> STAR**POINT** <
VRS with extension adaptor

EN

Safety instructions

This safety instruction/declaration of the manufacturer has to be kept on file for the whole lifetime of the product.
Translation of the original instructions

VRS
with extension adaptor
<u>without recess</u>
KMAT-No. 8600620
Type 1 + 2

VRS
with extension adaptor
<u>with recess</u>
KMAT-No. 8600621
Type 3

VRS
with extension adaptor

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RUD: 7909054-EN / 03.020

EG-Konformitätserklärung

entsprechend der EG-Maschinenrichtlinie 2006/42/EG, Anhang II A und ihren Änderungen

Hersteller: **RUD Ketten**
Rieger & Dietz GmbH u. Co. KG
Friedensinsel
73432 Aalen

Hiermit erklären wir, dass die nachfolgend bezeichnete Maschine aufgrund ihrer Konzipierung und Bauart, sowie in der von uns in Verkehr gebrachten Ausführung, den grundlegenden Sicherheits- und Gesundheitsanforderungen der EG-Maschinenrichtlinie 2006/42/EG sowie den unten aufgeführten harmonisierten und nationalen Normen sowie technischen Spezifikationen entspricht.
Bei einer nicht mit uns abgestimmten Änderung der Maschine verliert diese Erklärung ihre Gültigkeit.

Produktbezeichnung: StarPoint Ringschraube
VRS

Folgende harmonisierten Normen wurden angewandt:

DIN EN 1677-1 : 2009-03	**DIN EN ISO 12100 : 2011-03**

Folgende nationalen Normen und technische Spezifikationen wurden außerdem angewandt:

BGR 500, KAP2.8 : 2008-04

Für die Zusammenstellung der Konformitätsdokumentation bevollmächtigte Person:
Michael Betzler, RUD Ketten, 73432 Aalen

Aalen, den 26.09.2016 Dr.-Ing. Arne Kriegsmann,(Prokurist/QMB)
Name, Funktion und Unterschrift Verantwortlicher

EC-Declaration of conformity

According to the EC-Machinery Directive 2006/42/EC, annex II A and amendments

Manufacturer: **RUD Ketten**
Rieger & Dietz GmbH u. Co. KG
Friedensinsel
73432 Aalen

We hereby declare that the equipment sold by us because of its design and construction, as mentioned below, corresponds to the appropriate, basic requirements of safety and health of the corresponding EC-Machinery Directive 2006/42/EC as well as to the below mentioned harmonized and national norms as well as technical specifications.
In case of any modification of the equipment, not being agreed upon with us, this declaration becomes invalid.

Product name: STARPOINT eye bolt
VRS

The following harmonized norms were applied:

DIN EN 1677-1 : 2009-03	**DIN EN ISO 12100 : 2011-03**

The following national norms and technical specifications were applied:

BGR 500, KAP2.8 : 2008-04

Authorized person for the configuration of the declaration documents:
Michael Betzler, RUD Ketten, 73432 Aalen

Aalen, den 26.09.2016 Dr.-Ing. Arne Kriegsmann,(Prokurist/QMB)
Name, function and signature of the responsible person

The present user manual is valid for the following 3 variants of the VRS with the hexagon extension adaptor (compare chapt. 7):

- Type 1: predefined dimensions / Working Load Limits (WLLs)
- Type 2: variable dimensions / Working Load Limits (WLLs) without recess (KMAT-No. 8600620)
- Type 3: variable dimensions / Working Load Limits (WLLs) with recess (KMAT-No. 8600621)

Before initial usage of the RUD-VRS with extension adaptor please read carefully the safety instructions. Make sure that you have understood all subjected matters. Non-observance can lead to serious personal injuries and material damage and eliminates warranty.

1 Sicherheitshinweise

ATTENTION
Wrong assembled or damaged lifting points as well as improper use can lead to injuries of persons and damage of objects when load drops.
Please inspect all ifting points before each use.

- Keep all body parts like fingers, hands, arms, etc. out of the hazardous area during the lifting operation.
- All VRS with extension adaptor must only be used by authorized and trained persons in adherence with DGUV Regulations 100-500 (BGR Regulation 500), section 2.8 and according to the country-specific provisions and regulations outside Germany
- VRS with extension adaptors must only be loaded with the stated WLL.
- The Ring of VRS with extension adaptors must be able to rotate by 360° once it is tightened.
- The VRS with extension adaptors is not permissible to be rotated permanently under load.
- Any technical modifications at the VRS with extension adaptors are prohibited.
- Keep persons out of the hazardous area.
- Detention under a floating load is forbidden.
- Jerkily lifts with shock loads must be avoided.
- When the lift starts, pay attention to a stable position of the load. Avoid swinging of the load.
- Damaged or worn VRS with extension adaptors must no longer be used.

2 Intended use

VRS with extension adaptors must only be used for the assembly at loads or in combination with lifting means.

They are intended to hinge lifting means.

The VRS with extension adaptors must only be used in the here described usage purpose.

3 Instructions for assembly and use

3.1 General information

- Capability of temperature usage:
  Due to installed bolts in the VRS with extension adaptors, the working load limit must be reduced accordingly to the strength class of the bolts as follows:

-40° up to 100°C	no reduction	
100° up to 200°C	minus 15 %	212°F up to 392°F
200° up to 250°C	minus 20 %	392°F up to 482°F
250° up to 350°C	minus 25 %	482°F up to 662°F

  Temperatures above 350°C (662°F) are not permitted
- RUD VRS with extension adaptors must not be used under chemical influences such as acids, alkaline solutions and vapours e.g. in pickling baths or hot dip galvanising plants. If this cannot avoided, please contact the manufacturer indicating the concentration, period of penetration and temperature of use.
- The position where the lifting points will be installed should be clearly marked with a contrast colour.
- The WLL F is stamped at the extension adapter depending on the execution.

3.2 Hints for the assembly

Basically essential:

- The installation area must be selected carefully to ensure that the transferred forces can be absorbed by the base material without any deformation.
  The German testing authority BG, recommends the following minimum for the bolt lengths:
  1 x M (thread diameter) in steel (min. quality S235JR [1.0037])
  1,25 x M (thread diameter) in cast iron (e.g. GG 25)
  2 x M (thread diameter) in aluminium
  2,5 x M (thread diameter) in light alloys of low strength (M = thread size/diameter, e.g. M 20)
- In the case of light metals, non-ferrous metals and grey cast iron, the allocation of the threads must be selected such that the load-bearing capacity of the thread corresponds to the requirements of the base material in question.
- The position of the lifting points must be carried out in such a way that unintended movement like turning or flipping will be avoided.
  - For single leg lifts, the lifting point should be vertically above the centre of gravity of the load.
- A plane bolt-on surface (ØA) with a perpendicular thread hole must be guaranteed.
  The thread must be carried out acc. to DIN 76. Tolerance of the thread is 7H.

Thread holes must be machined deep enough to assure that the supporting area of the extension is in full contact. Machine through holes acc. DIN EN 20273-middle.

type metric	torque [Nm]
VRS-M 8	10
VRS-M 10	15
VRS-M 12	25
VRS-M 16	30
VRS-M 20	115
VRS-M 24	190
VRS-M 30	330

Table 1: overview torque / cranked hexagon tool

WARNING
Do not exceed the specified tightening torque

- Avoid impulsive and tiltful loading.

ATTENTION
Impulsive loading or vibration, especially at through hole connections with nuts, can lead to unintentional loosening.

Securing options: Observing the required torque. Use of a liquid bolt securing glue, f.e. Loctite (Adapted to the usage, observe user instruction of manufacturer). Secure in general all lifting points which are installed permanently, e.g. with glue.

- Finally check correct installation (see section 4 Inspecting and repairing).

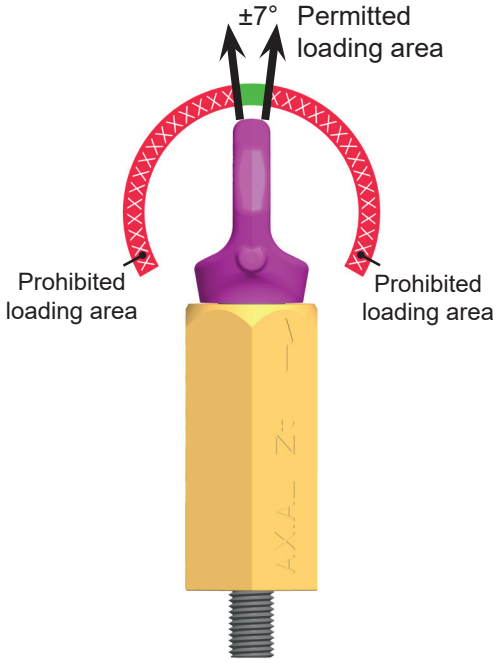
3.3 User instructions

3.3.1 General information regarding use

- The whole lifting point must be inspected regularly by a competent person in regard of proper instal lation, tightening of bolt, strong corrosion, cracks at load bearing parts and deformations (e.g. by the person responsible for attachment). See section 4 Inspecting and repairing.

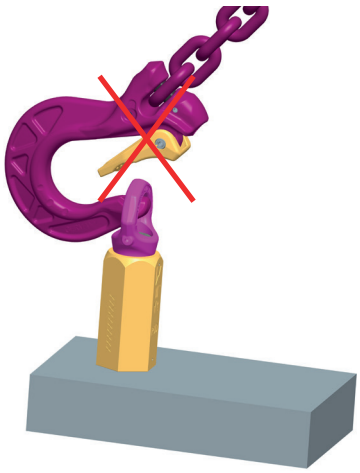
ATTENTION
Wrong assembled or damaged lifting means as well as improper use can lead to injuries of persons and damage of objects when load falls.
Please inspect all lifting points before each use.

- RUD components have been designed as per DIN EN 818 and DIN EN 1677 for a dynamic load of 20,000 load cycles
  - Observe and be aware that multiple load cycles can occur during a lifting operation.
  - Observe the risk of product damage caused by high dynamical influences at high load cycle numbers.
  - BG/DGUV Germany's employer insurance association recommends: At high dynamical loading with a high number of load cycles (permanent use), the stress at WLL acc. to FEM class 1Bm (M3 acc. to DIN EN 818-7) must be reduced. Use a lifting point with a higher WLL.
- When lifting means (sling chains) are hinged or unhinged, no pinching, shearing or joint spots must occure during the handling.
- Avoid damage of lifting means resulting from sharp edges.
- Prior to loading adjust the Ring of VRS with extension adaptors towards the direction of the load force (see Pic. 1 and 6).



Pic. 1: Forbidden lateral load to the plain of the ring

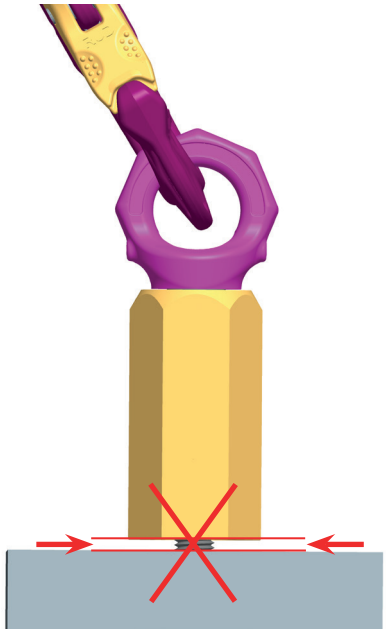
- Keep in mind that the lifting means in the VRS with extension adaptors must be freely movable



Pic. 2: Only use suitable lifting means for the hinging at the VRS with extension adaptors.

- A bending load of the lifting mean is not permitted!

- Make sure that the lifting point is fully engaged into the tapped hole.



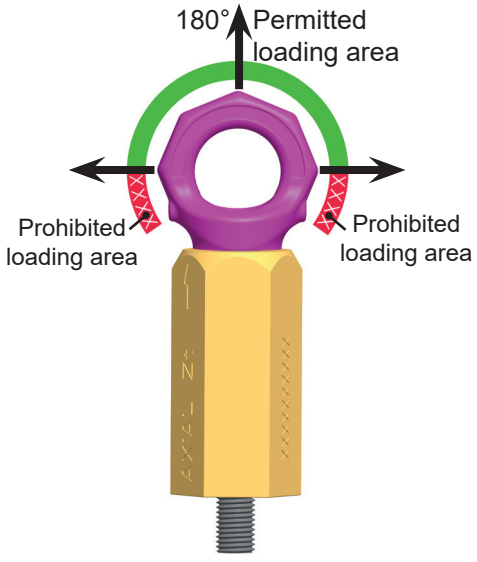
Pic. 3: The lifting point must have been fully bolted in.

3.3.2 Permitted lifting and turning actions

The following turning actions are permitted:

- Turning actions where the lifting mean will be pivoted towards the plain of the ring, according to the allowed inclination / loading area.

WARNING
The lifting mean must not get in touch with the edge of the load or other attachments



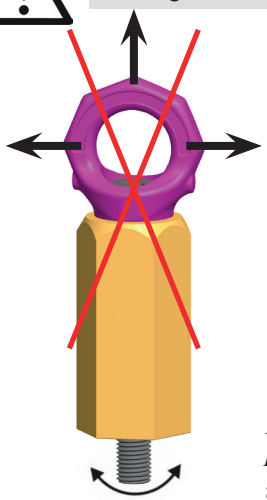
Pic. 4: Permissible loading area in the plain of the ring (green = permitted loading area)

WARNING
Prior to each lifting or turning action check torque of the bolt.

3.3.3 Prohibited lifting and turning actions

The following actions are prohibited:

WARNING
Turning of the VRS under load is forbidden!



Pic. 5: Forbidden turning action under load

- Not suitable for permanent turning actions under load.

4 Inspecting and repairing

4.1 Hints for the regularly inspection

The operator has to determine and dictate the necessary inspection periods and the deadlines by a risk assessment (see sections 4.2 and 4.3).
The persisting appropriateness of the lifting point must be checked by a competent person (auditor) at least once per year.
Depending on the conditions of use e.g. frequent use, increased wear or corrosion, it may be necessary to carry out inspections at shorter intervals than once per year. A verification is also required following damage and after special events.
The operator must specify the test cycles.

4.2 Inspection criteria for the regularly examination carried out by the operator

- Correct bolt and nut size, bolt quality grade and thread engagement length
- Observe proper tightening of bolt → check torque value
- Completeness of the lifting point
- Check readability of WLL statement and manufacturer sign
- Deformations at load bearing areas like extension adaptors and bolt.
- Mechanical damage, like strong notches, especially in areas where tensile stress occurs.
- Easy and jerk free turning of the ring must be guaranteed

4.3 Additional inspection criteria for the competent person resp. auditor

- Reduction of cross section cause by wear of more than 10 %
- Strong corrosion
- Function and damage at the bolt and/or thread
- Additional inspections may be necessary depending on the result of the risk assessment (e.g. incipient cracks at load bearing parts).

5 Hints for repairing

Repair work must only be carried out by a competent person at RUD or by a RUD trained and authorized service station, which has obtained the necessary knowledge and skills.

6 RFID

RUD BLUE-ID SYSTEM

The VRS with extension adaptors will be equipped with a RUD ID-POINT® and can clearly be related by the identification number. This number can be determined with the RUD ID-USB-READER (readers) and data can be transferred into the AYE-D. NET-Application.

The application will support your product administration and documentation. For further information please go to the RUD webpage or ask your RUD authorized distributor.

7 Technical specifications

7.1 Type overview

- Type 1: predefined dimensions /
  Working Load Limits (WLLs)
- Type 2: variable dimensions /
  Working Load Limits (WLLs) without recess
  (KMAT-No. 8600620)
- Type 3: variable dimensions /
  Working Load Limits (WLLs) with recess
  (KMAT-No. 8600621)

HINT
The VRS with the hexagon extension adapter is marked with the following information
- ***Manufacturer:***
  RUD
- ***WLL in axially direction:***
  WLL acc. to order specification
- ***WLL (under corresponding choosen inclination angle):***
  WLL acc. to order specification
- ***Order related number***

7.2 VRS with extension adaptors

Type 1: predefined dimensions / Working Load Limits (WLLs)

VRS-size	WLL axial [t]	WLL lateral [t]	weight [kg]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	L [mm]	M	T [mm]	Ref.-No.
VRS-M6	0.1	0.05	0.5	27.7	SW 24	***100***	24	6.8	117.8	12	M6	127.7	**7909169**
VRS-M8	0.3	0.17	0.6	29	SW 27	***50***	25	9	123	12	M8	135	**7909580**
VRS-M8	0.3	0.1	0.6	29	SW 27	***100***	25	9	123	12	M8	135	**7909579**
VRS-M12	0.75	0.25	0.85	34.5	SW 30	***100***	30	10	127	18	M12	142	7906187
VRS-M16	1.5	0.5	1.2	41.5	SW 36	***97***	35	14	129	23	M16	154	7904862
VRS-M20	2.3	1	2	53	SW 46	***100***	40	16	137	30	M20	158	7904863

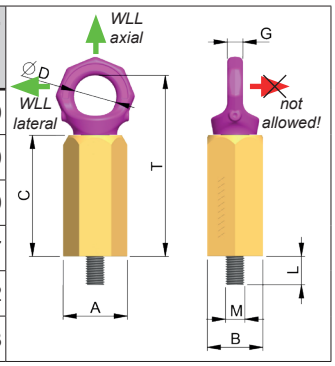


Table 2: Dimensioning Type 1 *Subject to technical modifications*

Method of lift	G	G β	A G	A G β	G β	G	G β	G
Number of legs	1	1	2	2	2	2	2	3 & 4	3 & 4	3 & 4
Angle of inclination <ß	0°-7°	90°	0°-7°	90°	0-45°	45-60°	unsymm.	0-45°	45-60°	unsymm.
Factor		1		2	1.4	1	1	2.1	1.5	1
	Max. weight in metric tons, screwed according to torque chart and suspension ring adjusted to the load direction.									

Table 3: Calculation factors for WLL *Subject to technical modification*

HINT
To determine the WLL, choose stated factors.
If you have smaller inclination values, ask our sales staff. We're pleased to help you with the calculation.

7.3 VRS with extension adaptors (variable dimensions / KMAT)

Type 2: KMAT-No. 8600620 without recess

VRS-size	WLL axial [t]	WLL 0-90° [t]	A_{min} [mm]	B_{min} [mm]	A_{max} [mm]	B_{max} [mm]	C [mm]	D [mm]	G [mm]	L [mm]	M	T [mm]	Ref.-No.
VRS-M8	0.3	Graduation of WLL in 15 ° steps: 15 ° / 30° / 45° / 60° / 75° / 90°	29	SW 27	---	---	50-300	25	9	12-24	M8	*	8600620
VRS-M10	0.4		29	SW 27	34.5	SW 30	50-300	25	9	15-30	M10	*	
VRS-M12	0.75		34.5	SW 30	41.5	SW 36	50-300	30	10	18-36	M12	*	
VRS-M14	0.75		34.5	SW 30	41.5	SW 36	50-300	30	10	21-42	M14	*	
VRS-M16	1.5		41.5	SW 36	53	SW 46	50-300	35	13	24-48	M16	*	
VRS-M18	1.5		41.5	SW 36	53	SW 46	50-300	35	13	27-54	M18	*	
VRS-M20	2.3		53	SW 46	58	SW 50	50-300	40	16	30-60	M20	*	
VRS-M22	2.3		53	SW 46	58	SW 50	50-300	40	16	33-62	M22	*	
VRS-M24	3.2		58	SW 50	69	SW 60	50-300	48	19	36-72	M24	*	
VRS-M27	3.2		58	SW 50	69	SW 60	50-300	48	19	40-81	M27	*	
VRS-M30	4.5		69	SW 60	---	---	50-300	60	24	45-90	M30	*	

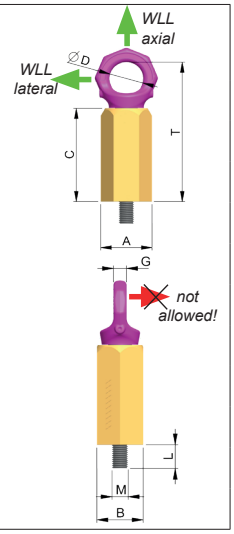


Table 4: WLL overview Type 2 ** dependend on variables* *Subject to technical modifications*

example

	VRS-size	WLL axial [t]	WLL. 30° [t]	A [mm]	B [mm]	C [mm]	D [mm]	G [mm]	L [mm]	M	T [mm]	Ref.-No.
Extension adaptor	M12	0.75	*0.39*	35	30	120	30	10	18	M12	162	8600620

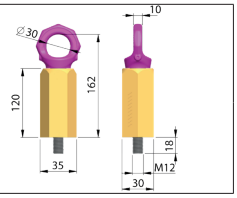


Table 5: Example (see table 4)

7.4 VRS with extension adaptors (variable dimensions / KMAT)

Type 3: KMAT-Nr. 8600621 with recess

VRS-size	WLL axial [t]	WLL 0-90° [t]	A_{min} [mm]	B_{min} [mm]	E_{min} [mm]	A_{max} [mm]	B_{max} [mm]	E_{max} [mm]	C [mm]	D [mm]	$F_{max.}$ [mm]	L [mm]	M	T [mm]	Ref.-No.
VRS-M8	0.3	Graduation of WLL in 15 ° steps: 15 ° / 30° / 45° / 60° / 75° / 90°	29	SW 27	14-27	---	---	---	50-300	25	30-250*	12-24	M8	*	8600621
VRS-M10	0.4		29	SW 27	16-27	34.5	SW 30	16-32	50-300	25	30-250*	15-30	M10	*	
VRS-M12	0.75		34.5	SW 30	18-32	41.5	SW 36	18-40	50-300	30	30-250*	18-36	M12	*	
VRS-M14	0.75		34.5	SW 30	20-32	41.5	SW 36	20-40	50-300	30	30-250*	21-42	M14	*	
VRS-M16	1.5		41.5	SW 36	22-40	53	SW 46	22-51	50-300	35	30-250*	24-48	M16	*	
VRS-M18	1.5		41.5	SW 36	24-40	53	SW 46	24-51	50-300	35	30-250*	27-54	M18	*	
VRS-M20	2.3		53	SW 46	26-51	58	SW 50	26-56	50-300	40	30-250*	30-60	M20	*	
VRS-M22	2.3		53	SW 46	29-51	58	SW 50	29-56	50-300	40	30-250*	33-62	M22	*	
VRS-M24	3.2		58	SW 50	30-56	69	SW 60	30-66	50-300	48	30-250*	36-72	M24	*	
VRS-M27	3.2		58	SW 50	33-56	69	SW 60	33-66	50-300	48	30-250*	40-81	M27	*	
VRS-M30	4.5		69	SW 60	36-66	---	---	---	50-300	60	30-250*	45-90	M30	*	

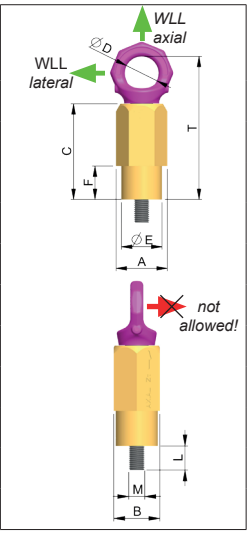


Table 6: WLL overview Type 3 with recess ** dependend on variables* *Subject to technical modifications*

HINT
In regard of the WLL (especially when multiple variants occure) please ask the RUD sales staff.