pi} \quad [\text{m/min}^{-1}]$$

**Calculation example:** M 16 x 1,5  
Blank-Ø (Pitch-Ø) d = 15,03 mm  
Component v = 60 m/min

$$n = \frac{1000 \cdot 60}{15,03 \cdot \pi}$$

$$n = 1270,7 \text{ m/min}$$

Allgemein sollten die Werkstoffe eine Mindestdehnung von etwa 7 % haben und eine Zugfestigkeit von 1700 N/mm<sup>2</sup> nicht überschreiten. Geeignet sind demnach Bau- und Einsatzstähle, rostfreie Stähle, Vergütungsstähle bis etwa 1600 N/mm<sup>2</sup>. Weichmessing, Kupfer, Leichtmetalle, ferritische Gussorten wie GGG 40 oder GTS 35 usw. Nicht geeignet sind spröde Werkstoffe mit geringer Dehnung wie Grauguss, harte Messinglegierungen und gehärtete Werkstoffe.

### Rollgeschwindigkeiten

Grundsätzlich lassen sich Spitzgewinde mit höherer Rollgeschwindigkeit erzeugen als trapezförmige Gewinde. Weiterhin ist die Rollgeschwindigkeit bei Werkstoffen mit höherer Dehnung größer anzusetzen als bei kleinen Dehnungswerten. Höhere Werkstofffestigkeiten bedingen kleinere Rollgeschwindigkeiten. Je nach Werkstückprofil und vorhandener Werkstückdrehzahl werden für Spitzgewinde 20–60 m/min empfohlen. Für Trapezgewinde und ähnliche Profile 15–30 m/min.

### Tabellenwerte

Die Angaben sind als Richtwerte zu betrachten. Sie können je nach Maschinenbedingungen, Gefügestand oder Rollkopftyp abweichen. Zur Klärung ist die technische Beratung durch unseren Kundendienst zu empfehlen. Bei Problemfällen führen wir praktische Rollversuche in unserem Testlabor durch.

Nachfolgende Tabelle enthält einige Werkstoffbeispiele, die rollbar sind. Jedoch ist die Profilform und Umformleistung (z. B. Steigung) nicht berücksichtigt.

In general, the materials should have a minimum elongation factor of 7 % and the tensile strength should not surpass 1700 N/mm<sup>2</sup> (246560 PSI). Suitable are free cutting steels, structural and case hardening steels, stainless steels, heat treatable steels up to 1600 N/mm<sup>2</sup> (232060 PSI). White brass, copper, light metals, ferritic cast iron like GGG 40 or GTS 35 etc. Use specs that mean something to this mark. Not adequate are brittle materials with low elongation like cast iron, hard brass alloys and hardened materials.

### Rolling speeds

On principle, the V-type threads can be rolled with higher rolling speeds than the trapezoidal thread forms. Further more, materials with higher elongation factors are also be rolled with higher rolling speeds, than materials with low elongation factors. High tensile strength requires lower rolling speeds. Depending on component profile and available spindle speed, we recommend for V-type threads 20–60 m/min (60–180 SFM). For trapezoidal threads and similar profiles, 15–30 m/min (45–90 SFM).

### Rollability Tables

These tables give basic recommendations. Deviations can occur depending on machine conditions, material variations, and Rolling Tool Type. When in doubt about the rollability of a certain material please contact a Fette Applications Engineer. In some cases the only way to determine rollability is to test roll in our experimental laboratory.

The following table lists some materials which are rollable. However, the profile form and forming work (e. g. pitch) was not taken in consideration.

|                 |                  |           |                        |
|-----------------|------------------|-----------|------------------------|
| <b>Symbole:</b> | ● gut rollbar    | ◐ rollbar | ◑ bedingt rollbar      |
| <b>Symbols:</b> | good rollability | rollable  | conditionally rollable |

| Werkstoffbeispiel<br>Material Examples               | Festigkeit<br>Tensile strength | Brinell-<br>härte<br>Brinell<br>hardness | Dehnung<br>Elongation | Werkstoff<br>DIN<br>Material to<br>DIN standard | Werk-<br>stoff-<br>Nr.<br>Material | Roll-<br>barkeit<br>Rolla-<br>bility | Roll-<br>geschwin-<br>digkeit<br>Rolling speed |         | Bemerkung<br>Remarks   |
|--|--------------------------------|--|-----------------------|---|------------------------------------|--------------------------------------|--|---------|--|
|  | N/mm <sup>2</sup>              | (HB)                                     | σ 5 %                 |   |                                    |                                      | m/min  | ft./min |  |
| <b>Eisenmetalle Ferrous Metals</b>                   |                                |  |                       |   |                                    |                                      |  |         |  |
| Allgemeine Baustähle<br>General structural<br>steels | 500                            | 150                                      | 28                    | ST 37   | 1.0120                             | ●                                    | 40–80  | 130–265 |  |
|  | 500– 600                       | 150–190                                  | 22                    | ST 50   | 1.0531                             | ●                                    | 30–60  | 100–200 |  |
|  | 500– 600                       | 190–250                                  | 15                    | ST 60   | 1.0540                             | ●                                    | 20–50  | 65–165  |  |
|  | 650– 850                       |  | 15                    | CK 45   | 1.1191                             | ●                                    | 20–50  | 65–165  |  |
| Einsatzstähle<br>Case hardening steel                | 500                            | 150                                      | 16                    | CK 45   | 1.1141                             | ●                                    | 40–70  | 130–230 |  |
|  | 500– 850                       | 150–200                                  | 10                    | 16 MnCr 5                                       | 1.7131                             | ◐                                    | 30–50  | 100–165 |  |
| Nitrierstähle<br>Nitriding steels                    | 1000                           | 290                                      | 14                    | 34 CrAl 6                                       | 1.8504                             | ◐                                    | 20–50  | 65–165  |  |
|  | 1000–1300                      | 290–380                                  | 11                    | 31 CrMo V 9                                     | 1.8519                             | ◐                                    | 20–40  | 65–130  |  |
| Automatenstähle<br>Free cutting steels               | 360                            | 160                                      | 25                    | 9 S 20  | 1.0711                             | ●                                    | 30–60  | 100–200 | hoher Bleizusatz neigt<br>zur Schuppung<br>high lead contents<br>causes chipping                                   |
|  | 380                            | 170                                      | 23                    | 9 S Mn Pb 28                                    | 1.0718                             | ●                                    | 30–60  | 100–200 |  |
|  | 500– 600                       | 190                                      | 18                    | 35 S 20   | 1.0726                             | ●                                    | 30–60  | 100–200 |  |
| Vergütungsstähle<br>Heat treatable steels            | 700                            | 200                                      | 18                    | C 35  | 1.0501                             | ●                                    | 40–70  | 130–230 | auch rollbar im vergüte-<br>tem Zustand – feine Stei-<br>gungen<br>also rollable when<br>normalized – fine pitches |
|  | 700– 900                       | 200–260                                  | 14                    | CK 60   | 1.1221                             | ◐                                    | 30–60  | 100–200 |  |
|  | 900–1200                       | 260–350                                  | 11                    | 42 CrMo 4                                       | 1.7225                             | ◐                                    | 20–50  | 65–165  |  |
|  | 1200–1400                      | 350–400                                  | 9                     | 30 CrMo V 9                                     | 1.7707                             | ◑                                    | 20–40  | 65–130  |  |
|  | 1000–1400                      | 350                                      | 9                     | 34 CrNiMo 6                                     | 1.6582                             | ◑                                    | 20–40  | 65–130  |  |
| Federstähle<br>Tempered steels                       | 500– 600                       |  | 9                     | 50 CrV 4  | 1.8159                             | ◑                                    | 20–40  | 65–130  | nur vergütet und gegläht<br>rollbar<br>only normalized and<br>annealed   |

| Werkstoffbeispiel<br>Material Examples                          | Festigkeit<br>Tensile strength   | Brinell-<br>härte<br>Brinell hardness | Dehnung<br>Elongation | Werkstoff<br>DIN<br>Material to DIN standard | Werkstoff-<br>Nr.<br>Material | Roll-<br>barkeit<br>Rollability | Roll-<br>geschwin-<br>digkeit<br>Rolling speed |         | Bemerkung<br>Remarks  |
|---|----------------------------------|---------------------------------------|-----------------------|--|-------------------------------|---------------------------------|--|---------|---|
|   | N/mm <sup>2</sup>                | (HB)                                  | σ 5 %                 |  |                               |                                 | m/min  | ft./min |   |
| <b>Eisenmetalle Ferrous metals</b>                              |                                  |                                       |                       |  |                               |                                 |  |         |   |
| Werkzeugstähle<br>Tool steels                                   | 800                              | 230                                   |                       | X 210 Cr 12                                  | 1.2080                        | ☉                               | 30-50  | 100-165 |   |
|   | 800-1000                         | 230-290                               | 9                     | X 130 W 5                                    | 1.2453                        | ☉                               | 20-40  | 65-130  |   |
|   | 600- 700                         | 220                                   | 10                    | 115 CrV 3                                    | 1.2210                        | ☉                               | 30-50  | 100-165 |   |
| Schnellstähle<br>High speed steels                              |                                  | 240-300                               |                       | S 6-5-2<br>(DM 05)                           | 1.3343                        | ☉                               | 20-40  | 65-130  | feine Steignungen<br>fine pitches   |
|   |                                  | 240-300                               |                       | S 6-5-2-5<br>(E Mo 5 Co5)                    | 1.3243                        | ☉                               |  |         |   |
| Rost-, Säure-, Hitze-<br>beständige Stähle<br>Stainless steels  | 550- 650                         |                                       | 18                    | X 10 Cr 13                                   | 1.4006                        | ☉                               |  |         |   |
|   | 800- 900                         |                                       | 12                    | X 22 CrNi 17                                 | 1.4057                        | ☉                               |  |         |   |
|   | 500- 800                         |                                       | 20                    | X 12 CrMoS 17                                | 1.4104                        | ☉                               |  |         |   |
|   | 500- 700                         |                                       | 50                    | X 5 CrNi 1810                                | 1.4301                        | ●                               |  |         |   |
|   | 500- 700                         |                                       | 50                    | X 10 CrNiS 189                               | 1.4305                        | ●                               |  |         |   |
|   | 500- 700                         |                                       | 30                    | X5CrNiMo 17122                               | 1.4401                        | ☉                               |  |         |   |
| Stahlguss<br>Cast steels  | 500                              | 150                                   | 20                    | GS 38  | 1.0416                        | ●                               | 40-60  | 130-200 |   |
|   | 500- 600                         | 150-200                               | 17                    | GS 36 Mn 5                                   | 1.5067                        | ●                               | 40-60  | 130-200 |   |
|   | 650-                             | 200-                                  | 11                    | GS 50 CrMo 4                                 | 1.7228                        | ☉                               | 30-50  | 100-165 |   |
| Temperguss<br>Malleable cast iron                               | 600- 700                         | 210-250                               | 6                     | GTS 45                                       |                               | ☉                               | 30-60  | 100-200 | feine Steignungen<br>fine pitches   |
|   |                                  |                                       |                       | GTS 65                                       |                               | ☉                               | 30-60  | 100-200 |   |
| Grauguss<br>Cast iron   | 400- 500                         | 140-180                               | 27-15                 | GGG 40                                       | 0.7040                        | ●                               | 30-60  | 100-200 |   |
|   | 500- 600                         | 180-210                               | 12                    | GGG 50                                       | 0.7050                        | ☉                               | 30-50  | 100-165 |   |
|   | 600- 750                         | 210-250                               | 8                     | GGG 60                                       | 0.7060                        | ☉                               | 30-50  | 100-165 |   |
| Hochwarmfeste<br>Werkstoffe<br>High temperature<br>materials    | 540- 700                         | 160-200                               |                       | NiCr 20 Co 19                                | Nimonic<br>263                | ☉                               | 30-50  | 100-165 |   |
|   | 700- 900                         | 200-260                               |                       | NiCr 17 Mo 17<br>FeW                         | Hasteloy                      | ☉                               | 20-40  | 65-130  |   |
|   | Nickellegierung<br>Nickel alloys | 900-1100                              | 260-330               |  |                               | Inconell<br>600                 | ☉  | 20-40   |   |
| <b>Nichteisenmetalle Non-ferrous metals</b>                     |                                  |                                       |                       |  |                               |                                 |  |         |   |
| Kupfer<br>Copper  | ≈ 200                            | 40- 65                                | ≈ 30                  | C-Cu (F 20)                                  | 2.0120                        | ●                               | 40-100   | 130-350 |   |
|   | 250                              | 65- 90                                | ≈ 8                   | E-Cu (F 25)                                  | 2.0060                        | ●                               | 40- 80   | 130-265 |   |
| Kupfer<br>Knetlegierungen<br>(Messing)<br>Copper alloys (Brass) | 300                              | ≈ 70                                  | 40                    | MS 63 (F 30)                                 | 2.0320.10                     | ●                               | 40- 80   | 130-265 | im weichen Zustand<br>feine Steignungen,<br>hoher Gehalt an Pb +<br>S erhöht Brüchigkeit<br>beim Umformen<br>in soft condition fine<br>pitches, high con-<br>tents of Pb + S<br>increases brittleness |
|   | 400                              | ≈ 100                                 | 15                    | MS 60 Pb (F 41)                              | 2.0370.26                     | ☉                               | 40- 70   | 130-230 |   |
|   | 340                              | ≈ 90                                  | 35                    | MS 60 Pb (F 35)                              | 2.0372.10                     | ●                               | 40- 70   | 130-230 |   |
|   | 430                              | ≈ 125                                 | 19                    | MS 58 F 44                                   | 2.0380.26                     | ☉                               | 40- 70   | 130-230 |   |
|   | 430                              | ≈ 125                                 | 19                    | M 58 F 44                                    | 2.0401.10                     | ☉                               | 40- 70   | 130-230 |   |
| Zinklegierung<br>Zinc alloys                                    | 180- 200                         | 40- 50                                | 23                    | ZnCu 1                                       | 3.3525                        | ●                               | 40- 70   | 130-230 |   |
| Aluminium<br>Knetlegierungen<br>Aluminium alloys                | 150- 210                         | 40- 60                                | 15-4                  | AlMg 2                                       | 3.2315                        | ●                               | 40- 70   | 130-230 | feine Steignungen<br>fine pitches   |
|   | 200- 320                         | 60- 95                                | 14-9                  | AlMgSi 1                                     | 3.4355                        | ☉                               | 40- 70   | 130-230 |   |
|   | 400- 450                         | 105-125                               | 10-5                  | AlZnMg 3                                     | 3.1355                        | ☉                               | 30- 50   | 100-165 |   |
|   | 450                              | 115                                   | 9                     | AlCuMg 2                                     | 3.4365                        | ☉                               | 30- 50   | 100-165 |   |
|   | 530- 540                         | 140                                   | 7                     | AlZnMgCu 1,5                                 | 3.7035                        | ☉                               | 30- 50   | 100-165 |   |
| Titanlegierungen<br>Titanium alloys                             | 290- 550                         | 85-160                                | ≈ 22                  | Ti 99,7                                      | 3.7124                        | ●                               | 30- 60   | 100-200 | Lösungsgeglüht +<br>gealtert<br>annealed + aged   |
|   | 550- 750                         | 160-220                               | ≈ 20                  | TiCu 2,5                                     | 3.7115                        | ●                               | 30- 60   | 100-200 |   |
|   | 750- 950                         | 220-280                               | ≈ 10                  | TiAl 15 Sn 2                                 | 3.7164.7                      | ☉                               | 30- 60   | 100-200 |   |
|   | 1030-1100                        |                                       |                       | TiAl 7 Mo                                    |                               | ☉                               | 20- 40   | 65-130  |   |

| Zollbrüche<br>fractional sizes | dezimal<br>decimals | mm      | Zollbrüche<br>fractional sizes | dezimal<br>decimals | mm      |
|--------------------------------|---------------------|---------|--------------------------------|---------------------|---------|
| 1/64                           | 0,015625            | 0,3969  | 33/64                          | 0,515625            | 13,0969 |
| 1/32                           | 0,03125             | 0,7937  | 17/32                          | 0,53125             | 13,4937 |
| 3/64                           | 0,046875            | 1,1906  | 35/64                          | 0,546875            | 13,8906 |
| 1/16                           | 0,0625              | 1,5878  | 9/16                           | 0,5625              | 14,2875 |
| 5/64                           | 0,078125            | 1,9844  | 37/64                          | 0,578125            | 14,6844 |
| 3/32                           | 0,09375             | 2,3812  | 19/32                          | 0,59375             | 15,0812 |
| 7/64                           | 0,109375            | 2,7781  | 39/64                          | 0,609375            | 15,4781 |
| 1/8                            | 0,125               | 3,1750  | 5/8                            | 0,625               | 15,8750 |
| 9/64                           | 0,140625            | 3,5719  | 41/64                          | 0,640625            | 16,2719 |
| 5/32                           | 0,15625             | 3,9687  | 21/32                          | 0,65625             | 16,6687 |
| 11/64                          | 0,171875            | 4,3656  | 43/64                          | 0,671875            | 17,0656 |
| 3/16                           | 0,1875              | 4,7625  | 11/16                          | 0,6875              | 17,4625 |
| 13/64                          | 0,203125            | 5,1594  | 45/64                          | 0,703125            | 17,8594 |
| 7/32                           | 0,21875             | 5,5562  | 23/32                          | 0,71875             | 18,2562 |
| 15/64                          | 0,234375            | 5,9531  | 47/64                          | 0,734375            | 18,6531 |
| 1/4                            | 0,25                | 6,3500  | 3/4                            | 0,75                | 19,0500 |
| 17/64                          | 0,265625            | 6,7469  | 49/64                          | 0,765625            | 19,4469 |
| 9/32                           | 0,28125             | 7,1437  | 25/32                          | 0,78125             | 19,8437 |
| 19/64                          | 0,296875            | 7,5406  | 51/64                          | 0,796875            | 20,2406 |
| 5/16                           | 0,3125              | 7,9375  | 13/16                          | 0,8125              | 20,6375 |
| 21/64                          | 0,328125            | 8,3344  | 53/64                          | 0,828125            | 21,0344 |
| 11/32                          | 0,34375             | 8,7312  | 27/32                          | 0,84375             | 21,4312 |
| 23/64                          | 0,359375            | 9,1281  | 55/64                          | 0,859375            | 21,8291 |
| 3/8                            | 0,375               | 9,5250  | 7/8                            | 0,875               | 22,2250 |
| 25/64                          | 0,390625            | 9,9219  | 57/64                          | 0,890625            | 22,6219 |
| 13/32                          | 0,40625             | 10,3187 | 29/32                          | 0,90625             | 23,0187 |
| 27/64                          | 0,421875            | 10,7156 | 59/64                          | 0,921875            | 23,4156 |
| 7/16                           | 0,4375              | 11,1125 | 15/16                          | 0,9375              | 23,8125 |
| 29/64                          | 0,453125            | 11,5094 | 61/64                          | 0,953125            | 24,2094 |
| 15/32                          | 0,46875             | 11,9062 | 31/32                          | 0,96875             | 24,6062 |
| 31/64                          | 0,484375            | 12,3031 | 63/64                          | 0,984375            | 25,0031 |
| 1/2                            | 0,5                 | 12,7000 |                                |                     |         |

| Zoll<br>Inch | mm    | 10    | 20    | 30    |
|--------------|-------|-------|-------|-------|
| 0            |       | 254,0 | 508,0 | 762,0 |
| 1            | 25,4  | 279,4 | 533,4 | 787,4 |
| 2            | 50,8  | 304,8 | 558,8 | 812,8 |
| 3            | 76,2  | 330,2 | 584,2 | 838,2 |
| 4            | 101,6 | 355,6 | 609,6 | 863,6 |
| 5            | 127,0 | 381,0 | 635,0 | 889,0 |
| 6            | 152,4 | 406,4 | 660,4 | 914,4 |
| 7            | 177,8 | 431,8 | 685,8 | 939,8 |
| 8            | 203,2 | 457,2 | 711,2 | 965,2 |
| 9            | 228,6 | 482,6 | 736,6 | 990,6 |

| 1"<br>1000   |        | 1"<br>100    |       | 1"<br>10     |       |
|--------------|--------|--------------|-------|--------------|-------|
| Zoll<br>Inch | mm     | Zoll<br>Inch | mm    | Zoll<br>Inch | mm    |
| 0,001        | 0,0254 | 0,01         | 0,254 | 0,1          | 2,54  |
| 0,002        | 0,0508 | 0,02         | 0,508 | 0,2          | 5,08  |
| 0,003        | 0,0762 | 0,03         | 0,762 | 0,3          | 7,62  |
| 0,004        | 0,1016 | 0,04         | 1,016 | 0,4          | 10,16 |
| 0,005        | 0,1270 | 0,05         | 1,270 | 0,5          | 12,70 |
| 0,006        | 0,1524 | 0,06         | 1,524 | 0,6          | 15,24 |
| 0,007        | 0,1778 | 0,07         | 1,778 | 0,7          | 17,78 |
| 0,008        | 0,2032 | 0,08         | 2,032 | 0,8          | 20,32 |
| 0,009        | 0,2286 | 0,09         | 2,286 | 0,9          | 22,86 |

## Umrechnungstabellen Millimeter/Zoll Conversion Tables mm/inch

| mm |                  | 10      | 20      | 30      | 40      | 50      | 60      | 70      | 80      | 90      |
|----|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0  | <b>Zoll Inch</b> | 0,39370 | 0,78740 | 1,18110 | 1,57480 | 1,96851 | 2,36221 | 2,75591 | 3,14961 | 3,54331 |
| 1  | 0,03937          | 0,43307 | 0,82677 | 1,22047 | 1,61417 | 2,00788 | 2,40158 | 2,79528 | 3,18898 | 3,58268 |
| 2  | 0,07874          | 0,47244 | 0,86614 | 1,25984 | 1,65354 | 2,04725 | 2,44095 | 2,83465 | 3,22835 | 3,62205 |
| 3  | 0,11811          | 0,51181 | 0,90551 | 1,29921 | 1,69291 | 2,08662 | 2,48032 | 2,87402 | 3,26772 | 3,66142 |
| 4  | 0,15748          | 0,55118 | 0,94488 | 1,33858 | 1,73228 | 2,12599 | 2,51969 | 2,91339 | 3,30709 | 3,70079 |
| 5  | 0,19685          | 0,59055 | 0,98425 | 1,37795 | 1,77165 | 2,16536 | 2,55906 | 2,95276 | 3,34646 | 3,74016 |
| 6  | 0,23622          | 0,62992 | 1,02362 | 1,41732 | 1,81103 | 2,20473 | 2,59843 | 2,99213 | 3,38583 | 3,77953 |
| 7  | 0,27559          | 0,66929 | 1,06299 | 1,45669 | 1,85040 | 2,24410 | 2,63780 | 3,03150 | 3,42520 | 3,81890 |
| 8  | 0,31496          | 0,70866 | 1,10236 | 1,49606 | 1,88977 | 2,28347 | 2,67717 | 3,07087 | 3,46457 | 3,85827 |
| 9  | 0,35433          | 0,74803 | 1,14173 | 1,53543 | 1,92914 | 2,32284 | 2,71654 | 3,11024 | 3,50394 | 3,89764 |
| mm |                  | 100     | 200     | 300     | 400     | 500     | 600     | 700     | 800     | 900     |
| 0  | <b>Zoll Inch</b> | 3,93701 | 7,87402 | 11,8110 | 15,7480 | 19,6851 | 23,6221 | 27,5591 | 31,4961 | 35,4331 |
| 10 | 0,39370          | 4,33071 | 8,26772 | 12,2047 | 16,1417 | 20,0788 | 24,0158 | 27,9528 | 31,8898 | 35,8268 |
| 20 | 0,78740          | 4,72441 | 8,66142 | 12,5984 | 16,5354 | 20,4725 | 24,4095 | 28,3465 | 32,2835 | 36,2205 |
| 30 | 1,18110          | 5,11811 | 9,05513 | 12,9921 | 16,9291 | 20,8662 | 24,8032 | 28,7402 | 32,6772 | 36,6142 |
| 40 | 1,57480          | 5,51181 | 9,44883 | 13,3858 | 17,3228 | 21,2599 | 25,1969 | 29,1339 | 33,0709 | 37,0079 |
| 50 | 1,96851          | 5,90552 | 9,84252 | 13,7795 | 17,7165 | 21,6536 | 25,5906 | 29,5276 | 33,4046 | 37,4016 |
| 60 | 2,36221          | 6,29922 | 10,2362 | 14,1732 | 18,1103 | 22,0473 | 25,9843 | 29,9213 | 33,7953 | 37,7953 |
| 70 | 2,75591          | 6,69292 | 10,6299 | 14,5669 | 18,5040 | 22,4410 | 26,3780 | 30,3150 | 34,1890 | 38,1890 |
| 80 | 3,14961          | 7,08662 | 11,0236 | 14,9606 | 18,8977 | 22,8347 | 26,7717 | 30,7087 | 34,5827 | 38,5827 |
| 90 | 3,54331          | 7,48032 | 11,4173 | 15,3543 | 19,2914 | 23,2284 | 27,1654 | 31,1024 | 34,9764 | 38,9764 |

| $\frac{1}{1000}$ mm |           |
|---------------------|-----------|
| mm                  | Zoll Inch |
| 0,001               | 0,000039  |
| 0,002               | 0,000079  |
| 0,003               | 0,000118  |
| 0,004               | 0,000157  |
| 0,005               | 0,000197  |
| 0,006               | 0,000236  |
| 0,007               | 0,000276  |
| 0,008               | 0,000315  |
| 0,009               | 0,000354  |

| $\frac{1}{100}$ mm |           |
|--------------------|-----------|
| mm                 | Zoll Inch |
| 0,01               | 0,00039   |
| 0,02               | 0,00079   |
| 0,03               | 0,00118   |
| 0,04               | 0,00157   |
| 0,05               | 0,00197   |
| 0,06               | 0,00236   |
| 0,07               | 0,00276   |
| 0,08               | 0,00315   |
| 0,09               | 0,00354   |

| $\frac{1}{10}$ mm |           |
|-------------------|-----------|
| mm                | Zoll Inch |
| 0,1               | 0,00394   |
| 0,2               | 0,00787   |
| 0,3               | 0,01181   |
| 0,4               | 0,01575   |
| 0,5               | 0,01969   |
| 0,6               | 0,02362   |
| 0,7               | 0,02756   |
| 0,8               | 0,03150   |
| 0,9               | 0,03543   |

Bitte diese Seite kopieren und per Brief oder Fax senden an Please copy this page and send it by fax or mail to:  
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LMT Deutschland GmbH, Heidenheimer Straße 108, D-73447 Oberkochen, Tel. +49 (0) 73 64/95 79-10

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Name Name \_\_\_\_\_

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Datum/Unterschrift Date/Signature \_\_\_\_\_

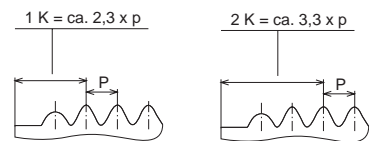
**Eilauftrag** (gegen Aufpreis)  
**Rush order** (at surcharge)

**Normale Lieferzeit**  
**Normal delivery time**

**Gewinderollen für:** 1. Axial-Gewinde-Rollköpfe  
**Thread Rolls for:** 1. Axial Thread Rolling Heads

|   | Bestellung Order | Beispiel Example |
|---|------------------|------------------|
| 1. Satzanzahl Number of sets                    |                  | 6                |
| 2. Gewindeabmessung Thread size                 |                  | M 12 x 1,5-6 g   |
| 3. Rollkopf Rolling Head                        |                  | F 2              |
| 4. Anlaufart Lead, start                        |                  | 2 K              |
| 5. Rollen-Code-Nr Roll's code no. <sup>1)</sup> |                  | 2/06             |
| 6. Ident No. <sup>1)</sup>                      |                  | 1509756          |

Länge des Gewindeauflaufes am Werkstück bei Rollenanzlaufart:  
Thread run-out length on component by:



**Gewinderollen für:** 2.1 Radial-Gewinde-Rollköpfe Typ C  
**Thread Rolls for:** 2.1 Radial Thread Rolling Heads Type C

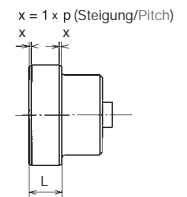
|   | Bestellung Order | Beispiel Example |
|---|------------------|------------------|
| 1. Satzanzahl Number of sets  |                  | 6                |
| 2. Gewindeabmessung Thread size   |                  | M 12 x 1,5-6 g   |
| 3. Rollkopf Rolling Head  |                  | C 16             |
| 4. Rollkopfausführung Rolling Head Type   |                  | AV               |
| 5. Rollenbreite „L“, nur wenn hinter dem Bund-Ø gerollt wird<br>width of the roll for rolling behind a shoulder |                  | 12               |
| 6. Rollen-Code-Nr. Code no. of the roll <sup>1)</sup>   |                  | C 16-034-A 12    |
| 7. Ident No. <sup>1)</sup>  |                  | 2173514          |

**Achtung!**

Für C u. E: Bei Festlegung der Rollkopfausführung Spindeldrehrichtung und Einsatzart beachten.

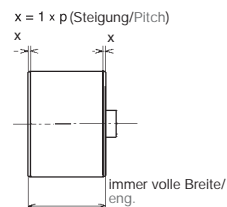
**Attention!**

For C and E: when defining head version please note spindle rotating direction and set up.



**Gewinderollen für:** 2.2 Radial-Gewinde-Rollköpfe Typ E  
**Thread Rolls for:** 2.2 Radial Thread Rolling Heads Type E

|  | Bestellung Order | Beispiel Example |
|--|------------------|------------------|
| 1. Satzanzahl Number of sets                         |                  | 6                |
| 2. Gewindeabmessung Thread size                      |                  | M 12 x 2-6 g     |
| 3. Rollkopf Rolling Head                             |                  | E 23             |
| 4. Rollkopfausführung Rolling head Type              |                  | A 00             |
| 5. Rollen-Code-Nr Code no. of the roll <sup>1)</sup> |                  | E 23-001-A 34    |
| 6. Ident No. <sup>1)</sup>                           |                  | 1553412          |

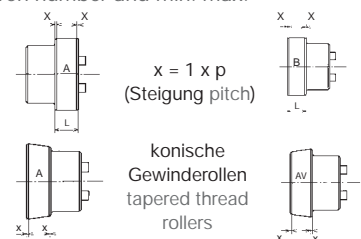


**Gewinderollen für:** 3. Tangential-Gewinde-Rollköpfe  
**Thread Rolls for:** 3. Tangential Thread Rolling Heads

|  | Bestellung Order | Beispiel Example   |
|--|------------------|--|
| 1. Satzanzahl Number of sets   |                  | 6  |
| 2. Gewindeabmessung Thread size  |                  | M 12 x 1,5-6 g   |
| 3. Rollkopf Rolling Head   |                  | T 18   |
| 4. Rollenbreite „L“ min. max bei Gewinde<br>DIN-Nr. angeben od. Zeichn. einsetzen<br>width of the roll "L" <sup>2)</sup> |                  | min. 14, max. 18<br>oder DIN 158<br>min. 14, max. 18<br>or DIN 158 |
| 5. Rollkopfausführung Rolling Head Type  |                  | A  |
| 6. Rollen-Code-Nr. Code no. of the roll <sup>1)</sup>  |                  | T 18-03-16 A   |
| 7. Ident No. <sup>1)</sup>   |                  | 1536343  |

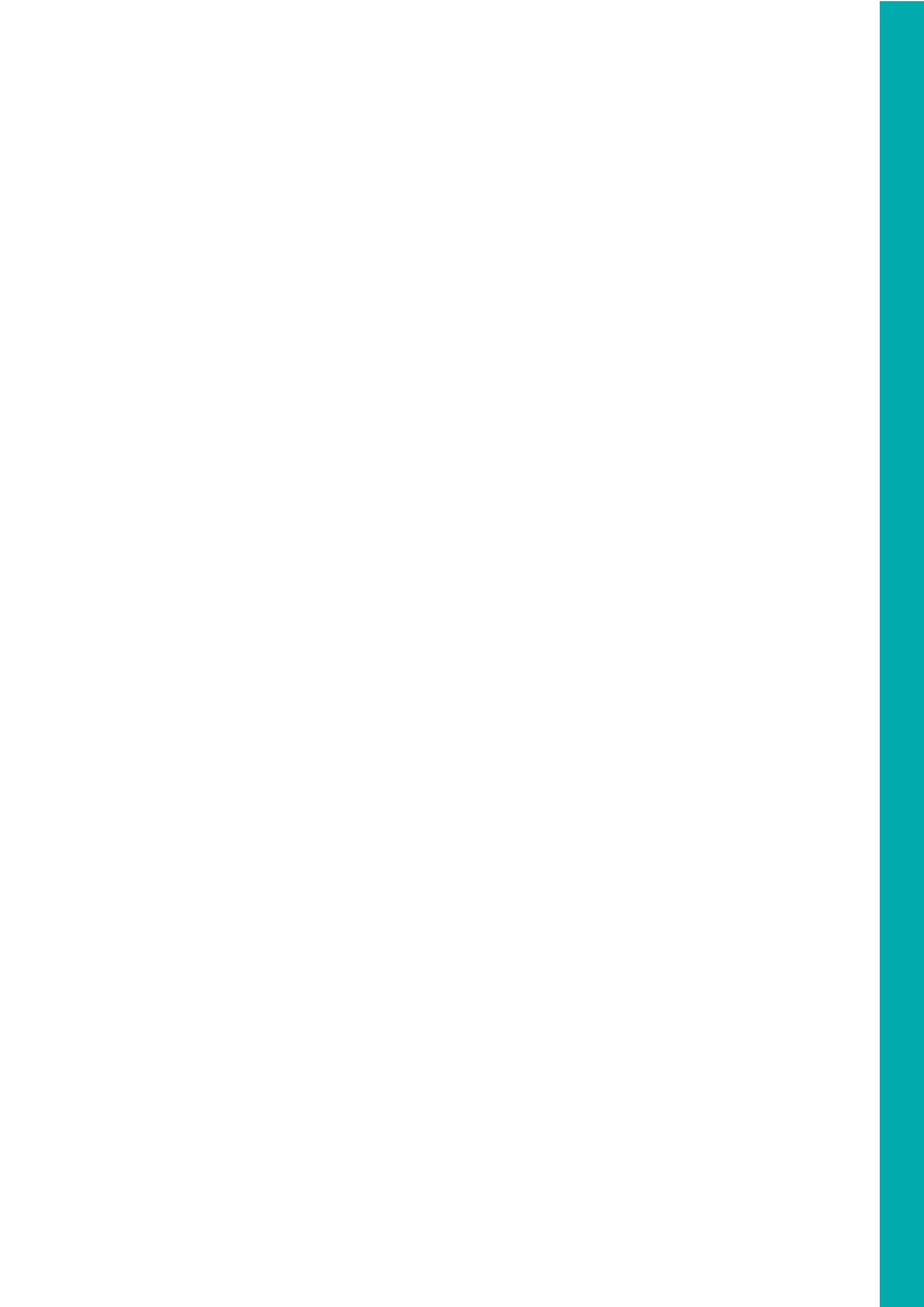
Vor Bestellung Bund-Ø-Überprüfung vornehmen. Siehe Seiten 375 Rollenbreite möglichst in gerader Zahl, Rollenbreite in min. und max.

Before ordering please check shoulder-Ø, see pages 00-00. Roll width page 375 in even number and min. max.



<sup>1)</sup> wenn möglich only if known

<sup>2)</sup> Die Gewindelänge kann abhängig sein von der Rollenbreite „L“ The thread length may be depend on the roll width "L".







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