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Precision
Tool Company

2020 CATALOG New Introductions

- ~ PCD Tools
- ~ BGFS Circular Drill Thread
Milling Cutters
- ~ WMCD MultiCheck Digital
with Changeable Gauge Members
- ~ UNJF Threadmills, Threading Dies &
Gauges

High Performance Thread milling cutters


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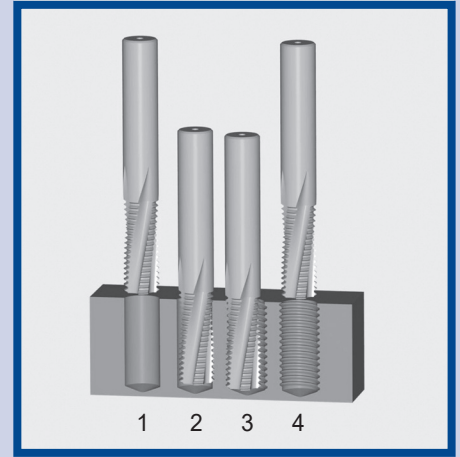
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SOLID CARBIDE THREAD MILLING CUTTERS GF FOR INTERNAL THREADS

Advantages of thread milling with coolant fed, solid carbide cutters on CNC milling and turning machines

- Dimensional accuracy can be controlled
- Tool breakage does not result in immediate scrap
- Less power needed than for tapping
- Short machining times due to high cutting speeds
- Excellent thread surface finish
- Short chips, hence no chip problems
- Right and left hand threads in blind or through holes can be produced with the same cutter
- Small cutting forces, hence threads can be cut on thin walled workpieces
- Cutting speeds and feeds can be matched individually to workpiece material
- No partially formed chips at the bottom of blind holes
- No change of direction of spindle rotation required
- No tapping chucks required, milling cutter chucks suffice
- Exact thread depths
- No torn threads
- Threads can be cut to near the bottom of blind holes
- Simple machining of tough materials



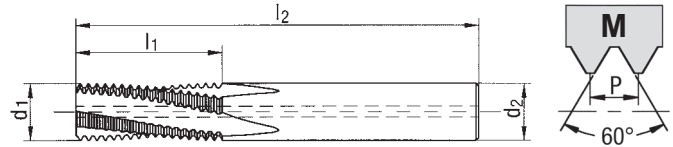
Steps In Machining Cycle

1. Tool travels to initial position above center of hole
2. Thread milling starts with 180° entry path
3. Thread milling ends with 180° exit path
4. Return to initial position and end of machining cycle

GF - Solid carbide thread milling cutter for internal threads

ISO Metric Threads DIN 13

Specifications: 2 x D, 2.5 x D, 3 x D
Straight shank and 27° right hand spiral flutes



D (size)	P (pitch)	l ₂	d ₂	z	1.5 x d			2 x d			2.5 x d			3 x d		
					l ₁	Uncoated	Ticn	l ₁	Uncoated	Ticn	l ₁	Uncoated	Ticn	l ₁	Uncoated	Ticn
M 6	1	54	6	3	-	-	-	13.5	300195	301148	16.5	300716	301772	19.5	300868	304854
M 8	1.25	54	6	3	-	-	-	18.1	300135	301104	21.9	300725	301578	26.9	300645	304855
M 10	1.5	64	8	4	-	308762	-	21.7	300130	301149	26.3	300771	301606	32.3	300468	301456
M 12	1.75	74	10	4	-	-	-	25.4	300122	301105	32.4	300455	300630	37.6	300518	301271
M 14	2	74	10	4	-	-	-	31.0	300196	301108	37.0	300887	301513	43.0	300888	310005
M 16	2	80	12	4	-	-	-	35.0	300197	301063	43.0	300519	301226	49.0	302464	310006
M 18/M 20	2.5	90	14	4	-	-	-	41.2	300198	301150	48.8	300893	301312	61.3	300894	304856

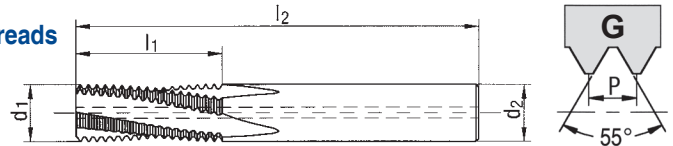
ISO Metric Fine Threads DIN 13

D (size)	P (pitch)	l ₂	d ₂	z	1.5 x d			2 x d			2.5 x d			3 x d		
					l ₁	Uncoated	Ticn	l ₁	Uncoated	Ticn	l ₁	Uncoated	Ticn	l ₁	Uncoated	Ticn
M 6	0.5	54	6	3	-	-	-	12.7	300896	310010	15.3	302600	310015	18.3		
M 6	0.75	54	6	3	-	-	-	13.1	300897	310011	15.4	302601	310016	18.4		
M 8	0.5	54	6	3	-	-	-	17.7	300127	304829	20.3	302602	310017	24.3		
M 8	0.75	54	6	3	-	-	-	16.9	300126	301196	20.6	300918	305002	24.4		
M 8	1	54	6	3	-	-	-	17.5	300099	301194	20.5	300827	310018	24.5		
M 10	1	64	8	4	-	-	-	21.5	300125	301351	25.5	300919	310019	30.5		
M 10	1.25	64	8	4	-	-	-	21.9	300124	310012	25.6	300920	301769	30.6	300926	
M 12	1	74	10	4	-	-	-	25.5	300123	301198	30.5	300921	310020	36.5		
M 12	1.5	74	10	4	-	-	-	26.2	300128	301113	30.8	300815	310021	36.8		
M 14	1.5	74	12	4	-	-	-	30.71	305719	305761	38.21	305720	305763			

GF - Solid carbide thread milling cutter for internal & external threads

British Standard Pipe Thread DIN ISO 228

Specifications: 1.5 x D, 2 x D, 2.5 x D, 3 x D
Straight shank and 27° right hand spiral flutes



D (size)	TPI	l ₂	d ₂	z	1.5 x d			2 x d			2.5 x d			3 x d		
					l ₁	Uncoated	Ticn	l ₁	Uncoated	Ticn	l ₁	Uncoated	Ticn	l ₁	Uncoated	Ticn
G 1/8	28	64	8	4	15.9	300105	301116	21.4	300241	301114	24.9	300935	301736	30.4		
G 1/4	19	74	10	4	22.1	300103	304930	28.8	300242	301115	35.4	300943	301653	42.2		
G 3/8	19	90	14	4	27.4	300065	310022	35.5	300243	301153	43.4	300636	301737	51.5		

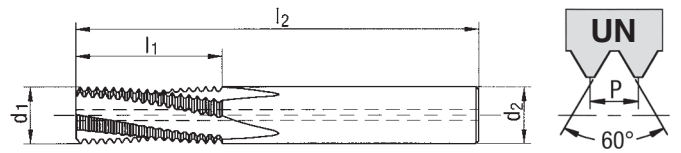
TIALN available • Weldon or Whistle Notch available no extra charge



GF - Solid carbide thread milling cutter for internal threads

UNC Thread - Unified National Coarse Thread ANSI B 1.1

Specifications: 2 x D, 2.5 x D, 3 x D
Straight shank and 27° right hand spiral flutes

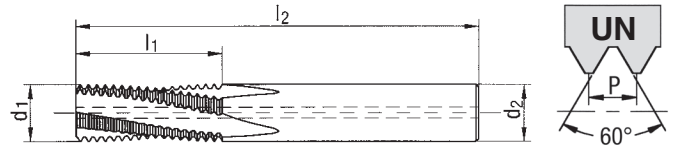


D (size)	TPI	l2	d2	z	1.5 x d			2 x d			2.5 x d			3 x d		
					l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn
UNC 1/4	20	54	6	3	-	-	-	14.6	300695	304858	17.1	303137	310026	19.7	303166	311923
UNC 5/16	18	54	6	3	-	-	-	17.7	300625	304859	20.5	300992	310027	24.7		
UNC 3/8	16	64	8	4	-	-	-	21.4	300142	304860	24.6	300993	310028	29.4	300995	305731
UNC 7/16	14	64	8	4	-	-	-	24.4	300101	304861	28.1	303256	310029	33.6		
UNC 1/2	13	74	10	4	-	-	-	28.3	300143	304862	32.2	300997	310030	38.1		311075
UNC 9/16	12	74	10	4	-	-	-	30.6	309613	309583						
UNC 5/8	11	80	12	4	-	-	-	35.7	309614	310315						
UNC 3/4	10	105	16	5	-	-	-	41.9	310921	310922						
UNC 7/8	9	102	18	5	-	-	-	46.5	309615	309584						
UNC 1	8	125	20	5	-	-	-	55.4	310923	310924						

GF - Solid carbide thread milling cutter for internal threads

UNF Thread - Unified National Fine Thread ANSI B 1.1

Specifications: 2 x D, 2.5 x D, 3 x D
Straight shank and 27° right hand spiral flutes

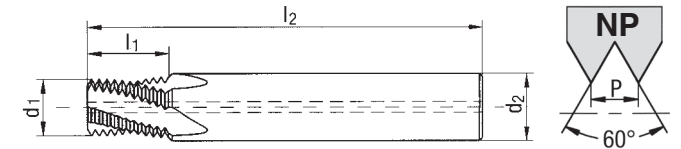


D (size)	TPI	l2	d2	z	1.5 x d			2 x d			2.5 x d			3 x d		
					l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn
UNF 1/4	28	54	6	3	-	-	-	14.0	300694	304863	16.8	303347	310033	19.5		
UNF 5/16	24	54	6	3	-	-	-	17.4	300668	304613	20.6	303348	310034	24.9		
UNF 3/8	24	64	8	4	-	-	-	20.6	300466	301119	24.9	303349	310035	29.1		
UNF 7/16	20	64	8	4	-	-	-	24.7	300454	301117	28.6	303350	310036	33.7		
UNF 1/2	20	74	10	4	-	-	-	27.3	300095	304864	32.4	303351	310037	38.7		
UNF 9/16 & 5/8	18	74	10	4				30.3	309611	309586						
UNF 3/4	16	102	16	5				40.4								
UNF 7/8	14	110	18	5				53.4	309612	309585						
UNF 1	14	110	18	5				53.4								

GF - Solid carbide thread milling cutter for internal threads

NPT Thread - American Standard Taper Pipe Thread ANSI B 1.20.1, Taper 1:16

Specifications:
Straight shank and 27° right hand spiral flutes



d1 (cutter dia.)	TPI	l2	l1	d2	z	Uncoated (Item Code)	TICN (Item Code)
NPT 1/16	27	64	9.86	8	3	310038	310039
NPT 1/8	27	64	9.88	8	4	300114	301468
NPT 1/4	18	72	18.98	12	4	300121	300531
NPT 3/8	18	80	14.82	14	4	300250	300532
NPT 1/2	14	80	19.05	14	4	300802	301122

GF

NPTF Thread - Dryseal American Standard Taper Pipe Thread ANSI B 1.20.3, Taper 1:16, for internal threads

Specifications:
Straight shank and 27° right hand spiral flutes

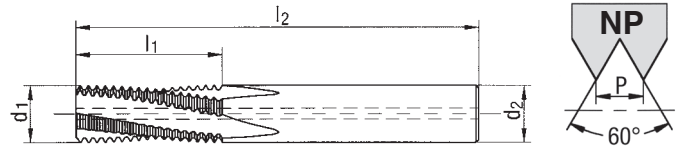
d1 (cutter dia.)	TPI	l2	l1	d2	z	Uncoated (Item Code)	TICN (Item Code)
NPTF 1/16	27	64	9.86	8	3	310042	310043
NPTF 1/8	27	64	9.88	8	4	301837	301297
NPTF 1/4	18	72	18.98	12	4	300255	304503
NPTF 3/8	18	80	14.82	14	4	300254	310041
NPTF 1/2	14	80	19.05	14	4	303494	305035

TIALN available • Weldon or Whistle Notch available no extra charge

GF - Solid carbide thread milling cutter for internal threads

NPSF - American Standard Straight Pipe ANSI B 1.20.3

Straight shank and right hand spiral flutes



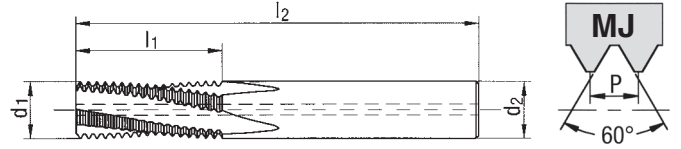
D (size)	TPI	l ₁	l ₂	d ₁	d ₂	z	2 x d	
							Uncoated	Ticn
1/8 NPSF	27	9.83	62		8	4		308699
1/4 NPSF	18	19.00	74		10	4		308568
1/2 NPSF	14	22.7	102		18	5		309601

GF - Solid carbide thread milling cutter for internal threads

ISO Metric Threads DIN 5855-1

Specifications: 2 x D

Straight shank and right hand spiral flutes



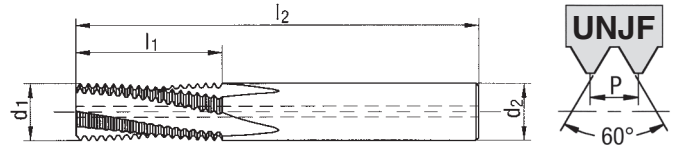
D (size)	P mm	l ₁	l ₂	d ₁	d ₂	z	2 x d	
							Uncoated	Ticn
MJ 4	0.7	8.75	48		6	3		305869
MJ 5	0.8	10.75	54		6	3		305870
MJ 6	1	13.50	54		6	3		305871
MJ 8	1.25	18.10	54		6	3		305872
MJ 10	1.5	21.70	64		8	4		305873
MJ 12	1.75	27.1	74		10	4		305874

GF - Solid carbide thread milling cutter for internal threads

UNJF Fine Threads ISO 3161

Specifications: 2 x D

Straight shank and right hand spiral flutes



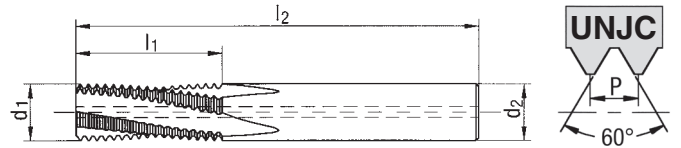
D (size)	TPI	l ₁	l ₂	d ₁	d ₂	z	2 x d		Ticn Radial Coolant
							Uncoated	Ticn	
UNJF Nr.10	32	11.50	54		6	3	305875	305887	
UNJF 1/4"	28	14.00	54		6	3	305876	305888	
UNJF 5/16"	24	17.40	54		6	3	305877	305890	
UNJF 3/8"	24	20.60	64		8	4	305878	305889	
UNJF 7/16"	20	24.70	64		8	4	305879	305891	
UNJF 1/2"	20	27.30	74		10	4	305880	305892	307753

GF - Solid carbide thread milling cutter for internal threads

UNJC Coarse Thread ISO 3161

Specifications: 2 x D

Straight shank and right hand spiral flutes



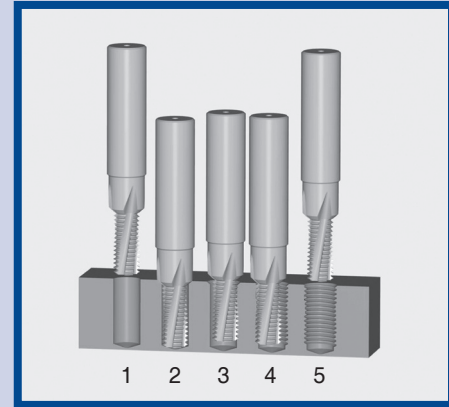
D (size)	TPI	l ₁	l ₂	d ₁	d ₂	z	2 x d	
							Uncoated	Ticn
UNJC Nr.10	24	11.50	54		6	3		305893
UNJC 1/4"	20	14.00	54		6	3		305894
UNJC 5/16"	18	17.40	54		6	3		305896
UNJC 3/8"	16	20.60	64		8	4		305895
UNJC 7/16"	14	24.70	64		8	4		305897
UNJC 1/2"	13	27.30	74		10	4		305898

TIALN available • Weldon or Whistle Notch available no extra charge

SOLID CARBIDE THREAD MILLING CUTTERS GFS FOR INTERNAL THREADS

Special advantages of using GFS thread milling cutters

- High productivity due to countersinking and thread milling in one cycle without tool change
- Reduction of cutting time
- Saving of tool stations
- Saving of tool changing time
- Saving of setting time

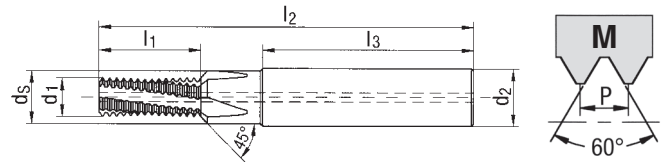


Steps In Machining Cycle

1. Tool travels to initial position above center of hole
2. 90° countersinking
3. Thread milling starts with 180° entry path
4. Thread milling ends with 180° exit path
5. Return to initial position and end of machining cycle

GFS - Solid carbide thread milling cutter for internal threads ISO Metric Threads DIN 13

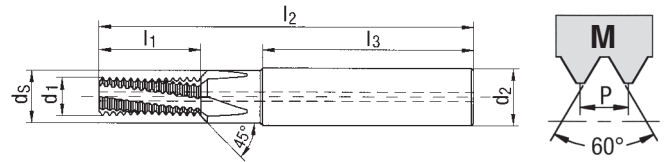
Specifications: 1.5 x D, 2 x D, 2.5 x D, 3 x D
45° chamfer for countersinking, straight shank and 27° right hand spiral flutes



D (size)	P (pitch)	l2	l3	d2	ds	z	1.5 x d			2 x d			2.5 x d			3 x d		
							l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn
*M 2	0.4	48	36	6	2.5	2	3.4	300016	304767	4.6	300157	301384						
*M 2.5	0.45	48	36	6	3.4	3	4.3	300605	304789	6.1	300606	301341						
*M 3	0.5	48	36	6	3.4	3	5.2	300017	301382	6.7	300160	301170	7.8	300954	305047	9.7	300189	310049
*M 3.5	0.6	48	36	6	4.0	3	6.3	300957	304790	8.1	301038	304791	9.3	301048	310045	11.1	304365	311000
M 4	0.7	48	36	6	4.5	3	7.3	300905	304574	8.7	300906	301172	10.8	301049	305038	12.2	301071	310058
M 5	0.8	54	36	6	5.5	3	9.2	300908	304768	10.8	300907	301127	13.2	301050	305045	15.6	301072	304853
M 6	1	62	36	8	6.6	3	10.5	300705	301191	13.5	300465	301095	16.5	300781	301302	19.5	300759	310059
M 8	1.25	74	40	10	9.0	3	13.7	300073	300612	18.1	300166	301173	21.9	300650	304831	25.6	300700	310060
M 10	1.5	80	45	12	11.0	4	17.2	300075	301352	21.7	300167	301174	26.3	300505	304618	32.3	301073	310061
M 12	1.75	90	45	14	13.5	4	20.1	300077	301383	25.4	300168	301176	32.4	300718	304761	37.6	301074	310062
M 14	2	102	48	16	15.5	4	25.0	300345	304769	31.0	300169	301085	37.0	300719	304995	43.0	304366	310063
M 16	2	102	48	18	17.5	4	27.0	300346	300843	35.0	300170	304534	43.0	300720	300898	49.0	304367	310064
M 18/M 20	2.5	125	50	22	21.5	4	33.7	300102	301400	41.2	301854	301133	48.8	300721	310048	61.3	301075	310065

GFS - Solid carbide thread milling cutter for internal threads ISO Metric Fine Threads DIN 13

Specifications: 1.5 x D, 2 x D, 2.5 x D, 3 x D
45° chamfer for countersinking, straight shank and 27° right hand spiral flutes



D (size)	P (pitch)	l2	l3	d2	ds	z	1.5 x d			2 x d			2.5 x d			3 x d		
							l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn
M 4	0.5	48	36	6	4.5	3	7.2	305132	310070	8.7	310081	305134	10.3	310100	310106	12.3		
M 5	0.5	54	36	6	5.5	3	8.7	305133	310071	10.7	301586	310083	12.8	310101	310107	15.3		
M 6	0.5	62	36	8	6.6	3	9.7	300707	310078	12.7	300696	310084	15.3	310102	310108	18.3		
M 6	0.75	62	36	8	6.6	3	10.1	300052	304684	13.1	300467	301465	15.4	301753	301754	18.4		
M 8	0.5	74	40	10	9.0	3	12.7	301813	301747	17.7	300175	301591	20.3	310103	310109	24.3		
M 8	0.75	74	40	10	9.0	3	13.1	300074	310072	16.9	300113	301658	20.6	310104	310110	24.4		
M 8	1	74	40	10	9.0	3	13.5	300085	310073	17.5	300176	301466	20.5	304969	310111	24.5		
M 10	1	80	45	12	11.0	4	16.5	300076	304645	21.5	300177	301522	25.5	301752	301750	30.5		
M 10	1.25	80	45	12	11.0	4	16.9	301814	310074	21.9	300178	301288	25.6	310105	310112	30.6		
M 12	1	90	45	14	13.5	4	19.5	300078	310075	25.5	300179	301487	30.5	304975	310113	36.5		
M 12	1.5	90	45	14	13.5	4	20.2	300079	304646	26.2	300180	301345	30.8	301069	301669	36.8		
M 14	1.5	102	48	16	15.5	4	23.2	300158	301415	30.8	300181	301213	38.3	300832	310114	42.8		
M 16	1.5	102	48	18	17.5	4	26.2	300190	301471	33.8	300182	301220	41.3	301310	310115	48.8		

* Non Coolant Thru • TIALN available • Weldon or Whistle Notch available no extra charge

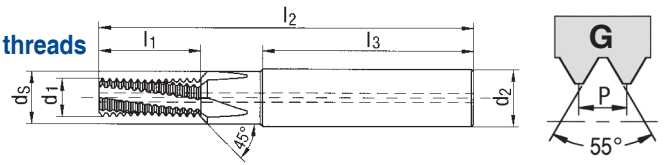


GFS - Solid carbide thread milling cutter for internal & external threads

British Standard Pipe Thread DIN ISO 228

Specifications: 1.5 x D, 2 x D, 2.5 x D, 3 x D

45° chamfer for countersinking, straight shank and 27° right hand spiral flutes



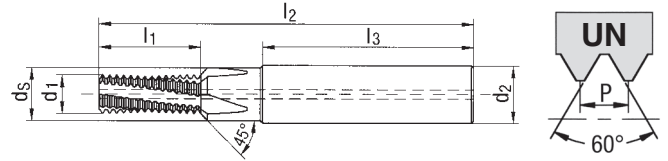
D (size)	TPI	l ₂	l ₃	d ₂	d _s	z	1.5 x d			2 x d			2.5 x d			3 x d		
							l ₁	Uncoated	Ticn	l ₁	Uncoated	Ticn	l ₁	Uncoated	Ticn	l ₁	Uncoated	Ticn
G 1/8	28	80	45	12	11.0	4	15.9	300080	303153	21.4	300183	301180	24.9	301323	310126	30.4		
G 1/4	19	90	45	14	13.9	4	22.1	300081	304993	28.8	300184	301182	35.4	301315	301766	42.2		
G 3/8	19	102	48	18	17.5	4	27.4	300082	310125	35.5	300185	301184	43.4	310129	310127	51.5		

GFS - Solid carbide thread milling cutter for internal threads

UNC Thread - Unified National Course Thread ANSI B 1.1

Specifications: 1.5 x D, 2 x D, 2.5 x D, 3 x D

45° chamfer for countersinking, straight shank and 27° right hand spiral flutes



D (size)	TPI	l ₂	l ₃	d ₂	d _s	z	1.5 x d			2 x d			2.5 x d			3 x d		
							l ₁	Uncoated	Ticn	l ₁	Uncoated	Ticn	l ₁	Uncoated	Ticn	l ₁	Uncoated	Ticn
UNC No. 8	32	48	36	6	5.5	3	7.5	310136	310139	9.1	304956	304957						
UNC Nr. 10	24	54	36	6	5.5	3	10.1	310137	310140	11.1	304964	304963	13.2	310175	310183	15.3		
UNC Nr. 12	24	54	36	6	5.9	3	10.1	310138	310141	12.2	304959	304958	14.3	310176	310184	17.5		
UNC 1/4	20	62	36	8	7.8	3	12.1	305007	304467	14.6	300697	304869	17.1	301405	310185	19.7		
UNC 5/16	18	74	40	10	9.0	3	14.8	300708	310142	17.7	300146	304870	20.5	310177	310186	24.7		
UNC 3/8	16	80	45	12	10.1	4	16.7	300415	304468	21.4	300147	301684	24.6	310178	310187	29.4		
UNC 7/16	14	80	45	12	11.8	4	19.1	301886	310143	24.4	300148	304871	28.1	310179	310188	33.6		
UNC 1/2	13	90	45	14	13.5	4	22.5	300416	305135	28.3	300149	304872	32.2	310180	310189	38.1		
UNC 9/16	12	102	48	16	15.5	4	24.4	301887	310144	30.6	300150	304873	37.0	310181	310190	43.4		
UNC 5/8	11	102	48	18	17.5	4	26.6	301888	310145	35.7	300151	304665	40.4	310182	310191	49.6		

UNF Thread - Unified National Fine Thread ANSI B 1.1

Specifications: 1.5 x D, 2 x D, 2.5 x D, 3 x D

45° chamfer for countersinking, straight shank and 27° right hand spiral flutes

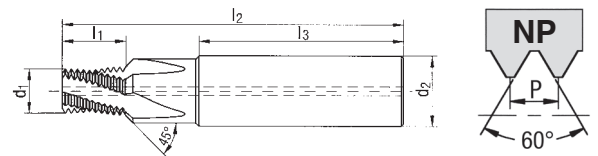
D (size)	TPI	l ₂	l ₃	d ₂	d _s	z	1.5 x d			2 x d			2.5 x d			3 x d		
							l ₁	Uncoated	Ticn	l ₁	Uncoated	Ticn	l ₁	Uncoated	Ticn	l ₁	Uncoated	Ticn
UNF No. 10	32	54	36	6	5.5	3	8.4	310209	310211	11.5	304937	304960	12.3	304984	310236	14.7		308830
UNF Nr. 12	28	54	36	6	5.5	3	9.5	310210	310212	12.2	304962	304961	14.1	310231	310237	16.8		
UNF 1/4	28	62	36	8	6.6	3	11.4	305015	310213	14.0	300693	304875	16.8	310232	310238	19.5		
UNF 5/16	24	74	40	10	9.0	3	13.3	302124	310214	17.4	300152	304876	20.6	310233	310239	24.9		
UNF 3/8	24	80	45	12	11.0	4	16.4	300118	301674	20.6	300444	304877	24.9	301614	310240	29.1		
UNF 7/16	20	80	45	12	11.8	4	18.4	300434	304799	24.7	300266	304878	28.6	304922	310241	33.7		
UNF 1/2	20	90	45	14	13.5	4	21.0	301912	310215	27.3	300153	304879	32.4	305137	310242	38.7		
UNF 9/16	18	102	48	16	15.5	4	23.3	300435	310216	30.3	300445	304880	36.0	301137	310243	43.0		
UNF 5/8	18	102	48	18	17.5	4	26.1	301913	310217	33.1	300154	304881	40.2	310235	310244	48.7		

GFS - Solid carbide thread milling cutter for internal threads

NPT Thread - American Standard Taper Pipe Thread ANSI B 1.20.1, Taper 1:16

Specifications: 45° chamfer for countersinking,

Straight shank and 27° right hand spiral flutes



d ₁ (cutter dia.)	TPI	l ₁	l ₂	l ₃	d ₂	d _s	z	Uncoated (Item Code)	TICN (Item Code)
NPT 1/8	27	9.88	70	45	12	11.0	4	300404	304845
NPT 1/4	18	14.82	80	48	16	14.5	4	300405	301212
NPT 3/8	18	14.82	80	48	18	17.5	4	300117	304846

NPTF Thread - Dryseal American Standard Taper Pipe Thread ANSI B 1.20.3, Taper 1:16, for internal threads

Specifications: 45° chamfer for countersinking,

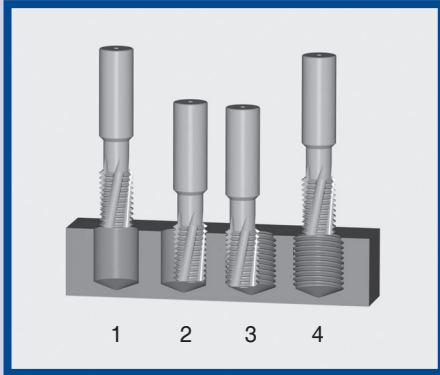
Straight shank and 27° right hand spiral flutes

d ₁ (cutter dia.)	TPI	l ₁	l ₂	l ₃	d ₂	d _s	z	Uncoated (Item Code)	TICN (Item Code)
NPTF 1/8	27	9.88	70	45	12	11.0	4	300409	301655
NPTF 1/4	18	14.82	80	48	16	14.5	4	300410	304857
NPTF 3/8	18	14.82	80	48	18	17.5	4	300411	310258

SOLID CARBIDE THREAD MILLING CUTTERS GFM FOR INTERNAL THREADS

Special advantages of using GFM thread milling cutters

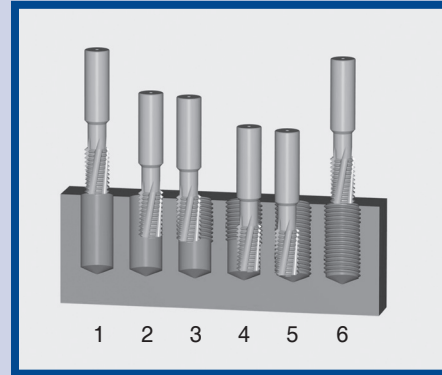
- Cutter can cut threads of the same pitch on a wide range of diameters
- Low tooling costs for large threads



Steps In Machining Cycle

1. Tool travels to initial position above center of hole
2. Thread milling process starts with 90° entry path
3. Thread milling process ends with exit path 90°
4. Return to initial position and end of machining cycle

- The neck between the teeth and the shank on this cutter enables an appreciably deeper thread to be cut than is possible with cutters without such a neck

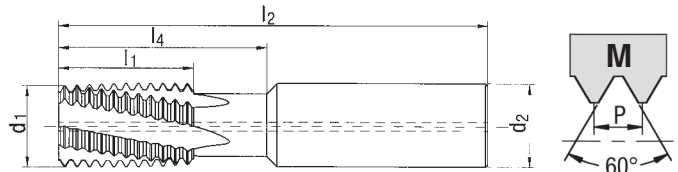


Steps In Machining Cycle

1. Tool travels to initial position above center of hole
2. 1st thread milling process starts with 90° entry path
3. 1st thread milling process ends with exit path 90°
Z axis downfeed equal to an appropriate number of pitches
4. 2nd thread milling process starts with 90° entry path
5. 2nd thread milling process ends with 90° exit path
6. Return to initial position and end of machining cycle

GFM - Solid carbide thread milling cutter for internal threads ISO Metric Threads DIN 13

Specifications:
Straight shank and 15° right hand spiral flutes



d1 (cutter dia.)	P (pitch)	l2	l1	D≥	d2	l4	z	Uncoated (Item Code)	TICN (Item Code)
8	0.5	64	16	10	8	16	4	300257	301154
8	0.75	64	16	10	8	16	4	300267	301155
10	0.75	70	16	12	10	25	4	300268	301156
10	1	70	16	12	10	25	4	300269	301157
10	1.25	70	16	14	10	25	4	300274	301158
10	1.5	70	16	14	10	25	4	300270	301267
12	0.5	80	20	14	12	31	4	300271	301159
12	0.75	80	20	14	12	31	4	300627	301160
12	1	80	20	16	12	31	4	300272	300842
12	1.25	80	20	16	12	31	4	300273	301161
12	1.5	80	20	16	12	31	4	300275	300453
12	2	80	20	16	12	31	4	300276	301162
16	1	90	25	20	16	40	5	300277	301163
16	1.5	90	25	22	16	40	5	300278	301146
16	2	90	25	22	16	40	5	300279	301200
16	2.5	90	25	22	16	40	5	300280	301164
18	3.0	102	33	24	18	50	5	311001	311003
20	1	105	33	24	20	50	5	300235	301165
20	1.5	105	33	26	20	50	5	300281	301166
20	2	105	33	27	20	50	5	300282	301136
20	2.5	105	33	30	20	50	5	300283	301167
20	3	105	33	30	20	50	5	300234	301168
20	3.5	105	33	30	20	50	5	300644	301169
20	4.0	105	33	36	20	50	5	311002	311004

TIALN available • Weldon or Whistle Notch available no extra charge

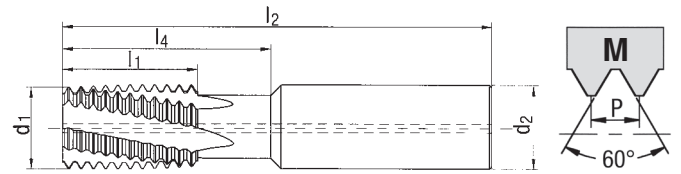


GFM - Solid carbide thread milling cutter for external threads

ISO Metric Threads DIN 13

Specifications:

Straight shank and 15° right hand spiral flutes



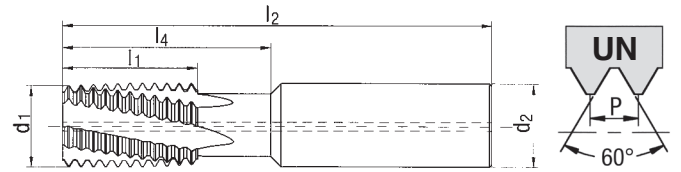
d1 (cutter dia.)	P (pitch)	l2	l1	d2	l4	z	Uncoated (Item Code)	TICN (Item Code)
10	0.75	70	16	10	25	4	300649	304502
10	1.25	70	16	10	25	4	301011	301375
12	1	80	20	12	31	4	300480	301284
12	1.5	80	20	12	31	4	300482	301358
12	1.75	80	20	12	31	4		310796
12	2	80	20	12	31	4	300481	311007
16	1.5	90	25	16	40	5	300633	301393
16	2	90	25	16	40	5	301014	301350
16	2.5	90	25	16	40	5	301015	311008
20	3	105	33	20	50	5	301016	311009

GFM - Solid carbide thread milling cutter for external threads

UN Thread ANSI B 1.1

Specifications:

Straight shank and 15° right hand spiral flutes



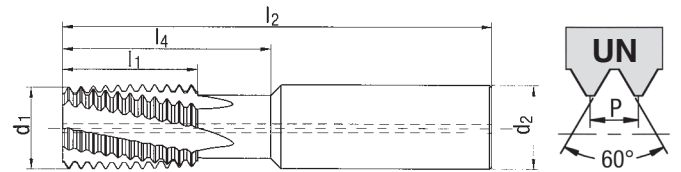
d1 (cutter dia.)	TPI	l2	l1	d2	l4	z	Uncoated (Item Code)	TICN (Item Code)
12	20	80	20	12	31	4		310875
16	14	90	25	16	40	5		301715
16	16	90	25	16	40	5		306874

GFM - Solid carbide thread milling cutter for internal threads

UN Thread ANSI B 1.1

Specifications:

Straight shank and 15° right hand spiral flutes



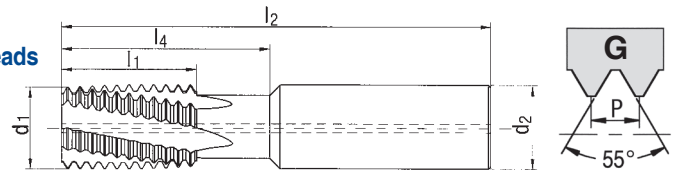
d1 (cutter dia.)	TPI	l2	l1	D≥	d2	l4	z	Uncoated (Item Code)	TICN (Item Code)	Uncoated (Radial Coolant)
10	32	70	16	1/2	10	25	4	306242	306250	
10	24	70	16	1/2	10	25	4	300317	311013	
12	24	80	20	5/8	12	31	4	300318	311014	
12	20	80	20	11/16	12	31	4	300319	311015	
12	18	80	20	5/8	12	31	4	300320	304865	
12	16	80	20	5/8	12	31	4	300321	301094	
12	10	80	20	3/4	3/4	31	4	311033	311034	300737
16	24	90	25	13/16	16	40	5	300322	311016	
16	20	90	25	13/16	16	40	5	300323	311017	
16	18	90	25	7/8	16	40	5	300324	311018	307797
16	16	90	25	7/8	16	40	5	300325	301317	
16	14	90	25	7/8	16	40	5	300326	301145	
16	12	90	25	7/8	16	40	5	300327	301214	
16	10	90	25	7/8	16	40	5	311019	311021	
20	20	105	33	1.00	20	50	5	300328	311022	
20	18	105	33	1.00	20	50	5	300329	311023	
20	16	105	33	1.00	20	50	5	300330	311024	
20	12	105	33	1.00	20	50	5	300332	301596	
20	8	105	33	1.00	20	50	5	300334	304866	

GFM - Solid carbide thread milling cutter for internal & external threads

British Standard Pipe Thread DIN ISO 228

Specifications:

Straight shank and 15° right hand spiral flutes



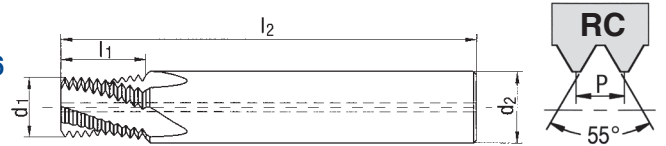
d1 (cutter dia.)	TPI	l2	l1	d2	l4	z	Uncoated (Item Code)	TICN (Item Code)
10	19	70	16	10	25	4	300304	301244
16	14	90	25	16	40	5	300305	300961
20	11	105	33	20	50	5	300306	301208

GFM - Solid carbide thread milling cutter for internal threads

Tapered Whitworth pipe thread DIN 10226-2, ISO 7-1, BS 21, Taper 1:16

Specifications:

Straight shank with internal coolant and right hand spiral flutes



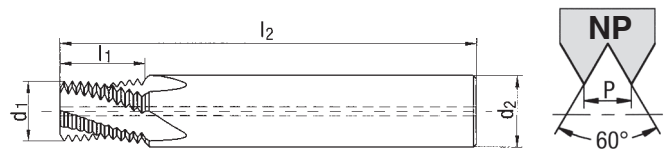
d1 (cutter dia.)	TPI	l2	l1	d2	l4	z	Uncoated (Item Code)	TICN (Item Code)
7.4	28	64	8.62	8		4	311025	311026
9.1	19	74	14.04	10		4	311027	311030
14.8	14	90	19.05	16		5	311028	311031
18	11	105	33.48	20		5	311029	311032

GFM - Solid carbide thread milling cutter for internal threads

NPT Thread - American Standard Taper Pipe Thread ANSI B 1.20.1, Taper 1:16

Specifications:

Straight shank and 15° right hand spiral flutes



d1 (cutter dia.)	TPI	l2	l1	d2	l4	z	Uncoated (Item Code)	TICN (Item Code)
14.5	14	90	19.05	16		5	300336	301101
18.5	11.5	90	23.19	20		5	300337	301102
22.9	8	105	35.7	25		5		

NPTF Thread - Dryseal American Standard Taper Pipe Thread ANSI B 1.20.3, Taper 1:16, for internal threads

Specifications:

Straight shank and 15° right hand spiral flutes

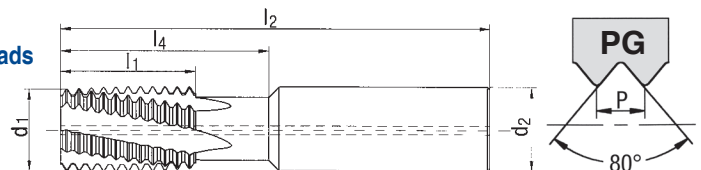
d1 (cutter dia.)	TPI	l2	l1	d2	l4	z	Uncoated (Item Code)	TICN (Item Code)
14.5	14	90	19.05	16		5	300338	304998
18.5	11.5	90	23.19	20		5	301848	305036

GFM - Solid carbide thread milling cutter for internal & external threads

Steel Conduit Thread DIN 40430

Specifications:

Straight shank and 15° right hand spiral flutes



d1 (cutter dia.)	TPI	l2	l1	d2	l4	z	Uncoated (Item Code)	TICN (Item Code)
10	20	70	16	10	25	4	300310	301523
12	18	80	20	12	31	4	300311	301524
16	16	90	25	16	40	5	300312	304847



For over 50 years JBO has been providing customers with High Performance Thread Milling Cutters designed and manufactured to meet modern day production requirements. JBO is known for listening to the customers needs and providing special application tools with a quick delivery. Given the opportunity our flexibility and capability will convince you too.

- Excellent thread surface finish
- Dimensional accuracy can be controlled
- Cutting speeds and feeds can be matched to the workpiece material
- Exact thread starts and depths can be achieved
- Threads can be cut near the bottom of blind holes
- Low tool costs for large threads
- Suitable for use on tough materials

Available in the following:

- Standards starting at 2mm
- Threaded length up to 3 x Diameter
- Straight Shank Din 6535 HA, HB and HE
- Ticn and Tialn Coatings available from stock
- GF, GFM and GFS Style cutters suitable for all materials

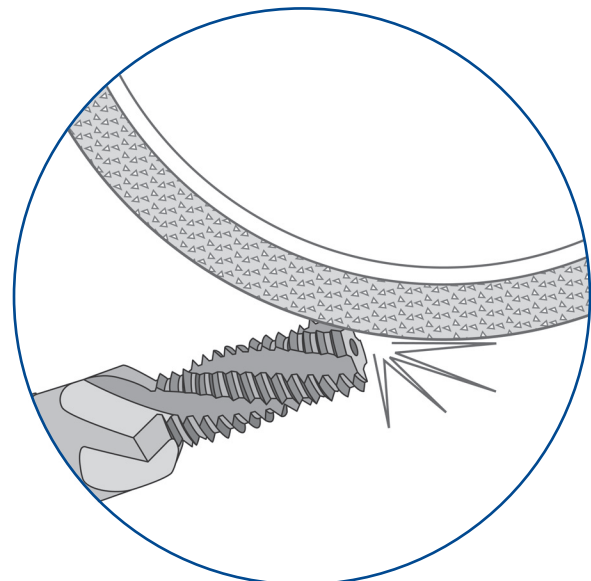
THE JBO REGRINDING SERVICE

The anti-aging program for your tools

Regrinding service offers a much longer service life for your tools. JBO grinds the tools with optimally adjusted parameters. The result: A tool almost as good as new. Coated tools can also be re-sharpened and re-coated.

Your Advantages:

- Cost reduction by multiple re-sharpening procedures
- Constant geometry and profile accuracy
- Optimal cutting edge quality
- Durable almost like a new tool



Our regrinding service applies to all tools from the catalog and all special tools. Prices for regrinding or regrinding and recoating upon request.

GFS-ST, GFM-ST and GFM-STL

Solid Carbide Thread Milling Cutters for a wide range of soft & prehardened steels (to 58 HRC), stainless steels, cast iron and more.

GFS-ST

Two operations, just one tool

- 45° chamfering
- Thread milling
- Larger cutting diameter
- Greater number of flutes

GFM-ST

Each cutter is capable of a wide range of sizes with the same pitch. In addition the recessed neck makes it possible to cut deeper threads by axial cutter shift.

GFM-STL

All the same cutting features of the GFM-ST but the GFM-STL has a longer length of thread and no recessed neck. Longer threads can be produced without axial cutter shift.



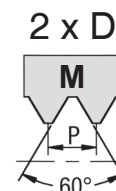
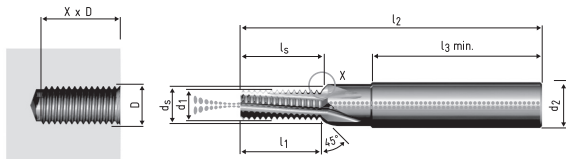
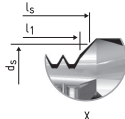
The Advantages:

- Shorter cutting time because of the greater number of flutes
- Up to 200% greater tool life
- Lower production and tooling costs
- Up to 58 HRC
- Coolant thru

GFS-ST - Solid carbide thread milling cutter for internal threads

ISO Metric Threads DIN 13

Specification: 2 x D, for steels and difficult to machine materials, 45° chamfer for countersinking, straight shank with internal coolant and right hand spiral flutes.



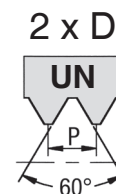
COATED

D (size)	P (pitch)	l1	l2	l3 min.	d1	d2	ds	ls	Z No. of flutes	Item Code
M4	0.70	8.75	48	36		6	4.2	9.3	4	305106
M5	0.80	10.75	54	36		6	5.3	11.5	4	305107
M6	1.00	13.45	62	36		8	6.3	14.3	5	305108
M8	1.25	18.10	74	40		10	8.4	19.1	5	305109
M10	1.50	21.70	80	45		12	10.5	22.9	5	305110
M12	1.75	25.30	90	45		14	12.6	26.7	6	305111
M14	2.00	30.95	102	48		16	14.7	32.5	6	305112

UNC Thread - Unified National Course Thread ANSI B 1.1

Specification: 2 x D, for steels and difficult to machine materials, 45° chamfer for countersinking, straight shank with internal coolant and right hand spiral flutes.

COATED



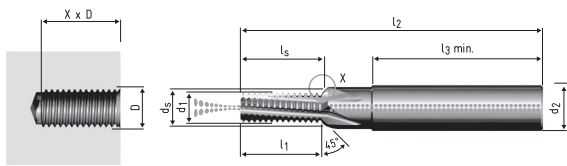
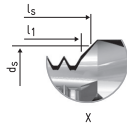
D (size)	TPI	l1	l2	l3 min.	d1	d2	ds	ls	Z No. of flutes	Item Code
UNC 1/4	20	14.6	62	36		8	7.8		5	305386
UNC 5/16	18	17.7	74	40		10	9.0		5	305387
UNC 3/8	16	21.4	80	45		12	10.1		5	305388
UNC 7/16	14	24.4	80	45		12	11.8		5	305389
UNC 1/2	13	28.3	90	45		14	13.5		6	305390
UNC 9/16	12	30.6	102	48		16	15.5		6	305391
UNC 5/8	11	35.7	102	48		18	17.5		6	305392

Weldon or Whistle Notch available no extra charge

GFS-ST - Solid carbide thread milling cutter for internal threads

UNF Thread - Unified National Fine Thread ANSI B 1.1

Specification: 2 x D, for steels and difficult to machine materials, 45° chamfer for countersinking, straight shank with internal coolant and right hand spiral flutes.



2 x D



COATED

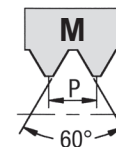
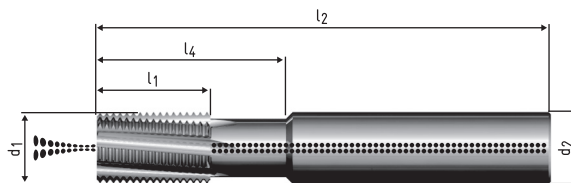
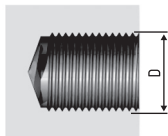
D (size)	TPI	l1	l2	l3 min.	d1	d2	ds	ls	Z No. of flutes	Item Code
UNF 1/4	28	14.0	62	36		8	6.6		5	305393
UNF 5/16	24	17.4	74	40		10	9.0		5	305394
UNF 3/8	24	20.6	80	45		12	11.0		5	305395
UNF 7/16	20	24.7	80	45		12	11.8		5	305396
UNF 1/2	20	27.3	90	45		14	13.5		6	305397
UNF 9/16	18	30.3	102	48		16	15.5		6	305398
UNF 5/8	18	33.1	102	48		18	17.5		6	305399

GFM-ST - Solid carbide thread milling cutter for internal threads

ISO Metric Threads DIN 13

Specification: for steels and difficult to machine materials, straight shank with internal coolant and right hand spiral flutes, recessed neck.

COATED



METRIC

d1 (Cutter Dia.)	P (pitch)	l1	l2	D ≥	d2	l4	Z No. of flutes	Item Code
10	1	16	70	12	10	25	5	305091
10	1.5	16	70	14	10	25	5	305092
12	1	20	80	16	12	31	5	305093
12	1.5	20	80	16	12	31	5	305094
12	2	20	80	16	12	31	5	305095
16	1	25	90	20	16	40	6	305087
16	1.5	25	90	22	16	40	6	305088
16	2	25	90	22	16	40	6	305089
20	1.5	33	105	26	20	50	6	305084
20	2	33	105	27	20	50	6	305085
20	3	33	105	30	20	50	6	305086

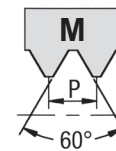
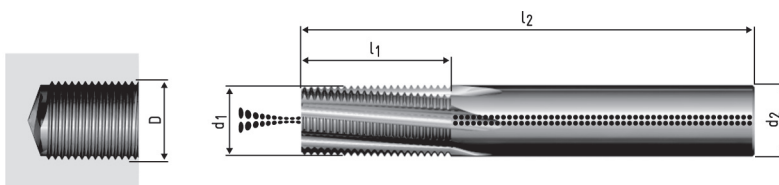
Weldon or Whistle Notch available no extra charge

GFM-STL - Solid carbide thread milling cutter for internal threads

ISO Metric Threads DIN 13

Specification: for steels and difficult to machine materials, straight shank with internal coolant and right hand spiral flutes, longer thread length.

COATED



d1 (Cutter Dia.)	P (pitch)	l1	l2	D ≥	d2	Z No. of flutes	Item Code
10	1	20	80	12	10	5	305096
10	1.5	20	80	14	10	5	305097
12	1	25	90	16	12	5	305098
12	1.5	25	90	16	12	5	305099
12	2	25	90	16	12	5	305113
16	1	33	100	20	16	6	305100
16	1.5	33	100	22	16	6	305101
16	2	33	100	22	16	6	305102
20	1.5	40	115	26	20	6	305103
20	2	40	115	27	20	6	305104
20	3	40	115	30	20	6	305105

UN Thread - Unified National Course Thread ANSI B 1.1

Specification: for steels and difficult to machine materials, straight shank with internal coolant and right hand spiral flutes, longer thread length.

COATED



d1 (Cutter Dia.)	TPI	l1	l2	D ≥	d2	Z No. of flutes	Item Code
12	16	25	90	3/4	12	5	305371
12	10	25	90	3/4	12	5	305372
16	24	33	100	7/8	16	6	305373
16	20	33	100	7/8	16	6	305374
16	18	33	100	7/8	16	6	305375
16	16	33	100	7/8	16	6	305376
16	14	33	100	7/8	16	6	305377
16	12	33	100	7/8	16	6	305378
16	10	33	100	7/8	16	6	305379
16	9	33	100	7/8	16	6	305380
20	14	40	115	1.00	20	6	305381
20	12	40	115	1.00	20	6	305382
20	8	40	115	1.00	20	6	305383

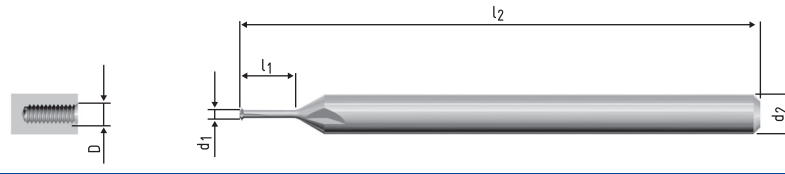
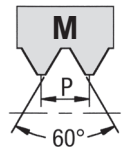
Weldon or Whistle Notch available no extra charge



GFE - Solid carbide thread milling cutter with single ring of teeth for internal threads

ISO Metric Threads DIN 13

Specification: 2 x D & 3 x D
UNCOATED & TICN COATED



METRIC

2 x D	d (Size)	Range	P (pitch)	l1	l2	d1	d2	Z No. of flutes	Item Code Uncoated	Item Code TICN Coated
	M1	M1 - M1.1	.25	2.3	39		3	3	305187	305253
	M1.2		.25	2.5	39		3	3	305233	305252
	M1.4		.3	2.9	39		3	3	305234	305251
	M1.6	M1.6 - M1.7	.35	3.5	39		3	3	305235	305250
	M1.8		.35	3.7	39		3	3	305236	305249
	M2		.4	4.1	39		3	4	305237	305248
	M2.2		.45	4.5	39		3	4	305238	305247
	M2.3		.4	4.7	39		3	4	305239	305246
	M2.5	M2.5-M2.6	.45	5.3	39		3	4	305240	305245
M3		.5	6.2	39		3	4	305241	305244	
M3.5		.6	7.2	39		3	4	305242	305243	

3 x D	d (Size)	Range	P (pitch)	l1	l2	d1	d2	Z No. of flutes	Item Code Uncoated	Item Code TICN Coated
	M1	M1 - M1.1	.25	3.4	39		3	3	305222	305215
	M1.2		.25	3.7	39		3	3	305223	305216
	M1.4		.3	4.3	39		3	3	305224	305127
	M1.6	M1.6 - M1.7	.35	5.2	39		3	3	305225	305128
	M1.8		.35	5.5	39		3	3	305226	305217
	M2		.4	6.1	39		3	4	305227	305129
	M2.2		.45	6.7	39		3	4	305228	305218
	M2.3		.4	7.0	39		3	4	305229	305219
	M2.5	M2.5-M2.6	.45	7.9	39		3	4	305230	305220
M3		.5	9.2	39		3	4	305231	305130	
M3.5		.6	10.7	39		3	4	305232	305221	

TIALN available • Weldon or Whistle Notch available no extra charge • Inch sizes available per request

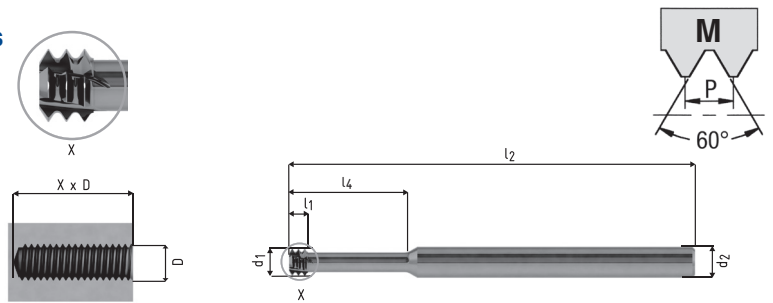


GFT - Solid carbide thread milling cutters with 3 rings of teeth for internal threads

ISO Metric Threads DIN 13

Specifications: 3 x D

Straight shank and right hand spiral flutes



D (size)	P mm	l1	l2	l4	d2	Z	3 x d	
							TiALN (Futura)	
M 1.2	0.25	0.75	39	3.9	3	3		305832
M 1.4	0.3	0.90	39	4.5	3	3		305833
M 1.6	0.35	1.05	39	5.2	3	3		305834
M 1.8	0.35	1.05	39	5.8	3	3		305835
M 2	0.4	1.20	39	6.4	3	4		305836
M 2.2	0.45	1.35	39	7.1	3	4		305837
M 2.5	0.45	1.35	39	8.0	3	4		305824
M 3	0.5	1.50	39	9.5	3	4		305838
M 3.5	0.6	1.80	39	11.1	3	4		305839
*M 4	0.7	2.10	54	12.7	6	4		305840
*M 5	0.8	2.40	54	15.8	6	4		305825
*M 6	1	3.00	54	19.0	6	4		305841
*M8	1.25	3.75	64	25.4	6	4		307851
*M10	1.50	4.50	70	31.7	8	4		307853

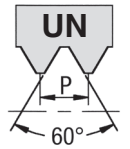
*Coolant Fed

GFT - Solid carbide thread milling cutters with 3 rings of teeth for internal threads

UNF & UNC Thread ANSI B 1.1

Specifications: 3 x D

Straight shank and right hand spiral flutes



INCH

P Gg/1" tpi	UNC	UNF	l1	l2	l4	d1	d2	z	3 x d	
									Uncoated	TiALN (Futura)
80		0		39	4.6		3	3		307721
64	Nr.1	Nr.2	1.14	39	6.0		3	3	307732	307539
56	Nr.2	Nr.3	1.33	39	7.0		3	4	307733	307431
48		Nr.4	1.59	39	9.2		3	4		309230
40	Nr.4		1.91	39	9.2		3	4	307734	307181
40	Nr.5	Nr.6	1.91	39	10.2		3	4	307735	307724
32	Nr.6	-	2.30	39	11.3		3	4	307737	306494
32	*Nr.8	-	2.32	54	13.3		6	4	307738	306495
32	-	*Nr.10	2.31	54	15.3		6	4	307739	306496
28	-	*1/4	2.51	60	20.0		6	4	307741	307740
24		*5/16	3.17	64	25.4		6	4		309039
24	*Nr.10 / Nr.12*	-	3.18	60	15.6		6	4	307743	307742
20	*1/4	-	3.81	60	20.4		6	4	307745	307744
18	*5/16		4.23	64	25.4		6	4		309038

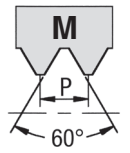
*Coolant Fed

GFT-H - Solid carbide thread milling cutters with 3 rings of teeth for internal threads

ISO Metric Threads DIN 13

Specifications: 2 x D, 3 complete thread profiles

For tempered and hardened steels 54-63 HRC. Straight shank, left hand cutting and left hand spiral flutes



METRIC

D (size)	P mm	l1	l2	l4	d2	d1	z	2 x d
								Coated
M-2	0.4	1.20	54	4.4	6		3	307725
M2.2, M2.5	0.45	1.35	54	5.5	6		3	307726
M3	0.5	1.50	54	6.6	6		3	307727
M3.5	0.6	1.80	54	7.7	6		3	307728
M4 x 0.5								309092
*M4	0.7	2.10	54	8.8	6		3	307729
*M5	0.8	2.40	54	11.0	6		3	307730
*M6	1.0	3.00	54	13.2	6		3	307731
M8 x 1.0		3	58	17.10	6		3	309093
M8	1.25	3.75	58	17.5	6		3	307849

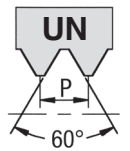
* Coolant Fed • Weldon or Whistle Notch available no extra charge • Inch sizes available per request

GFT-H - Solid carbide thread milling cutters with 3 rings of teeth for internal threads

UNF & UNC Thread ANSI B 1.1

Specifications: 2 x D, 3 complete thread profiles

For tempered and hardened steels 54-63 HRC. Straight shank, left hand cutting and left hand spiral flutes



INCH

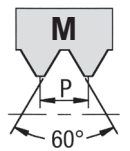
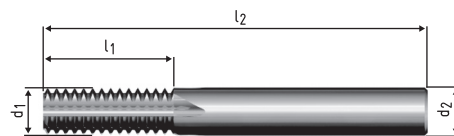
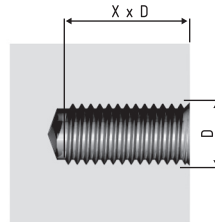
D (size)	UNC	UNF	l1	l2	l4	d2	d1	z	3 x d F
									TiALN (Futura)
8-32	32		2.38	54	9.20	6		3	309088
8-36		36	2.12	54	9.10	6		3	309089
10-24	24		3.17	54	10.80	6		3	309086
10-32		32	2.38	54	10.50	6		3	309087
1/4-20	20		3.81	54	14.10	6		3	309090
1/4-28		28	2.72	54	13.70	6		3	309091

GFH - Solid carbide thread milling cutter for internal threads

ISO Metric Threads DIN 13

Specification: 1.5 x D & 2 x D for tempered and hardened steels 54-63 HRC

COATED

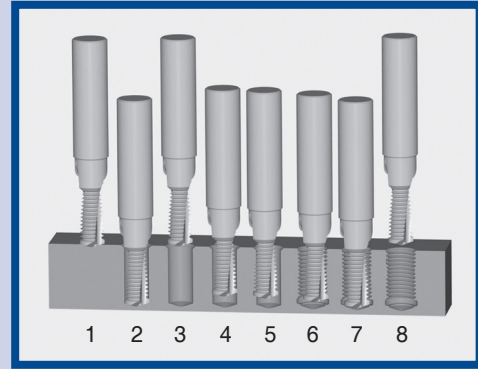


1.5 x D	D (Size)	P (pitch)	l1	l2	d2	Z No. of flutes	Item Code
		M4	.7	7.30	48	6	4
	M5	.8	9.20	54	6	4	301290
	M6	1	10.50	64	8	4	301205
	M8	1.25	14.30	64	8	5	301292
	M10	1.5	17.20	80	12	5	301294
	M12	1.75	21.80	80	12	5	301203
2 x D	D (Size)	P (pitch)	l1	l2	d2	Z No. of flutes	Item Code
		M4	.7	9.40	48	6	4
	M5	.8	11.60	54	6	4	301291
	M6	1	13.50	64	8	4	301206
	M8	1.25	18.10	64	8	5	301293
	M10	1.5	21.70	80	12	5	301295
	M12	1.75	27.10	80	12	5	301204

SOLID CARBIDE COMBINED DRILLING AND BGF THREAD MILLING TOOLS FOR INTERNAL THREADS

The special advantages of using BGF combined drilling and thread milling tools

- Reduction of cutting times
- No tool changing
- Saving of two tool stations
- Exactly concentric minor and major thread diameters
- Fully cut thread only 1.3 x pitch shorter than depth of hole
- Suitable for both blind and through holes

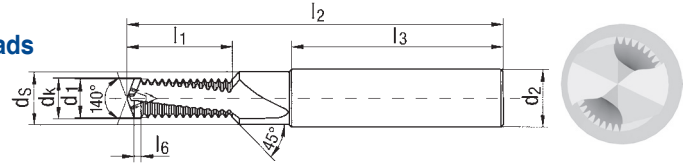


Steps In Machining Cycle

1. Tool travels to initial position
2. Drilling of minor diameter and counterboring
3. Retraction of tool from drilled hole for chip disposal
4. Travel to start position of thread milling cycle
5. Thread milling starts with 180° entry path
6. 360° thread milling loop
7. Thread milling ends with 180° exit path
8. Return to initial position and end of machining cycle

BGF - Solid carbide drill thread milling cutter for internal threads ISO Metric Thread DIN 13

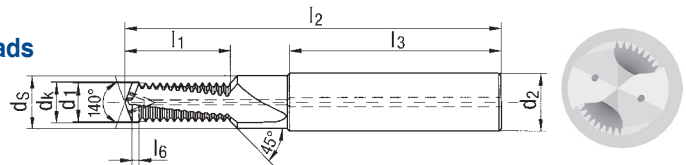
Specifications: 45° chamfer for countersinking, straight shank and 27° right hand spiral flutes without internal coolant



D (size)	P	l2	d2	l3	ds	l6	dk	z	1.5 x d			2 x d			2.5 x d		
									l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn
M 3	0.5	48	6	36	3.4	0.50	2.5	2	5.4	400058	401013	6.9	400005	400485	8.4	400266	410013
M 4	0.7	48	6	36	4.5	0.70	3.3	2	6.9	400025	401014	9.0	400006	401017	11.1	400227	410014
M 5	0.8	54	6	36	5.5	0.80	4.2	2	8.7	400000	400435	11.1	400007	401018	13.5	400046	410016
M 6	1	62	8	36	6.6	1.00	5.0	2	10.9	400001	400494	13.9	400010	400498	16.9	400050	401037
M 7	1	74	10	40	9.0	1.00	6.0	2	12.1	400125	410004	16.1	400123	410009	18.1	400121	410015
M 8	1.25	74	10	40	9.0	1.25	6.8	2	13.7	400002	400495	18.7	400011	400499	22.4	400102	410017
M 10	1.5	80	12	45	11.0	1.50	8.5	2	18.0	400003	400496	22.5	400014	400500	27.0	400109	400597
M 12	1.75	90	14	45	13.5	1.50	10.2	2	20.8	400024	400497	26.1	400015	400501	31.4	400595	410030
M 14	2	102	16	48	15.5	1.50	12.0	2	23.6			31.6			39.6		
M 16	2	102	18	48	17.5	1.50	14.0	2	26.0			36.0	400019	401020	46.0		

BGF - Solid carbide drill thread milling cutter for internal threads ISO Metric Thread DIN 13

Specifications: 45° chamfer for countersinking, straight shank, 27° right hand spiral flutes and internal coolant



D (size)	P	l2	d2	l3	ds	l6	dk	z	1.5 x d			2 x d			2.5 x d		
									l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn
M 4	0.7	48	6	36	4.5	0.70	3.3	2	6.9	400364	400448	9.0	400365	400455	11.1	400395	410042
M 5	0.8	54	6	36	5.5	0.80	4.2	2	8.7	400366	400449	11.1	400008	400456	13.5	400393	410044
M 6	1	62	8	36	6.6	1.00	5.0	2	10.9	400026	400450	13.9	400009	400457	16.9	400077	400598
M 7	1	74	10	40	9.0	1.00	6.0	2	12.1	400124	410008	16.1	400122	410011	18.1	400120	400805
M 8	1.25	74	10	40	9.0	1.25	6.8	2	13.7	400029	400451	18.7	400012	400423	22.4	400100	400491
M 10	1.5	80	12	45	11.0	1.50	8.5	2	18.0	400030	400452	22.5	400013	400458	27.0	400110	400596
M 12	1.75	90	14	45	13.5	1.50	10.2	2	20.8	400038	400453	26.1	400016	400459	31.4	400376	401036
M 14	2	102	16	48	15.5	1.50	12.0	2	23.6	400031	401021	31.6	400017	401022	39.6	410040	410046
M 16	2	102	18	48	17.5	1.50	14.0	2	26.0	400084	400398	36.0	400020	400397	46.0	401057	410047

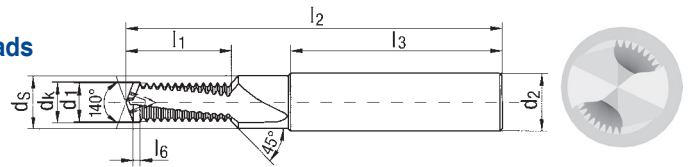
TIALN available • Weldon or Whistle Notch available no extra charge



BGF - Solid carbide drill thread milling cutter for internal threads

ISO Metric Fine Thread DIN 13

Specifications: 45° chamfer for countersinking, straight shank and 27° right hand spiral flutes without internal coolant

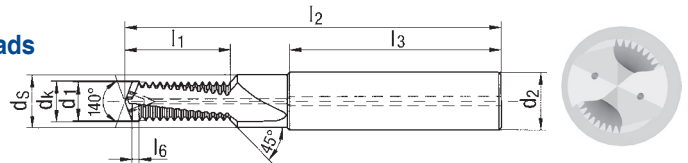


D (size)	P	l2	d2	l3	ds	l6	dk	z	1.5 x d			2 x d			2.5 x d			
									l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn	
M 4	0.5	48	6	36	4.5	0.50	3.50	2	6.7			8.7						
M 5	0.5	54	6	36	5.5	0.50	4.50	2	8.3	400251	410018	10.8	400252	410036	13.3	410095	410100	
M 6	0.75	62	8	36	6.6	0.75	5.25	2	9.9	400219	410019	12.9	400217	410064	15.9	410096	410101	
M 8	0.75	74	10	40	9.0	0.75	7.25	2	14.0			17.1			20.8			
M 8	1	74	10	40	9.0	1.00	7.00	2	14.3	400028	410021	17.3	400034	410065	21.3	410097	410102	
M 10	1	80	12	45	11.0	1.00	9.00	2	16.6	400276	410022	21.6	400188	410066	26.6	410098	410103	
M 10	1.25	80	12	45	11.0	1.25	8.75	2	16.6	400224	410024	21.6	400222	410068	26.6	400540	410105	
M 12	1	90	14	45	13.5	1.00	11.00	2	20.0	400132	410023	26.0	400134	410067	31.0	410099	410104	
M 12	1.5	90	14	45	13.5	1.50	10.50	2	21.4	400091	410025	27.4	400088	410069	31.9	400087	400907	

BGF - Solid carbide drill thread milling cutter for internal threads

ISO Metric Fine Thread DIN 13

Specifications: 45° chamfer for countersinking, straight shank and 27° right hand spiral flutes with internal coolant

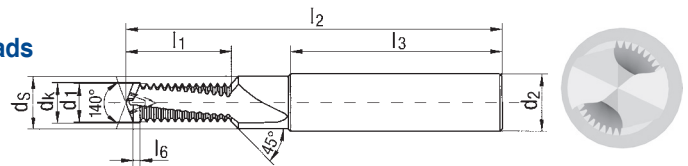


D (size)	P	l2	d2	l3	ds	l6	dk	z	1.5 x d			2 x d			2.5 x d		
									l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn
M 6	0.75	62	8	36	6.6	0.75	5.25	2	9.9	400220	410034	12.9	400218	410078	15.9	410111	410056
M 8	1	74	10	40	9.0	1.00	7.00	2	14.3	400027	400460	17.3	400033	400464	21.3	410112	410115
M 10	1	80	12	45	11.0	1.00	9.00	2	16.6	400238	400461	21.6	400237	400465	26.6	410113	410116
M 10	1.25	80	12	45	11.0	1.25	8.75	2	16.6	400223	410043	21.6	400221	410089	26.6	400157	410118
M 12	1	90	14	45	13.5	1.00	11.00	2	20.0	400136	410041	26.0	400135	410088	31.0	410114	410117
M 12	1.5	90	14	45	13.5	1.50	10.50	2	21.4	400090	400462	27.4	400089	400466	31.9	400086	410119
M 14	1.5	102	16	48	15.5	1.50	12.50	2	23.2	400210	410045	30.7	400208	410090	35.2	400288	410120
M 16	1.5	102	18	48	17.5	1.50	14.50	2	26.6	400065	400463	34.1	400064	400467	41.6	400274	410121

BGF - Solid carbide drill thread milling cutter for internal threads

EG ISO Metric Thread DIN 8140

Specifications: 45° chamfer for countersinking, straight shank and 27° right hand spiral flutes without internal coolant

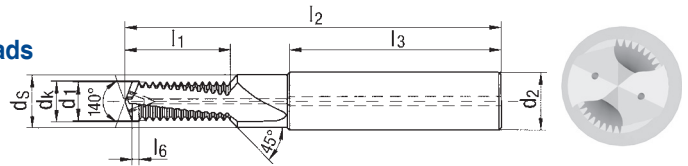


D (size)	P	l2	d2	l3	ds	l6	dk	z	1.5 x d			2 x d			2.5 x d		
									l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn
Eg M 4	0.7	54	6	36	5.5	0.7	4.2	2	7.3	400638	410057	8.7	400326	410061	12.6		
Eg M 5	0.8	62	8	36	6.6	0.8	5.2	2	9.7	400639	410058	12.9	400160	410062	16.9		
Eg M 6	1	74	10	40	9	1	6.3	2	12.1			16.1	400152	410063	19.1		
Eg M 8	1.25	80	12	45	11.5	1.25	8.3	2	16.5			21.5			25.2		
Eg M 10	1.5	90	14	45	13.5	1.5	10.4	2	19.9			25.9			31.9		
Eg M 12	1.75	102	16	48	15.5	1.5	12.4	2	24.7			31.7			37.0		

BGF - Solid carbide drill thread milling cutter for internal threads

EG ISO Metric Thread DIN 8140

Specifications: 45° chamfer for countersinking, straight shank and 27° right hand spiral flutes and internal coolant



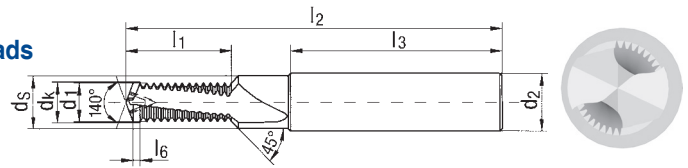
D (size)	P	l2	d2	l3	ds	l6	dk	z	1.5 x d			2 x d			2.5 x d		
									l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn
Eg M 6	1	74	10	40	9	1	6.3	2	12.1	410079	410080	16.1	400508	410160	19.1		
Eg M 8	1.25	80	12	45	11.5	1.25	8.3	2	16.5	400139	410081	21.5	400137	400933	25.2		
Eg M 10	1.5	90	14	45	13.5	1.5	10.4	2	19.9	400214	410082	25.9	400213	410162	31.9		
Eg M 12	1.75	102	16	48	15.5	1.5	12.4	2	24.7	400173	410083	31.7	400176	410163	37.0		

TIALN available • Weldon or Whistle Notch available no extra charge

BGF - Solid carbide drill thread milling cutter for internal threads

British Standard Pipe Thread DIN ISO 228

Specifications: 45° chamfer for countersinking, straight shank and 27° right hand spiral flutes without internal coolant

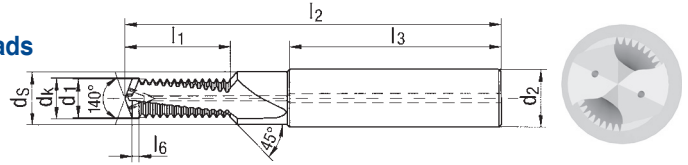


D (size)	TPI	l2	d2	l3	ds	l6	dk	z	1.5 x d			2 x d			2.5 x d		
									l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn
G 1/8	28	80	12	45	11.0	0.9	8.7	2	16.1			21.4	400053	410128	25.6		
G 1/4	19	90	14	45	13.9	1.3	11.7	2	22.1			28.8	400041	410137	34.8		
G 3/8	19	102	18	48	17.5	1.3	15.2	2	28.1			36.1			43.5		

BGF - Solid carbide drill thread milling cutter for internal threads

British Standard Pipe Thread

Specifications: 45° chamfer for countersinking, straight shank, 27° right hand spiral flutes and internal coolant

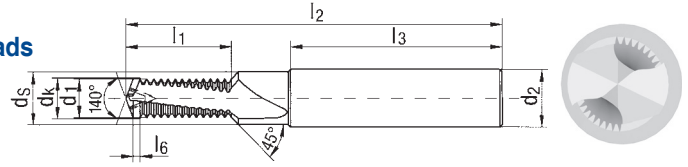


D (size)	TPI	l2	d2	l3	ds	l6	dk	z	1.5 x d			2 x d			2.5 x d		
									l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn
G 1/8	28	80	12	45	11.0	0.9	8.7	2	16.1	400055	410129	21.4	400054	410130	25.6		
G 1/4	19	90	14	45	13.9	1.3	11.7	2	22.1	400042	410161	28.8	400043	410168	34.8		
G 3/8	19	102	18	48	17.5	1.3	15.2	2	28.1	400296	410164	36.1	400295	410169	43.5		

BGF - Solid carbide drill thread milling cutter for internal threads

UNC Thread - Unified National Course Thread ANSI B 1.1

Specifications: 45° chamfer for countersinking, straight shank and 27° right hand spiral flutes without internal coolant

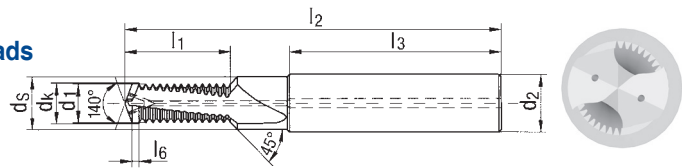


D (size)	TPI	l2	d2	l3	ds	l6	dk	z	1.5 x d			2 x d			2.5 x d		
									l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn
UNC Nr. 10	24	54	6	36	5.5	1.1	3.8	2	9.2	410135	410131	11.3	410171	410173	13.4		
UNC Nr. 12	24	54	6	36	5.5	1.1	4.5	2	9.3	410134	410136	12.5	410172	410174	15.6		
UNC 1/4"	20	62	8	36	7.0	1.3	5.1	2	11.1	400119	410138	14.9	400117	401039	17.5		
UNC 5/16"	18	74	10	40	9.0	1.4	6.4	2	13.8	400106	410139	18.1	400104	401041	22.3		
UNC 3/8"	16	80	12	45	11.0	1.5	7.8	2	17.2	400076	410140	21.9	400047	401043	26.7		
UNC 7/16"	14	80	12	45	11.8	1.5	9.2	2	19.5			24.9			30.4		
UNC 1/2"	13	90	14	45	13.5	1.5	10.6	2	21.1			26.9			34.6		
UNC 9/16"	12	102	16	48	15.5	1.5	12.2	2	24.9			31.2			39.7		
UNC 5/8"	11	102	18	48	17.5	1.5	13.4	2	27.0			36.2			43.2		

BGF - Solid carbide drill thread milling cutter for internal threads

UNC Thread - Unified National Course Thread ANSI B 1.1

Specifications: 45° chamfer for countersinking, straight shank, 27° right hand spiral flutes and internal coolant



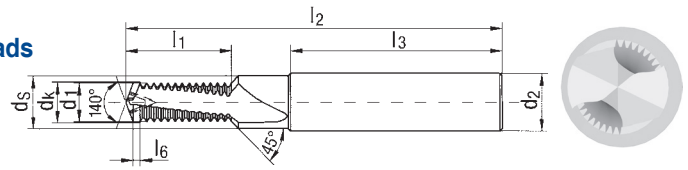
D (size)	TPI	l2	d2	l3	ds	l6	dk	z	1.5 x d			2 x d			2.5 x d		
									l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn
UNC 1/4"	20	62	8	36	7.0	1.3	5.1	2	11.1	400118	410132	14.9	400116	401040	17.5	411525	
UNC 5/16"	18	74	10	40	9.0	1.4	6.4	2	13.8	400107	410148	18.1	400103	401042	22.3		
UNC 3/8"	16	80	12	45	11.0	1.5	7.8	2	17.2	410145	410149	21.9	400081	401044	26.7		
UNC 7/16"	14	80	12	45	11.8	1.5	9.2	2	19.5	410146	410150	24.9	400551	401046	30.4		
UNC 1/2"	13	90	14	45	13.5	1.5	10.6	2	21.1	400149	410151	26.9	400552	401047	34.6		
UNC 9/16"	12	102	16	48	15.5	1.5	12.2	2	24.9	410147	410152	31.2	400553	401048	39.7		
UNC 5/8"	11	102	18	48	17.5	1.5	13.4	2	27.0	400584	410153	36.2	410175	410176	43.2		

TIALN available • Weldon or Whistle Notch available no extra charge

BGF - Solid carbide drill thread milling cutter for internal threads

UNF Thread - Unified National Fine Thread ANSI B 1.1

Specifications: 45° chamfer for countersinking, straight shank and 27° right hand spiral flutes without internal coolant

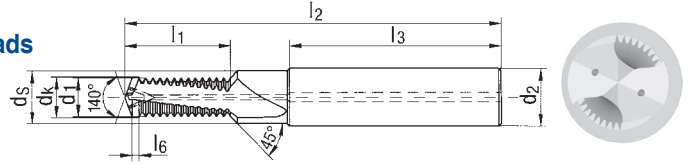


D (size)	TPI	l2	d2	l3	ds	l6	dk	z	1.5 x d			2 x d			2.5 x d		
									l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn
UNF Nr. 10	32	54	6	36	5.5	1.1	4.1	2	8.2	400114	411081	10.6	400115	401049	13.7		
UNF Nr. 12	28	54	6	36	5.9	1.0	4.6	2	10.0	411085	411088	12.7	410177	410178	15.4		
UNF 1/4"	28	62	8	36	6.6	1.0	5.5	2	11.0	411086	411089	12.9	401103	401054	15.6		
UNF 5/16"	24	74	10	40	9.0	1.0	6.8	2	13.8	411087	411090	18.1	401104	401055	21.3		
UNF 3/8"	24	80	12	45	10.1	1.0	8.5	2	16.3	400243	411091	20.5	400244	401050	25.8		
UNF 7/16"	20	80	12	45	11.8	1.3	9.7	2	18.3			24.6			29.7		
UNF 1/2"	20	90	14	45	13.5	1.3	11.3	2	21.1			27.5			33.8		
UNF 9/16"	18	102	16	48	15.5	1.5	12.8	2	23.5			30.6			37.6		
UNF 5/8"	18	102	18	48	17.5	1.5	14.4	2	26.6			33.7			42.2		

BGF - Solid carbide drill thread milling cutter for internal threads

UNF Thread - Unified National Fine Thread ANSI B 1.1

Specifications: 45° chamfer for countersinking, straight shank, 27° right hand spiral flutes and internal coolant

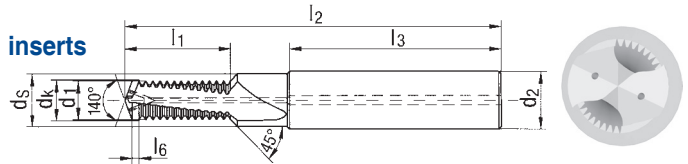


D (size)	TPI	l2	d2	l3	ds	l6	dk	z	1.5 x d			2 x d			2.5 x d		
									l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn
UNF 1/4"	28	62	8	36	6.6	1.0	5.5	2	11.0	400445	411083	12.9	401105	410184	15.6		
UNF 5/16"	24	74	10	40	9.0	1.0	6.8	2	13.8	411096	411100	18.1	401106	410185	21.3		
UNF 3/8"	24	80	12	45	10.1	1.0	8.5	2	16.3	400242	411101	20.5	400245	401051	25.8		
UNF 7/16"	20	80	12	45	11.8	1.3	9.7	2	18.3	400313	411102	24.6	400305	401053	29.7		
UNF 1/2"	20	90	14	45	13.5	1.3	11.3	2	21.1	411097	411103	27.5	401107	410186	33.8		
UNF 9/16"	18	102	16	48	15.5	1.5	12.8	2	23.5	411098	411104	30.6	410183	410187	37.6		
UNF 5/8"	18	102	18	48	17.5	1.5	14.4	2	26.6	411099	411105	33.7	400680	410188	42.2		

BGF - Solid carbide drill thread milling cutter for screw thread inserts

STI UNC Unified National Coarse Thread

Specifications: 45° chamfer for countersinking, straight shank, 27° right hand spiral flutes and internal coolant

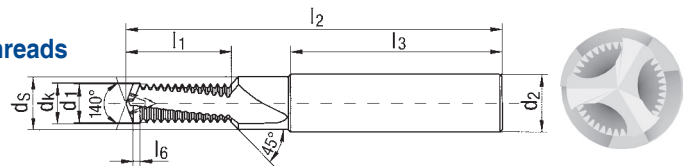


D (size)	TPI	l2	d2	l3	ds	l6	dk	z	1.5 x d			2 x d			2.5 x d		
									l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn
STI Nr. 8	32	54	6	36	5.8	0.8	4.4	2				11.1					
STI Nr. 10	24	62	8	36	7	1	5.15	2				13.5					
STI 1/4"	20	74	10	40	9	1.3	6.75	2				17.6					
STI 5/16"	18	80	12	45	11	1.4	8.36	2				21.2					
STI 3/8"	16	90	14	45	13.5	1.5	10	2				25.5					
STI 7/16"	14	102	16	48	15.5	1.5	11.65	2				29					
STI 1/2"	13	102	18	48	17.5	1.5	13.3	2				33.2					

BGF - 3 Solid carbide drill thread milling cutter for internal threads

ISO Metric Thread DIN 13

Specifications: Z = 3, 45° chamfer for countersinking, straight shank and 27° right hand spiral flutes without internal coolant

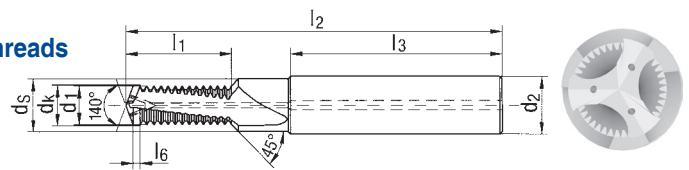


D (size)	P	l2	d2	l3	ds	l6	dk	z	1.5 x d			2 x d			2.5 x d		
									l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn
M 3	0.5	48	6	36	3.4	0.5	2.5	3	5.4	410189	410191	6.9	400603	411006	8.4	400257	411016
M 4	0.7	48	6	36	4.5	0.7	3.3	3	6.85	400674	410190	9.0	400279	410184	11.1	400203	411017
M 5	0.8	54	6	36	5.5	0.8	4.2	3	8.7	400438	400436	11.1	400281	411007	13.5	400183	411018
M 6	1	62	8	36	6.6	1.0	5.0	3	10.9	401091	401089	13.9	400236	400437	16.9	400187	401038
M 7	1	74	10	40	9.0	1.0	6.0	3	12.1			16.1			18.1		
M 8	1.25	74	10	40	9.0	1.25	6.8	3	13.7	400231	410192	18.7	400234	411008	22.4	400235	411019
M 10	1.5	80	12	45	11.0	1.5	8.5	3	18.0	400239	410193	22.5	400225	411009	27.0	400199	411020
M 12	1.75	90	14	45	13.5	1.5	10.2	3	20.8			26.1	400232	400923	31.4		
M 14	2	102	16	48	15.5	1.5	12.0	3	23.6			31.6			39.6		
M 16	2	102	18	48	17.5	1.5	14.0	3	26.0			36.0			46.0		

BGF - 3 Solid carbide drill thread milling cutter for internal threads

ISO Metric Thread DIN 13

Specifications: Z = 3, 45° chamfer for countersinking, straight shank and 27° right hand spiral flutes and internal coolant

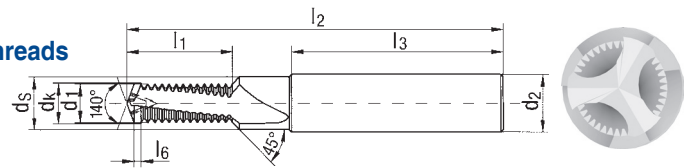


D (size)	P	l2	d2	l3	ds	l6	dk	z	1.5 x d			2 x d			2.5 x d		
									l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn
M 6	1	62	8	36	6.6	1.0	5.0	3	10.9	400179	401088	13.9	400178	400403	16.9	400177	400447
M 7	1	74	10	40	9.0	1.0	6.0	3	12.1			16.1			18.1		
M 8	1.25	74	10	40	9.0	1.25	6.8	3	13.7	400148	400651	18.7	400180	400402	22.4	400166	400431
M 10	1.5	80	12	45	11.0	1.5	8.5	3	18.0	400168	400652	22.5	400167	400623	27.0	400169	400432
M 12	1.75	90	14	45	13.5	1.5	10.2	3	20.8	400171	410199	26.1	400170	400624	31.4	400172	401001
M 14	2	102	16	48	15.5	1.5	12.0	3	23.6	400310	410198	31.6	400311	411015	39.6	400554	411026
M 16	2	102	18	48	17.5	1.5	14.0	3	26.0	400340	400400	36.0	400328	401113	46.0	400230	400629

BGF - 3 Solid carbide drill thread milling cutter for internal threads

ISO Metric Fine Thread DIN 13

Specifications: Z = 3, 45° chamfer for countersinking, straight shank and 27° right hand spiral flutes without internal coolant

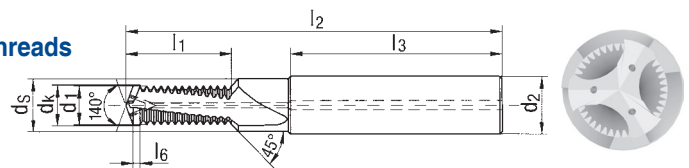


D (size)	P	l2	d2	l3	ds	l6	dk	z	1.5 x d			2 x d			2.5 x d		
									l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn
M 4	0.5	48	6	36	4.5	0.5	3.5	3	6.7			8.7					
M 5	0.5	54	6	36	5.5	0.5	4.5	3	8.3			10.8					
M 6	0.75	62	8	36	6.6	0.75	5.3	3	9.9			12.9			15.9		
M 8	0.75	74	10	40	9.0	0.75	7.3	3	14.0			17.1			20.8		
M 8	1	74	10	40	9.0	1.0	7.0	3	14.3			17.3			21.3		
M 10	1	80	12	45	11.0	1.0	9.0	3	16.6			21.6			26.69		
M 10	1.25	80	12	45	11.0	1.25	8.8	3	16.6			21.6			26.6		
M 12	1	90	14	45	13.5	1.0	11.0	3	20.0			26.0			31.0		
M 12	1.5	90	14	45	13.5	1.5	10.5	3	21.4			27.4			31.9		
M 14	1.5	102	16	48	15.5	1.5	12.5	3	23.2			30.7			36.1		
M 16	1.5	102	18	48	15.5	1.5	14.5	3	26.6			34.1			41.6		

BGF - 3 Solid carbide drill thread milling cutter for internal threads

ISO Metric Fine Thread DIN 13

Specifications: Z = 3, 45° chamfer for countersinking, straight shank and 27° right hand spiral flutes and internal coolant



D (size)	P	l2	d2	l3	ds	l6	dk	z	1.5 x d			2 x d			2.5 x d		
									l1	Uncoated	Ticn	l1	Uncoated	Ticn	l1	Uncoated	Ticn
M 6	0.75	62	8	36	6.6	0.75	5.3	3	9.9			12.9	411030	411034		411050	411055
M 8	0.75	74	10	40	9.0	0.75	7.3	3	14.0			17.1			20.8		
M 8	1	74	10	40	9.0	1.0	7.0	3	14.3			17.3	400263	410204	21.3	411052	410207
M 10	1	80	12	45	11.0	1.0	9.0	3	16.6			21.6	400380	411036	26.6	411053	411057
M 10	1.25	80	12	45	11.0	1.25	8.8	3	16.6			21.6	411033	411038	26.6	401092	411059
M 12	1	90	14	45	13.5	1.0	11.0	3	20.0			26.0	411032	411037	31.0	411054	411058
M 12	1.5	90	14	45	13.5	1.5	10.5	3	21.4			27.4	400372	411039	31.9	400141	411060
M 14	1.5	102	16	48	15.5	1.5	12.5	3	23.2			30.7	400360	411040	36.1	400361	411061
M 16	1.5	102	18	48	17.5	1.5	14.5	3	26.6			34.1	400341	411041	41.6	400342	411062

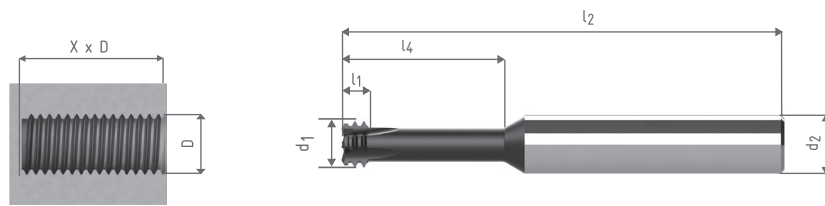
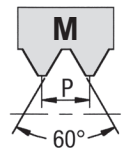
TIALN available • Weldon or Whistle Notch available no extra charge

BGFS-W - Solid carbide circular drill thread milling cutters for internal threads

ISO Metric Thread DIN 13

Specification: 2 x D

Straight shank, left hand cutting and straight flutes



METRIC

D (size)	P	l ₁	l ₂	l ₄	d ₁	d ₂	z	2.5 x d			3 x d		
								l ₁	AltiSin	Ticn	l ₁	AltiSin	Ticn
M 3 - M 4	0.5	1.50	58	8.2	2.3	6	4		412344				
M 4 - M 5	0.7	2.10	58	11.2	3.1	6	4		412298				
M 5 - M 6	0.8	2.40	58	13.7	3.9	6	4		412322				
M 6 - M 8	1	3.00	58	17.6	4.7	6	4		412221				
M 8 - M 10	1.25	3.75	62	22.0	6.4	8	4		412222				
M 10 - M 12	1.5	4.50	76	27.5	8.1	10	4		412223				
M 12 - M 14	1.75	5.25	76	32.8	9.8	10	4		412299				
M 14 - M 16	2	6.00	88	38.2	11.5	12	4		412323				
M 16 - M 18	2	6.00	92	43.2	13.4	14	4		412324				
M 8 - M 10	0.75	2.25	62	22.0	6.8	8	4		412352				
M 10 - M12	1	3	76	27.5	8.5	10	4		412353				

BGFS-W - Solid carbide circular drill thread milling cutters for internal threads

ISO un Thread DIN 13

Specification: 2 x D

Straight shank, left hand cutting and straight flutes

INCH

D (size)	P	l ₁	l ₂	l ₄	d ₁	d ₂	z	2.5 x d			3 x d		
								l ₁	AltiSin	Ticn	l ₁	AltiSin	Ticn
3/8 - 16	16	16	76	26.5		10	4		412485				
3/8 - 16	16	16	76	31.0		10	4					412486	

TIALN available • Weldon or Whistle Notch available no extra charge

GFG-WFE

Shell Type Thread Milling Cutters

Ideal for difficult to machine materials and large batch production

More cutting edges, rugged construction and precision seating of the multifluted cutters permit higher cutting speeds and feeds compared to throw-away insert milling cutters. Machining times can be reduced while tool life is increased by 50%, or even 100% in some cases.

The Advantages:

- Shorter machining times due to higher cutting speeds and feeds
- Increased tool life due to larger number of cutting edges
- Higher grade thread surface texture due to rugged construction
- Suitable for nearly any thread or profile
- Particularly advantageous for long run production of steel components
- Distinctly lower tooling cost per workpiece
- The inserts can be reground several times

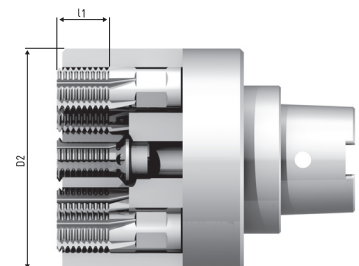


GFG-WFE - Shell Type Thread Milling Cutters

ISO Metric Threads DIN 13

Unified national thread ANSI B1.1

Size	D ≥	D2	P	l1	Z No. of flutes	Shank
1	14.00	48.00	M 0.5; 0.75; 1.0; 1.25; 1.5; 1.75; 2.0	14	6	SK, HSK, CAT, BT...
			UN 48; 44; 40; 36; 32; 28; 24; 20; 18; 16; 14; 13; 12	20		
2	24.00	58.00	M 0.5; 0.75; 1.0; 1.25; 1.5; 1.75; 2.0; 2.5	14	8	
			UN 48; 44; 40; 36; 32; 28; 24; 20; 18; 16; 14; 13; 12; 11; 10	20		
3	34.00	68.00	M 0.5; 0.75; 1.0; 1.25; 1.5; 1.75; 2.0; 2.5	14	10	
			UN 48; 44; 40; 36; 32; 28; 24; 20; 18; 16; 14; 13; 12; 11; 10	20		



Additional dimensions and threadforms on request.

TIALN available • Weldon or Whistle Notch available no extra charge

PCD-, CVD- and CBN- Tools



High-tech made in Germany. All activities take place at the JBO production facilities in Albstadt. Design planning begins with close cooperation with the customer. Our Design and Technical Sales Team will identify the optimal solution for your production plans. Once the selection of the optimal tool has been completed, manufacturing implementing the very latest generation of laser processing machines begins.

Compared to conventional methods used to manufacture PCD and CBN tipped tools, the exceptional quality of the super-sharp cutting edge utilizing Laser is instantly recognizable. It is characterized by minimal micro chipping and cutting edge rounding. This means our customers are ensured long tool life, a high level of process integrity and maximum economy with regard to tool use.

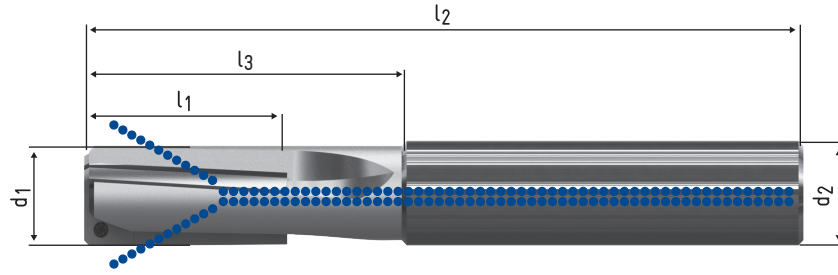
Our portfolio in the area of super hard cutting materials is completed by the fact that the technology we use enables cutting material to be used that cannot be machined with standard technologies. Super Hard CVD-D (diamond material without cobalt as a binder), PCD types with a very high diamond ratio and PCD hybrid variants with finer and coarser grain sizes can all be completed with Laser Technology.

PCD End Mill

Build to Suit

- 3° positive axial
- radial coolant

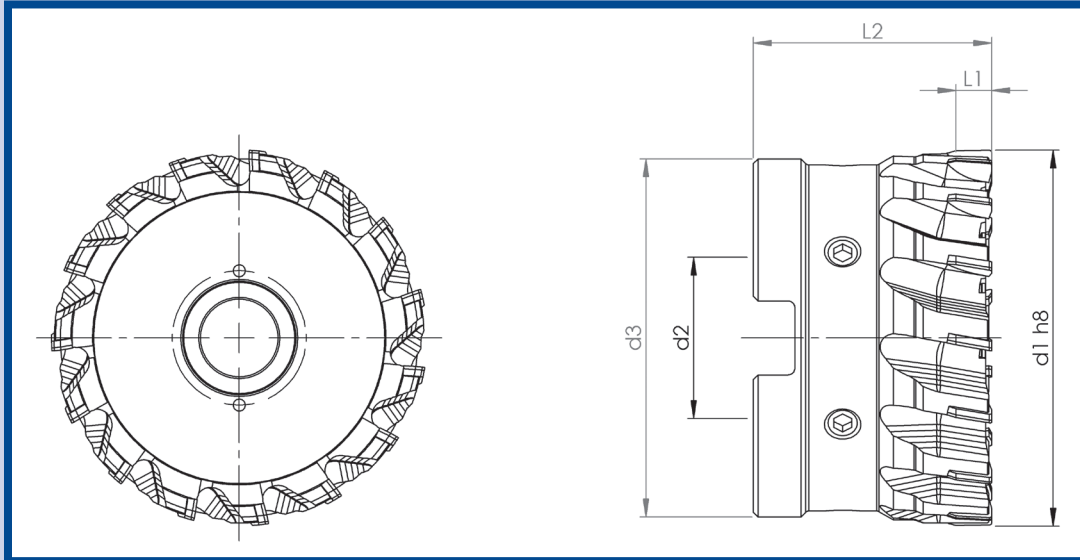
QUICK DELIVERY
2-4 WEEKS



Σ	End Mill Basis						Option 1			Option 2		Cutting Form
	$\varnothing d1$ h8	Z	l3	d2	l2		Cutting Length l1		Centercutting or Sidecutting		Shape	
10	3	34	10	74	+	5 mm	10 mm	+			Maximum cutting form dimensions: Up to R1 or 1 x 45° 	
12	3	38	12	83	+	5 mm	10 mm	+			Maximum cutting form dimensions: Up to R1 or 1 x 45° 	
14	4	52	14	100	+	5 mm	10 mm	+			Maximum cutting form dimensions: Up to R1 or 1 x 45° 	
16	4	52	16	100	+	5 mm	10 mm	+			Maximum cutting form dimensions: Up to R1 or 1 x 45° 	
20	5	53	20	103	+	5 mm	10 mm	+			Maximum cutting form dimensions: Up to R1 or 1 x 45° 	



PKD-PF (PCD face mill)



ORDER-CODE → PKD-P →					B	L	K	
d1	d3	d2	L2	Z No. of teeth	New Art.-Nr.	Renew	Rework	Clamping Screw Order Code
32	32	16	32	6	650781			651010
40	40	16	32	9	650780			650778
50	48	22	36	12	650529			650537
63	60	27	40	15	650530			650538
80	60	27	45	18	650531			650539
100	78	32	50	21	650532			650540
125	89	40	56	27	650533			650541

Advantages

- Standard cutting depth 6 mm - cutting depths up to 12 mm as a semi-standard.
- Special cutting edge geometry as well as knuckle profiles available as semi-standard.
- Multiple preparation of the cutting edge possible - new assembly/post-lasering.
- Shortening of cycle times by maximum number of teeth.
- Optimal dispensation of cooling supply via a special clamping screw.
- Can be used variably through the modular design/monoblock tools on request.
- Achievable surface qualities: Rz <10 µm due to the special cutting geometry.
- Listed tools available in stock - semi-standard available in short terms.

Special Thread Milling Cutters



The demands on manufacturing nowadays are becoming ever more exacting and complex.

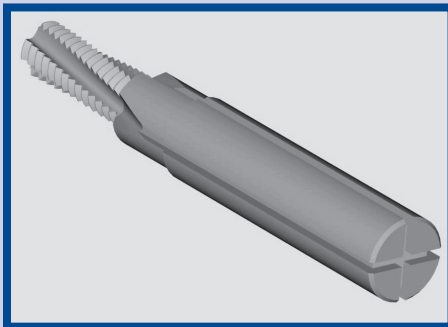
We analyze your screw thread production and offer solutions that optimize your costs and product quality.

1. Bell form thread milling cutter with HSK 50 taper adaptor for high speed cutting of external threads.
2. Drilling, thread milling, counterboring and spot facing tool for M 14 x 1.5 drain plug thread in oil sump.
3. Thread milling and counterboring tool for machining cylinder heads.
4. Combined 45° counterbore and thread milling cutter with additional hole chamfering feature. The shank of this tool has coolant channels to optimize the coolant flow for cutting threads in through and small diameter holes.
5. Combined drilling and thread milling tool for Pg7 conduit thread with four heavy duty end teeth.
6. Thread milling and counterboring tool for S 80 x 3 buttress thread oil filter connection.
7. Thread milling cutter for trapezoidal thread Tr 30 x 6.

Solid carbide thread milling cutters with coolant channels on shank or coolant holes in flutes - The following versions are readily available

GFS KR

Thread milling cutter with coolant channels on shank supplied by cruciform channels at end of shank



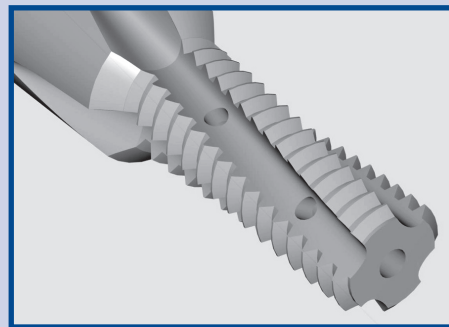
Generally there is a cooling channel for each flute.

A different number of cooling channels can be provided on request.

Channels cut across the end of the shank provide a flow of coolant to the longitudinal channels.

GFS QB

Thread milling cutters with coolant holes in flutes. Standard design is version A



Various ways of supplying coolant through holes eroded into the flutes are available.

- A. One hole per flute, holes uniformly spaced over cutting edge length, with radial coolant exit.
- B. One hole per flute, holes uniformly spaced over cutting edge length, with inclined coolant exit.
- C. One hole per flute, each located at the same distance from the cutter end, with radial coolant exit.
- D. One hole per flute located at the same distance from the cutter end, with inclined coolant exit.
- E. Several holes per flute to the extent allowed by strength and rigidity considerations.

When it comes to people, the term “precision” gets a very special meaning.

Solid Carbide Thread Milling Cutters for medical equipment

Greater efficiency, fewer rejects

Thread milling with JBO thread milling cutters offers decisive advantages over other processes: Undesirable inclusions of chips, cutting fluids or bacteria, as encountered with forming processes, are avoided. Also avoided is tool breakage with materials such as titanium, which can occur due to jammed chips when using conventional taps.

Our products:

1. GFE solid carbide cutters with single ring of teeth, used predominantly for very small or very deep threads.
2. Thread milling cutters with multiple rings of teeth capable of cutting the entire thread in one cutter orbit. Enormous reductions in cycle times coupled with very high thread quality are achieved in long run production.





Workpiece: orthopaedic implant

Material: 17% Cr / 12% Ni stainless steel

Operation: milling of special 03.5 20° taper thread, 3-start thread with 1 mm lead

Depth of thread: 4 mm

Tool: GFZ D2x5xSo1 thread milling cutter 3-start with 0.33 mm pitch

Cutting speed: 40 m/min

Feeds : thread milling 0.02 mm per tooth

Machining time: 14 s

The advantages:

- No inclusions of chips, cutting fluids or bacteria
- Tool breakage does not necessarily result in a reject
- High quality threads, no chip remnants throughout entire length of thread
- Reduction in cycle time - only 1 to 2 cutter orbits required to cut entire length of thread when using cutters with multiple rings of teeth
- Cost-effective production of multi-start threads already possible for thread - Ø of 2.5 mm diameter and above

UNJF AIRCRAFT THREADING SOLUTIONS



UNJF	Thread Plug Gauge Go and Not Go 3B ANSI/ASME B1.2	Go Thread Ring Gauge 3A ANSI/ASME B1.2	No Go Thread Ring Gauge 3A ANSI/ASME B1.2	HSS-E w/SE Threading Die	Wrench
#4-40	514760	547029	544022	106091	750049
#6-40	518725	505347	505348	106093	750053
#8-36	514327	501418	500123	106094	750054
#10-32	511606	501417	500122	104023	750054
#12-28	517771	504244	504245	106095	750054
1/4-28	511609	501419	500125	104026	750054
5/16-24	511612	501422	500127	104030	750055
3/8-24	511611	501421	500126	104028	750056
7/16-20	511615	501424	500129	104033	750056
1/2-20	511608	502986	502985	104025	750057
9/16-18	511617	501425	500130	104034	750057
5/8-18	511614	501423	500128	104031	750059
3/4-16	511610	501420	503100	104027	750059
7/8-14	511616	503651	503652	106096	750061
1-12	511607	503703	500124	104024	750061

For UNJF threadmills see page 5

BRITISH THREADING SOLUTIONS

Thread Size	Thread Plug Gauge Go and Not Go	Go Thread Ring Gauge	Not Go Thread Ring Gauge	Threading Die w/SE	Wrench
G 1/16-28	511577	501361	500066	104849	750055
G 1/8-28	511589	501376	500083	104855	750056
G 1/4-19	511584	501371	500077	104853	750057
G 3/8-19	511597	501399	500104	104868	750059
G 1/2-14	511578	501362	500067	104850	750059
G 5/8-14	511601	501408	500112	104871	750061
G 3/4-14	511593	501391	500098	104866	750061
G 1-11	511573	501337	500043	104837	750063

For British Threading Solutions threadmills see page 3 and 10
LH gauges available on request

BSPT/BSPP	Tapered Thread Plug Gauge Rp/Rc DIN EN 10226-3 ISO 7-2:2000	Ring Gauge Parallel #3	Threading Die	Wrench
R 1/8-28	514570	503880	105585	750056
R 1/4-19	514571	503881	105584	750058
R 3/8-19	514572	503882	105589	750059
R 1/2-14	514573	503883	105582	750060
R 3/4-14	514574	503884	105588	750062
R 1-11	514575	503885	105577	750064

For British Threading Solutions threadmills see page 3 and 10



MultiCheck

MultiCheck Thread Plug Gauges

MCS

MultiCheck Scale, Thread plug gauge Go/No Go
Accuracy of reading 0.5 mm

MCN

MultiCheck Vernier, Thread plug gauge Go/No Go
Accuracy of reading 0.1 mm

MCD

MultiCheck Digital, Thread plug gauge Go/No Go
Accuracy of reading 0.1 mm

MCDW

MultiCheck Digital, Digital display and integrated wireless module
Accuracy of reading 0.01 mm

WMCD

Digital, with changeable gauge members

eMC

eMultiCheck Digital, with electronically controlled drive

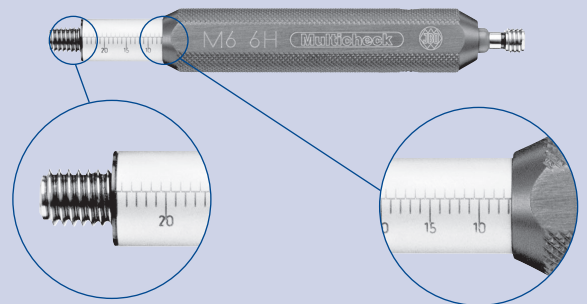
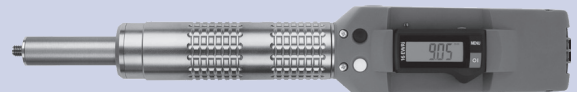
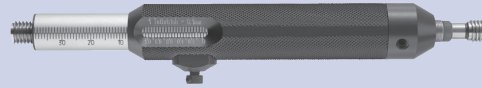
eMCW

eMultiCheck Digital, with electronically controlled drive
Digital display and integrated wireless module

Advantages of using a "MultiCheck" Thread Plug Gauge

- A single gauge checks both thread and thread depth
- Thread gauging cycle time reduced by 50% (eMC 80%)
- Thread depth up to 4xD can be measured (eMC 50mm)
- Use of standard plug gauge inserts
- Simple replacement of worn plug gauges
- Reliable reading of thread depth from measuring sleeve or digital readout

NOW AVAILABLE IN WIRELESS



Combination tools KW for spotfacing, countersinking, counterboring and thread milling operations

This tool combines spotfacing, counterboring, drilling and thread milling in a single cycle. The result is an appreciable reduction in the time required for such non-cutting elements in the cycle as tool changing and traversing.



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Fax: (866) 928-4391

Email: contact@jmsales-usa.com

Thread cutting dies
Thread milling cutters
Thread gauges

