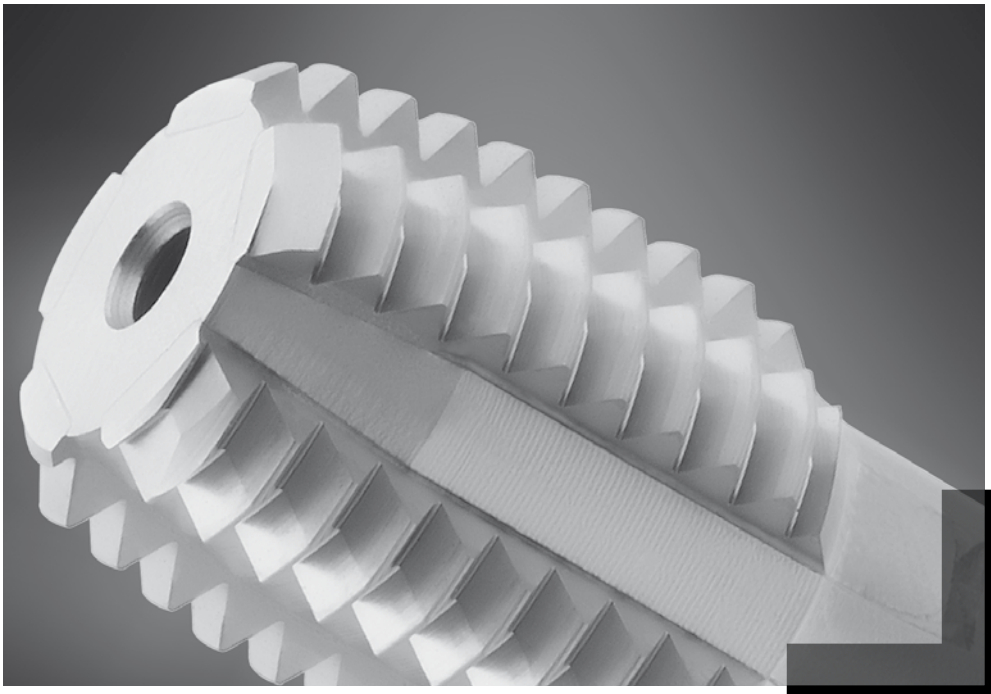
KOMET GROUP

KomPass
THREADING

TOOLS + IDEAS®

KomPass THREADING – BENEFITS for you



As a strong brand of the KOMET GROUP , JEL ® and its innovations of stand for modern thread production.

From conventional thread production to the technologically sophisticated thread milling tool, we offer economical systems either as standard tools or specific application solutions.

Solutions for economy and precision:

- Worldwide introduction of the drill thread milling cutter
- Roll form taps with brazed carbide strips for maximum tool life
- Modular PCD tools for several operations with the same tool for the shortest possible machining time
- Thread milling in steels with 45-60 HRC from M1

KOMET JEL® – Innovative Solutions for Thread Cutting

The KOMET GROUP is one of the world's leading providers of high-precision KOMET JEL® threading tools for efficient production of threads. Our potential for providing innovative solutions, a comprehensive performance spectrum and personal commitment form the basis for successful partnerships with our customers.

Thread milling
- Chip producing method
- Thread making by helical interpolation within the pitch
- Same tool can be used for all threads with the same pitch starting from the nominal diameter
- Same tool can be used for different materials up to 45 HRC
- Lower torque than with tapping and roll form tapping
- Drill depth = thread depth if tool is not used for chamfering
- Machine spindle always running in the same direction – no reversing necessary
- High speed cutting (HSC) possible

Tapping
- Chip producing method
- Thread making by rotation – pitch is on the tool
- Can be used on almost all machines
- 1 tool per dimension required

Drill thread milling
- Chip producing method
- Complete thread is manufactured in a single pass – drilling, chamfering and thread milling
- One tool per dimension which can also be used for different materials
- Prerequisite: CNC machine or machining centre being capable to run helical interpolation

Roll form tapping
- Chip less method
- Thread making by forming – pitch is on the tool
- Suitable for materials with elongation of >5% and tensile strength of <1000 N/mm²
- Tap drill Ø larger than with tapping
- Higher torque than tapping
- Generates forming gap at minor diameter

JEL® TPT

CNC programs for various control systems can be configured online at http://tpt.kometgroup.com or can be obtained on request by telephoning: +49 711 788910.
Also available as "TPT Mobile" app, with identical features for mobile end devices like iPhone and iPad, in the webshop App Store as well as Google Play™ for Android™ smartphones.

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KOMET JEL® Tool selection guide

Thread milling tool, drill thread milling tool

KOMET JEL® Tool selection

Thread milling tool, drill thread milling tool

Material group		Strength Rm (N/mm²)	Hardness (HB)	Material	Page	Thread Ø 4 – 16 Thread milling: MKG s.c. uncoated 17-23	MKG s.c. TiCN 17-23	MKG XH s.c. TiAlN 24-25	MGF s.c. uncoated 32-39	Ø 1 – 20 Thread milling & chamfering: MGF s.c. TiCN 32-39	MGF HPC s.c. AlCrN 40-41	MGF XS s.c. TiCN 42-44	MGF XH s.c. TiAlN/TiCN 45-47	MGF PCD uncoated 48-49	UMGF s.c. uncoated 50-51	UMGF s.c. TiCN 50-51
P	1.1	≤400	≤120	Magnetic soft iron			●			●	●					●
P	1.2	≤700	≤200	Structural, case hardened steel			●			●	●					●
P	1.3	≤850	≤250	Carbon steel			●			●	●					●
P	1.4	≤850	≤250	Alloy steel			●			●	●					●
P	1.5	>850 ≤1200	>250 ≤350	Alloy/heat treated steel			◐			◐	●	●				◐
P	1.6	>1200	>350	Alloy/heat treated steel			◐			◐	●	●				◐
H	1.7	≤1400	≤400	Hardened steel to 45 HRC			◐	○		◐			○			◐
H	1.8	≤2200	≤600	Hardened steel to 58 HRC				○					○			
M	2.1	≤850	≤250	Stainless steel, sulphuretted			○			○	○					○
M	2.2	≤850	≤250	Austentic			○			○	○					○
M	2.3	≤1000	≤300	Ferritic, ferritic & austentic, martensitic			○			○	○					○
K	3.1	≤500	≤150	Gre												
K	3.2	>500 ≤1000	>150 ≤300	Gre												
K	3.3	400-500	200-250	Ver												
K	3.4	≤700	≤200	Sph												
K	3.5	>700 ≤1000	>200 ≤300	Sph hea												
K	3.6	≤700	≤200	Ma												
K	3.7	>700 <1000	>200 ≤300	Ma												
S	4.1	≤700	≤200	Pur												
S	4.2	≤900	≤270	Tita												
S	4.3	>900 ≤1250	>270 ≤300	Tita												
S	5.1	≤500	≤150	Pur												
S	5.2	≤900	<270	Nic												
S	5.3	>900 ≤1200	>270 ≤350	Nic resi												
N	6.1	≤350	≤100	Non												
N	6.2	≤700	≤200	sho bra												
N	6.3	≤700	≤200	lon												
N	6.4	≤500	≤470	Cu												
N	7.1	≤350	≤100	Alu												
N	7.2	≤600	≤180	Alu (A												
N	7.3	≤600	≤180	Alu (A												
N	7.4	≤600	≤180	Alu												
N	7.5	≤600	≤180	Alu												
H	8.1			The												
H	8.2			The												
H	8.3			Fibr												

8

Machining task, example
Thread M8, drill depth max. 15 mm,
thread depth min. 12 mm, material Alloy steel,
machining centre, internal coolant available,
production method: thread milling & chamfering

Tool selection on page 8-9

1. Select dimensional range and production process
2. Specify the material
3. Page reference
4. Thread type
   "M – Metric ISO thread DIN 13"
5. Thread depth 12 mm with M8 = 1,5×D
6. Select required shank shape

MGF XH Micro

Applications:
- Hardened steels between 45-60 HRC
- Threads can be directly inserted in hardened components, e.g. aerospace parts, implants etc.
- Complex additional machining, due to hardening distortion, can be avoided
- Left-hand cutting from M1 to M2.5

JEL TPT

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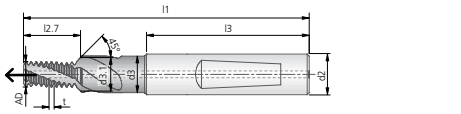
Thread milling tool MGF | UMGF	Page
Thread engagements	30 – 31
MGF	
M-MGF 1,5×D | 2×D | 2,5×D | 3×D for metric ISO thread DIN 13	32 – 33
MF-MGF 1,5×D | 2×D for metric fine ISO thread DIN 13	34 – 35
UNC-MGF 1,5×D | 2×D for UNC thread ANSI B1.1	36
UNF-MGF 1,5×D | 2×D for UNF thread ANSI B1.1	37
NPT- / NPTF-MGF for NPT/NPTF thread ANSI B2.1	38
G-MGF 1,5×D | 2×D for Whitwort… DIN EN ISO 2…	39
MGF HPC –	
M-MGF HP for metric ISO	
MF-MGF H for metric fin	
MGF XS –	
M-MGF XS for metric ISO	
MF-MGF X for metric fin	
G-MGF XS for Whitwort… DIN EN ISO 2…	
MGF XH –	
M-MGF XH for metric ISO	
M-MGF XH for metric ISO	
MF-MGF X for metric fin	
MGF PCD –	
M-MGF PC for metric ISO	
MF-MGF P for metric fin	
UMGF	
M-UMGF 2 for metric ISO	
MF-UMGF for metric fin	
Recommer	
Problems –	
Tap drill di	

KOMET SI… The KOM… describes… high qual… of tools.

KOMET JEL® M-MGF

Thread milling tool with rear chamfer



M-MGF 1,5×D											DIN 6535 HE	DIN 6535 HA
Nominal Ø	t	Drill Ø	l1	l2.7	l3	d2	d3	d3.1	AD	Z	uncoated Order No.	uncoated Order No.
M2	0,40	1,60	47,8	3,4	36	6	2,5	2,3	1,56	2	80981001000008	88981001000008
M3	0,50	2,50	47,5	5,2	36	6	3,4	3,3	2,44	3	80981001000013	88981001000013
M4	0,70	3,30	46,9	6,5	36	6	4,5	4,3	3,14	3	80981001000015	88981001000015
M5	0,80	4,20	52,6	8,2	36	6	5,5	5,3	3,95	3	80981001000017	88981001000017
M6	1,00	5,00	59,0	10,2	36	8	6,6	6,3	4,68	3	80981001000018	88981001000018
M8	1,25	6,80	70,3	14,0	40	10	9,0	8,3	6,22	3	80981001000020	88981001000020
M10	1,50	8,50	74,5	16,8	45	12	11,0	10,3	7,79	3	80981001000022	88981001000022
M12	1,75	10,25	82,0	19,6	45	14	13,5	12,3	9,38	3	80981001000024	88981001000024
M14	2,00	12,00	96,0	24,4	48	16	15,5	14,3	10,92	4	80981001000025	88981001000025
M16	2,00	14,00	94,0	26,4	48	18	17,5	16,3	12,83	4	80981001000026	88981001000026
M20	2,50	17,50	117,0	35,55	56	25	25,0	20,3	15,83	4	80981001000028	88981001000028
											TiCN	TiCN
M2	0,40	1,60	47,8	3,4	36	6	2,5	2,3	1,56	2		
M3	0,50	2,50	47,5	5,2	36	6	3,4	3,3	2,44	3		
M4	0,70	3,30	46,9	6,5	36	6	4,5	4,3	3,14	3	80973001000015	88973001000015
M5	0,80	4,20	52,6	8,2	36	6	5,5	5,3	3,95	3	80973001000017	88973001000017
M6	1,00	5,00	59,0	10,2	36	8	6,6	6,3	4,68	3	80973001000018	88973001000018
M8	1,25	6,80	70,3	14,0	40	10	9,0	8,3	6,22	3	80973001000020	88973001000020
M10	1,50	8,50	74,5	16,8	45	12	11,0	10,3	7,79	3	80973001000022	88973001000022
M12	1,75	10,25	82,0	19,6	45	14	13,5	12,3	9,38	3	80973001000024	88973001000024
M14	2,00	12,00	96,0	24,4	48	16	15,5	14,3	10,92	4	80973001000025	88973001000025
M16	2,00	14,00	94,0	26,4	48	18	17,5	16,3	12,83	4	80973001000026	88973001000026
M20	2,50	17,50	117,0	35,55	56	25	25,0	20,3	15,83	4	80973001000028	88973001000028

Thread engagements see page 30.

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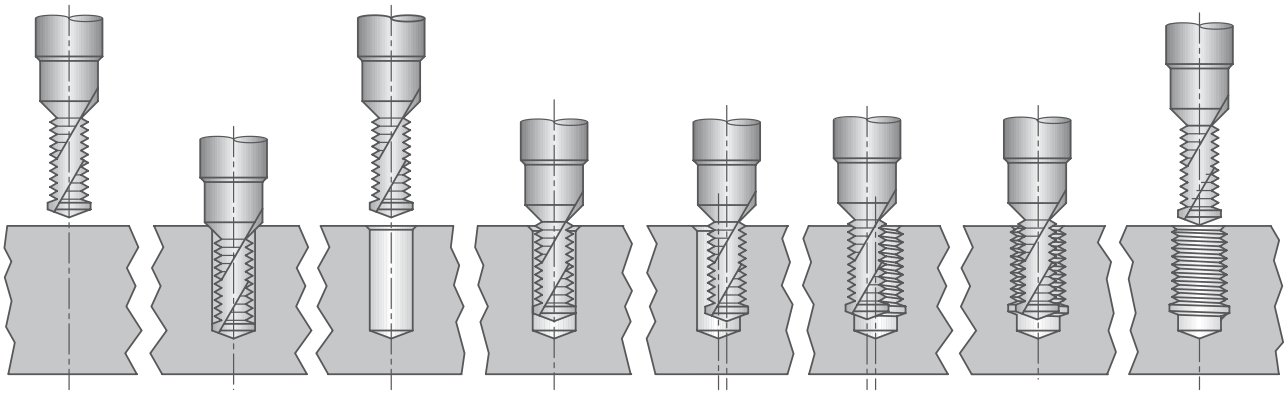
● very good | ◐ good

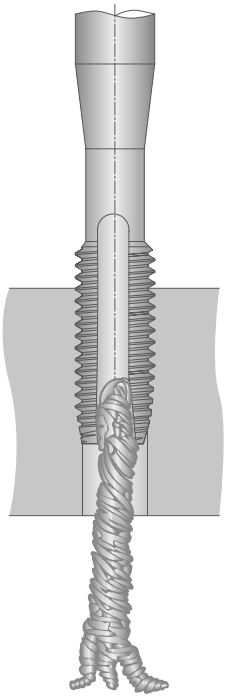
Process description

Drill thread milling

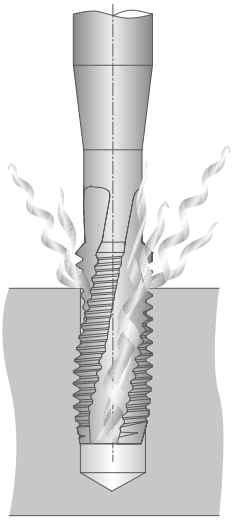


Tapping

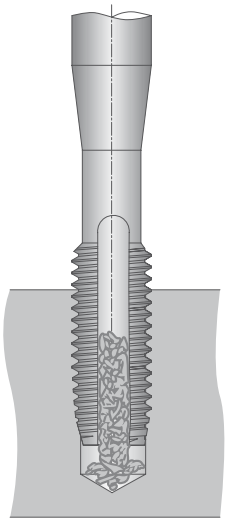
Through hole with
KOMET JEL® DOREX tap



Blind hole with
KOMET JEL® SIREX SR tap

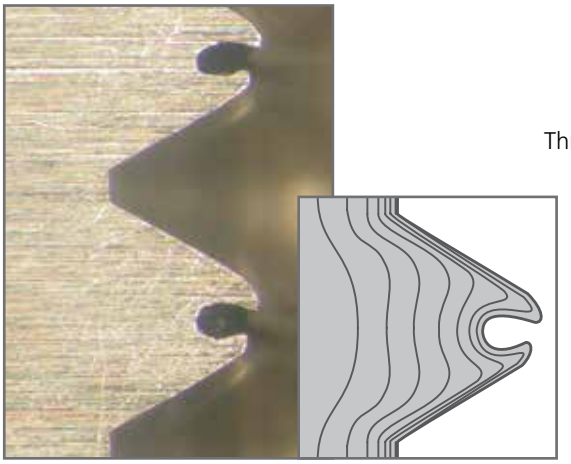


Machining of short-chipping materials for through holes and blind holes using
KOMET JEL® GG



Roll form tapping

Thread forming – grain structure

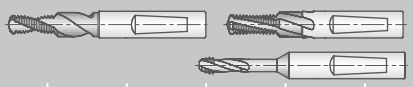
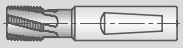
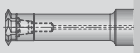
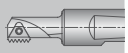


KOMET JEL® Tool selection

Thread milling tool, drill thread milling tool

Material group		Strength Rm (N/mm²)	Hardness (HB)	Material	Page	Ø 4 – 16 Thread milling MKG s.c. uncoated	MKG s.c. TiCN	MKG XH s.c. TiAlN	Ø 1 – 20 Thread milling & chamfering MGF s.c. uncoated	MGF s.c. TiCN	MGF HPC s.c. AlCrN	MGF XS s.c. TiCN	MGF XH s.c. TiAlN/TiCN	MGF PCD uncoated	UMGF s.c. uncoated	UMGF s.c. TiCN
				Code		MKG	MKG	MKG XH	MGF	MGF	MGF HPC	MGF XS	MGF XH	MGF	UMGF	UMGF
				Cutting material		s.c.	s.c.	s.c.	s.c.	s.c.	s.c.	s.c.	s.c.	PCD	s.c.	s.c.
				Surface		uncoated	TiCN	TiAlN	uncoated	TiCN	AlCrN	TiCN	TiAlN/TiCN	uncoated	uncoated	TiCN
P	1.1	≤400	≤120	Magnetic soft iron	▸17-23		●			●	●					●
P	1.2	≤700	≤200	Structural, case hardened steel	▸17-23		●			●	●					●
P	1.3	≤850	≤250	Carbon steel	▸17-23		●			●	●					●
P	1.4	≤850	≤250	Alloy steel	▸17-23		●			●	●					●
P	1.5	>850 ≤1200	>250 ≤350	Alloy/heat treated steel	▸17-23		◐			◐	●	●				◐
P	1.6	>1200	>350	Alloy/heat treated steel	▸17-23		◐			◐	●	●				◐
H	1.7	≤1400	≤400	Hardened steel to 45 HRC	▸17-23		◑	○		◑			○			◑
H	1.8	≤2200	≤600	Hardened steel to 58 HRC	▸17-23			○					○			
M	2.1	≤850	≤250	Stainless steel, sulphuretted	▸17-23		●			●	●					●
M	2.2	≤850	≤250	Austentic	▸17-23		●			●	●					●
M	2.3	≤1000	≤300	Ferritic, ferritic & austentic, martensitic	▸17-23		●			●	●					●
K	3.1	≤500	≤150	Grey cast iron	▸17-23	◐	●		◐	●	●				◐	●
K	3.2	>500 ≤1000	>150 ≤300	Grey cast iron, heat treated	▸17-23	◐	●		◐	●	●				◐	●
K	3.3	400-500	200-250	Vermicular cast iron	▸17-23		●			●	●					●
K	3.4	≤700	≤200	Spher. graph. cast iron	▸17-23	◐	●		◐	●	●				◐	●
K	3.5	>700 ≤1000	>200 ≤300	Spher. graph. cast iron, heat treated	▸17-23		●			●	●					●
K	3.6	≤700	≤200	Malleable iron	▸17-23		●			●	●					●
K	3.7	>700 <1000	>200 ≤300	Malleable iron, heat treated	▸17-23		●			●	●					●
S	4.1	≤700	≤200	Pure titanium	▸17-23		●			●	●					●
S	4.2	≤900	≤270	Titanium alloys	▸17-23		●			●	●					●
S	4.3	>900 ≤1250	>270 ≤300	Titanium alloys	▸17-23		●			●	●	●				●
S	5.1	≤500	≤150	Pure nickel	▸17-23		●			●						●
S	5.2	≤900	<270	Nickel alloys, heat resistant	▸17-23		●			●						●
S	5.3	>900 ≤1200	>270 ≤350	Nickel alloys, high heat resistant	▸17-23		●			●		●				●
N	6.1	≤350	≤100	Non-alloy copper	▸17-23	●	◐		●	◐					●	◐
N	6.2	≤700	≤200	short chip, brass, bronze, red brass	▸17-23	●	◐		●	◐				●	●	◐
N	6.3	≤700	≤200	long chip brass	▸17-23	●	◐		●	◐					●	◐
N	6.4	≤500	≤470	Cu-Al-Fe alloy (Ampco)	▸17-23	●	◐		●	◐					●	◐
N	7.1	≤350	≤100	Alu, Mg non-alloy	▸17-23	●	◐		●	◐				●	●	◐
N	7.2	≤600	≤180	Alu wrought all., break. strain (A 5) <14 %	▸17-23	●	◐		●	◐				●	●	◐
N	7.3	≤600	≤180	Alu wrought all., break. strain (A 5) ≥14 %	▸17-23	●	◐		●	◐				●	●	◐
N	7.4	≤600	≤180	Alu cast alloy, Si <10 %	▸17-23	●	◐		●	◐				●	●	◐
N	7.5	≤600	≤180	Alu cast alloy, Si ≥10 %	▸17-23	◐	●		◐	●				●	◐	●
N	8.1			Thermoplastics	▸17-23	●	◐		●	◐					●	◐
N	8.2			Thermosetting plastics	▸17-23	●	◐		●	◐					●	◐
N	8.3			Fibre reinforced plastics	▸17-23	◐	●		◐	●				●	◐	●

● very good | ◐ good

	Ø 3 – 20						> Ø 20				> Ø 20		> Ø 20	> Ø 20	
	Drilling, thread milling & chamfering						Thread milling				Circular spotface, chamfering, thread milling		Thread milling	Thread milling	
															
	BGF s.c. uncoated ▸58-68	BGF s.c. TiAlN ▸58-68	BGF NZ4 s.c. AlCrN ▸69	UBGF s.c. uncoated ▸70-74	UBGF s.c. TiAlN ▸70-74	DBGF s.c. TiAlN ▸75	GWF SR s.c. uncoated ▸85-90	GWF SR s.c. TiCN ▸85-90	GWF XS s.c. TiCN ▸91	GWF SR PCD uncoated ▸94	GWF GP s.c. uncoated ▸92-93	GWF GP s.c. TiCN ▸92-93	TOMILL CUT s.c. head TiAlN ▸80-81	XAM carbide insert uncoated ▸82-83	XAM carbide insert TiN ▸82-83
						●		●				●	●		●
						●		●				●	●		●
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	◐	●		◐	●	●	◐	●		●	◐	●	●	◐	●

KOMET JEL® Tool selection

Taps

Material group		Strength Rm (N/mm²)	Hardness (HB)	Code / Material	Page	DOREX VAV	DOREX TiN	TINIB	FEDUC	TAREX VAV	TAREX TiN
											
				Bilnd hole					✓	✓	✓
				Through hole		✓	✓	✓			
				Cutting material		HSS-E	HSS-E	HSS-PM	HSS-PM	HSS-E	HSS-E
				Surface		vaporized	TiN	TiCN	TiCN	vaporized	TiN
				Coolant supply		–	–	–	–	–	–
				Material / Page		▸ 100	▸ 100	▸ 101	▸ 102	▸ 103	▸ 103
P	1.1	≤400	≤120	Magnetic soft iron		●	●			●	●
P	1.2	≤700	≤200	Structural, case hardened steel		●	●			●	●
P	1.3	≤850	≤250	Carbon steel		●	●			●	●
P	1.4	≤850	≤250	Alloy steel		●	●			●	●
P	1.5	>850 ≤1200	>250 ≤350	Alloy/heat treated steel		◐	◐			◐	
P	1.6	>1200	>350	Alloy/heat treated steel					●		
H	1.7	≤1400	≤400	Hardened steel to 45 HRC							
H	1.8	≤2200	≤600	Hardened steel to 58 HRC							
M	2.1	≤850	≤250	Stainless steel, sulphuretted		●	●			●	●
M	2.2	≤850	≤250	Austentic		◐	◐			◐	◐
M	2.3	≤1000	≤300	Ferritic, ferritic & austentic, martensitic					●		
K	3.1	≤500	≤150	Grey cast iron							
K	3.2	>500 ≤1000	>150 ≤300	Grey cast iron, heat treated							
K	3.3	400-500	200-250	Vermicular cast iron							
K	3.4	≤700	≤200	Spher. graph. cast iron		●	●			●	●
K	3.5	>700 ≤1000	>200 ≤300	Spher. graph. cast iron, heat treated		◐	◐			◐	◐
K	3.6	≤700	≤200	Malleable iron		●	●			●	●
K	3.7	>700 <1000	>200 ≤300	Malleable iron, heat treated		◐	◐			◐	◐
S	4.1	≤700	≤200	Pure titanium				●			
S	4.2	≤900	≤270	Titanium alloys				●			
S	4.3	>900 ≤1250	>270 ≤300	Titanium alloys				●			
S	5.1	≤500	≤150	Pure nickel		●	●			●	●
S	5.2	≤900	<270	Nickel alloys, heat resistant					●		
S	5.3	>900 ≤1200	>270 ≤350	Nickel alloys, high heat resistant					◐		
N	6.1	≤350	≤100	Non-alloy copper			◐				◐
N	6.2	≤700	≤200	short chip, brass, bronze, red brass							
N	6.3	≤700	≤200	long chip brass			●				●
N	6.4	≤500	≤470	Cu-Al-Fe alloy (Ampco)							
N	7.1	≤350	≤100	Alu, Mg non-alloy			◐				◐
N	7.2	≤600	≤180	Alu wrought all., break. strain (A 5) <14 %			●				●
N	7.3	≤600	≤180	Alu wrought all., break. strain (A 5) ≥14 %			●				●
N	7.4	≤600	≤180	Alu cast alloy, Si <10 %			●				
N	7.5	≤600	≤180	Alu cast alloy, Si ≥10 %			◐				
N	8.1			Thermoplastics			●				◐
N	8.2			Thermosetting plastics							
N	8.3			Fibre reinforced plastics							

● very good | ◐ good

TAREX IK TIN	GG IK TiCN	GG HML IK	SIREX	SIREX SR	GG	DOREX	SIREX XH TiAlN
✓	✓	✓	✓	✓	✓		✓
	✓	✓	✓		✓	✓	✓
HSS-E TiN IK ▸ 106	HSS-E TiCN IK ▸ 104	HML uncoated IK ▸ 105	s.c. uncoated IK ▸ 108/112	s.c. uncoated IK ▸ 109/113	s.c. uncoated IK ▸ 107	s.c. uncoated IKS ▸ 111	s.c. TiAlN – ▸ 110
●							
●							
●							
●							
							○
							○
◔							
◔							
	●	●	◐		●		
	●	●	◐		●		
	◐	●	◐	◐	●	◐	
●				◐		◐	
◐				◐		◐	
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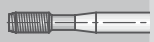
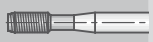
◐			●	◐		◐	
◐				●		●	
			●	●		●	
			●	●		●	

KOMET JEL® Tool selection

Roll form taps

Material group		Strength Rm (N/mm²)	Hardness (HB)	Code	MOREX	MOREX N		MOREX		MOREX N			
													
				Bilnd hole	✓	✓		✓		✓			
				Through hole		✓				✓			
				Cutting material	HSS-E	HSS-E		Solid carbide		Solid carbide			
				Surface	TiN	TiN		uncoated	TiN	uncoated		TiN	
				Coolant supply			IKS	IK	IK	IK	IKS	IK	IKS
				Material Page	▸118	▸119/120	▸119	▸121	▸121	▸122	▸123	▸122	▸123
P	1.1	≤400	≤120	Magnetic soft iron	●	●	●		●			●	●
P	1.2	≤700	≤200	Structural, case hardened steel	●	●	●		●			●	●
P	1.3	≤850	≤250	Carbon steel	●	●	●		●			●	●
P	1.4	≤850	≤250	Alloy steel	●	●	●		●			●	●
P	1.5	>850 ≤1200	>250 ≤350	Alloy/heat treated steel	●	●	●		●			●	●
P	1.6	>1200	>350	Alloy/heat treated steel	◐	◐	◐		◐			◐	◐
H	1.7	≤1400	≤400	Hardened steel to 45 HRC									
H	1.8	≤2200	≤600	Hardened steel to 58 HRC									
M	2.1	≤850	≤250	Stainless steel, sulphuretted	○	○	○		○			○	○
M	2.2	≤850	≤250	Austentic	○	○	○		○			○	○
M	2.3	≤1000	≤300	Ferritic, ferritic & austentic, martensitic	○	○	○		○			○	○
K	3.1	≤500	≤150	Grey cast iron									
K	3.2	>500 ≤1000	>150 ≤300	Grey cast iron, heat treated									
K	3.3	400-500	200-250	Vermicular cast iron									
K	3.4	≤700	≤200	Spher. graph. cast iron	●	●	●		●			●	●
K	3.5	>700 ≤1000	>200 ≤300	Spher. graph. cast iron, heat treated	●	●	●		●			●	●
K	3.6	≤700	≤200	Malleable iron									
K	3.7	>700 <1000	>200 ≤300	Malleable iron, heat treated									
S	4.1	≤700	≤200	Pure titanium	◐	◐	◐						
S	4.2	≤900	≤270	Titanium alloys	●	●	●		●		●	●	●
S	4.3	>900 ≤1250	>270 ≤300	Titanium alloys	◐	◐	◐		◐		◐	◐	◐
S	5.1	≤500	≤150	Pure nickel	●	●	●		●			●	●
S	5.2	≤900	<270	Nickel alloys, heat resistant	●	●	●		●			●	●
S	5.3	>900 ≤1200	>270 ≤350	Nickel alloys, high heat resistant	◐	◐	◐						
N	6.1	≤350	≤100	Non-alloy copper	◐	◐	◐	●	●	●	●	●	●
N	6.2	≤700	≤200	short chip, brass, bronze, red brass									
N	6.3	≤700	≤200	long chip brass	◐	◐	◐	●	●	●	●	●	●
N	6.4	≤500	≤470	Cu-Al-Fe alloy (Ampco)									
N	7.1	≤350	≤100	Alu, Mg non-alloy	●	●	●	●	●	●	●	●	●
N	7.2	≤600	≤180	Alu wrought all., break. strain (A 5) <14 %	◐	◐	◐	●	●	●	●	●	●
N	7.3	≤600	≤180	Alu wrought all., break. strain (A 5) ≥14 %	◐	◐	◐	●	●	●	●	●	●
N	7.4	≤600	≤180	Alu cast alloy, Si <10 %	◐	◐	◐	●	●	●	●	●	●
N	7.5	≤600	≤180	Alu cast alloy, Si ≥10 %									
N	8.1			Thermoplastics									
N	8.2			Thermosetting plastics									
N	8.3			Fibre reinforced plastics									

● very good | ◐ good

	MOREX S	MOREX S N	MOREX HML		MOREX N HML		MOREX R	
								
	✓	✓ ✓	✓		✓ ✓		✓	✓ ✓
	Solid carbide	Solid carbide	HSS-E with carbide strips		HSS-E with carbide strips		HSS-E with carbide strips	
	TiN	TiN	uncoated	TiN	uncoated	TiN	TiN	
	IK	IKS	IK	IK	IK	IKS	IK	IKS
	▸ 124 / 126	▸ 125 / 127	▸ 128 / 131	▸ 128	▸ 129	▸ 130	▸ 132 / 134	▸ 133 / 135
	●	●		●		●	●	●
	●	●		●		●	●	●
	●	●		●		●	●	●
	●	●		●		●	●	●
	●	●		●		●	●	●
	◐	◐		◐		◐	◐	◐
	●	●		●		●	●	●
	●	●		●		●	●	●
	●	●		●		●	●	●
	●	●		●		●	●	●
	●	●		●		●	●	●
	●	●				●	●	●
	◐	◐				◐	◐	◐
	●	●				●	●	●
	●	●				●	●	●
	●	●	●	●	●	●	●	●
	●	●	●	●	●	●	●	●
	●	●	●	●	●	●	●	●
	●	●	●	●	●	●	●	●
	●	●	●	●	●	●	●	●
	●	●	●	●	●	●	●	●

Thread milling small threads from M4 upwards
Spiral fluted solid carbide tools with profile correction for diameter range 4-14 mm.

BENEFITS for you:

- One and the same tool for different tolerances
- One and the same tool for different diameters >nominal Ø with same pitch
- One and the same tool for blind and through holes
- One and the same tool for different materials
- Exact and repeatable thread depth
- No chip root remaining in the thread
- High speed cutting (HSC) possible

JEL® TPT

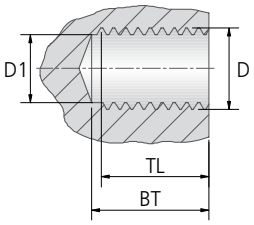
CNC programs for various control systems can be configured online at http://tpt.kometgroup.com or can be obtained on request by telephoning: +49 711 788910.
Also available as "TPT Mobile" app, with identical features for mobile end devices like iPhone and iPad, in the webshop App Store as well as Google Play™ for Android™ smartphones.

Thread milling tool MKG

KOMET SERVICE® – Chapter 9
The KOMET SERVICE® TOOL *life*Box icon describes tools that are available for the high quality cost-efficient refurbishment of tools.

KOMET JEL® MKG

Thread engagements



TL = full thread length
BT = drill depth (For safety reasons BT 0.2 deeper than TL)

M					
Nominal Ø		1,5×D		2×D	
D	D1	BT	TL	BT	TL
M4	3,30	6,70	6,50	8,10	7,90
M5	4,20	7,70	7,50	10,10	9,90
M6	5,00	9,50	9,30	12,50	12,30
M8	6,80	13,10	12,90	16,80	16,60
M10	8,50	15,70	15,50	20,20	20,00
M12	10,30	18,20	18,00	25,30	25,10
M14	12,00	20,80	20,60	28,80	28,60

M – metric ISO thread DIN 13

MF					
Nominal Ø		1,5×D		2×D	
D	D1	BT	TL	BT	TL
M10×1	9,00	–	–	20,50	20,30
M12×1,5	10,50	18,67	18,47	24,70	24,50
M14×1,5	12,50	21,67	21,47	–	–
M16×1,5	14,50	24,66	24,46	–	–

MF – metric fine ISO thread DIN 13

UNC			
Nominal Ø	2×D		
D	D1	BT	TL
Nr.10-24 UNC	3,77	10,10	9,90
Nr.12-24 UNC	4,43	11,13	10,93
1/4-20 UNC	5,08	14,60	14,40
5/16-18 UNC	6,53	16,20	16,00
3/8-16 UNC	7,94	19,80	19,60
7/16-14 UNC	9,30	22,60	22,40
1/2-13 UNC	10,75	26,20	26,00
9/16-12 UNC	12,17	30,50	30,30
5/8-11 UNC	13,57	33,27	33,07

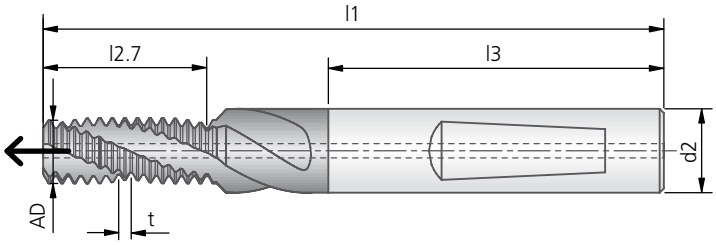
UNC – american Unified coarse thread ANSI B1.1

UNF			
Nominal Ø	2×D		
D	D1	BT	TL
Nr.10-32 UNF	4,03	10,00	9,80
Nr.12-28 UNF	4,58	12,30	12,10
1/4-28 UNF	5,44	14,10	13,90
5/16-24 UNF	6,88	16,40	16,20
3/8-24 UNF	8,47	19,60	19,40
7/16-20 UNF	9,84	22,20	22,00
1/2-20 UNF	11,43	26,00	25,80
9/16-18 UNF	12,88	28,90	28,70
5/8-18 UNF	14,46	33,10	32,90

UNF – american Unified fine thread ANSI B1.1

G			
Nominal Ø	2×D		
D	D1	BT	TL
G1/8-28	8,82	20,40	20,20
G1/4-19	11,82	27,30	27,10
G3/8-19	15,32	35,40	35,20

G – Whitworth pipe thread DIN EN ISO 228 and
DIN EN 10226 (previously DIN 2999)



Use for	
Thread	Thread milling tool
M16	MKG M14

M-MKG 2×D									DIN 6535 HE	DIN 6535 HA
Nominal Ø	t	Drill Ø	l1	l2.7	l3	d2	AD	Z	uncoated Order No.	uncoated Order No.
M4	0,70	3,30	49	8,00	36	6	3,14	3	80980001000015	88980001000015
M5	0,80	4,20	49	10,00	36	6	3,95	3	80980001000017	88980001000017
M6	1,00	5,00	55	12,00	36	6	4,68	3	80980001000018	88980001000018
M8	1,25	6,80	62	16,25	36	8	6,22	3	80980001000020	88980001000020
M10	1,50	8,50	74	19,50	40	10	7,79	3	80980001000022	88980001000022
M12	1,75	10,25	79	24,50	45	12	9,38	3	80980001000024	88980001000024
M14	2,00	12,00	89	28,00	45	14	10,92	4	80980001000025	88980001000025
									TiCN Order No.	TiCN Order No.
M4	0,70	3,30	49	8,00	36	6	3,14	3	80983001000015	88983001000015
M5	0,80	4,20	49	10,00	36	6	3,95	3	80983001000017	88983001000017
M6	1,00	5,00	55	12,00	36	6	4,68	3	80983001000018	88983001000018
M8	1,25	6,80	62	16,25	36	8	6,22	3	80983001000020	88983001000020
M10	1,50	8,50	74	19,50	40	10	7,79	3	80983001000022	88983001000022
M12	1,75	10,25	79	24,50	45	12	9,38	3	80983001000024	88983001000024
M14	2,00	12,00	89	28,00	45	14	10,92	4	80983001000025	88983001000025

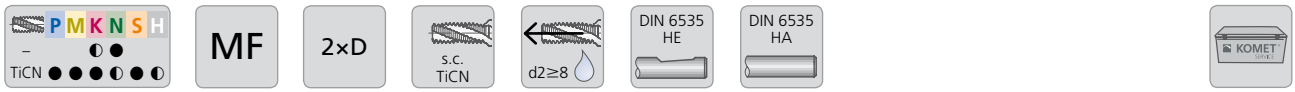
Thread engagements see page 16.

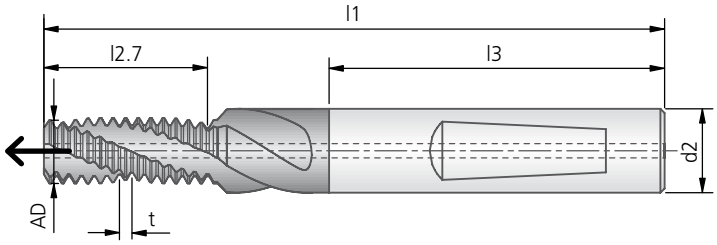
● very good | ◐ good

Guideline values for thread milling: page 26.

KOMET JEL® MF-MKG

Thread milling tool



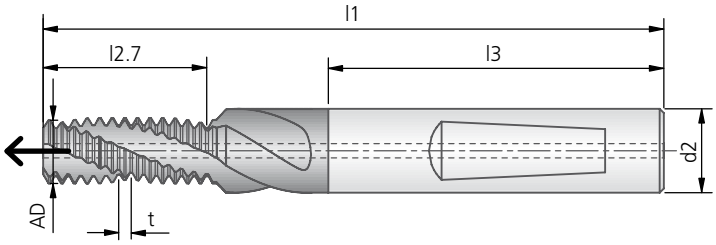


Use for	
Thread	Thread milling tool
M8×1	M-MKG M6
M12×1	MF-MKG M10×1
M14×1,5	MF-MKG M12×1,5
M16×1,5	MF-MKG M12×1,5

MF-MKG 2×D									DIN 6535 HE	DIN 6535 HA
									uncoated	uncoated
Nominal ∅	t	Drill ∅	l1	l2.7	l3	d2	AD	Z	Order No.	Order No.
M10×1	1,00	9,0	74,0	20,0	40	10	7,79	3	**80980002000094**	**88980002000094**
M12×1,5	1,50	10,5	79,0	24,0	45	12	9,38	3	**80980002000113**	**88980002000113**
									TiCN	TiCN
M10×1	1,00	9,0	74,0	20,0	40	10	7,79	3	**80983002000094**	**88983002000094**
M12×1,5	1,50	10,5	79,0	24,0	45	12	9,38	3	**80983002000113**	**88983002000113**

Thread engagements see page 16.

● very good | ◐ good

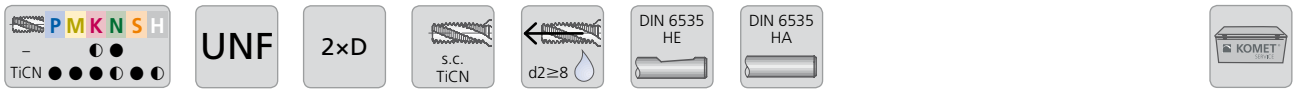


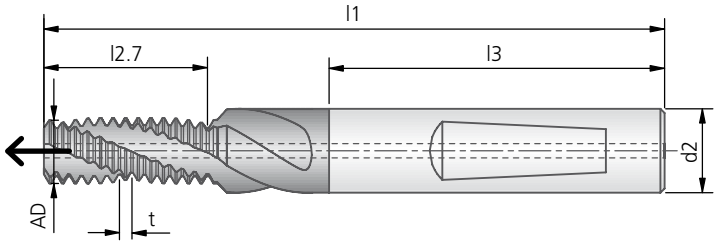
UNC-MKG 2×D									DIN 6535 HE	DIN 6535 HA
Nominal ∅	t	Drill ∅	l1	l2.7	l3	d2	AD	Z	uncoated  Order No.	uncoated  Order No.
Nr.10-24 UNC	1,058	3,77	55	9,5	36	6	3,68	3	80980010000009	88980010000009
Nr.12-24 UNC	1,058	4,43	55	10,6	36	6	4,26	3	80980010000010	88980010000010
1/4-20 UNC	1,270	5,08	55	13,9	36	6	4,70	3	80980010000011	88980010000011
5/16-18 UNC	1,411	6,53	62	15,5	36	8	6,22	3	80980010000012	88980010000012
3/8-16 UNC	1,588	7,94	74	19,1	40	10	7,34	3	80980010000013	88980010000013
7/16-14 UNC	1,814	9,30	79	21,8	45	12	8,57	3	80980010000014	88980010000014
1/2-13 UNC	1,954	10,75	79	25,4	45	12	9,38	3	80980010000015	88980010000015
9/16-12 UNC	2,117	12,17	89	29,6	45	14	10,92	4	80980010000016	88980010000016
5/8-11 UNC	2,309	13,57	102	32,3	48	16	12,50	4	80980010000017	88980010000017
									TiCN 	TiCN 
Nr.10-24 UNC	1,058	3,77	55	9,5	36	6	3,68	3	80983010000009	88983010000009
Nr.12-24 UNC	1,058	4,43	55	10,6	36	6	4,26	3	80983010000010	88983010000010
1/4-20 UNC	1,270	5,08	55	13,9	36	6	4,70	3	80983010000011	88983010000011
5/16-18 UNC	1,411	6,53	62	15,5	36	8	6,22	3	80983010000012	88983010000012
3/8-16 UNC	1,588	7,94	74	19,1	40	10	7,34	3	80983010000013	88983010000013
7/16-14 UNC	1,814	9,30	79	21,8	45	12	8,57	3	80983010000014	88983010000014
1/2-13 UNC	1,954	10,75	79	25,4	45	12	9,38	3	80983010000015	88983010000015
9/16-12 UNC	2,117	12,17	89	29,6	45	14	10,92	4	80983010000016	88983010000016
5/8-11 UNC	2,309	13,57	102	32,3	48	16	12,50	4	80983010000017	88983010000017

Thread engagements see page 16.

KOMET JEL® UNF-MKG

Thread milling tool

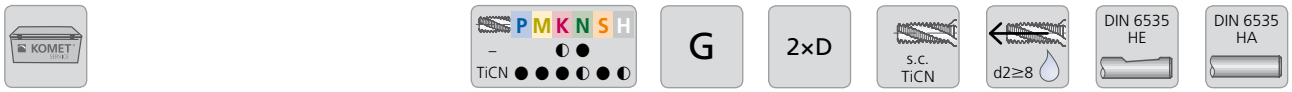


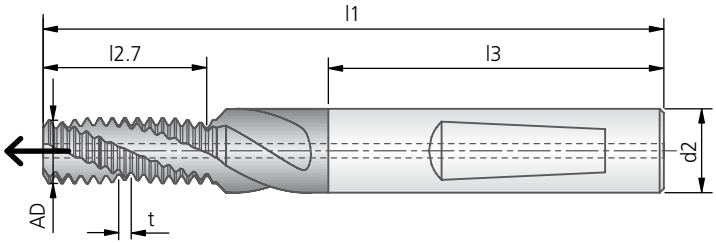


UNF-MKG 2×D									DIN 6535 HE	DIN 6535 HA
Nominal ∅	t	Drill ∅	l1	l2.7	l3	d2	AD	Z	uncoated Order No.	uncoated Order No.
Nr.10-32 UNF	0,794	4,03	49	9,5	36	6	3,95	3	80980011000009	88980011000009
Nr.12-28 UNF	0,907	4,58	55	11,8	36	6	4,45	3	80980011000010	88980011000010
1/4-28 UNF	0,907	5,44	55	13,6	36	6	4,70	3	80980011000011	88980011000011
5/16-24 UNF	1,058	6,88	62	15,9	36	8	6,22	3	80980011000012	88980011000012
3/8-24 UNF	1,058	8,47	74	19,0	40	10	7,79	3	80980011000013	88980011000013
7/16-20 UNF	1,270	9,84	79	21,6	45	12	9,32	3	80980011000014	88980011000014
1/2-20 UNF	1,270	11,43	79	25,4	45	12	9,38	3	80980011000015	88980011000015
9/16-18 UNF	1,411	12,88	89	28,2	45	14	10,92	4	80980011000016	88980011000016
5/8-18 UNF	1,411	14,46	102	32,4	48	16	12,82	4	80980011000017	88980011000017
									TiCN	TiCN
Nr.10-32 UNF	0,794	4,03	49	9,5	36	6	3,95	3	80983011000009	88983011000009
Nr.12-28 UNF	0,907	4,58	55	11,8	36	6	4,45	3	80983011000010	88983011000010
1/4-28 UNF	0,907	5,44	55	13,6	36	6	4,70	3	80983011000011	88983011000011
5/16-24 UNF	1,058	6,88	62	15,9	36	8	6,22	3	80983011000012	88983011000012
3/8-24 UNF	1,058	8,47	74	19,0	40	10	7,79	3	80983011000013	88983011000013
7/16-20 UNF	1,270	9,84	79	21,6	45	12	9,32	3	80983011000014	88983011000014
1/2-20 UNF	1,270	11,43	79	25,4	45	12	9,38	3	80983011000015	88983011000015
9/16-18 UNF	1,411	12,88	89	28,2	45	14	10,92	4	80983011000016	88983011000016
5/8-18 UNF	1,411	14,46	102	32,4	48	16	12,82	4	80983011000017	88983011000017

Thread engagements see page 16.

● very good | ◐ good



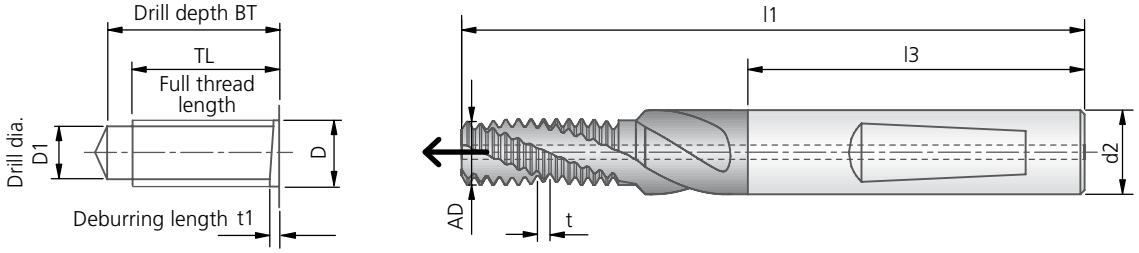


G-MKG 2×D									DIN 6535 HE	DIN 6535 HA
									uncoated	uncoated
Nominal Ø	t	Drill Ø	l1	l2.7	l3	d2	AD	Z	Order No.	Order No.
G1/8-28	0,907	8,82	74	20,0	40	10	7,79	3	**80980025000001**	**88980025000001**
G1/4-19	1,337	11,82	89	26,7	45	14	10,92	4	**80980025000002**	**88980025000002**
G3/8-19	1,337	15,32	102	34,84	48	18	13,92	4	**80980025000003**	**88980025000003**
									TiCN	TiCN
G1/8-28	0,907	8,82	74	20,0	40	10	7,79	3	**80983025000001**	**88983025000001**
G1/4-19	1,337	11,82	89	26,7	45	14	10,92	4	**80983025000002**	**88983025000002**
G3/8-19	1,337	15,32	102	34,84	48	18	13,92	4	**80983025000003**	**88983025000003**

Thread engagements see page 16.

KOMET JEL® M-MKG

Thread milling tool with deburring edge



Use for:
M6 for M6, M7, M8×1,...
M10 for M10, M11, M12×1,5,...
Note max. thread length TL

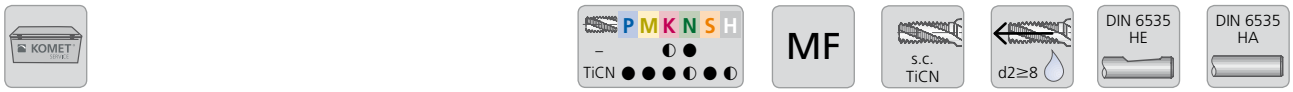
M-MKG												DIN 6535 HE		DIN 6535 HA	
Nominal ∅ D	t	D1	l3	d2	AD	Z	KN	l1	BT min.	TL	t1	uncoated Order No.	TiCN Order No.	uncoated Order No.	TiCN Order No.
M6	1,00	5,0	36	6	4,68	3	3	55,0	12,8	12,5	1,0	80700001000018	80703001000018	88700001000018	88703001000018
								54,0	11,8	11,5	1,0	80700001010018	80703001010018	88700001010018	88703001010018
								53,0	10,8	10,5	1,0	80700001020018	80703001020018	88700001020018	88703001020018
								52,0	9,8	9,5	1,0	80700001030018	80703001030018	88700001030018	88703001030018
								51,0	8,8	8,5	1,0	80700001040018	80703001040018	88700001040018	88703001040018
								50,0	7,8	7,5	1,0	80700001050018	80703001050018	88700001050018	88703001050018
								49,0	6,8	6,5	1,0	80700001060018	80703001060018	88700001060018	88703001060018
M10	1,50	8,5	40	10	7,79	3	3	74,0	20,65	20,2	1,5	80700001000022	80703001000022	88700001000022	88703001000022
								72,5	19,15	18,7	1,5	80700001010022	80703001010022	88700001010022	88703001010022
								71,0	17,65	17,2	1,5	80700001020022	80703001020022	88700001020022	88703001020022
								69,5	16,15	15,7	1,5	80700001030022	80703001030022	88700001030022	88703001030022
								68,0	14,65	14,2	1,5	80700001040022	80703001040022	88700001040022	88703001040022
								66,5	13,15	12,7	1,5	80700001050022	80703001050022	88700001050022	88703001050022
								65,0	11,65	11,2	1,5	80700001060022	80703001060022	88700001060022	88703001060022
								63,5	10,15	9,7	1,5	80700001070022	80703001070022	88700001070022	88703001070022

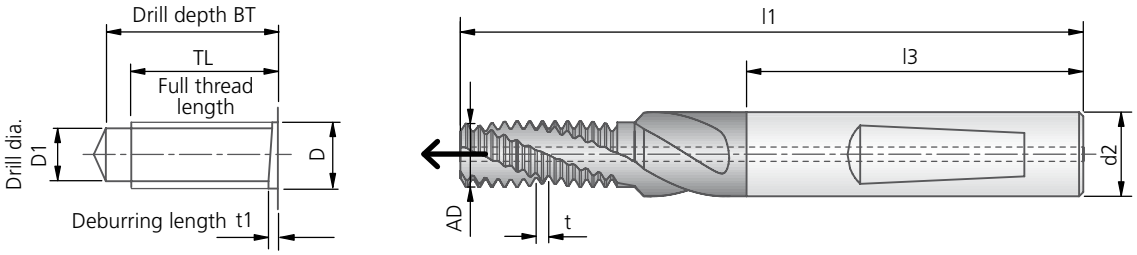
How the deburring edge works

Every thread, whether cut or formed, begins as a burr. The full thread profile is obtained as the pitch progesses when plunged into the solid material.
In screwed connections that are frequently unscrewed and then reconnected, this burr can come away and cause damage - to hydraulic components, for example.
In order to prevent this, the burr can – as with a thread mating plug gauge – be removed at the start of the thread as the thread is milled, without requiring any additional time, so that the thread starts with a full profile thread.
This is done with what is known as a deburring edge (ES), which is positioned on the tool behind the thread profile. The amount of material removed depends on the position where the edge is applied.

Start position | End position

● very good | ◐ good





Use for:
M10×1 for M10, M12×1,...
Note max. thread length TL

MF-MKG												DIN 6535 HE		DIN 6535 HA	
Nominal ∅ D	t	D1	l3	d2	AD	Z	KN	l1	BT min.	TL	t1	uncoated Order No.	TiCN Order No.	uncoated Order No.	TiCN Order No.
								74,0	20,8	20,5	1,0	80700002000094	80703002000094	88700002000094	88703002000094
								73,0	19,8	19,5	1,0	80700002010094	80703002010094	88700002010094	88703002010094
								72,0	18,8	18,5	1,0	80700002020094	80703002020094	88700002020094	88703002020094
								71,0	17,8	17,5	1,0	80700002030094	80703002030094	88700002030094	88703002030094
								70,0	16,8	16,5	1,0	80700002040094	80703002040094	88700002040094	88703002040094
M10×1	1,00	9,0	40	10	7,79	3	3	69,0	15,8	15,5	1,0	80700002050094	80703002050094	88700002050094	88703002050094
								68,0	14,8	14,5	1,0	80700002060094	80703002060094	88700002060094	88703002060094
								67,0	13,85	13,5	1,0	80700002070094	80703002070094	88700002070094	88703002070094
								66,0	12,8	12,5	1,0	80700002080094	80703002080094	88700002080094	88703002080094
								65,0	11,8	11,5	1,0	80700002090094	80703002090094	88700002090094	88703002090094
								64,0	10,8	10,5	1,0	80700002091094	80703002091094	88700002091094	88703002091094

Risk of burr formation and of the burr becoming detached at the transition between the thread and the countersink – the risk is particularly high for lead-free aluminium alloys

Thread with maximum deburring edge effect at a depth of 1×P

Guideline values for thread milling: page 26.

KOMET JEL® M-MKG XH

Thread milling tool

Material P M K N S H ●

M

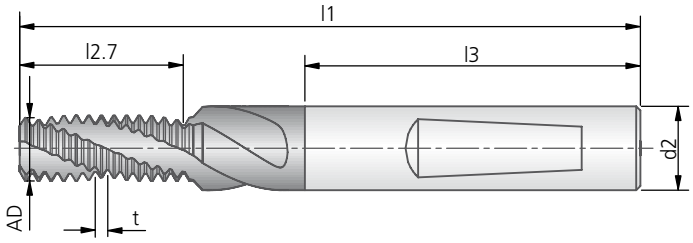
1,5×D

s.c. TiAlN

DIN 6535 HE

DIN 6535 HA

for hard machining of materials with hardness ≥ 45 HRC



M-MKG XH 1,5×D									DIN 6535 HE	DIN 6535 HA
Nominal Ø	t	Drill Ø	l1	l2.7	l3	d2	AD	Z	TiAlN Order No.	TiAlN Order No.
M4	0,70	3,30	46	6,3	36	6	3,14	4	80987001000015	88987001000015
M5	0,80	4,20	47	7,2	36	6	3,95	4	80987001000017	88987001000017
M6	1,00	5,00	52	8,5	36	6	4,68	4	80987001000018	88987001000018
M8	1,25	6,80	57	12,5	36	8	6,22	4	80987001000020	88987001000020
M10	1,50	8,50	66	15,0	40	10	7,79	5	80987001000022	88987001000022
M12	1,75	10,25	76	17,5	45	12	9,38	5	80987001000024	88987001000024

Thread engagements see page 16.

● very good | ◐ good

Material P M K N S H

MF

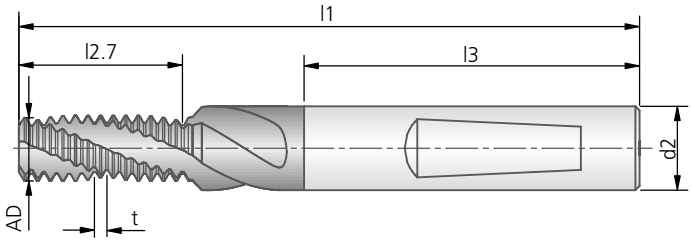
1,5×D

S.C. TiAlN

DIN 6535 HE

DIN 6535 HA

for hard machining of materials with hardness ≥ 45 HRC



MF-MKG XH 1,5×D									DIN 6535 HE	DIN 6535 HA
									TiAlN	TiAlN
Nominal ∅	t	Drill ∅	l1	l2.7	l3	d2	AD	Z	Order No.	Order No.
M12×1,5	1,50	10,5	76	17,9	45	12	9,38	5	**80987002000113**	**88987002000113**
M14×1,5	1,50	12,5	82	21,4	45	14	10,92	5	**80987002000131**	**88987002000131**
M16×1,5	1,50	14,5	94	23,9	48	16	12,82	5	**80987002000147**	**88987002000147**

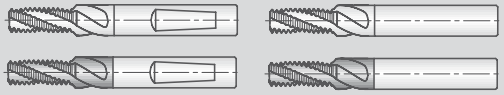
Thread engagements see page 16.

KOMET JEL® MKG

Recommended cutting data

Guideline values for thread milling

v_c (m/min) = Cutting speed
f_z (mm/tooth) = Milling feed



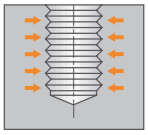
Material group		Strength Rm (N/mm²)	Hardness HB	Surface / Material	uncoated v_c m/min	TiCN v_c m/min	≤ Ø 6 f_z mm/tooth	≤ Ø 12 f_z mm/tooth	≥ Ø 16 f_z mm/tooth
P	1.1	≤400	≤120	magnetic soft iron		80-150	0,015-0,04	0,04-0,06	0,08-0,15
P	1.2	≤700	≤200	structural, case hardened steel		80-100	0,015-0,04	0,04-0,06	0,08-0,15
P	1.3	≤850	≤250	carbon steel		80-100	0,015-0,04	0,04-0,06	0,08-0,15
P	1.4	≤850	≤250	alloy steel		80-100	0,015-0,04	0,04-0,06	0,08-0,15
P	1.5	>850 ≤1200	>250 ≤350	alloy/heat treated steel		60-80	0,01-0,03	0,04-0,06	0,04-0,10
P	1.6	>1200	>350	alloy/heat treated steel		50-60	0,01-0,025	0,03-0,05	0,04-0,10
H	1.7	≤1400	≤400	hardened steel to 45 HRC		30-50	0,01-0,015	0,015-0,02	0,03-0,08
H	1.8	≤2200	≤600	hardened steel to 58 HRC		20-40	0,01-0,015	0,015-0,02	
M	2.1	≤850	≤250	stainless steel, sulphuretted		60-80	0,015-0,03	0,03-0,05	0,08-0,15
M	2.2	≤850	≤250	austentic		60-80	0,015-0,03	0,03-0,05	0,04-0,10
M	2.3	≤1000	≤300	ferritic, ferritic & austentic, martensitic		60-80	0,01-0,025	0,02-0,04	0,04-0,10
K	3.1	≤500	≤150	grey cast iron	50-80	80-120	0,02-0,04	0,04-0,10	0,08-0,15
K	3.2	>500 ≤1000	>150 ≤300	grey cast iron, heat treated	50-80	80-120	0,02-0,03	0,04-0,08	0,08-0,12
K	3.3	400-500	200-250	vermicular cast iron		80-100	0,02-0,04	0,04-0,08	0,08-0,15
K	3.4	≤700	≤200	spheroidal graphite cast iron		80-120	0,02-0,04	0,04-0,10	0,08-0,15
K	3.5	>700 ≤1000	>200 ≤300	spheroidal graphite cast iron, heat treated		80-100	0,02-0,03	0,04-0,08	0,08-0,12
K	3.6	≤700	≤200	malleable iron		80-100	0,02-0,04	0,04-0,10	0,08-0,15
K	3.7	>700 <1000	>200 ≤300	malleable iron heat treated		80-100	0,02-0,03	0,04-0,08	0,08-0,12
S	4.1	≤700	≤200	pure titanium		40-100	0,015-0,03	0,03-0,08	0,08-0,15
S	4.2	≤900	≤270	titanium alloys		40-100	0,015-0,03	0,03-0,08	0,08-0,15
S	4.3	>900 ≤1250	>270 ≤300	titanium alloys		40-80	0,015-0,02	0,03-0,06	0,08-0,12
S	5.1	≤500	≤150	pure nickel		50-60	0,02-0,04	0,04-0,06	0,04-0,10
S	5.2	≤900	<270	nickel alloys, heat resistant		30-40	0,02-0,04	0,04-0,06	0,04-0,10
S	5.3	>900 ≤1200	>270 ≤350	nickel alloys, high heat resistance		10-30	0,015-0,03	0,03-0,05	0,04-0,08
N	6.1	≤350	≤100	non-alloy copper	100-300	100-400	0,04-0,07	0,07-0,12	0,10-0,20
N	6.2	≤700	≤200	short chip, brass, bronze, red brass	100-300	100-400	0,04-0,07	0,07-0,12	0,10-0,20
N	6.3	≤700	≤200	long chip brass	100-300	100-400	0,04-0,07	0,07-0,12	0,10-0,20
N	6.4	≤500	≤470	Cu-Al-Fe alloy (Ampco)	60-80	60-80	0,02-0,04	0,03-0,06	0,08-0,15
N	7.1	≤350	≤100	Al, Mg non-alloy	100-400	100-400	0,03-0,07	0,07-0,12	0,10-0,20
N	7.2	≤600	≤180	Al wrought alloy, breaking strain (A 5) <14 %	100-400	100-400	0,03-0,07	0,07-0,12	0,10-0,20
N	7.3	≤600	≤180	Al wrought alloy, breaking strain (A 5) ≥14 %	100-400	100-400	0,03-0,07	0,07-0,12	0,10-0,20
N	7.4	≤600	≤180	Al cast alloy, Si <10 %	100-300	100-400	0,03-0,07	0,07-0,12	0,10-0,20
N	7.5	≤600	≤180	Al cast alloy, Si ≥10 %	100-200	100-250	0,03-0,07	0,07-0,12	0,10-0,20
N	8.1			thermoplastics	80-100	100-120	0,04-0,06	0,06-0,12	0,08-0,20
N	8.2			thermosetting plastics	80-100	100-120	0,04-0,06	0,06-0,12	0,08-0,15
N	8.3			fibre reinforced plastics	50-60	60-80	0,04-0,06	0,06-0,12	0,08-0,15

Cutting values shown are relating to the basic recommendations for cutting materials given.

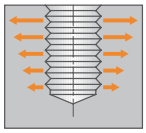
1. 

Chips packed or glued at the thread profile
- poor coolant

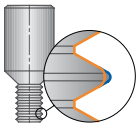
→ improve coolant (i.e. add flood coolant, lateral flute coolant supply for through holes)
→ add coolant flutes flutes on shank

2. 

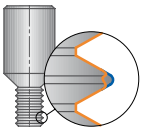
Thread go-gage doesn't fit
- thread too small → reduce tool radius in offset register
- chips in thread → improve coolant

3. 

Thread is getting tapered
- poor tool clamping → improve tool holding (i.e. shrink fit holders)
- thread milling feed too high → reduce thread milling feed

4. 

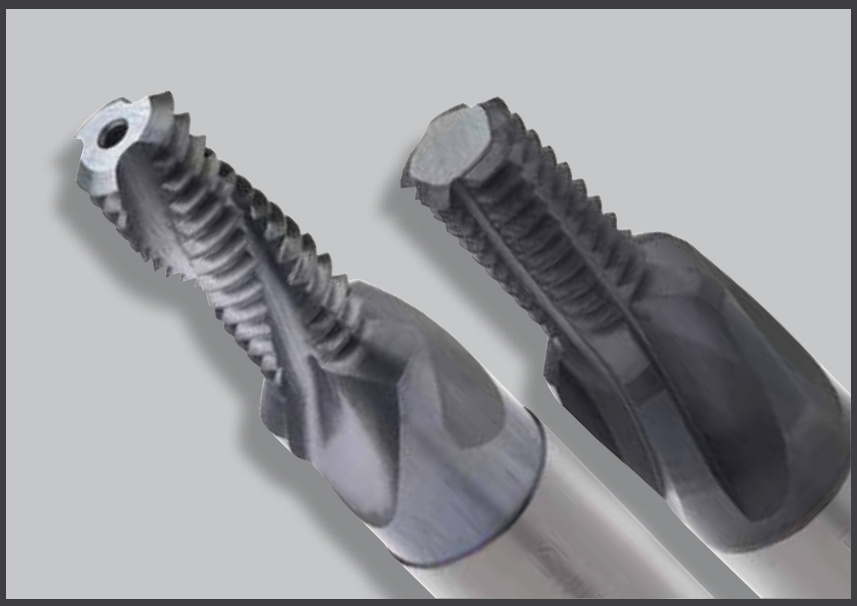
Erratic tool wear
- tool run out too high → use better tool holders (i.e. shrink fit holders), check material for homogeneity

5. 

Chippage, tool breakage
- feed rate thread milling too high → reduce thread milling feed
- vibrations → check tool holder (don't use modular systems!!), change feeds and speeds

6. 

Poor thread surface
- tool overhang too long → check part clamping an and fixture. Use multiple cuts when part is clamped weak
- non-suitable tool for this application → reduce cutting speed, increase feed/tooth, prefer conventional milling



Chamfering and thread milling right from M1

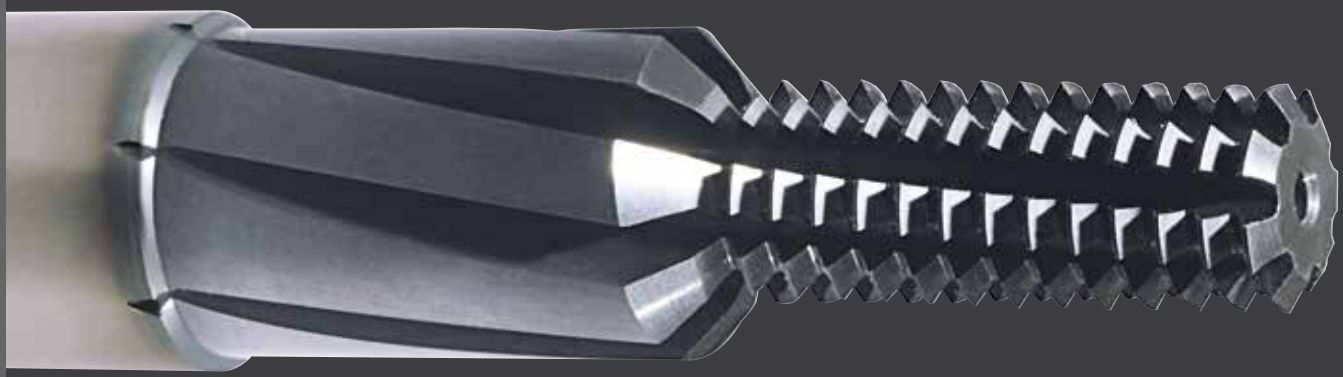
The MGF and UMGF thread milling tools feature a larger core cross section and narrow, geometrically optimised flutes. These characteristics produce good chip formation and low cutting pressure when thread milling.

The carbide grades used, as well as the coating, guarantee high tool life.

We have added our MKG thread milling tool to the range as a pure thread milling tool, without the chamfering option.

BENEFITS for you:

- Excellent surface finish on the part because of variation of the cutting parameters
- Exact pitch – no flattening at front of the thread
- Shorter milling chips (no chip problems in the same way as for tap drills)
- Various tolerances and thread sizes p.ex. 6H, 6G or M18×1.5, M20×1.5 and M24×1.5 can be produced
- One tool for blind bore and through hole thread
- One tool for L.H. and R.H. thread
- Fewer tool spaces
- No chip residue at the bottom of the bore
- Low cutting pressure when machining thin-walled parts
- Exact thread depth



KOMET JEL® MGF HPC thread milling cutters

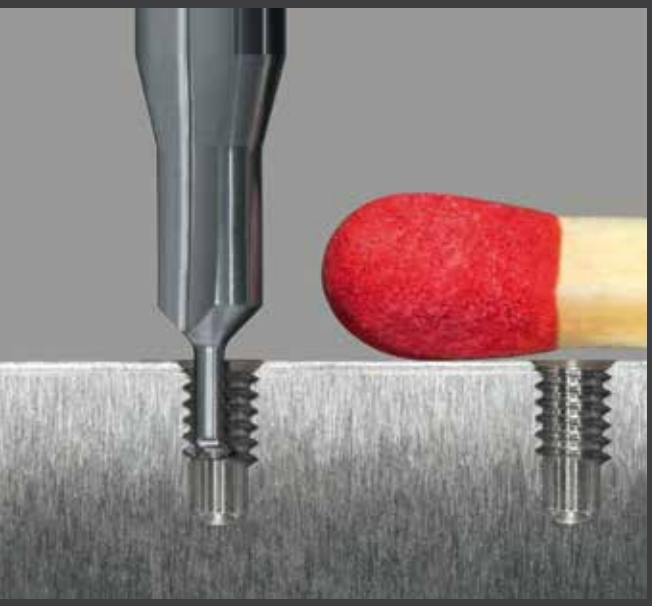
Threads in steel are milled for reasons relating to repeat accuracy and quality requirements. However, this procedure requires more time than conventional procedures such as tapping and forming, especially for small diameters of up to M16.

The process is determined by the cutting speed and feed rate. To achieve significantly faster machining times despite these parameters, the number of cutting edges must be increased. We have achieved this with the MGF HPC.

BENEFITS for you:

Advantages over tapping

- Machining time in steel the same or faster
- Threading possible right to the base
- Greater process reliability, particularly for expensive workpieces
- Same tool can be used for different materials
- Very short and wedged chips



MGF XH Micro

Applications:
- Hardened steels between 45-60 HRC
- Threads can be directly inserted in hardened components, e.g. aerospace parts, implants etc.
- Complex additional machining, due to hardening distortion, can be avoided
- Left-hand cutting from M1 to M2.5

JEL® TPT

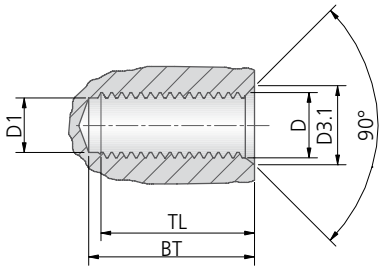
CNC programs for various control systems can be configured online at http://tpt.kometgroup.com or can be obtained on request by telephoning: +49 711 788910.
Also available as "TPT Mobile" app, with identical features for mobile end devices like iPhone and iPad, in the webshop App Store as well as Google Play™ for Android™ smartphones.

Thread milling tool MGF | UMFG

KOMET SERVICE® – Chapter 9
The KOMET SERVICE® TOOL*life*Box icon describes tools that are available for the high quality cost-efficient refurbishment of tools.

KOMET JEL® MGF

Thread engagements



TL = full thread length
BT = min. drill depth
D3.1 = possible chamfer ∅ with rear chamfer

M										
Nominal ∅			1,5×D		2×D		2,5×D		3×D	
D	D1	D3.1	BT	TL	BT	TL	BT	TL	BT	TL
M2	1,60	2,30	3,36	3,06	4,56	4,26	–	–	–	–
M3	2,50	3,30	5,16	4,77	6,66	6,27	–	–	–	–
M4	3,30	4,30	6,48	5,91	8,58	8,01	10,68	10,11	12,78	12,21
M5	4,20	5,30	8,22	7,52	10,60	9,92	13,00	12,32	16,20	15,52
M6	5,00	6,30	10,21	9,36	13,21	12,36	16,21	15,36	19,21	18,36
M8	6,80	8,30	14,01	12,89	17,76	16,64	21,51	20,39	25,26	24,14
M10	8,50	10,30	16,81	15,42	21,31	19,92	27,31	25,92	31,81	30,42
M12	10,30	12,30	19,65	17,95	26,60	24,96	31,85	30,21	–	–
M14	12,00	14,30	24,40	22,50	30,40	28,50	38,40	36,50	–	–
M16	14,00	16,30	26,42	24,47	34,42	32,47	42,42	40,47	–	–
M20	17,50	20,30	35,55	33,00	45,55	43,00	53,05	50,50	–	–

M – MGF XH Micro				
Nominal ∅			1,5×D	
D	D1	D3.1	BT	TL
M1	0,75	1,50	2,10	1,85
M1,4	1,10	1,70	2,60	2,36
M1,6	1,25	2,10	3,10	2,77
M2	1,60	2,60	3,70	3,44
M2,2	1,75	2,50	3,90	3,61
M2,5	2,05	2,90	4,50	4,11

M – metric ISO thread DIN 13

MF						
Nominal ∅			1,5×D		2×D	
D	D1	D3.1	BT	TL	BT	TL
M4×0,5	3,50	4,30	6,73	6,21	8,73	8,21
M5×0,5	4,50	5,30	8,30	7,70	10,80	10,20
M6×0,75	5,25	6,30	10,03	9,20	13,03	12,20
M8×1	7,00	8,30	13,34	12,26	17,34	16,26
M10×1	9,00	10,30	16,46	15,17	21,46	20,17
M12×1,5	10,50	12,30	19,92	18,33	25,92	24,33
M12×1	11,00	12,30	19,57	18,08	25,57	24,08
M14×1,5	12,50	14,30	23,05	21,23	30,55	28,73
M16×1,5	14,50	16,30	26,07	24,21	33,57	31,71

MF – metric fine ISO thread DIN 13

G						
Nominal ∅			1,5×D		2×D	
D	D1	D3.1	BT	TL	BT	TL
G1/8-28	8,82	10,03	15,81	14,67	21,25	20,11
G1/4-19	11,82	13,46	21,74	20,37	28,43	27,06
G3/8-19	15,32	16,96	27,22	25,60	35,24	33,62

G – Whitworth pipe thread DIN EN ISO 228 and DIN EN 10226 (previously DIN 2999)

UNC						
Nominal ∅			1,5×D		2×D	
D	D1	D3.1	BT	TL	BT	TL
1/4-20 UNC	5,08	6,65	11,65	10,62	15,46	14,40
5/16-18 UNC	6,53	8,24	12,93	11,80	17,14	16,01
3/8-16 UNC	7,94	9,83	16,20	14,81	20,92	19,53
1/2-13 UNC	10,75	13,00	21,97	20,00	27,83	25,81

UNC – american Unified coarse thread ANSI B1.1

NPT				
Nominal ∅			Standard length	
D	D1	D3.1	BT	TL
1/16-27 NPT	6,15	8,70	11,36	9,00
1/8-27 NPT	8,43	11,10	11,36	9,00
1/4-18 NPT	11,13	14,50	16,77	13,50
3/8-18 NPT	14,27	17,90	16,77	13,50

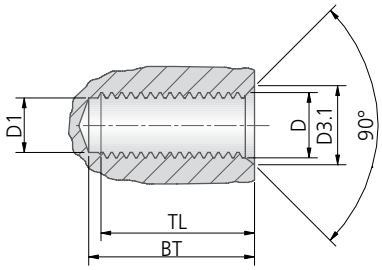
NPT thread ANSI B2.1

UNF						
Nominal ∅			1,5×D		2×D	
D	D1	D3.1	BT	TL	BT	TL
1/4-28 UNF	5,44	6,65	11,20	10,20	14,84	13,85
5/16-24 UNF	6,88	8,24	13,00	11,90	17,23	16,18
3/8-24 UNF	8,47	9,83	15,16	14,09	20,42	19,35
7/16-20 UNF	9,84	11,41	18,05	16,90	23,13	21,99
1/2-20 UNF	11,43	13,00	21,01	19,10	27,36	25,50

UNF – american Unified fine thread ANSI B1.1

NPTF				
Nominal ∅			Standard length	
D	D1	D3.1	BT	TL
1/16-27 NPTF	6,10	8,70	11,36	9,00
1/8-27 NPTF	8,40	11,10	11,36	9,00
1/4-18 NPTF	11,00	14,50	16,77	13,50
3/8-18 NPTF	14,50	17,90	16,77	13,50

NPTF thread ANSI B2.1



TL = full thread length
BT = min. drill depth
D3.1 = possible chamfer ∅ with rear chamfer

M						
Nominal ∅			2×D		2,5×D	
D	D1	D3.1	BT	TL	BT	TL
M4	3,30	4,30	8,58	7,31	–	–
M5	4,20	5,30	10,60	9,12	–	–
M6	5,00	6,30	13,21	11,36	16,21	14,36
M8	6,80	8,30	17,76	15,39	21,51	19,14
M10	8,50	10,30	21,31	18,42	27,31	24,42
M12	10,30	12,30	26,60	23,21	31,85	28,46
M14	12,00	14,30	30,40	26,50	–	–
M16	14,00	16,30	34,42	30,47	–	–

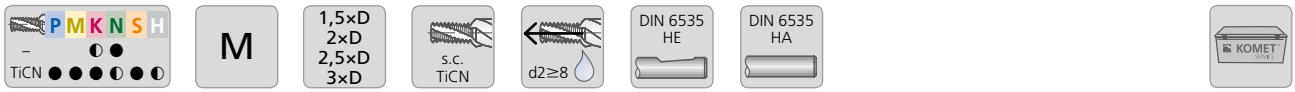
M – metric ISO thread DIN 13

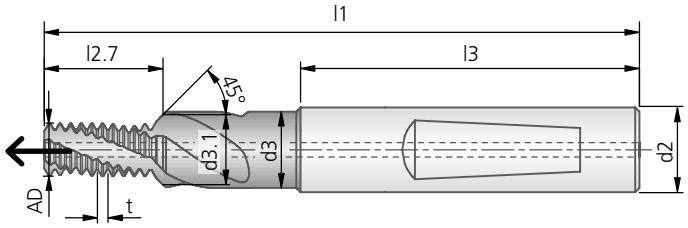
MF				
Nominal ∅			2×D	
D	D1	D3.1	BT	TL
M8×1	7,00	8,30	17,37	15,29
M10×1	8,00	10,30	21,46	19,17
M12×1,5	10,50	12,30	25,98	22,88
M12×1	11,00	12,30	25,57	23,08
M14×1,5	12,50	14,30	30,55	27,23
M16×1,5	14,50	16,30	33,53	30,21

MF – metric fine ISO thread DIN 13

KOMET JEL® M-MGF

Thread milling tool with rear chamfer





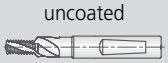
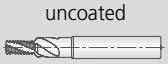
M-MGF 1,5×D											DIN 6535 HE	DIN 6535 HA
											uncoated	uncoated
Nominal ∅	t	Drill ∅	l1	l2.7	l3	d2	d3	d3.1	AD	Z	Order No.	Order No.
M2	0,40	1,60	47,8	3,4	36	6	2,5	2,3	1,56	2	80981001000008	88981001000008
M3	0,50	2,50	47,5	5,2	36	6	3,4	3,3	2,44	3	80981001000013	88981001000013
M4	0,70	3,30	46,9	6,5	36	6	4,5	4,3	3,14	3	80981001000015	88981001000015
M5	0,80	4,20	52,6	8,2	36	6	5,5	5,3	3,95	3	80981001000017	88981001000017
M6	1,00	5,00	59,0	10,2	36	8	6,6	6,3	4,68	3	80981001000018	88981001000018
M8	1,25	6,80	70,3	14,0	40	10	9,0	8,3	6,22	3	80981001000020	88981001000020
M10	1,50	8,50	74,5	16,8	45	12	11,0	10,3	7,79	3	80981001000022	88981001000022
M12	1,75	10,25	82,0	19,6	45	14	13,5	12,3	9,38	3	80981001000024	88981001000024
M14	2,00	12,00	96,0	24,4	48	16	15,5	14,3	10,92	4	80981001000025	88981001000025
M16	2,00	14,00	94,0	26,4	48	18	17,5	16,3	12,83	4	80981001000026	88981001000026
M20	2,50	17,50	117,0	35,55	56	25	25,0	20,3	15,83	4	80981001000028	88981001000028
											TiCN	TiCN
M2	0,40	1,60	47,8	3,4	36	6	2,5	2,3	1,56	2		
M3	0,50	2,50	47,5	5,2	36	6	3,4	3,3	2,44	3		
M4	0,70	3,30	46,9	6,5	36	6	4,5	4,3	3,14	3	80973001000015	88973001000015
M5	0,80	4,20	52,6	8,2	36	6	5,5	5,3	3,95	3	80973001000017	88973001000017
M6	1,00	5,00	59,0	10,2	36	8	6,6	6,3	4,68	3	80973001000018	88973001000018
M8	1,25	6,80	70,3	14,0	40	10	9,0	8,3	6,22	3	80973001000020	88973001000020
M10	1,50	8,50	74,5	16,8	45	12	11,0	10,3	7,79	3	80973001000022	88973001000022
M12	1,75	10,25	82,0	19,6	45	14	13,5	12,3	9,38	3	80973001000024	88973001000024
M14	2,00	12,00	96,0	24,4	48	16	15,5	14,3	10,92	4	80973001000025	88973001000025
M16	2,00	14,00	94,0	26,4	48	18	17,5	16,3	12,83	4	80973001000026	88973001000026
M20	2,50	17,50	117,0	35,55	56	25	25,0	20,3	15,83	4	80973001000028	88973001000028

Thread engagements see page 30.

● very good | ◐ good

M-MGF 2×D											DIN 6535 HE	DIN 6535 HA
											uncoated 	uncoated 
Nominal Ø	t	Drill Ø	l1	l2.7	l3	d2	d3	d3.1	AD	Z	Order No.	Order No.
M2	0,40	1,60	49,0	4,6	36	6	2,5	2,3	1,56	2	80970001000008	88970001000008
M3	0,50	2,50	49,0	6,7	36	6	3,4	3,3	2,44	3	80970001000013	88970001000013
M4	0,70	3,30	49,0	8,6	36	6	4,5	4,3	3,14	3	80970001000015	88970001000015
M5	0,80	4,20	55,0	10,6	36	6	5,5	5,3	3,95	3	80970001000017	88970001000017
M6	1,00	5,00	62,0	13,2	36	8	6,6	6,3	4,68	3	80970001000018	88970001000018
M8	1,25	6,80	74,0	17,8	40	10	9,0	8,3	6,22	3	80970001000020	88970001000020
M10	1,50	8,50	79,0	21,3	45	12	11,0	10,3	7,79	3	80970001000022	88970001000022
M12	1,75	10,25	89,0	26,6	45	14	13,5	12,3	9,38	3	80970001000024	88970001000024
M14	2,00	12,00	102,0	30,4	48	16	15,5	14,3	10,92	4	80970001000025	88970001000025
M16	2,00	14,00	102,0	34,4	48	18	17,5	16,3	12,83	4	80970001000026	88970001000026
M20	2,50	17,50	127,0	45,55	56	25	25,0	20,3	15,83	4	80970001000028	88970001000028
											TiCN 	TiCN 
M2	0,40	1,60	49,0	4,6	36	6	2,5	2,3	1,56	2		
M3	0,50	2,50	49,0	6,7	36	6	3,4	3,3	2,44	3		
M4	0,70	3,30	49,0	8,6	36	6	4,5	4,3	3,14	3	80992001000015	88992001000015
M5	0,80	4,20	55,0	10,6	36	6	5,5	5,3	3,95	3	80992001000017	88992001000017
M6	1,00	5,00	62,0	13,2	36	8	6,6	6,3	4,68	3	80992001000018	88992001000018
M8	1,25	6,80	74,0	17,8	40	10	9,0	8,3	6,22	3	80992001000020	88992001000020
M10	1,50	8,50	79,0	21,3	45	12	11,0	10,3	7,79	3	80992001000022	88992001000022
M12	1,75	10,25	89,0	26,6	45	14	13,5	12,3	9,38	3	80992001000024	88992001000024
M14	2,00	12,00	102,0	30,4	48	16	15,5	14,3	10,92	4	80992001000025	88992001000025
M16	2,00	14,00	102,0	34,4	48	18	17,5	16,3	12,83	4	80992001000026	88992001000026
M20	2,50	17,50	127,0	45,55	56	25	25,0	20,3	15,83	4	80992001000028	88992001000028

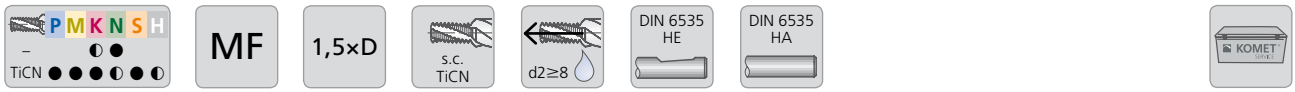
M-MGF 2,5×D											DIN 6535 HE	DIN 6535 HA
											uncoated 	uncoated 
Nominal Ø	t	Drill Ø	l1	l2.7	l3	d2	d3	d3.1	AD	Z	Order No.	Order No.
M4	0,70	3,30	49,0	10,7	36	6	4,5	4,3	3,14	3		
M5	0,80	4,20	55,0	13,0	36	6	5,5	5,3	3,95	3	80990001000017	88990001000017
M6	1,00	5,00	62,0	16,2	36	8	6,6	6,3	4,68	3	80990001000018	88990001000018
M8	1,25	6,80	74,0	21,5	40	10	9,0	8,3	6,22	3	80990001000020	88990001000020
M10	1,50	8,50	79,0	27,3	45	12	11,0	10,3	7,79	3	80990001000022	88990001000022
M12	1,75	10,25	89,0	31,9	45	14	13,5	12,3	9,38	3	80990001000024	88990001000024
M14	2,00	12,00	102,0	38,4	48	16	15,5	14,3	10,92	4		
M16	2,00	14,00	102,0	42,4	48	18	17,5	16,3	12,83	4		
											TiCN 	TiCN 
M4	0,70	3,30	49,0	10,7	36	6	4,5	4,3	3,14	3		
M5	0,80	4,20	55,0	13,0	36	6	5,5	5,3	3,95	3		
M6	1,00	5,00	62,0	16,2	36	8	6,6	6,3	4,68	3	80995001000018	88995001000018
M8	1,25	6,80	74,0	21,5	40	10	9,0	8,3	6,22	3	80995001000020	88995001000020
M10	1,50	8,50	79,0	27,3	45	12	11,0	10,3	7,79	3	80995001000022	88995001000022
M12	1,75	10,25	89,0	31,9	45	14	13,5	12,3	9,38	3	80995001000024	88995001000024
M14	2,00	12,00	102,0	38,4	48	16	15,5	14,3	10,92	4		
M16	2,00	14,00	102,0	42,4	48	18	17,5	16,3	12,83	4		

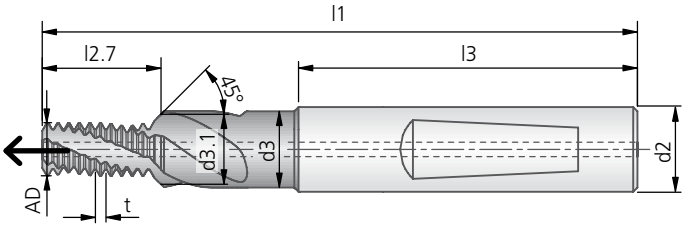
M-MGF 3×D – for aluminium											DIN 6535 HE	DIN 6535 HA
											uncoated 	uncoated 
Nominal Ø	t	Drill Ø	l1	l2.7	l3	d2	d3	d3.1	AD	Z	Order No.	Order No.
M4	0,70	3,30	55	12,78	36	6	4,5	4,3	3,14	3	80270001000015	88270001000015
M5	0,80	4,20	58	16,2	36	6	5,5	5,3	3,95	3	80270001000017	88270001000017
M6	1,00	5,00	64	19,21	36	8	6,6	6,3	4,68	3	80270001000018	88270001000018
M8	1,25	6,80	76	25,26	40	10	9,0	8,3	6,22	3	80270001000020	88270001000020
M10	1,50	8,50	89	31,81	45	12	11,0	10,3	7,79	3	80270001000022	88270001000022

Guideline values for thread milling: page 52.

KOMET JEL® MF-MGF

Thread milling tool with rear chamfer



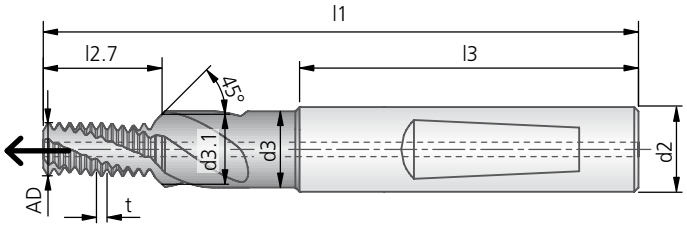


MF-MGF 1,5×D											DIN 6535 HE	DIN 6535 HA
											uncoated	uncoated
Nominal ∅	t	Drill ∅	l1	l2.7	l3	d2	d3	d3.1	AD	Z	Order No.	Order No.
M4×0,5	0,50	3,50	47,0	6,7	36	6	4,5	4,3	3,14	3		
M5×0,5	0,50	4,50	52,5	8,3	36	6	5,5	5,3	3,95	3		
M6×0,75	0,75	5,25	59,0	10,0	36	8	6,6	6,3	4,68	3		
M8×1	1,00	7,00	70,0	13,3	40	10	9,0	8,3	6,22	3	**80981002000070**	**88981002000070**
M10×1	1,00	9,00	74,0	16,5	45	12	11,0	10,3	7,79	3	**80981002000094**	**88981002000094**
M12×1	1,00	11,00	83,0	19,6	45	14	13,5	12,3	9,38	3	**80981002000111**	**88981002000111**
M12×1,5	1,50	10,50	83,0	19,9	45	14	13,5	12,3	9,38	3	**80981002000113**	**88981002000113**
M14×1,5	1,50	12,50	94,5	23,1	48	16	15,5	14,3	10,92	4	**80981002000131**	**88981002000131**
M16×1,5	1,50	14,50	94,5	26,1	48	18	17,5	16,3	12,82	4	**80981002000147**	**88981002000147**
											TiCN	TiCN
M4×0,5	0,50	3,50	47,0	6,7	36	6	4,5	4,3	3,14	3		
M5×0,5	0,50	4,50	52,5	8,3	36	6	5,5	5,3	3,95	3		
M6×0,75	0,75	5,25	59,0	10,0	36	8	6,6	6,3	4,68	3		
M8×1	1,00	7,00	70,0	13,3	40	10	9,0	8,3	6,22	3	**80973002000070**	**88973002000070**
M10×1	1,00	9,00	74,0	16,5	45	12	11,0	10,3	7,79	3	**80973002000094**	**88973002000094**
M12×1	1,00	11,00	83,0	19,6	45	14	13,5	12,3	9,38	3		
M12×1,5	1,50	10,50	83,0	19,9	45	14	13,5	12,3	9,38	3	**80973002000113**	**88973002000113**
M14×1,5	1,50	12,50	94,5	23,1	48	16	15,5	14,3	10,92	4	**80973002000131**	**88973002000131**
M16×1,5	1,50	14,50	94,5	26,1	48	18	17,5	16,3	12,82	4	**80973002000147**	**88973002000147**

Thread engagements see page 30.

● very good | ◐ good

Thread milling tool with rear chamfer

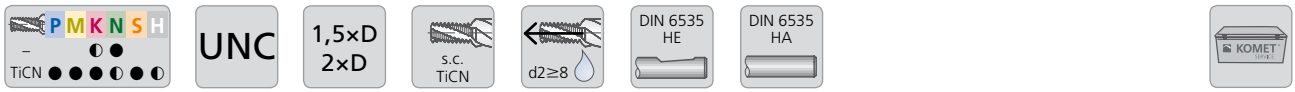


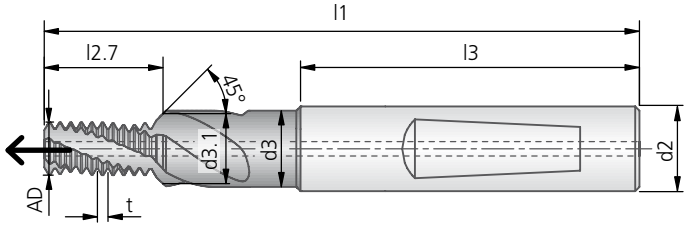
MF-MGF 2×D											DIN 6535 HE	DIN 6535 HA
											uncoated	uncoated
Nominal ∅	t	Drill ∅	l1	l2.7	l3	d2	d3	d3.1	AD	Z	Order No.	Order No.
M4×0,5	0,50	3,50	49,0	8,7	36	6	4,5	4,3	3,14	3		
M5×0,5	0,50	4,50	55,0	10,8	36	6	5,5	5,3	3,95	3	**80970002000037**	**88970002000037**
M6×0,75	0,75	5,25	62,0	13,0	36	8	6,6	6,3	4,68	3	**80970002000048**	**88970002000048**
M8×1	1,00	7,00	74,0	17,3	40	10	9,0	8,3	6,22	3	**80970002000070**	**88970002000070**
M10×1	1,00	9,00	79,0	21,5	45	12	11,0	10,3	7,79	3	**80970002000094**	**88970002000094**
M12×1	1,00	11,00	89,0	25,6	45	14	13,5	12,3	9,38	3	**80970002000111**	**88970002000111**
M12×1,5	1,50	10,50	89,0	25,9	45	14	13,5	12,3	9,38	3	**80970002000113**	**88970002000113**
M14×1,5	1,50	12,50	102,0	30,6	48	16	15,5	14,3	10,92	4	**80970002000131**	**88970002000131**
M16×1,5	1,50	14,50	102,0	33,6	48	18	17,5	16,3	12,82	4	**80970002000147**	**88970002000147**
											TiCN	TiCN
M4×0,5	0,50	3,50	49,0	8,7	36	6	4,5	4,3	3,14	3		
M5×0,5	0,50	4,50	55,0	10,8	36	6	5,5	5,3	3,95	3		
M6×0,75	0,75	5,25	62,0	13,0	36	8	6,6	6,3	4,68	3		
M8×1	1,00	7,00	74,0	17,3	40	10	9,0	8,3	6,22	3	**80992002000070**	**88992002000070**
M10×1	1,00	9,00	79,0	21,5	45	12	11,0	10,3	7,79	3	**80992002000094**	**88992002000094**
M12×1	1,00	11,00	89,0	25,6	45	14	13,5	12,3	9,38	3		
M12×1,5	1,50	10,50	89,0	25,9	45	14	13,5	12,3	9,38	3	**80992002000113**	**88992002000113**
M14×1,5	1,50	12,50	102,0	30,6	48	16	15,5	14,3	10,92	4	**80992002000131**	**88992002000131**
M16×1,5	1,50	14,50	102,0	33,6	48	18	17,5	16,3	12,82	4	**80992002000147**	**88992002000147**

Thread engagements see page 30.

KOMET JEL® UNC-MGF

Thread milling tool with rear chamfer



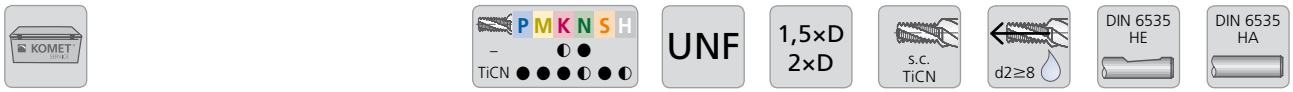


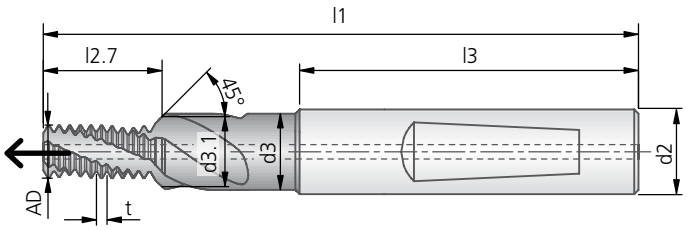
UNC-MGF 1,5×D											DIN 6535 HE	DIN 6535 HA
											uncoated	uncoated
Nominal Ø	t	Drill Ø	l1	l2.7	l3	d2	d3	d3.1	AD	Z	Order No.	Order No.
1/4-20 UNC	1,270	5,08	58,2	11,65	36	8	7,8	6,7	4,70	3	80981010000011	88981010000011
5/16-18 UNC	1,411	6,53	69,8	12,90	40	10	9,0	8,2	6,22	3	80981010000012	88981010000012
3/8-16 UNC	1,588	7,94	74,2	16,20	45	12	11,0	9,8	7,34	3	80981010000013	88981010000013
1/2-13 UNC	1,954	10,75	83,1	22,00	45	14	13,5	13,0	9,38	3	80981010000015	88981010000015
											TiCN	TiCN
1/4-20 UNC	1,270	5,08	58,2	11,65	36	8	7,8	6,7	4,70	3	80973010000011	88973010000011
5/16-18 UNC	1,411	6,53	69,8	12,90	40	10	9,0	8,2	6,22	3	80973010000012	88973010000012
3/8-16 UNC	1,588	7,94	74,2	16,20	45	12	11,0	9,8	7,34	3	80973010000013	88973010000013
1/2-13 UNC	1,954	10,75	83,1	22,00	45	14	13,5	13,0	9,38	3	80973010000015	88973010000015

UNC-MGF 2×D											DIN 6535 HE	DIN 6535 HA
											uncoated	uncoated
Nominal Ø	t	Drill Ø	l1	l2.7	l3	d2	d3	d3.1	AD	Z	Order No.	Order No.
1/4-20 UNC	1,270	5,08	62,0	15,46	36	8	7,8	6,7	4,70	3	80970010000011	88970010000011
5/16-18 UNC	1,411	6,53	74,0	17,10	40	10	9,0	8,2	6,22	3	80970010000012	88970010000012
3/8-16 UNC	1,588	7,94	79,0	20,90	45	12	11,0	9,8	7,34	3	80970010000013	88970010000013
1/2-13 UNC	1,954	10,75	89,0	27,80	45	14	13,5	13,0	9,38	3	80970010000015	88970010000015
											TiCN	TiCN
1/4-20 UNC	1,270	5,08	62,0	15,46	36	8	7,8	6,7	4,70	3	80992010000011	88992010000011
5/16-18 UNC	1,411	6,53	74,0	17,10	40	10	9,0	8,2	6,22	3	80992010000012	88992010000012
3/8-16 UNC	1,588	7,94	79,0	20,90	45	12	11,0	9,8	7,34	3	80992010000013	88992010000013
1/2-13 UNC	1,954	10,75	89,0	27,80	45	14	13,5	13,0	9,38	3	80992010000015	88992010000015

Thread engagements see page 30.

● very good | ◐ good





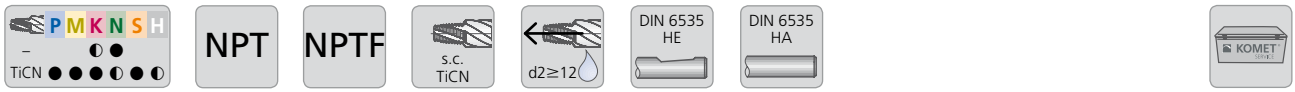
UNF-MGF 1,5×D											DIN 6535 HE	DIN 6535 HA
											uncoated	uncoated
Nominal Ø	t	Drill Ø	l1	l2.7	l3	d2	d3	d3.1	AD	Z	Order No.	Order No.
1/4-28 UNF	0,907	5,44	58,4	11,2	36	8	7,8	6,65	4,70	3	80981011000011	88981011000011
5/16-24 UNF	1,058	6,88	69,8	13,0	40	10	9,0	8,24	6,22	3	80981011000012	88981011000012
3/8-24 UNF	1,058	8,47	73,7	15,1	45	12	11,0	9,83	7,79	3	80981011000013	88981011000013
7/16-20 UNF	1,270	9,84	82,9	18,05	45	14	13,5	11,41	9,32	3	80981011000014	88981011000014
1/2-20 UNF	1,270	11,43	82,7	21,0	45	14	13,5	13,00	9,38	3	80981011000015	88981011000015
											TiCN	TiCN
1/4-28 UNF	0,907	5,44	58,4	11,2	36	8	7,8	6,65	4,70	3	80973011000011	88973011000011
5/16-24 UNF	1,058	6,88	69,8	13,0	40	10	9,0	8,24	6,22	3	80973011000012	88973011000012
3/8-24 UNF	1,058	8,47	73,7	15,1	45	12	11,0	9,83	7,79	3	80973011000013	88973011000013
7/16-20 UNF	1,270	9,84	82,9	18,05	45	14	13,5	11,41	9,32	3	80973011000014	88973011000014
1/2-20 UNF	1,270	11,43	82,7	21,0	45	14	13,5	13,00	9,38	3	80973011000015	88973011000015

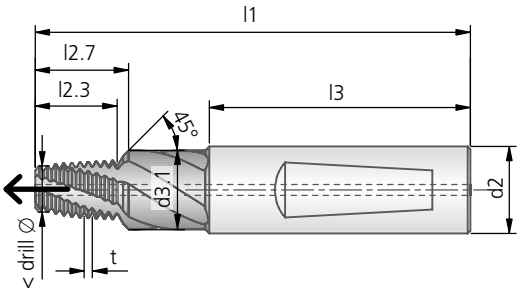
UNF-MGF 2×D											DIN 6535 HE	DIN 6535 HA
											uncoated	uncoated
Nominal Ø	t	Drill Ø	l1	l2.7	l3	d2	d3	d3.1	AD	Z	Order No.	Order No.
1/4-28 UNF	0,907	5,44	62,0	14,8	36	8	7,8	6,65	4,70	3	80970011000011	88970011000011
5/16-24 UNF	1,058	6,88	74,0	17,2	40	10	9,0	8,24	6,22	3	80970011000012	88970011000012
3/8-24 UNF	1,058	8,47	79,0	20,4	45	12	11,0	9,83	7,79	3	80970011000013	88970011000013
7/16-20 UNF	1,270	9,84	88,0	23,1	45	14	13,5	11,41	9,32	3	80970011000014	88970011000014
1/2-20 UNF	1,270	11,43	89,0	27,4	45	14	13,5	13,00	9,38	3	80970011000015	88970011000015
											TiCN	TiCN
1/4-28 UNF	0,907	5,44	62,0	14,8	36	8	7,8	6,65	4,70	3	80992011000011	88992011000011
5/16-24 UNF	1,058	6,88	74,0	17,2	40	10	9,0	8,24	6,22	3	80992011000012	88992011000012
3/8-24 UNF	1,058	8,47	79,0	20,4	45	12	11,0	9,83	7,79	3	80992011000013	88992011000013
7/16-20 UNF	1,270	9,84	88,0	23,1	45	14	13,5	11,41	9,32	3	80992011000014	88992011000014
1/2-20 UNF	1,270	11,43	89,0	27,4	45	14	13,5	13,00	9,38	3	80992011000015	88992011000015

Guideline values for thread milling: page 52.

KOMET JEL® NPT-MGF, NPTF-MGF

Thread milling tool with rear chamfer





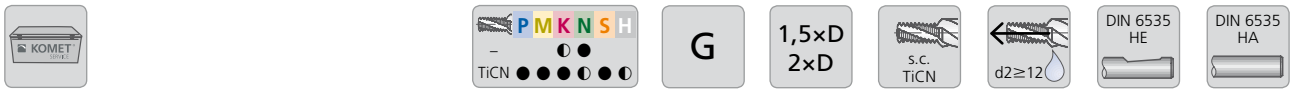
NPT-MGF										DIN 6535 HE	DIN 6535 HA
										uncoated	uncoated
Nominal Ø	t	Drill Ø	l1	l2.3	l2.7	l3	d2	d3.1	Z	Order No.	Order No.
1/16-27 NPT	0,941	6,15	64,0	9,7	11,36	40	10	8,7	3	80970016000001	88970016000001
1/8-27 NPT	0,941	8,50	70,0	9,7	11,36	45	12	11,1	3	80970016000002	88970016000002
1/4-18 NPT	1,411	11,0	80,0	14,81	16,77	48	16	14,5	4	80970016000003	88970016000003
3/8-18 NPT	1,411	14,5	81,0	14,81	16,77	48	18	17,9	4	80970016000004	88970016000004
										TiCN	TiCN
1/16-27 NPT	0,941	6,15	64,0	9,7	11,36	40	10	8,7	3		
1/8-27 NPT	0,941	8,50	70,0	9,7	11,36	45	12	11,1	3	80973016000002	88973016000002
1/4-18 NPT	1,411	11,0	80,0	14,81	16,77	48	16	14,5	4	80973016000003	88973016000003
3/8-18 NPT	1,411	14,5	81,0	14,81	16,77	48	18	17,9	4	80973016000004	88973016000004

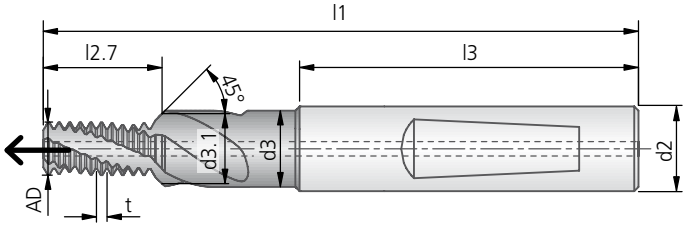
For threads ½" – 14 NPT and bigger, use KOMET JEL® TOMILL GS thread milling tool.

NPTF-MGF										DIN 6535 HE	DIN 6535 HA
										uncoated	uncoated
Nominal Ø	t	Drill Ø	l1	l2.3	l2.7	l3	d2	d3.1	Z	Order No.	Order No.
1/16-27 NPTF	0,941	6,10	64,0	9,7	11,36	40	10	8,7	3		
1/8-27 NPTF	0,941	8,45	70,0	9,7	11,36	45	12	11,1	3	80970017000002	88970017000002
1/4-18 NPTF	1,411	10,90	80,0	14,81	16,77	48	16	14,5	4	80970017000003	88970017000003
3/8-18 NPTF	1,411	14,30	81,0	14,81	16,77	48	18	17,9	4	80970017000004	88970017000004
										TiCN	TiCN
1/16-27 NPTF	0,941	6,10	64,0	9,7	11,36	40	10	8,7	3		
1/8-27 NPTF	0,941	8,45	70,0	9,7	11,36	45	12	11,1	3	80973017000002	88973017000002
1/4-18 NPTF	1,411	10,90	80,0	14,81	16,77	48	16	14,5	4	80973017000003	88973017000003
3/8-18 NPTF	1,411	14,30	81,0	14,81	16,77	48	18	17,9	4	80973017000004	88973017000004

For threads ½" – 14 NPTF and bigger, use KOMET JEL® TOMILL GS thread milling tool.

● very good | ◐ good





G-MGF 1,5×D											DIN 6535 HE	DIN 6535 HA
Nominal Ø	t	Drill Ø	l1	l2.7	l3	d2	d3	d3.1	AD	Z	uncoated Order No.	uncoated Order No.
G1/8-28	0,907	8,82	73,6	15,8	45	12	11,0	10,0	7,79	3	80981025000001	88981025000001
G1/4-19	1,337	11,82	94,0	21,7	48	16	15,5	13,5	10,92	4	80981025000002	88981025000002
G3/8-19	1,337	15,32	94,0	27,2	50	20	17,5	17,0	13,92	4	80981025000003	88981025000003
											TiCN Order No.	TiCN Order No.
G1/8-28	0,907	8,82	73,6	15,8	45	12	11,0	10,0	7,79	3	80973025000001	88973025000001
G1/4-19	1,337	11,82	94,0	21,7	48	16	15,5	13,5	10,92	4	80973025000002	88973025000002
G3/8-19	1,337	15,32	94,0	27,2	50	20	17,5	17,0	13,92	4		

G-MGF 2×D											DIN 6535 HE	DIN 6535 HA
Nominal Ø	t	Drill Ø	l1	l2.7	l3	d2	d3	d3.1	AD	Z	uncoated Order No.	uncoated Order No.
G1/8-28	0,907	8,82	79,0	21,2	45	12	11,0	10,0	7,79	3	80970025000001	88970025000001
G1/4-19	1,337	11,82	100,5	28,4	48	16	15,5	13,5	10,92	4	80970025000002	88970025000002
G3/8-19	1,337	15,32	102,0	35,2	50	20	17,5	17,0	13,92	4	80970025000003	88970025000003
											TiCN Order No.	TiCN Order No.
G1/8-28	0,907	8,82	79,0	21,2	45	12	11,0	10,0	7,79	3	80992025000001	88992025000001
G1/4-19	1,337	11,82	100,5	28,4	48	16	15,5	13,5	10,92	4	80992025000002	88992025000002
G3/8-19	1,337	15,32	102,0	35,2	50	20	17,5	17,0	13,92	4		

Thread engagements see page 30.

KOMET JEL® M-MGF HPC

Thread milling tool with rear chamfer

Material P M K N S H

M

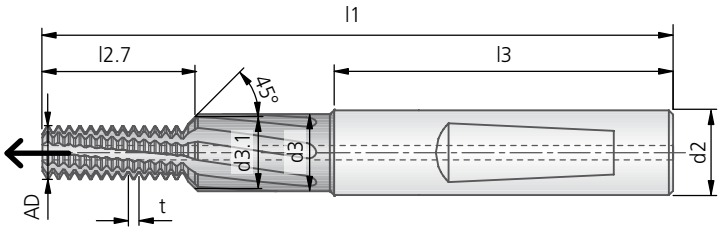
1,5×D 2×D

s.c. AlCrN

DIN 6535 HE

DIN 6535 HA

for machining steel to 1200 N/mm² tensile strength, stainless steel, cast materials and titanium alloys



M-MGF HPC 1,5×D											DIN 6535 HE	DIN 6535 HA
Nominal ∅	t	Drill ∅	l1	l2.7	l3	d2	d3	d3.1	AD	Z	AlCrN Order No.	AlCrN Order No.
M4	0,70	3,3	46,9	6,5	36	6	4,5	4,3	3,14	5	80297001000015	88297001000015
M5	0,80	4,2	52,6	8,2	36	6	5,5	5,3	3,95	5	80297001000017	88297001000017
M6	1,00	5,0	59,0	10,2	36	8	6,6	6,3	4,68	6	80297001000018	88297001000018
M8	1,25	6,8	70,3	14,0	40	10	9,0	8,3	6,22	7	80297001000020	88297001000020
M10	1,50	8,5	74,5	16,8	45	12	11,0	10,3	7,79	7	80297001000022	88297001000022
M12	1,75	10,3	82,0	19,6	45	14	13,5	12,3	9,38	7	80297001000024	88297001000024
M14	2,00	12,0	96,0	24,4	48	16	15,5	14,3	10,92	7	80297001000025	88297001000025
M16	2,00	14,0	94,0	26,4	48	18	17,5	16,3	12,83	8	80297001000026	88297001000026
M20	2,50	17,5	117,0	35,6	56	25	25,0	20,3	15,83	8	80297001000028	88297001000028

M-MGF HPC 2×D											DIN 6535 HE	DIN 6535 HA
Nominal ∅	t	Drill ∅	l1	l2.7	l3	d2	d3	d3.1	AD	Z	AlCrN Order No.	AlCrN Order No.
M4	0,70	3,3	49,0	8,6	36	6	4,5	4,3	3,14	5	80296001000015	88296001000015
M5	0,80	4,2	55,0	10,6	36	6	5,5	5,3	3,95	5	80296001000017	88296001000017
M6	1,00	5,0	62,0	13,2	36	8	6,6	6,3	4,68	6	80296001000018	88296001000018
M8	1,25	6,8	74,0	17,8	40	10	9,0	8,3	6,22	7	80296001000020	88296001000020
M10	1,50	8,5	79,0	21,3	45	12	11,0	10,3	7,79	7	80296001000022	88296001000022
M12	1,75	10,3	89,0	26,6	45	14	13,5	12,3	9,38	7	80296001000024	88296001000024
M14	2,00	12,0	102,0	30,4	48	16	15,5	14,3	10,92	7	80296001000025	88296001000025
M16	2,00	14,0	102,0	34,4	48	18	17,5	16,3	12,83	8	80296001000026	88296001000026
M20	2,50	17,5	127,0	45,6	56	25	25,0	20,3	15,83	8	80296001000028	88296001000028

Thread engagements see page 30.

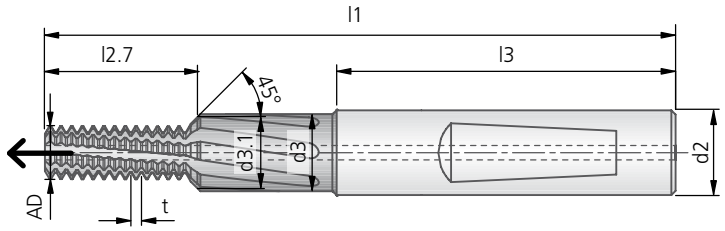
● very good | ◐ good

Thread milling tool with rear chamfer

Material: P M K N S H

MF | 1,5×D 2×D | s.c. AlCrN | DIN 6535 HE | DIN 6535 HA

for machining steel to 1200 N/mm² tensile strength, stainless steel, cast materials and titanium alloys



MF-MGF HPC 1,5×D											DIN 6535 HE	DIN 6535 HA
Nom. ∅	t	Drill ∅	l1	l2.7	l3	d2	d3	d3.1	AD	Z	AlCrN Order No.	AlCrN Order No.
M4×0,5	0,50	3,5	47,0	6,7	36	6	4,5	4,3	3,14	5		
M5×0,5	0,50	4,5	52,5	8,3	36	6	5,5	5,3	3,95	5	80297002000037	88297002000037
M6×0,75	0,75	5,3	59,0	10,0	36	8	6,6	6,3	4,68	6	80297002000048	88297002000048
M8×1,0	1,00	7,0	70,0	13,3	40	10	9,0	8,3	6,22	7	80297002000070	88297002000070
M10×1,0	1,00	9,0	74,0	16,5	45	12	11,0	10,3	7,79	7	80297002000094	88297002000094
M12×1,0	1,00	11,0	83,0	19,6	45	14	13,5	12,3	9,38	7	80297002000111	88297002000111
M12×1,5	1,50	10,5	83,0	19,9	45	14	13,5	12,3	9,38	7	80297002000113	88297002000113
M14×1,0	1,00	13,0	95,0	22,7	48	16	15,5	14,3	10,92	7		
M14×1,5	1,50	12,5	94,5	23,1	48	16	15,5	14,3	10,92	7	80297002000131	88297002000131
M16×1,5	1,50	14,5	94,5	26,1	48	18	17,5	16,3	12,82	8	80297002000147	88297002000147

MF-MGF HPC 2×D											DIN 6535 HE	DIN 6535 HA
Nom. ∅	t	Drill ∅	l1	l2.7	l3	d2	d3	d3.1	AD	Z	AlCrN Order No.	AlCrN Order No.
M4×0,5	0,50	3,5	49,0	8,7	36	6	4,5	4,3	3,14	5		
M5×0,5	0,50	4,5	55,0	10,8	36	6	5,5	5,3	3,95	5	80296002000037	88296002000037
M6×0,75	0,75	5,3	62,0	13,0	36	8	6,6	6,3	4,68	6	80296002000048	88296002000048
M8×1,0	1,00	7,0	74,0	17,3	40	10	9,0	8,3	6,22	7	80296002000070	88296002000070
M10×1,0	1,00	9,0	79,0	21,5	45	12	11,0	10,3	7,79	7	80296002000094	88296002000094
M12×1,0	1,00	11,0	89,0	25,6	45	14	13,5	12,3	9,38	7	80296002000111	88296002000111
M12×1,5	1,50	10,5	89,0	25,9	45	14	13,5	12,3	9,38	7	80296002000113	88296002000113
M14×1,0	1,00	13,0	102,0	29,7	48	16	15,5	14,3	10,92	7		
M14×1,5	1,50	12,5	102,0	30,6	48	16	15,5	14,3	10,92	7	80296002000131	88296002000131
M16×1,5	1,50	14,5	102,0	33,6	48	18	17,5	16,3	12,82	8	80296002000147	88296002000147

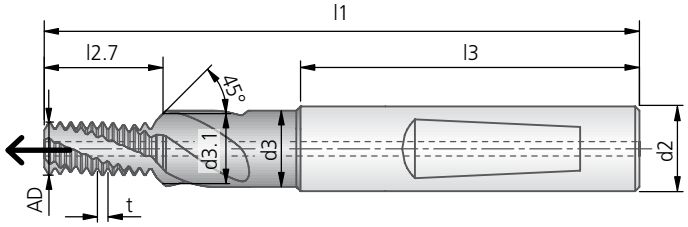
Thread engagements see page 30.

Guideline values for thread milling: page 52.

KOMET JEL® M-MGF XS

Thread milling tool with rear chamfer

for machining steel ≥ 900 N/mm² tensile strength



M-MGF XS 1,5×D											DIN 6535 HE	DIN 6535 HA
Nominal ∅	t	Drill ∅	l1	l2.7	l3	d2	d3	d3.1	AD	Z	TiCN Order No.	TiCN Order No.
M4	0,70	3,30	46,9	6,5	36	6	4,5	4,3	3,14	3	80273001000015	88273001000015
M5	0,80	4,20	52,6	8,2	36	6	5,5	5,3	3,95	3	80273001000017	88273001000017
M6	1,00	5,00	59,0	10,2	36	8	6,6	6,3	4,68	3	80273001000018	88273001000018
M8	1,25	6,80	70,3	14,0	40	10	9,0	8,3	6,22	3	80273001000020	88273001000020
M10	1,50	8,50	74,5	16,8	45	12	11,0	10,3	7,79	3	80273001000022	88273001000022
M12	1,75	10,25	82,0	19,6	45	14	13,5	12,3	9,38	3	80273001000024	88273001000024
M14	2,00	12,00	96,0	24,4	48	16	15,5	14,3	10,92	4	80273001000025	88273001000025
M16	2,00	14,00	94,0	26,4	48	18	17,5	16,3	12,83	4	80273001000026	88273001000026
M20	2,50	17,50	117,0	35,55	56	25	25,0	20,3	15,83	4	80273001000028	88273001000028

M-MGF XS 2×D											DIN 6535 HE	DIN 6535 HA
Nominal ∅	t	Drill ∅	l1	l2.7	l3	d2	d3	d3.1	AD	Z	TiCN Order No.	TiCN Order No.
M4	0,70	3,30	49,0	8,6	36	6	4,5	4,3	3,14	3	80292001000015	88292001000015
M5	0,80	4,20	55,0	10,6	36	6	5,5	5,3	3,95	3	80292001000017	88292001000017
M6	1,00	5,00	62,0	13,2	36	8	6,6	6,3	4,68	3	80292001000018	88292001000018
M8	1,25	6,80	74,0	17,8	40	10	9,0	8,3	6,22	3	80292001000020	88292001000020
M10	1,50	8,50	79,0	21,3	45	12	11,0	10,3	7,79	3	80292001000022	88292001000022
M12	1,75	10,25	89,0	26,6	45	14	13,5	12,3	9,38	3	80292001000024	88292001000024
M14	2,00	12,00	102,0	30,4	48	16	15,5	14,3	10,92	4	80292001000025	88292001000025
M16	2,00	14,00	102,0	34,4	48	18	17,5	16,3	12,83	4	80292001000026	88292001000026
M20	2,50	17,50	127,0	45,55	56	25	25,0	20,3	15,83	4	80292001000028	88292001000028

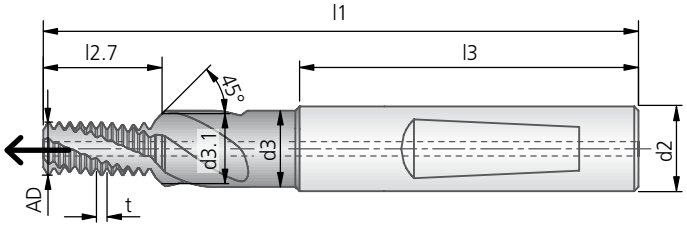
Thread engagements see page 30.

● very good | ◐ good

Thread milling tool with rear chamfer

Material P M K N S H | MF | 1,5×D 2×D | s.c. TiCN | d2≥8 | DIN 6535 HE | DIN 6535 HA

for machining steel ≥ 900 N/mm² tensile strength



MF-MGF XS 1,5×D											DIN 6535 HE	DIN 6535 HA
Nominal ∅	t	Drill ∅	l1	l2.7	l3	d2	d3	d3.1	AD	Z	TiCN Order No.	TiCN Order No.
M8×1	1,00	7,00	70,0	13,3	40	10	9,0	8,3	6,22	3	80273002000070	88273002000070
M10×1	1,00	9,00	74,0	16,5	45	12	11,0	10,3	7,79	3	80273002000094	88273002000094
M12×1	1,00	11,00	83,0	19,6	45	14	13,5	12,3	9,38	3		
M12×1,5	1,50	10,50	83,0	19,9	45	14	13,5	12,3	9,38	3	80273002000113	88273002000113
M14×1,5	1,50	12,50	94,5	23,1	48	16	15,5	14,3	10,92	4	80273002000131	88273002000131
M16×1,5	1,50	14,50	94,5	26,1	48	18	17,5	16,3	12,82	4	80273002000147	88273002000147

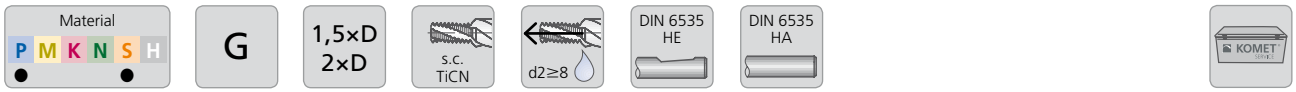
MF-MGF XS 2×D											DIN 6535 HE	DIN 6535 HA
Nominal ∅	t	Drill ∅	l1	l2.7	l3	d2	d3	d3.1	AD	Z	TiCN Order No.	TiCN Order No.
M8×1	1,00	7,00	74,0	17,3	40	10	9,0	8,3	6,22	3	80292002000070	88292002000070
M10×1	1,00	9,00	79,0	21,5	45	12	11,0	10,3	7,79	3	80292002000094	88292002000094
M12×1	1,00	11,00	89,0	25,6	45	14	13,5	12,3	9,38	3		
M12×1,5	1,50	10,50	89,0	25,9	45	14	13,5	12,3	9,38	3	80292002000113	88292002000113
M14×1,5	1,50	12,50	102,0	30,6	48	16	15,5	14,3	10,92	4	80292002000131	88292002000131
M16×1,5	1,50	14,50	102,0	33,6	48	18	17,5	16,3	12,82	4	80292002000147	88292002000147

Thread engagements see page 30.

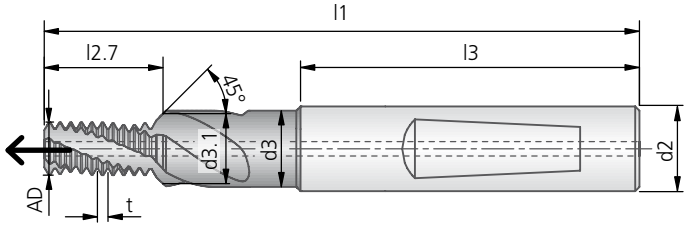
Guideline values for thread milling: page 52.

KOMET JEL® G-MGF XS

Thread milling tool with rear chamfer



for machining steel ≥ 900 N/mm² tensile strength



G-MGF XS 1,5×D											DIN 6535 HE	DIN 6535 HA
											TiCN	TiCN
Nominal Ø	t	Drill Ø	l1	l2.7	l3	d2	d3	d3.1	AD	Z	Order No.	Order No.
G1/8-28	0,907	8,82	73,6	15,8	45	12	11,0	10,0	7,79	3	80273025000001	88273025000001
G1/4-19	1,337	11,82	95,3	21,7	48	16	15,5	13,5	10,92	4	80273025000002	88273025000002

G-MGF XS 2×D											DIN 6535 HE	DIN 6535 HA
											TiCN	TiCN
Nominal Ø	t	Drill Ø	l1	l2.7	l3	d2	d3	d3.1	AD	Z	Order No.	Order No.
G1/8-28	0,907	8,82	79,0	21,2	45	12	11,0	10,0	7,79	3	80292025000001	88292025000001
G1/4-19	1,337	11,82	102,0	28,4	48	16	15,5	13,5	10,92	4	80292025000002	88292025000002

Thread engagements see page 30.

● very good | ◐ good

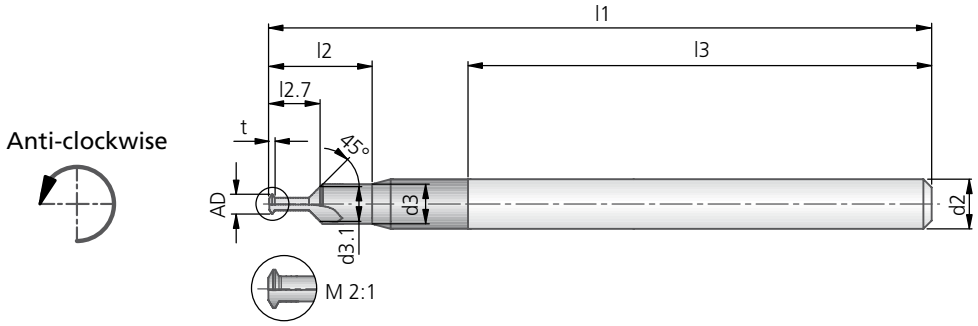
KOMET JEL® M-MGF XH Micro

Thread milling tool with rear chamfer

Material: P M K N S H

M | 1,5×D | s.c. TiCN | DIN 6535 HA

for hard machining of materials with hardness ≥ 45 HRC



M-MGF XH Micro 1,5×D												DIN 6535 HA
												TiCN
Nominal Ø	t	Drill Ø	l1	l2.7	l2	l3	d2	d3.1	d3	AD	Z	Order No.
M1	0,25	0,75	40	2,1	5,2	28	3	1,5	1,8	< Ø 0,75	2	**88977001000001**
M1,4	0,30	1,10	40	2,6	5,7	28	3	1,7	2,0	< Ø 1,10	2	**88977001000004**
M1,6	0,35	1,25	40	3,1	6,0	28	3	2,1	2,4	< Ø 1,25	2	**88977001000005**
M2	0,40	1,60	40	3,7	–	28	3	2,6	3,0	< Ø 1,60	2	**88977001000008**
M2,2	0,45	1,75	40	3,9	–	28	3	2,5	3,0	< Ø 1,75	2	**88977001000009**
M2,5	0,45	2,05	40	4,5	–	28	3	2,9	3,0	< Ø 2,05	3	**88977001000011**

Thread engagements see page 30.

Guideline values for thread milling: page 52.

KOMET JEL® M-MGF XH

Thread milling tool with rear chamfer

Material P M K N S H ●

M

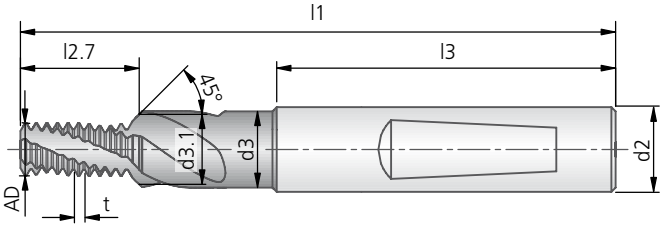
1,5×D

s.c. TiCN

DIN 6535 HE

DIN 6535 HA

for hard machining of materials with hardness ≥ 45 HRC



M-MGF XH 1,5×D											DIN 6535 HE	DIN 6535 HA
											TiAlN	TiAlN
Nominal ∅	t	Drill ∅	l1	l2.7	l3	d2	d3	d3.1	AD	Z	Order No.	Order No.
M3	0,50	2,50	49,0	5,31	36	6	4,9	3,3	2,55	3	**80977001000013**	**88977001000013**
M4	0,70	3,30	47,0	6,5	36	6	4,5	4,3	3,14	4	**80977001000015**	**88977001000015**
M5	0,80	4,20	52,0	8,2	36	6	5,5	5,3	3,95	4	**80977001000017**	**88977001000017**
M6	1,00	5,00	59,0	10,2	36	8	6,6	6,3	4,68	4	**80977001000018**	**88977001000018**
M8	1,25	6,80	70,0	14,0	40	10	9,0	8,3	6,22	4	**80977001000020**	**88977001000020**
M10	1,50	8,50	74,0	16,8	45	12	11,0	10,3	7,79	5	**80977001000022**	**88977001000022**
M12	1,75	10,25	82,0	19,6	45	14	13,5	12,3	9,38	5	**80977001000024**	**88977001000024**

Thread engagements see page 30.

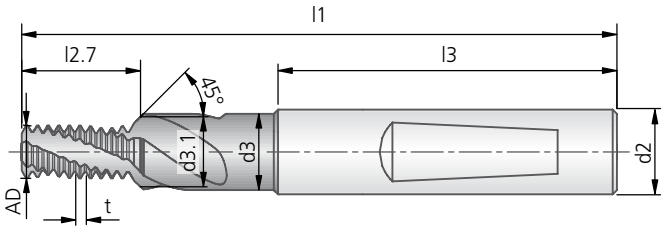
● very good | ◐ good

Thread milling tool with rear chamfer

Material: P M K N S H

MF | 1,5×D | S.C. TiCN | DIN 6535 HE | DIN 6535 HA

for hard machining of materials with hardness ≥ 45 HRC



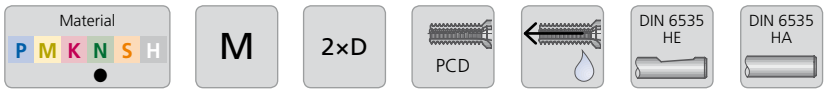
MF-MGF XH 1,5×D											DIN 6535 HE	DIN 6535 HA
Nominal ∅	t	Drill ∅	l1	l2.7	l3	d2	d3	d3.1	AD	Z	TiAlN  Order No.	TiAlN  Order No.
M12×1,5	1,50	10,50	82,0	19,9	45	14	13,5	12,3	9,38	5	**80977002000113**	**88977002000113**
M14×1,5	1,50	12,50	94,0	23,1	48	16	15,5	14,3	10,92	5	**80977002000131**	**88977002000131**
M16×1,5	1,50	14,50	94,0	26,1	48	18	17,5	16,3	12,82	5	**80977002000147**	**88977002000147**

Thread engagements see page 30.

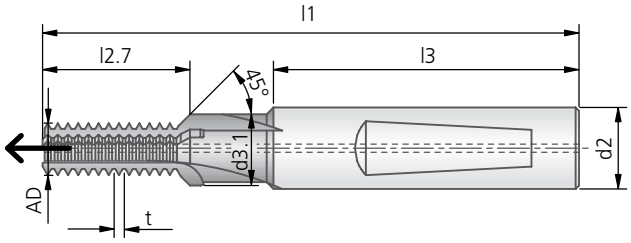
Guideline values for thread milling: page 52.

KOMET JEL® M-MGF PKD

Thread milling tool with rear chamfer



for cutting lightweight structural materials such as aluminium, magnesium and fibre-reinforced plastics



M-MGF PKD 2×D										DIN 6535 HE	DIN 6535 HA
Nominal ∅	t	Drill ∅	l1	l2.7	l3	d2	d3.1	AD	Z	 Order No.	 Order No.
M8	1,25	6,80	74	17,8	40	10	8,3	6,22	2	**30970001000020**	**38970001000020**
M10	1,50	8,50	79	21,4	45	12	10,3	7,79	3	**30970001000022**	**38970001000022**
M12	1,75	10,25	89	26,7	45	14	12,3	9,38	3	**30970001000024**	**38970001000024**

Thread engagements see page 30.

We can supply thread milling tools for other fixed thread lengths on request.

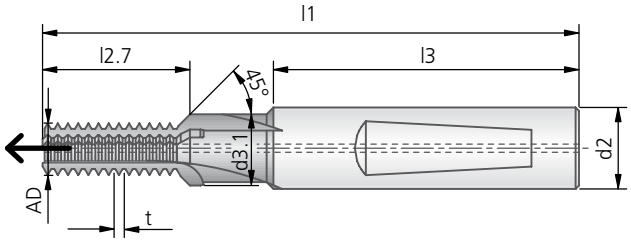
● very good | ◐ good

KOMET JEL® MF-MGF PKD

Thread milling tool with rear chamfer

Material P M K N S H | MF | 2×D | PCD | DIN 6535 HE | DIN 6535 HA

for cutting lightweight structural materials such as aluminium, magnesium and fibre-reinforced plastics



MF-MGF PKD 2×D										DIN 6535 HE	DIN 6535 HA
Nominal ∅	t	Drill ∅	l1	l2.7	l3	d2	d3.1	AD	Z	Order No.	Order No.
M10×1	1,00	9,0	79	21,5	45	12	10,3	7,79	3	**30970002000094**	**38970002000094**
M12×1,5	1,50	10,5	88	26,0	45	14	12,3	9,38	3	**30970002000113**	**38970002000113**

Thread engagements see page 30.

We can supply thread milling tools for other fixed thread lengths on request.

Guideline values for thread milling: page 52.

KOMET JEL® M-UMGF

Thread milling tool with front and rear chamfer

P M K N S H
– ◐ ●
TiCN ● ● ● ◐ ● ◐

M

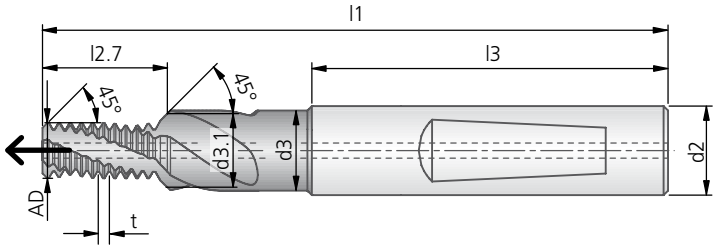
2×D
2,5×D

s.c.
TiCN

d2≥8

DIN 6535
HE

DIN 6535
HA



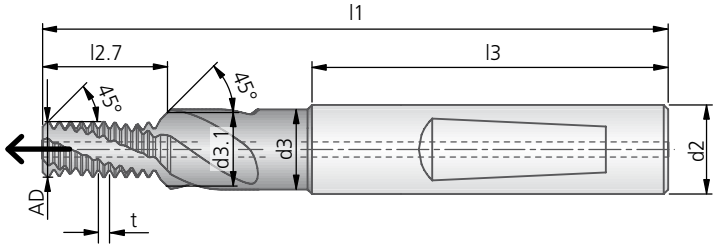
M-UMGF 2×D											DIN 6535 HE	DIN 6535 HA
Nominal Ø	t	Drill Ø	l1	l2.7	l3	d2	d3	d3.1	AD	Z	uncoated Order No.	uncoated Order No.
M4	0,70	3,30	49,0	8,6	36	6	4,5	4,3	3,14	3		
M5	0,80	4,20	55,0	10,6	36	6	5,5	5,3	3,95	3		
M6	1,00	5,00	62,0	13,2	36	8	6,6	6,3	4,68	3	80670001000018	88670001000018
M8	1,25	6,80	74,0	17,8	40	10	9,0	8,3	6,22	3	80670001000020	88670001000020
M10	1,50	8,50	79,0	21,3	45	12	11,0	10,3	7,79	3	80670001000022	88670001000022
M12	1,75	10,25	89,0	26,6	45	14	13,5	12,3	9,38	3	80670001000024	88670001000024
M14	2,00	12,00	102,0	30,4	48	16	15,5	14,3	10,92	4		
M16	2,00	14,00	102,0	34,4	48	18	17,5	16,3	12,83	4		
											TiCN	TiCN
M4	0,70	3,30	49,0	8,6	36	6	4,5	4,3	3,14	3		
M5	0,80	4,20	55,0	10,6	36	6	5,5	5,3	3,95	3		
M6	1,00	5,00	62,0	13,2	36	8	6,6	6,3	4,68	3	80692001000018	88692001000018
M8	1,25	6,80	74,0	17,8	40	10	9,0	8,3	6,22	3	80692001000020	88692001000020
M10	1,50	8,50	79,0	21,3	45	12	11,0	10,3	7,79	3	80692001000022	88692001000022
M12	1,75	10,25	89,0	26,6	45	14	13,5	12,3	9,38	3	80692001000024	88692001000024
M14	2,00	12,00	102,0	30,4	48	16	15,5	14,3	10,92	4		
M16	2,00	14,00	102,0	34,4	48	18	17,5	16,3	12,83	4		

M-UMGF 2,5×D											DIN 6535 HE	DIN 6535 HA
Nominal Ø	t	Drill Ø	l1	l2.7	l3	d2	d3	d3.1	AD	Z	uncoated Order No.	uncoated Order No.
M4	0,70	3,30	49,0	10,0	36	6	4,5	4,3	3,14	3		
M5	0,80	4,20	55,0	13,0	36	6	5,5	5,3	3,95	3		
M6	1,00	5,00	62,0	16,2	36	8	6,6	6,3	4,68	3	80690001000018	88690001000018
M8	1,25	6,80	74,0	21,5	40	10	9,0	8,3	6,22	3	80690001000020	88690001000020
M10	1,50	8,50	79,0	27,3	45	12	11,0	10,3	7,79	3	80690001000022	88690001000022
M12	1,75	10,25	89,0	31,8	45	14	13,5	12,3	9,38	3	80690001000024	88690001000024
M14	2,00	12,00	102,0	38,4	48	16	15,5	14,3	10,92	4		
M16	2,00	14,00	102,0	42,4	48	18	17,5	16,3	12,83	4		

Thread engagements see page 30.

● very good | ◐ good

Thread milling tool with front and rear chamfer



MF-UMGF 2×D											DIN 6535 HE	DIN 6535 HA
											uncoated	uncoated
Nominal ∅	t	Drill ∅	l1	l2.7	l3	d2	d3	d3.1	AD	Z	Order No.	Order No.
M8×1	1,0	7,0	74,0	17,3	40	10	9,0	8,3	6,22	3	**80670002000070**	**88670002000070**
M10×1	1,0	9,0	79,0	21,5	45	12	11,0	10,3	7,79	3	**80670002000094**	**88670002000094**
M12×1	1,0	11,0	89,0	25,6	45	14	13,5	12,3	9,38	3		
M12×1,5	1,5	10,5	89,0	25,9	45	14	13,5	12,3	9,38	3	**80670002000113**	**88670002000113**
M14×1,5	1,5	12,5	102,0	30,6	48	16	15,5	14,3	10,92	4	**80670002000131**	**88670002000131**
M16×1,5	1,5	14,5	102,0	33,6	48	18	17,5	16,3	12,82	4	**80670002000147**	**88670002000147**
											TiCN	TiCN
M8×1	1,0	7,0	74,0	17,3	40	10	9,0	8,3	6,22	3	**80692002000070**	**88692002000070**
M10×1	1,0	9,0	79,0	21,5	45	12	11,0	10,3	7,79	3	**80692002000094**	**88692002000094**
M12×1	1,0	11,0	89,0	25,6	45	14	13,5	12,3	9,38	3		
M12×1,5	1,5	10,5	89,0	25,9	45	14	13,5	12,3	9,38	3	**80692002000113**	**88692002000113**
M14×1,5	1,5	12,5	102,0	30,6	48	16	15,5	14,3	10,92	4	**80692002000131**	**88692002000131**
M16×1,5	1,5	14,5	102,0	33,6	48	18	17,5	16,3	12,82	4	**80692002000147**	**88692002000147**

Thread engagements see page 30.

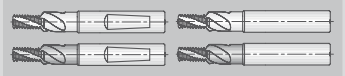
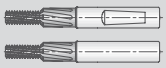
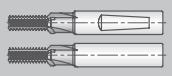
Guideline values for thread milling: page 52.

KOMET JEL® MGF | UMGF

Recommended cutting data

Guideline values for thread milling

v_c (m/min) = Cutting speed
f_z (mm/tooth) = Milling feed

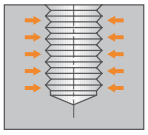
Material group		Strength Rm (N/mm²)	Hardness HB	Material	MGF | UMGF un-caoted v_c m/min	MGF | UMGF TiCN v_c m/min	MGF | UMGF ≤ Ø6 f_z mm/t	MGF | UMGF ≤ Ø12 f_z mm/t	MGF | UMGF ≥ Ø16 f_z mm/t	MGF HPC AlCrN v_c m/min	MGF HPC M4 - M6 f_z mm/t	MGF HPC M8 - M12 f_z mm/t	MGF HPC M14 - M20 f_z mm/t	MGF PKD PCD v_c m/min	MGF PKD Ø8 f_z mm/t	MGF PKD Ø10 - 12 f_z mm/t
P	1.1	≤400	≤120	magnetic soft iron		80-150	0,015-0,04	0,04-0,06	0,08-0,15	80-100	0,015-0,02	0,02-0,03	0,03-0,04			
P	1.2	≤700	≤200	structural, case hardened steel		80-100	0,015-0,04	0,04-0,06	0,08-0,15	80-100	0,015-0,02	0,02-0,03	0,03-0,04			
P	1.3	≤850	≤250	carbon steel		80-100	0,015-0,04	0,04-0,06	0,08-0,15	80-100	0,015-0,02	0,02-0,03	0,03-0,04			
P	1.4	≤850	≤250	alloy steel		80-100	0,015-0,04	0,04-0,06	0,08-0,15	80-100	0,015-0,02	0,02-0,03	0,03-0,04			
P	1.5	>850 ≤1200	>250 ≤350	alloy/heat treated steel		60-80	0,01-0,03	0,04-0,06	0,04-0,10	80-100	0,015-0,02	0,02-0,03	0,03-0,04			
P	1.6	>1200	>350	alloy/heat treated steel		50-60	0,01-0,025	0,03-0,05	0,04-0,10	80-100	0,015-0,02	0,02-0,03	0,03-0,04			
H	1.7	≤1400	≤400	hardened steel to 45 HRC		30-50	0,01-0,015	0,015-0,02	0,03-0,08							
H	1.8	≤2200	≤600	hardened steel to 58 HRC		20-40	0,01-0,015	0,015-0,02								
M	2.1	≤850	≤250	stainless steel, sulphuretted		60-80	0,015-0,03	0,03-0,05	0,08-0,15	60-80	0,015-0,03	0,04-0,06	0,06-0,10			
M	2.2	≤850	≤250	austentic		60-80	0,015-0,03	0,03-0,05	0,04-0,10	60-80	0,015-0,03	0,04-0,06	0,06-0,10			
M	2.3	≤1000	≤300	ferritic, ferritic & austentic, martensitic		60-80	0,01-0,025	0,02-0,04	0,04-0,10	60-80	0,015-0,03	0,04-0,06	0,06-0,10			
K	3.1	≤500	≤150	grey cast iron	50-80	80-120	0,02-0,04	0,04-0,10	0,08-0,15	100-120	0,02-0,04	0,04-0,08	0,06-0,10			
K	3.2	>500 ≤1000	>150 ≤300	grey cast iron, heat treated	50-80	80-120	0,02-0,03	0,04-0,08	0,08-0,12	100-120	0,02-0,03	0,04-0,06	0,06-0,08			
K	3.3	400-500	200-250	vermicular cast iron		80-100	0,02-0,04	0,04-0,08	0,08-0,15	100-120	0,02-0,03	0,04-0,06	0,06-0,08			
K	3.4	≤700	≤200	spheroidal graphite cast iron		80-120	0,02-0,04	0,04-0,10	0,08-0,15	80-100	0,02-0,03	0,04-0,06	0,06-0,08			
K	3.5	>700 ≤1000	>200 ≤300	spheroidal graphite cast iron, heat treated		80-100	0,02-0,03	0,04-0,08	0,08-0,12	80-100	0,02-0,03	0,04-0,06	0,06-0,08			
K	3.6	≤700	≤200	malleable iron		80-100	0,02-0,04	0,04-0,10	0,08-0,15	80-100	0,02-0,03	0,04-0,06	0,06-0,08			
K	3.7	>700 <1000	>200 ≤300	malleable iron heat treated		80-100	0,02-0,03	0,04-0,08	0,08-0,12	80-100	0,02-0,03	0,04-0,06	0,06-0,08			
S	4.1	≤700	≤200	pure titanium		40-100	0,015-0,03	0,03-0,08	0,08-0,15	60-80	0,015-0,02	0,02-0,03	0,03-0,04			
S	4.2	≤900	≤270	titanium alloys		40-100	0,015-0,03	0,03-0,08	0,08-0,15	60-80	0,015-0,02	0,020-0,03	0,03-0,04			
S	4.3	>900 ≤1250	>270 ≤300	titanium alloys		40-80	0,015-0,02	0,03-0,06	0,08-0,12	60-80	0,01-0,015	0,015-0,02	0,025-0,035			
S	5.1	≤500	≤150	pure nickel		50-60	0,02-0,04	0,04-0,06	0,04-0,10							
S	5.2	≤900	<270	nickel alloys, heat resistant		30-40	0,02-0,04	0,04-0,06	0,04-0,10							
S	5.3	>900 ≤1200	>270 ≤350	nickel alloys, high heat resistance		10-30	0,015-0,03	0,03-0,05	0,04-0,08							
N	6.1	≤350	≤100	non-alloy copper	100-300	100-400	0,04-0,07	0,07-0,12	0,10-0,20							
N	6.2	≤700	≤200	short chip, brass, bronze, red brass	100-300	100-400	0,04-0,07	0,07-0,12	0,10-0,20					300-1000	0,04-0,08	0,05-0,10
N	6.3	≤700	≤200	long chip brass	100-300	100-400	0,04-0,07	0,07-0,12	0,10-0,20							
N	6.4	≤500	≤470	Cu-Al-Fe alloy (Ampco)	60-80	60-80	0,02-0,04	0,03-0,06	0,08-0,15							
N	7.1	≤350	≤100	Al, Mg non-alloy	100-400	100-400	0,03-0,07	0,07-0,12	0,10-0,20					400-1500	0,04-0,08	0,04-0,10
N	7.2	≤600	≤180	Al wrought alloy, breaking strain (A 5) <14 %	100-400	100-400	0,03-0,07	0,07-0,12	0,10-0,20					400-1500	0,04-0,08	0,04-0,10
N	7.3	≤600	≤180	Al wrought alloy, breaking strain (A 5) ≥14 %	100-400	100-400	0,03-0,07	0,07-0,12	0,10-0,20					400-1500	0,04-0,08	0,04-0,10
N	7.4	≤600	≤180	Al cast alloy, Si <10 %	100-300	100-400	0,03-0,07	0,07-0,12	0,10-0,20					400-1500	0,04-0,08	0,04-0,10
N	7.5	≤600	≤180	Al cast alloy, Si ≥10 %	100-200	100-250	0,03-0,07	0,07-0,12	0,10-0,20					400-1500	0,04-0,08	0,04-0,10
N	8.1			thermoplastics	80-100	100-120	0,04-0,06	0,06-0,12	0,08-0,20							
N	8.2			thermosetting plastics	80-100	100-120	0,04-0,06	0,06-0,12	0,08-0,15							
N	8.3			fibre reinforced plastics	50-60	60-80	0,04-0,06	0,06-0,12	0,08-0,15					400-1500	0,04-0,10	0,05-0,20

Cutting values shown are relating to the basic recommendations for cutting materials given.

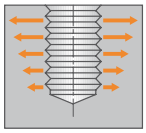
1. 

Chips packed or glued at the thread profile
- poor coolant

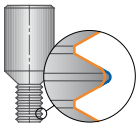
→ improve coolant (i.e. add flood coolant, lateral flute coolant supply for through holes)
→ add coolant flutes flutes on shank

2. 

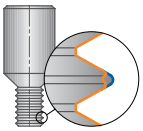
Thread go-gage doesn't fit
- thread too small → reduce tool radius in offset register
- chips in thread → improve coolant

3. 

Thread is getting tapered
- poor tool clamping → improve tool holding (i.e. shrink fit holders)
- thread milling feed too high → reduce thread milling feed

4. 

Erratic tool wear
- tool run out too high → use better tool holders (i.e. shrink fit holders), check material for homogeneity

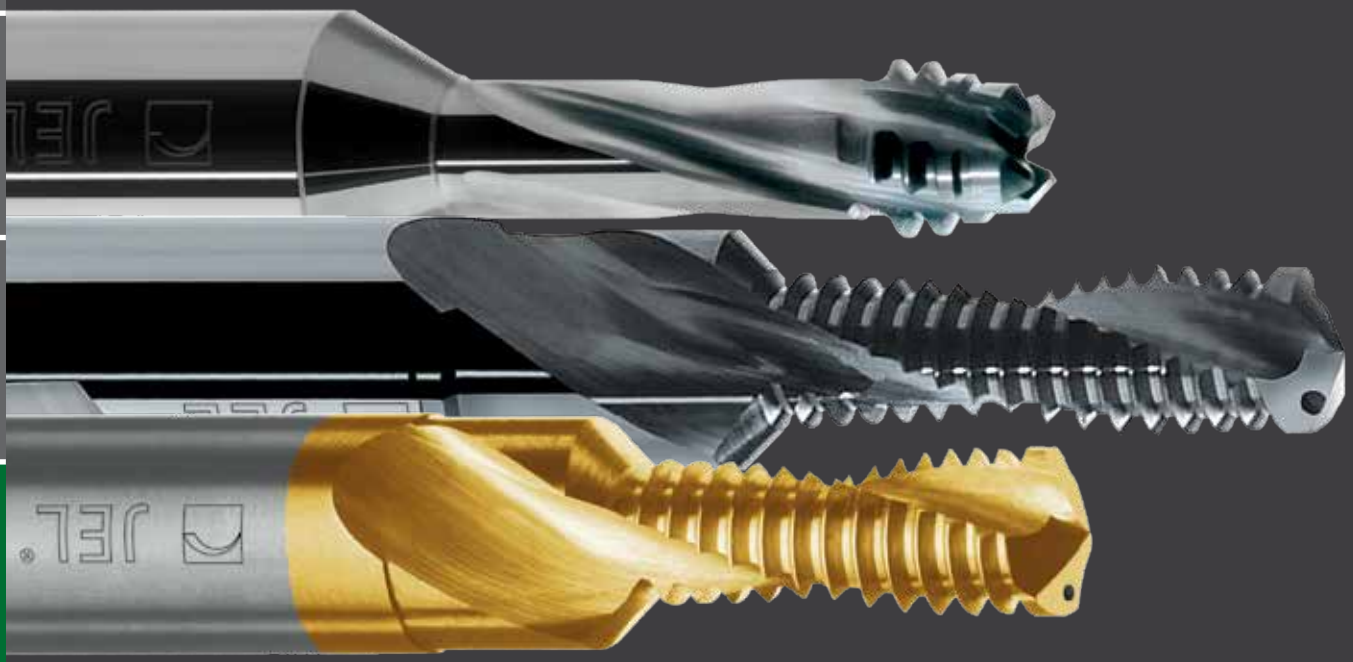
5. 

Chippage, tool breakage
- feed rate thread milling too high → reduce thread milling feed
- vibrations → check tool holder (don't use modular systems!!), change feeds and speeds

6. 

Poor thread surface
- tool overhang too long → check part clamping an and fixture. Use multiple cuts when part is clamped weak
- non-suitable tool for this application → reduce cutting speed, increase feed/tooth, prefer conventional milling

KOMET JEL® BGF | UBGF | DBGF Drilling, chamfering and thread milling



Thread milling small threads from M3 upwards

Revolutionary thread manufacture in perfect form, made possible by CNC technology. With a combination bore thread milling tool, the bore, countersink and internal thread is produced in one pass!

As standard we offer two versions: our KOMET JEL® BGF drill thread milling tool with countersink on the shank side for defined thread lengths of 1.5×D | 2×D | 2.5×D and 3×D.

For different thread lengths our KOMET JEL® UBGF universal drill thread milling tool with countersink on the shank and face side should be used.

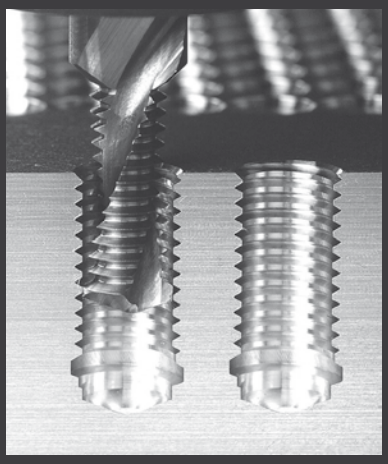
The fine grain carbide grades used and also the coatings guarantee a long tool life.

BENEFITS for you:

- More than 50% less machining time because of high cutting speeds and feed rate
- Saving in tool change time and tool change
- Excellent surface finish due to variation in cutting parameters
- No different tools required for blind bores and through holes
- Precise thread depth
- Exact and repeatable thread depth
- No chip residue left at the bottom of the bore
- High speed cutting (HSC) possible

KOMET JEL® Premium Tools
Process reliability when working on hydraulic components with drill thread milling cutters in multiple spindle operation at 15,000 rpm

Cross section of a thread produced by combined drilling and threading.



JEL TPT

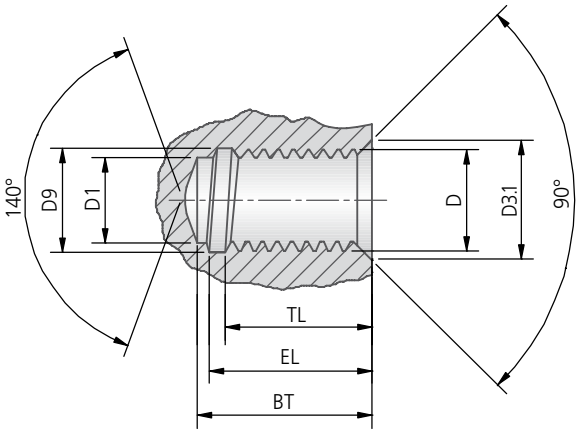
CNC programs for various control systems can be configured online at http://tpt.kometgroup.com or can be obtained on request by telephoning: +49 711 788910.
Also available as "TPT Mobile" app, with identical features for mobile end devices like iPhone and iPad, in the webshop App Store as well as Google Play™ for Android™ smartphones.

Drill thread milling tool

KOMET SERVICE ® – Chapter 9
The KOMET SERVICE ® TOOL *life* Box icon describes tools that are available for the high quality cost-efficient refurbishment of tools.

KOMET JEL® BGF

Thread engagements



BT = drill depth
D3.1 = possible chamfer ∅ with rear chamfer
EL = thread engagement
TL = full thread length

M															
Nominal ∅				1,5×D			2×D			2,5×D			3×D		
D	D1	D3.1	D9	BT	EL	TL	BT	EL	TL	BT	EL	TL	BT	EL	TL
M3	2,50	3,30	3,10	4,90	4,40	3,80	6,90	6,40	5,80	–	–	–	–	–	–
M4	3,30	4,30	4,12	6,80	6,10	5,25	8,90	8,20	7,30	11,00	10,30	9,40	12,54	11,84	11,55
M5	4,20	5,30	5,19	8,58	7,80	6,80	11,00	10,20	9,20	13,38	12,58	11,57	15,94	15,14	14,77
M6	5,00	6,30	6,25	10,70	9,70	8,40	13,70	12,70	11,40	15,70	14,70	13,40	18,89	17,89	17,42
M8	6,80	8,30	8,41	13,35	12,15	10,45	17,10	15,90	14,20	22,10	20,90	19,20	24,89	23,64	22,97
M10	8,50	10,30	10,54	17,60	16,06	14,00	22,10	20,60	18,50	26,60	25,10	23,00	31,36	29,86	29,02
M12	10,30	12,30	12,65	20,25	18,45	16,35	25,50	23,70	21,60	32,50	30,70	28,60	–	–	–
M14	12,00	14,30	14,81	22,90	20,90	18,60	30,90	28,90	26,60	36,90	34,90	32,60	–	–	–
M16	14,00	16,30	16,88	27,00	25,00	22,60	35,00	33,00	30,60	43,00	41,00	38,60	–	–	–

M – BGF NZ4 / M – BGF GGG												
Nominal ∅				1,5×D			2×D			2,5×D		
D	D1	D3.1	D9	BT	EL	TL	BT	EL	TL	BT	EL	TL
M6	5,00	6,30	6,25	10,37	9,40	8,40	13,47	12,50	11,40	15,47	14,50	13,40
M8	6,80	8,30	8,41	13,02	11,80	10,50	16,77	15,50	14,30	21,77	20,50	19,30
M10	8,50	10,30	10,54	17,07	15,60	14,10	21,57	20,10	18,60	26,07	24,60	23,10
M12	10,30	12,30	12,65	19,65	17,90	16,40	24,90	23,10	21,60	31,90	30,10	28,60
M14	12,00	14,30	14,81	22,44	20,40	18,60	30,44	28,40	26,60	36,44	34,40	32,60
M16	14,00	16,30	16,88	26,45	24,50	22,60	34,45	32,50	30,60	42,45	40,50	38,60

M – metric ISO thread DIN 13

MF									
Nominal ∅				1,5×D			2×D		
D	D1	D3.1	D9	BT	EL	TL	BT	EL	TL
M6×0,75	5,25	6,30	6,18	10,30	9,60	8,60	14,05	13,30	12,30
M8×1	7,00	8,30	8,31	13,70	12,70	11,40	17,70	16,70	15,40
M10×1	9,00	10,30	10,35	16,80	15,80	14,40	21,80	20,80	19,40
M12×1,5	10,50	12,30	12,35	20,60	19,08	17,01	26,60	25,08	23,01
M12×1	11,00	12,30	12,35	19,75	18,80	17,40	24,75	23,80	22,40
M14×1,5	12,50	14,30	14,61	23,61	22,11	19,98	29,60	28,10	26,00
M16×1,5	14,50	16,30	16,64	26,62	25,12	22,97	34,10	32,60	30,50

MF – metric fine ISO thread DIN 13

EG						
Nominal ∅	2×D					
D	D1	D3.1	D9	BT	EL	TL
EG-M6	6,30	7,60	7,70	15,78	14,80	13,40
EG-M8	8,37	9,92	10,21	20,99	19,70	17,90
EG-M10	10,45	12,25	12,68	25,18	23,70	21,50
EG-M12	12,52	14,57	15,14	30,85	29,10	26,80

EG – metric ISO thread DIN 8140 for helical wire inserts

UNC									
Nominal ∅				1,5×D			2×D		
D	D1	D3.1	D9	BT	EL	TL	BT	EL	TL
1/4-20 UNC	5,08	6,65	6,83	11,09	9,82	8,06	14,90	13,60	11,90
5/16-18 UNC	6,53	8,24	8,56	13,77	12,36	10,34	18,00	16,60	14,60
3/8-16 UNC	7,94	9,83	10,23	16,99	15,40	13,20	21,80	20,20	18,00
1/2-13 UNC	10,75	13,00	13,72	22,56	20,60	18,10	28,40	26,50	24,00

UNC – american Unified coarse thread ANSI B1.1

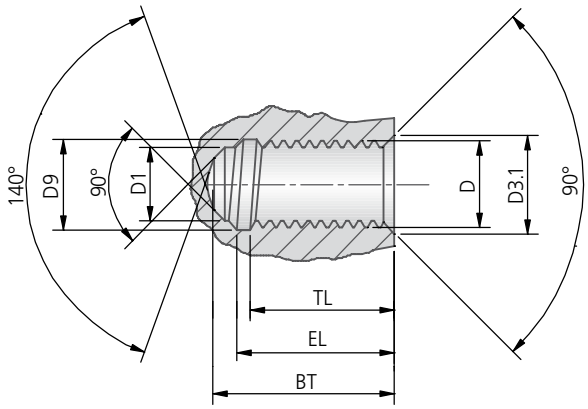
UNF									
Nominal ∅				1,5×D			2×D		
D	D1	D3.1	D9	BT	EL	TL	BT	EL	TL
1/4-28 UNF	5,44	6,65	6,70	10,68	9,78	8,52	14,30	13,40	12,10
5/16-24 UNF	6,88	8,24	8,40	13,54	12,50	11,00	17,80	16,70	15,20
3/8-24 UNF	8,47	9,83	10,01	15,67	14,61	13,07	19,90	18,80	17,30
1/2-20 UNF	11,43	13,00	13,35	20,08	18,80	16,90	26,40	25,20	23,30

UNF – american Unified fine thread ANSI B1.1

G						
Nominal ∅	2×D					
D	D1	D3.1	D9	BT	EL	TL
G1/8-28	8,82	10,03	10,12	20,70	19,80	18,50
G1/4-19	11,82	13,46	13,52	27,70	26,30	24,60

G – Whitworth pipe thread DIN EN ISO 228 and DIN EN 10226 (previously DIN 2999)

Thread engagements



BT = drill depth
D3.1 = max. possible chamfer ∅ with front chamfer
EL = thread engagement
TL = full thread length

M						
Nominal ∅	2×D					
D	D1	D3.1	D9	BT	EL	TL
M3	2,50	3,30	3,10	6,65	6,10	5,80
M4	3,30	4,30	4,12	8,58	7,90	7,30
M5	4,20	5,30	5,19	10,63	9,80	9,20
M6	5,00	6,30	6,25	13,28	12,30	11,40
M8	6,80	8,30	8,41	16,64	15,40	14,20
M10	8,50	10,30	10,54	21,49	20,00	18,50
M12	10,30	12,30	12,65	24,83	23,10	21,60
M14	12,00	14,30	14,81	30,19	28,20	26,60
M16	14,00	16,30	16,88	34,23	32,20	30,60

M – metric ISO thread DIN 13

MF						
Nominal ∅	2×D					
D	D1	D3.1	D9	BT	EL	TL
M6×0,75	5,25	6,30	6,18	12,97	12,20	11,60
M8×1	7,00	8,30	8,31	17,70	16,70	15,40
M10×1	9,00	10,30	10,35	21,39	20,40	19,40
M12×1,5	10,50	12,30	12,35	24,34	23,30	22,40
M12×1	11,00	12,30	12,35	26,01	24,50	23,00
M14×1,5	12,50	14,30	14,61	29,03	27,50	26,00
M16×1,5	14,50	16,30	16,64	33,53	32,00	30,50

MF – metric fine ISO thread DIN 13

UNC						
Nominal ∅	2×D					
D	D1	D3.1	D9	BT	EL	TL
1/4-20 UNC	5,08	6,65	6,83	14,41	13,10	11,90
5/16-18 UNC	6,53	8,24	8,56	17,46	16,00	14,60
3/8-16 UNC	7,94	9,83	10,23	21,15	19,60	18,00
1/2-13 UNC	10,75	13,00	13,72	27,70	25,70	24,00

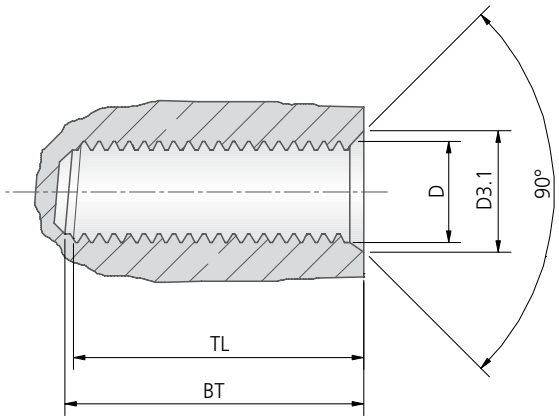
UNC – american Unified coarse thread ANSI B1.1

UNF						
Nominal ∅	2×D					
D	D1	D3.1	D9	BT	EL	TL
1/4-28 UNF	5,44	6,65	6,70	13,94	13,00	12,10
5/16-24 UNF	6,88	8,24	8,40	17,34	16,30	15,20
3/8-24 UNF	8,47	9,83	10,01	19,47	18,40	17,30
1/2-20 UNF	11,43	13,00	13,35	25,94	24,70	23,30

UNF – american Unified fine thread ANSI B1.1

G						
Nominal ∅	2×D					
D	D1	D3.1	D9	BT	EL	TL
G1/8-28	8,82	10,03	10,12	20,30	19,40	18,50
G1/4-19	11,82	13,46	13,52	27,10	25,70	24,50

G – Whitworth pipe thread DIN EN ISO 228 and DIN EN 10226 (previously DIN 2999)



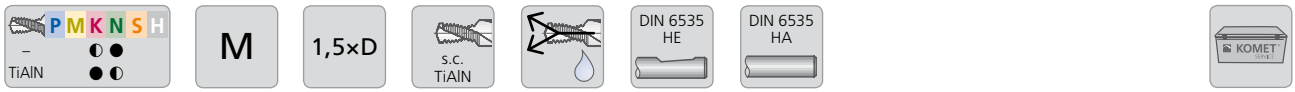
KOMET JEL® DBGF

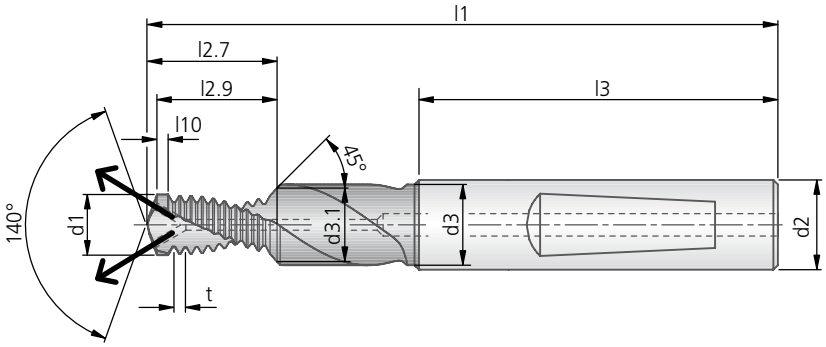
M					
Nominal ∅		2×D		3×D	
D	D3.1	BT	TL	BT	TL
M6 / M7	6,3	17,8	14,0	23,8	20,0
M8	8,3	23,2	18,5	31,2	26,5
M10	10,3	28,5	23,0	38,5	33,0
M12	12,3	34,0	27,5	46,0	39,5

M – metric ISO thread DIN 13

KOMET JEL® M-BGF

Drill thread milling tool with 2 cutting edges with rear chamfer



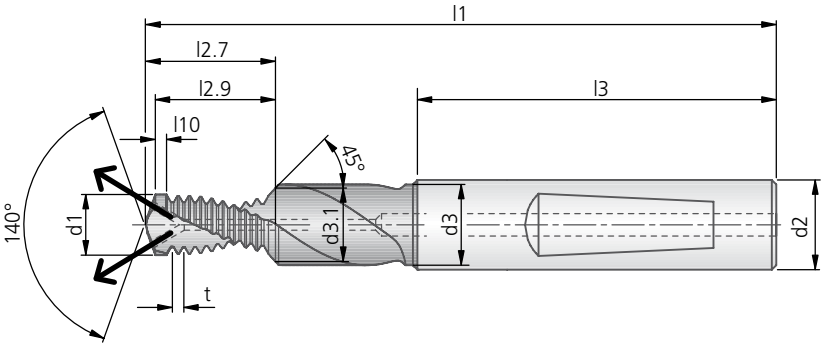


M-BGF 1,5×D													DIN 6535 HE	DIN 6535 HA
													uncoated	uncoated
Nominal ∅	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	Order No.	Order No.
M4	0,70	47,0	7,3	6,8	36	0,7	3,3	6	4,5	4,3	3,24	2	80945001000015	88945001000015
M5	0,80	52,6	9,3	8,6	36	0,8	4,2	6	5,5	5,3	4,10	2	80945001000017	88945001000017
M6	1,00	59,0	11,5	10,7	36	1,0	5,0	8	6,6	6,3	4,85	2	80945001000018	88945001000018
M8	1,25	70,3	14,4	13,4	40	1,3	6,8	10	9,0	8,3	6,45	2	80945001000020	88945001000020
M10	1,50	74,5	18,9	17,6	45	1,5	8,5	12	11,0	10,3	8,08	2	80945001000022	88945001000022
M12	1,75	83,8	21,8	20,2	45	1,5	10,3	14	13,5	12,3	9,74	2	80945001000024	88945001000024
													TiAlN	TiAlN
M4	0,70	47,0	7,3	6,8	36	0,7	3,3	6	4,5	4,3	3,24	2	80934001000015	88934001000015
M5	0,80	52,6	9,3	8,6	36	0,8	4,2	6	5,5	5,3	4,10	2	80934001000017	88934001000017
M6	1,00	59,0	11,5	10,7	36	1,0	5,0	8	6,6	6,3	4,85	2	80934001000018	88934001000018
M8	1,25	70,3	14,4	13,4	40	1,3	6,8	10	9,0	8,3	6,45	2	80934001000020	88934001000020
M10	1,50	74,5	18,9	17,6	45	1,5	8,5	12	11,0	10,3	8,08	2	80934001000022	88934001000022
M12	1,75	83,8	21,8	20,2	45	1,5	10,3	14	13,5	12,3	9,74	2	80934001000024	88934001000024

Thread engagements see page 56.

● very good | ◐ good

Drill thread milling tool with 2 cutting edges with rear chamfer



M-BGF 2×D													DIN 6535 HE	DIN 6535 HA
													uncoated	uncoated
Nominal ∅	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	Order No.	Order No.
M3*	0,50	49,0	7,3	6,9	36	0,5	2,5	6	4,5	3,3	2,45	2	80901001000013	88901001000013
M4	0,70	49,0	9,4	8,9	36	0,7	3,3	6	4,5	4,3	3,24	2	80941001000015	88941001000015
M5	0,80	55,0	11,7	11,0	36	0,8	4,2	6	5,5	5,3	4,10	2	80941001000017	88941001000017
M6	1,00	62,0	14,5	13,7	36	1,0	5,0	8	6,6	6,3	4,85	2	80941001000018	88941001000018
M8	1,25	74,0	18,2	17,1	40	1,3	6,8	10	9,0	8,3	6,45	2	80941001000020	88941001000020
M10	1,50	79,0	23,4	22,1	45	1,5	8,5	12	11,0	10,3	8,08	2	80941001000022	88941001000022
M12	1,75	89,0	27,1	25,5	45	1,5	10,3	14	13,5	12,3	9,74	2	80941001000024	88941001000024
M14	2,00	102,0	32,8	30,9	48	1,5	12,0	16	15,5	14,3	11,35	2	80941001000025	88941001000025
M16	2,00	102,0	37,1	35,0	48	1,5	14,0	18	17,5	16,3	13,28	2	80941001000026	88941001000026
													TiAlN	TiAlN
M3*	0,50	49,0	6,8	7,3	36	0,5	2,5	6	4,5	3,3	2,45	2	80906001000013	88906001000013
M4	0,70	49,0	9,4	8,9	36	0,7	3,3	6	4,5	4,3	3,24	2	80935001000015	88935001000015
M5	0,80	55,0	11,7	11,0	36	0,8	4,2	6	5,5	5,3	4,10	2	80935001000017	88935001000017
M6	1,00	62,0	14,5	13,7	36	1,0	5,0	8	6,6	6,3	4,85	2	80935001000018	88935001000018
M8	1,25	74,0	18,2	17,1	40	1,3	6,8	10	9,0	8,3	6,45	2	80935001000020	88935001000020
M10	1,50	79,0	23,4	22,1	45	1,5	8,5	12	11,0	10,3	8,08	2	80935001000022	88935001000022
M12	1,75	89,0	27,1	25,5	45	1,5	10,3	14	13,5	12,3	9,74	2	80935001000024	88935001000024
M14	2,00	102,0	32,8	30,9	48	1,5	12,0	16	15,5	14,3	11,35	2	80935001000025	88935001000025
M16	2,00	102,0	37,1	35,0	48	1,5	14,0	18	17,5	16,3	13,28	2	80935001000026	88935001000026

* Tools without internal coolant supply

Thread engagements see page 56.

Guideline values for drill thread milling: page 76.

KOMET JEL® M-BGF

Drill thread milling tool with 2 cutting edges with rear chamfer

P M K N S H
– TiAlN

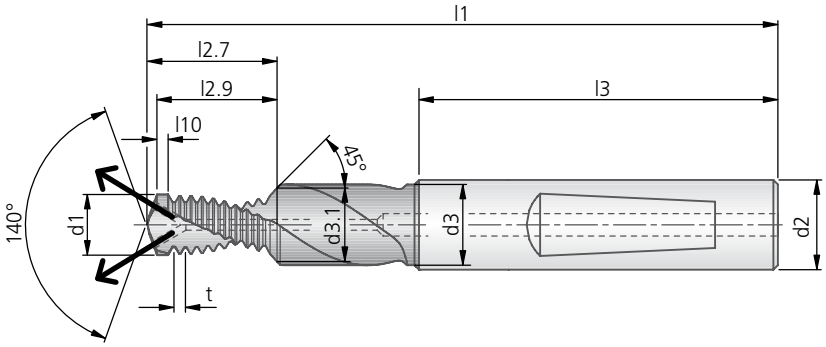
M

2,5×D
3×D

s.c.
TiAlN

DIN 6535
HE

DIN 6535
HA



M-BGF 2,5×D													DIN 6535 HE	DIN 6535 HA
													uncoated	uncoated
Nominal ∅	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	Order No.	Order No.
M4	0,70	49,0	11,5	11,0	36	0,7	3,3	6	4,5	4,3	3,24	2		
M5	0,80	55,0	14,1	13,4	36	0,8	4,2	6	5,5	5,3	4,10	2	80961001000017	88961001000017
M6	1,00	62,0	16,5	15,7	36	1,0	5,0	8	6,6	6,3	4,85	2	80961001000018	88961001000018
M8	1,25	74,0	23,2	22,1	40	1,3	6,8	10	9,0	8,3	6,45	2	80961001000020	88961001000020
M10	1,50	79,0	27,9	26,6	45	1,5	8,5	12	11,0	10,3	8,08	2	80961001000022	88961001000022
M12	1,75	89,0	34,1	32,5	45	1,5	10,3	14	13,5	12,3	9,74	2	80961001000024	88961001000024
M14	2,00	102,0	38,8	36,9	48	1,5	12,0	16	15,5	14,3	11,35	2		
M16	2,00	102,0	45,1	43,0	48	1,5	14,0	18	17,5	16,3	13,28	2	80961001000026	88961001000026
													TiAlN	TiAlN
M4	0,70	49,0	11,5	11,0	36	0,7	3,3	6	4,5	4,3	3,24	2		
M5	0,80	55,0	14,1	13,4	36	0,8	4,2	6	5,5	5,3	4,10	2		
M6	1,00	62,0	16,5	15,7	36	1,0	5,0	8	6,6	6,3	4,85	2	80956001000018	88956001000018
M8	1,25	74,0	23,2	22,1	40	1,3	6,8	10	9,0	8,3	6,45	2	80956001000020	88956001000020
M10	1,50	79,0	27,9	26,6	45	1,5	8,5	12	11,0	10,3	8,08	2	80956001000022	88956001000022
M12	1,75	89,0	34,1	32,5	45	1,5	10,3	14	13,5	12,3	9,74	2	80956001000024	88956001000024
M14	2,00	102,0	38,8	36,9	48	1,5	12,0	16	15,5	14,3	11,35	2		
M16	2,00	102,0	45,1	43,0	48	1,5	14,0	18	17,5	16,3	13,28	2		

M-BGF 3×D – for material group 7.4													DIN 6535 HE	DIN 6535 HA
													uncoated	uncoated
Nominal ∅	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	Order No.	Order No.
M4	0,70	58	13,16	12,54	36	0,14	3,30	6	4,5	4,3	3,24	2	80904001000015	88904001000015
M5	0,90	63	16,73	15,94	36	0,16	4,20	6	5,5	5,3	4,10	2	80904001000017	88904001000017
M6	1,00	68	19,83	18,89	36	0,20	5,00	8	6,6	6,3	4,85	2	80904001000018	88904001000018
M8	1,25	82	26,11	24,89	40	0,25	6,80	10	9,0	8,3	6,45	2	80904001000020	88904001000020
M10	1,50	95	32,90	31,36	45	0,30	8,50	12	11,0	10,3	8,08	2	80904001000022	88904001000022

Thread engagements see page 56.

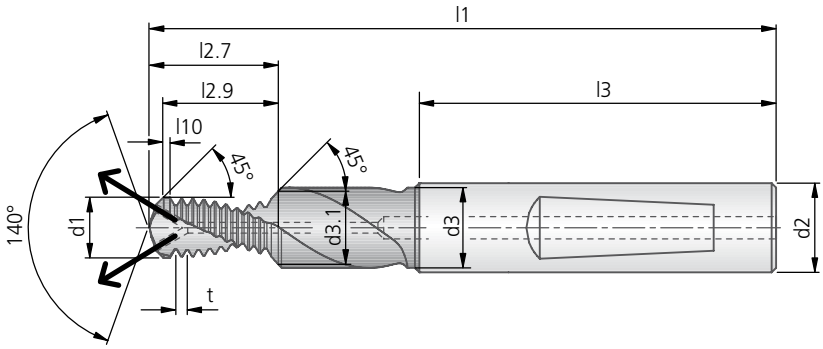
● very good | ◐ good

Drill thread milling tool with 2 cutting edges with rear chamfer

Material: P M K N S H

M | 1,5×D 2×D | s.c. TiAlN | DIN 6535 HE | DIN 6535 HA

for cast materials (special GGG)



M-BGF GGG 1,5×D													DIN 6535 HE	DIN 6535 HA
Nominal Ø	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	TiAlN Order No.	TiAlN Order No.
M4	0,70	47,0	7,3	6,8	36	0,7	3,3	6	4,5	4,3	3,24	2		
M5	0,80	52,6	9,3	8,6	36	0,8	4,2	6	5,5	5,3	4,10	2		
M6	1,00	59,0	11,5	10,7	36	1,0	5,0	8	6,6	6,3	4,85	2	80949001000018	88949001000018
M8	1,25	70,3	14,4	13,4	40	1,3	6,8	10	9,0	8,3	6,45	2	80949001000020	88949001000020
M10	1,50	74,5	18,9	17,6	45	1,5	8,5	12	11,0	10,3	8,08	2	80949001000022	88949001000022
M12	1,75	83,8	21,8	20,2	45	1,5	10,3	14	13,5	12,3	9,74	2	80949001000024	88949001000024

M-BGF GGG 2×D													DIN 6535 HE	DIN 6535 HA
Nominal Ø	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	TiAlN Order No.	TiAlN Order No.
M4	0,70	49,0	9,4	8,9	36	0,7	3,3	6	4,5	4,3	3,24	2		
M5	0,80	55,0	11,7	11,0	36	0,8	4,2	6	5,5	5,3	4,10	2		
M6	1,00	62,0	14,5	13,7	36	1,0	5,0	8	6,6	6,3	4,85	2	80943001000018	88943001000018
M8	1,25	74,0	18,2	17,1	40	1,3	6,8	10	9,0	8,3	6,45	2	80943001000020	88943001000020
M10	1,50	79,0	23,4	22,1	45	1,5	8,5	12	11,0	10,3	8,08	2	80943001000022	88943001000022
M12	1,75	89,0	27,1	25,5	45	1,5	10,3	14	13,5	12,3	9,74	2	80943001000024	88943001000024

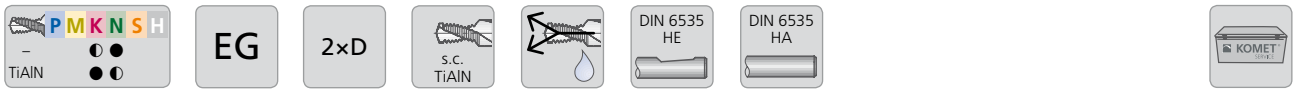
Thread engagements see page 56.

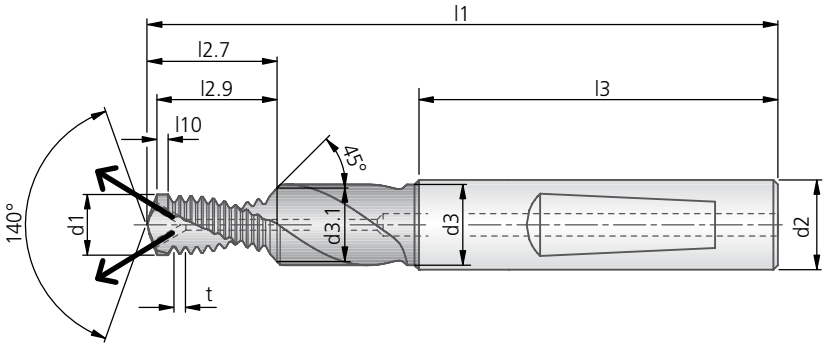
Uncoated tools are available on request.

Guideline values for drill thread milling: page 76.

KOMET JEL® EG-BGF

Drill thread milling tool with 2 cutting edges with rear chamfer



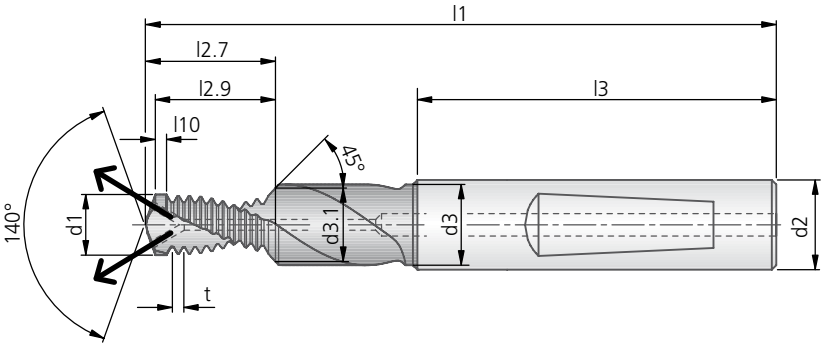


EG-BGF 2×D													DIN 6535 HE	DIN 6535 HA
Nominal ∅	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	uncoated  Order No.	uncoated  Order No.
EG-M6	1,00	74,0	16,8	15,8	40	1,0	6,3	10	9	7,6	5,98	2	80941051000018	88941051000018
EG-M8	1,25	78,0	22,3	21,0	45	1,3	8,4	12	11	9,9	7,89	2	80941051000020	88941051000020
EG-M10	1,50	87,5	26,8	25,2	45	1,5	10,5	14	14	12,3	9,83	2	80941051000022	88941051000022
EG-M12	1,75	102,0	32,8	30,9	48	1,5	12,5	16	16	14,6	11,80	2	80941051000024	88941051000024
													TiAlN 	TiAlN 
EG-M6	1,00	74,0	16,8	15,8	40	1,0	6,3	10	9	7,6	5,98	2	80935051000018	88935051000018
EG-M8	1,25	78,0	22,3	21,0	45	1,3	8,4	12	11	9,9	7,89	2	80935051000020	88935051000020
EG-M10	1,50	87,5	26,8	25,2	45	1,5	10,5	14	14	12,3	9,83	2	80935051000022	88935051000022
EG-M12	1,75	102,0	32,8	30,9	48	1,5	12,5	16	16	14,6	11,80	2	80935051000024	88935051000024

Thread engagements see page 56.

● very good | ◐ good

Drill thread milling tool with 2 cutting edges with rear chamfer



MF-BGF 1,5×D													DIN 6535 HE	DIN 6535 HA
Nominal Ø	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	uncoated Order No.	uncoated Order No.
M8×1	1,0	70,0	14,8	13,7	40	1,0	7,0	10	9,0	8,3	6,79	2	80945002000070	88945002000070
M10×1	1,0	74,0	18,2	16,8	45	1,0	9,0	12	11,0	10,3	8,75	2	80945002000094	88945002000094
M12×1,5	1,5	83,0	22,2	20,6	45	1,5	10,5	14	13,5	12,3	10,06	2	80945002000113	88945002000113

TiAlN coated tools are available on request.

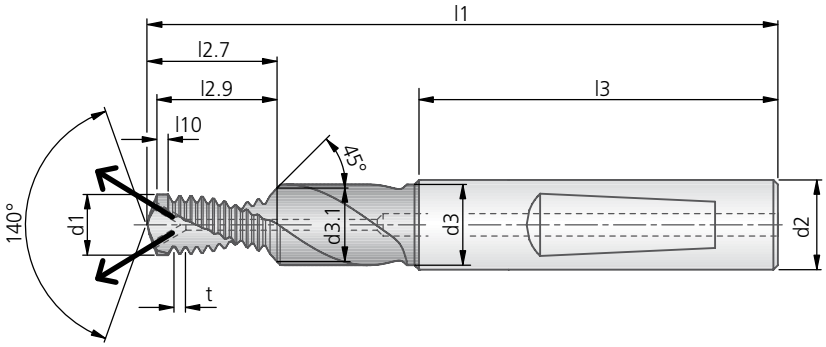
MF-BGF 2×D													DIN 6535 HE	DIN 6535 HA
Nominal Ø	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	uncoated Order No.	uncoated Order No.
M6×0,75	0,75	62,0	14,9	13,3	36	0,8	5,25	8	6,6	6,3	5,14	2	80941002000048	88941002000048
M8×1	1,0	74,0	18,8	17,7	40	1,0	7,0	10	9,0	8,3	6,79	2	80941002000070	88941002000070
M10×1	1,0	79,0	23,2	21,8	45	1,0	9,0	12	11,0	10,3	8,75	2	80941002000094	88941002000094
M12×1	1,0	89,0	26,4	24,8	45	1,0	11,0	14	13,5	12,3	10,74	2	80941002000111	88941002000111
M12×1,5	1,5	89,0	28,2	26,6	45	1,5	10,5	14	13,5	12,3	10,06	2	80941002000113	88941002000113
M14×1,5	1,5	102,0	31,5	29,6	48	1,5	12,5	16	15,5	14,3	12,01	2	80941002000131	88941002000131
M16×1,5	1,5	102,0	36,3	34,1	48	1,5	14,5	18	17,5	16,3	13,95	2	80941002000147	88941002000147
													TiAlN	TiAlN
M6×0,75	0,75	62,0	14,9	13,3	36	0,8	5,25	8	6,6	6,3	5,14	2		
M8×1	1,0	74,0	18,8	17,7	40	1,0	7,0	10	9,0	8,3	6,79	2	80935002000070	88935002000070
M10×1	1,0	79,0	23,2	21,8	45	1,0	9,0	12	11,0	10,3	8,75	2	80935002000094	88935002000094
M12×1	1,0	89,0	26,4	24,8	45	1,0	11,0	14	13,5	12,3	10,74	2	80935002000111	88935002000111
M12×1,5	1,5	89,0	28,2	26,6	45	1,5	10,5	14	13,5	12,3	10,06	2	80935002000113	88935002000113
M14×1,5	1,5	102,0	31,5	29,6	48	1,5	12,5	16	15,5	14,3	12,01	2		
M16×1,5	1,5	102,0	36,3	34,1	48	1,5	14,5	18	17,5	16,3	13,95	2		

Thread engagements see page 56.

Guideline values for drill thread milling: page 76.

KOMET JEL® UNC-BGF

Drill thread milling tool with 2 cutting edges with rear chamfer



UNC-BGF 1,5×D													DIN 6535 HE	DIN 6535 HA
Nominal Ø	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	uncoated Order No.	uncoated Order No.
1/4-20 UNC	1,270	58,2	11,9	11,1	36	1,3	5,1	8	7,8	6,7	4,70	2	80945010000011	88945010000011
5/16-18 UNC	1,411	69,8	14,8	13,8	40	1,4	6,5	10	9,0	8,2	6,01	2	80945010000012	88945010000012
3/8-16 UNC	1,588	74,2	18,2	17,0	45	1,5	7,9	12	11,0	9,8	7,36	2	80945010000013	88945010000013
1/2-13 UNC	1,954	83,0	24,2	22,6	45	1,5	10,8	14	13,5	13,0	9,87	2	80945010000015	88945010000015

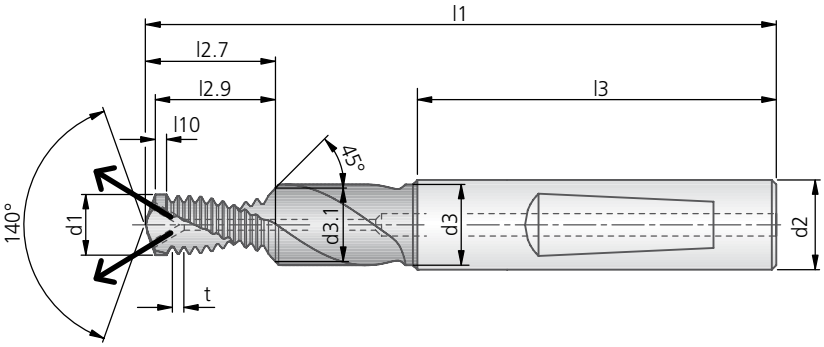
UNC-BGF 2×D													DIN 6535 HE	DIN 6535 HA
Nominal Ø	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	uncoated Order No.	uncoated Order No.
1/4-20 UNC	1,270	62,0	15,7	14,9	36	1,3	5,1	8	7,8	6,7	4,70	2	80941010000011	88941010000011
5/16-18 UNC	1,411	74,0	19,0	18,0	40	1,4	6,5	10	9,0	8,2	6,01	2	80941010000012	88941010000012
3/8-16 UNC	1,588	79,0	23,0	21,8	45	1,5	7,9	12	11,0	9,8	7,36	2	80941010000013	88941010000013
1/2-13 UNC	1,954	89,0	30,1	28,4	45	1,5	10,8	14	13,5	13,0	9,87	2	80941010000015	88941010000015

Thread engagements see page 56.

TiAlN coated tools are available on request.

● very good | ◐ good

Drill thread milling tool with 2 cutting edges with rear chamfer



UNF-BGF 1,5×D													DIN 6535 HE	DIN 6535 HA
Nominal ∅	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	uncoated Order No.	uncoated Order No.
1/4-28 UNF	0,907	58,4	11,5	10,7	36	0,9	5,4	8	7,8	6,7	5,17	2	80945011000011	88945011000011
5/16-24 UNF	1,058	70,0	14,6	13,5	40	1,1	6,9	10	9,0	8,2	6,51	2	80945011000012	88945011000012
3/8-24 UNF	1,058	74,8	17,0	15,7	45	1,1	8,5	12	11,0	9,8	8,07	2	80945011000013	88945011000013
1/2-20 UNF	1,270	82,7	21,8	20,1	45	1,3	11,4	14	13,5	13,0	10,88	2	80945011000015	88945011000015

UNF-BGF 2×D													DIN 6535 HE	DIN 6535 HA
Nominal ∅	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	uncoated Order No.	uncoated Order No.
1/4-28 UNF	0,907	62,0	15,2	14,3	36	0,9	5,4	8	7,8	6,7	5,17	2	80941011000011	88941011000011
5/16-24 UNF	1,058	74,0	18,8	17,8	40	1,1	6,9	10	9,0	8,2	6,51	2	80941011000012	88941011000012
3/8-24 UNF	1,058	79,0	21,2	19,9	45	1,1	8,5	12	11,0	9,8	8,07	2	80941011000013	88941011000013
1/2-20 UNF	1,270	89,0	28,2	26,4	45	1,3	11,4	14	13,5	13,0	10,88	2	80941011000015	88941011000015

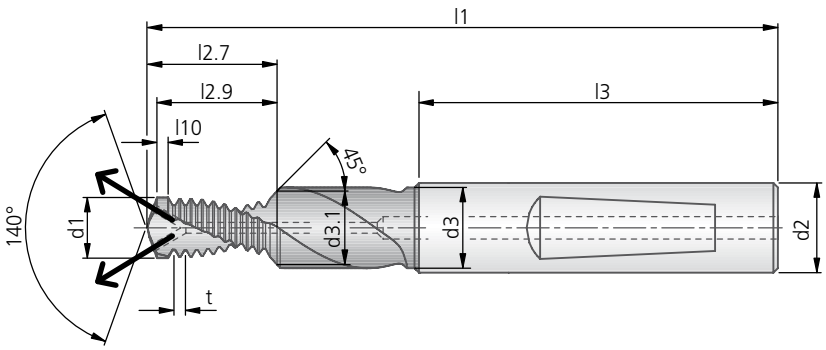
Thread engagements see page 56.

TiAlN coated tools are available on request.

Guideline values for drill thread milling: page 76.

KOMET JEL® G-BGF

Drill thread milling tool with 2 cutting edges with rear chamfer



G-BGF 2×D													DIN 6535 HE	DIN 6535 HA
Nominal ∅	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	uncoated  Order No.	uncoated  Order No.
G1/8-28	0,907	79,0	22,1	20,7	45	0,9	8,8	12	11,0	10,0	8,40	2	**80941025000001**	**88941025000001**
G1/4-19	1,337	102,0	29,5	27,7	48	1,3	11,8	16	13,5	13,5	11,44	2	**80941025000002**	**88941025000002**

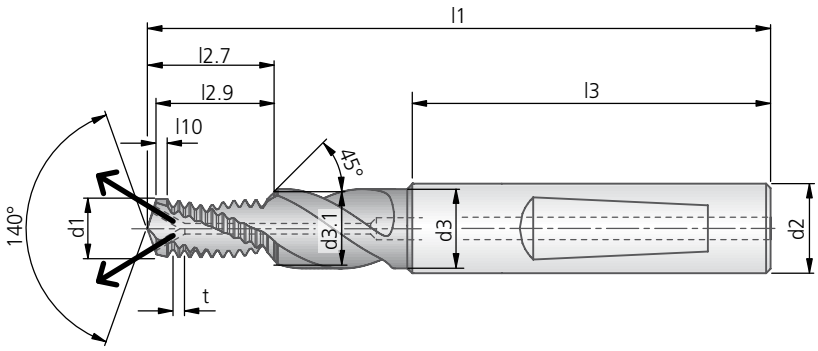
Thread engagements see page 56.

TiAlN coated tools are available on request.

● very good | ◐ good

Drill thread milling tool with 3 cutting edges with rear chamfer

for precasted holes



M-BGF 1,5×D													DIN 6535 HE	DIN 6535 HA
Nominal ∅	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	uncoated Order No.	uncoated Order No.
M6	1,00	59,0	11,5	10,7	36	1,0	5,0	8	6,6	6,3	4,85	3	80345001000018	88345001000018
M8	1,25	70,3	14,4	13,4	40	1,3	6,8	10	9,0	8,3	6,45	3	80345001000020	88345001000020
M10	1,50	74,5	18,9	17,6	45	1,5	8,5	12	11,0	10,3	8,08	3	80345001000022	88345001000022
M12	1,75	83,8	21,8	20,2	45	1,5	10,3	14	13,5	12,3	9,74	3	80345001000024	88345001000024
													TiAlN	TiAlN
M6	1,00	59,0	11,5	10,7	36	1,0	5,0	8	6,6	6,3	4,85	3	80334001000018	88334001000018
M8	1,25	70,3	14,4	13,4	40	1,3	6,8	10	9,0	8,3	6,45	3	80334001000020	88334001000020
M10	1,50	74,5	18,9	17,6	45	1,5	8,5	12	11,0	10,3	8,08	3	80334001000022	88334001000022
M12	1,75	83,8	21,8	20,2	45	1,5	10,3	14	13,5	12,3	9,74	3	80334001000024	88334001000024

M-BGF 2×D													DIN 6535 HE	DIN 6535 HA
Nominal ∅	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	uncoated Order No.	uncoated Order No.
M6	1,00	62,0	14,5	13,7	36	1,0	5,0	8	6,6	6,3	4,85	3	80341001000018	88341001000018
M8	1,25	74,0	18,2	17,1	40	1,3	6,8	10	9,0	8,3	6,45	3	80341001000020	88341001000020
M10	1,50	79,0	23,4	22,1	45	1,5	8,5	12	11,0	10,3	8,08	3	80341001000022	88341001000022
M12	1,75	89,0	27,1	25,5	45	1,5	10,3	14	13,5	12,3	9,74	3	80341001000024	88341001000024
													TiAlN	TiAlN
M6	1,00	62,0	14,5	13,7	36	1,0	5,0	8	6,6	6,3	4,85	3	80335001000018	88335001000018
M8	1,25	74,0	18,2	17,1	40	1,3	6,8	10	9,0	8,3	6,45	3	80335001000020	88335001000020
M10	1,50	79,0	23,4	22,1	45	1,5	8,5	12	11,0	10,3	8,08	3	80335001000022	88335001000022
M12	1,75	89,0	27,1	25,5	45	1,5	10,3	14	13,5	12,3	9,74	3	80335001000024	88335001000024

Thread engagements see page 56.

Guideline values for drill thread milling: page 76.

KOMET JEL® M-BGF

Drill thread milling tool with 3 cutting edges with rear chamfer

P M K N S H
– ◐ ●
TiAlN ● ◐

M

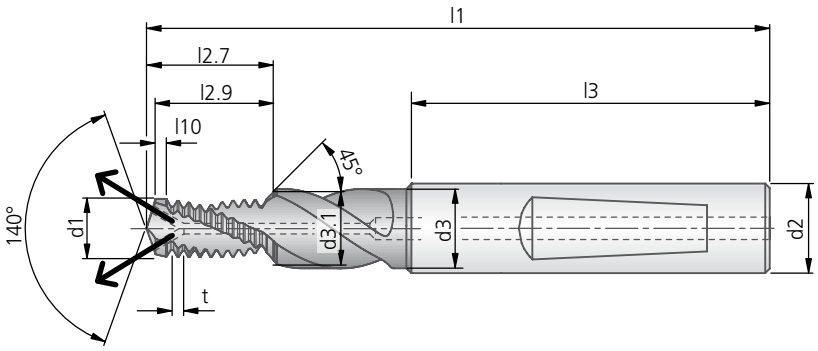
1,5×D
2×D

s.c.
TiAlN

DIN 6535
HE

DIN 6535
HA

for precasted holes



M-BGF 2,5×D													DIN 6535 HE	DIN 6535 HA
													uncoated	uncoated
Nominal ∅	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	Order No.	Order No.
M6	1,00	62,0	16,5	15,7	36	1,0	5,0	8	6,6	6,3	4,85	3	80361001000018	88361001000018
M8	1,25	74,0	23,2	22,1	40	1,3	6,8	10	9,0	8,3	6,45	3	80361001000020	88361001000020
M10	1,50	79,0	27,9	26,6	45	1,5	8,5	12	11,0	10,3	8,08	3	80361001000022	88361001000022
M12	1,75	89,0	34,1	32,5	45	1,5	10,3	14	13,5	12,3	9,74	3	80361001000024	88361001000024
													TiAlN	TiAlN
M6	1,00	62,0	16,5	15,7	36	1,0	5,0	8	6,6	6,3	4,85	3	80356001000018	88356001000018
M8	1,25	74,0	23,2	22,1	40	1,3	6,8	10	9,0	8,3	6,45	3	80356001000020	88356001000020
M10	1,50	79,0	27,9	26,6	45	1,5	8,5	12	11,0	10,3	8,08	3	80356001000022	88356001000022
M12	1,75	89,0	34,1	32,5	45	1,5	10,3	14	13,5	12,3	9,74	3	80356001000024	88356001000024

Thread engagements see page 56.

● very good | ◐ good

Drill thread milling tool with 4 cutting edges with rear chamfer

Material: P M K N S H

M

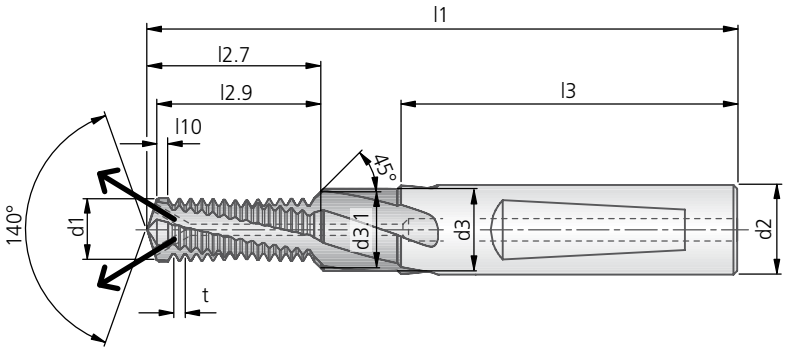
1,5×D 2×D 2,5×D

s.c. AlCrN

DIN 6535 HE

DIN 6535 HA

for grey cast iron



M-BGF NZ4 GG 1,5×D													DIN 6535 HE	DIN 6535 HA
Nominal Ø	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	AlCrN Order No.	AlCrN Order No.
M6	1,00	59,0	11,6	10,5	36	0,8	5,0	8	6,6	6,3	4,85	4	80369001000018	88369001000018
M8	1,25	70,3	14,5	13,0	40	1,0	6,8	10	9,0	8,3	6,61	4	80369001000020	88369001000020
M10	1,50	74,7	19,0	17,1	45	1,1	8,5	12	11,0	10,3	8,29	4	80369001000022	88369001000022
M12	1,75	83,8	22,0	19,7	45	1,1	10,3	14	13,5	12,3	10,00	4	80369001000024	88369001000024
M14	2,00	94,0	25,1	22,4	48	1,0	12,0	16	15,5	14,3	11,35	4		
M16	2,00	94,0	29,5	26,5	48	1,0	14,0	18	17,5	16,3	13,27	4		

M-BGF NZ4 GG 2×D													DIN 6535 HE	DIN 6535 HA
Nominal Ø	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	AlCrN Order No.	AlCrN Order No.
M6	1,00	62,0	14,6	13,5	36	0,8	5,0	8	6,6	6,3	4,85	4	80373001000018	88373001000018
M8	1,25	74,0	18,3	16,8	40	1,0	6,8	10	9,0	8,3	6,61	4	80373001000020	88373001000020
M10	1,50	79,0	23,5	21,6	45	1,1	8,5	12	11,0	10,3	8,29	4	80373001000022	88373001000022
M12	1,75	89,0	27,2	24,9	45	1,1	10,3	14	13,5	12,3	10,00	4	80373001000024	88373001000024
M14	2,00	102,0	33,1	30,4	48	1,0	12,0	16	15,5	14,3	11,35	4		
M16	2,00	102,0	37,5	34,5	48	1,0	14,0	18	17,5	16,3	13,27	4		

M-BGF NZ4 GG 2,5×D													DIN 6535 HE	DIN 6535 HA
Nominal Ø	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	AlCrN Order No.	AlCrN Order No.
M6	1,00	62,0	16,6	15,5	36	0,8	5,0	8	6,6	6,3	4,85	4	80380001000018	88380001000018
M8	1,25	74,0	23,3	21,8	40	1,0	6,8	10	9,0	8,3	6,61	4	80380001000020	88380001000020
M10	1,50	79,0	28,0	26,1	45	1,1	8,5	12	11,0	10,3	8,29	4	80380001000022	88380001000022
M12	1,75	89,0	34,2	31,9	45	1,1	10,3	14	13,5	12,3	10,00	4	80380001000024	88380001000024
M14	2,00	102,0	39,1	36,4	48	1,0	12,0	16	15,5	14,3	11,35	4		
M16	2,00	102,0	45,5	42,5	48	1,0	14,0	18	17,5	16,3	13,27	4		

Thread engagements see page 56.

Guideline values for drill thread milling: page 76.

KOMET JEL® M-UBGF

Drill thread milling tool with 2 cutting edges with front and rear chamfer

P M K N S H
– ◐ ●
TiAlN ● ◐

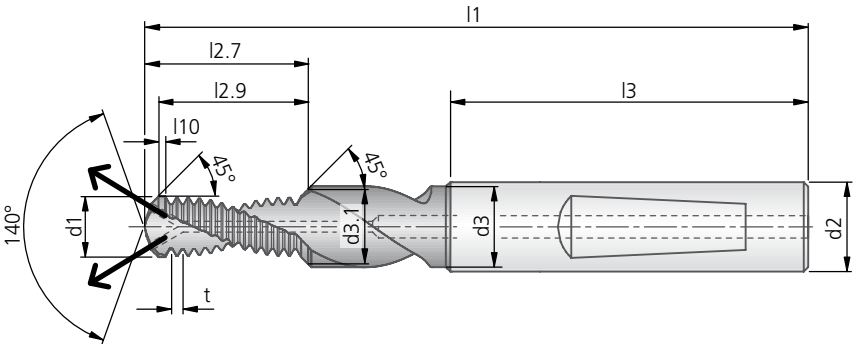
M

2×D

s.c. TiAlN

DIN 6535 HE

DIN 6535 HA

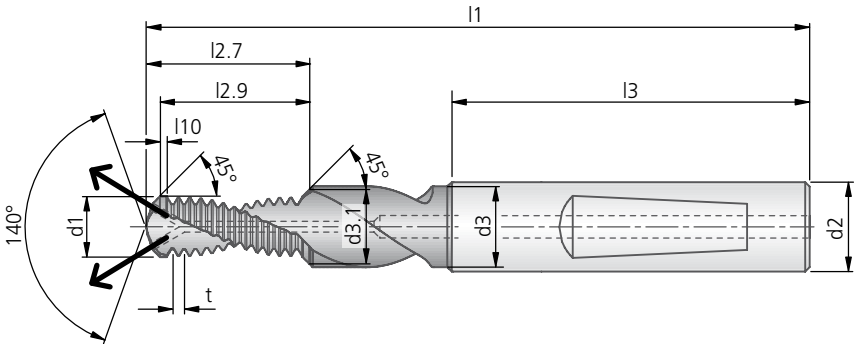


M-UBGF 2×D													DIN 6535 HE	DIN 6535 HA
													uncoated	uncoated
Nominal ∅	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	Order No.	Order No.
M4	0,70	49,0	9,4	8,6	36	0,4	3,3	6	4,5	4,3	3,24	2		
M5	0,80	55,0	12,5	11,4	36	0,5	4,2	6	5,5	5,3	4,10	2		
M6	1,00	62,0	14,5	13,3	36	0,6	5,0	8	6,6	6,3	4,85	2	80641001000018	88641001000018
M8	1,25	74,0	19,4	17,9	40	0,8	6,8	10	9,0	8,3	6,45	2	80641001000020	88641001000020
M10	1,50	79,0	23,4	21,5	45	0,9	8,5	12	11,0	10,3	8,08	2	80641001000022	88641001000022
M12	1,75	89,0	28,8	26,6	45	0,9	10,3	14	13,5	12,3	9,74	2	80641001000024	88641001000024
M14	2,00	102,0	32,8	30,2	48	0,8	12,0	16	15,5	14,3	11,35	2		
M16	2,00	102,0	37,1	34,2	48	0,8	14,0	18	17,5	16,3	13,28	2		
													TiAlN	TiAlN
M4	0,70	49,0	9,4	8,6	36	0,4	3,3	6	4,5	4,3	3,24	2		
M5	0,80	55,0	12,5	11,4	36	0,5	4,2	6	5,5	5,3	4,10	2		
M6	1,00	62,0	14,5	13,3	36	0,6	5,0	8	6,6	6,3	4,85	2	80635001000018	88635001000018
M8	1,25	74,0	19,4	17,9	40	0,8	6,8	10	9,0	8,3	6,45	2	80635001000020	88635001000020
M10	1,50	79,0	23,4	21,5	45	0,9	8,5	12	11,0	10,3	8,08	2	80635001000022	88635001000022
M12	1,75	89,0	28,8	26,6	45	0,9	10,3	14	13,5	12,3	9,74	2	80635001000024	88635001000024
M14	2,00	102,0	32,8	30,2	48	0,8	12,0	16	15,5	14,3	11,35	2		
M16	2,00	102,0	37,1	34,2	48	0,8	14,0	18	17,5	16,3	13,28	2		

Thread engagements see page 57.

● very good | ◐ good

Drill thread milling tool with 2 cutting edges with front and rear chamfer



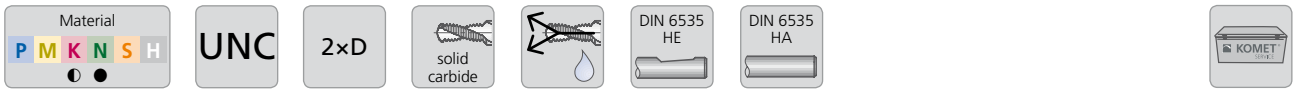
MF-UBGF 2×D													DIN 6535 HE	DIN 6535 HA
Nominal ∅	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	uncoated Order No.	uncoated Order No.
M6×0,75	0,75	61,7	14,9	13,0	36	0,4	5,3	8	6,6	6,3	5,14	2	**80641002000048**	**88641002000048**
M8×1	1,00	74,0	18,8	17,3	40	0,6	7,0	10	9,0	8,3	6,79	2	**80641002000070**	**88641002000070**
M10×1	1,00	79,0	24,2	22,4	45	0,6	9,0	12	11,0	10,3	8,75	2	**80641002000094**	**88641002000094**
M12×1	1,00	88,4	26,4	24,3	45	0,6	11,0	14	13,5	12,3	10,74	2	**80641002000111**	**88641002000111**
M12×1,5	1,50	89,0	28,2	26,0	45	0,9	10,5	14	13,5	12,3	10,06	2	**80641002000113**	**88641002000113**
M14×1,5	1,50	102,0	33,0	30,5	48	0,9	12,5	16	15,5	14,3	12,01	2	**80641002000131**	**88641002000131**
M16×1,5	1,50	102,0	36,3	33,5	48	0,9	14,5	18	17,5	16,3	13,95	2		
													TiAlN	TiAlN
M6×0,75	0,75	61,7	14,9	13,0	36	0,4	5,3	8	6,6	6,3	5,14	2		
M8×1	1,00	74,0	18,8	17,3	40	0,6	7,0	10	9,0	8,3	6,79	2	**80635002000070**	**88635002000070**
M10×1	1,00	79,0	24,2	22,4	45	0,6	9,0	12	11,0	10,3	8,75	2	**80635002000094**	**88635002000094**
M12×1	1,00	88,4	26,4	24,3	45	0,6	11,0	14	13,5	12,3	10,74	2	**80635002000111**	**88635002000111**
M12×1,5	1,50	89,0	28,2	26,0	45	0,9	10,5	14	13,5	12,3	10,06	2	**80635002000113**	**88635002000113**
M14×1,5	1,50	102,0	33,0	30,5	48	0,9	12,5	16	15,5	14,3	12,01	2		
M16×1,5	1,50	102,0	36,3	33,5	48	0,9	14,5	18	17,5	16,3	13,95	2		

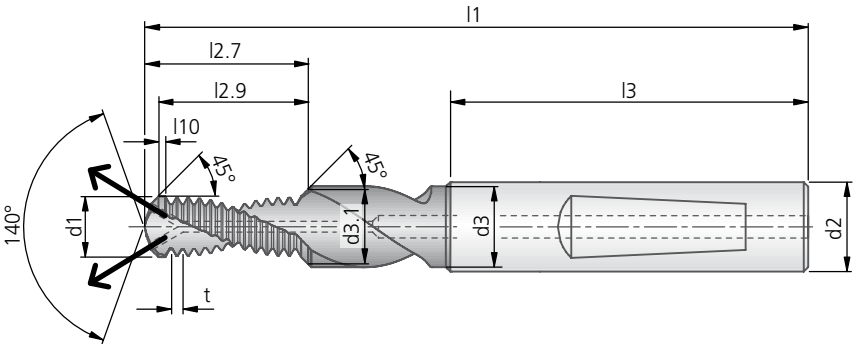
Thread engagements see page 57.

Guideline values for drill thread milling: page 76.

KOMET JEL® UNC-UBGF

Drill thread milling tool with 2 cutting edges with front and rear chamfer





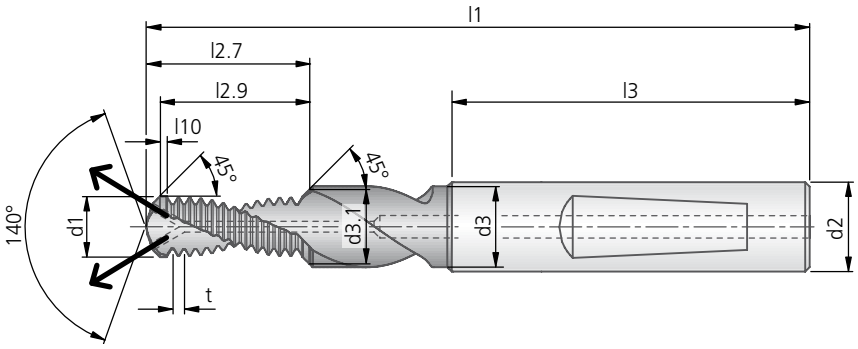
UNC-UBGF 2×D													DIN 6535 HE	DIN 6535 HA
Nominal ∅	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	uncoated  Order No.	uncoated  Order No.
1/4-20 UNC	1,270	62,0	15,7	14,4	36	0,8	5,1	8	7,8	6,7	4,70	2	**80641010000011**	**88641010000011**
5/16-18 UNC	1,411	74,0	19,0	17,5	40	0,9	6,5	10	9,0	8,2	6,01	2	**80641010000012**	**88641010000012**
3/8-16 UNC	1,588	79,0	23,0	21,2	45	0,9	7,9	12	11,0	9,8	7,36	2	**80641010000013**	**88641010000013**
1/2-13 UNC	1,954	89,0	30,1	27,7	45	0,8	10,8	14	13,5	13,0	9,87	2	**80641010000015**	**88641010000015**

Thread engagements see page 57.

TiAlN coated tools are available on request.

● very good | ◐ good

Drill thread milling tool with 2 cutting edges with front and rear chamfer



UNF-UBGF 2×D													DIN 6535 HE	DIN 6535 HA
Nominal ∅	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	uncoated  Order No.	uncoated  Order No.
1/4-28 UNF	0,907	62,0	15,2	13,9	36	0,5	5,4	8	7,8	6,7	5,17	2	**80641011000011**	**88641011000011**
5/16-24 UNF	1,058	74,0	18,8	17,3	40	0,6	6,9	10	9,0	8,2	6,51	2	**80641011000012**	**88641011000012**
3/8-24 UNF	1,058	79,0	22,3	20,5	45	0,6	8,5	12	11,0	9,8	8,07	2	**80641011000013**	**88641011000013**
1/2-20 UNF	1,270	89,0	29,5	27,2	45	0,8	11,4	14	13,5	13,0	10,88	2	**80641011000015**	**88641011000015**

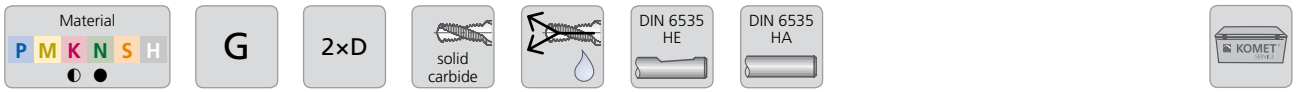
Thread engagements see page 57.

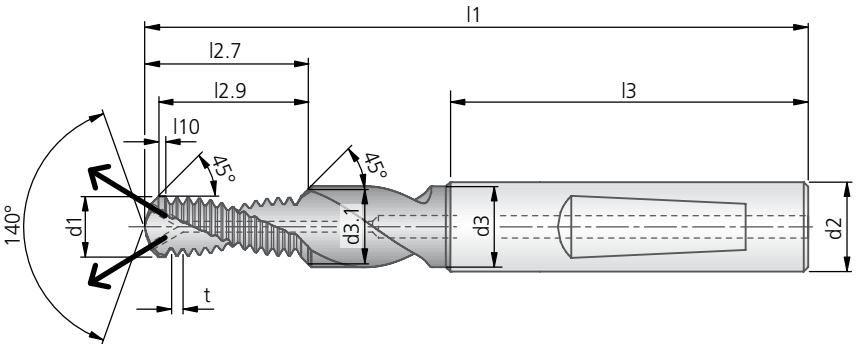
TiAlN coated tools are available on request.

Guideline values for drill thread milling: page 76.

KOMET JEL® G-UBGF

Drill thread milling tool with 2 cutting edges with front and rear chamfer





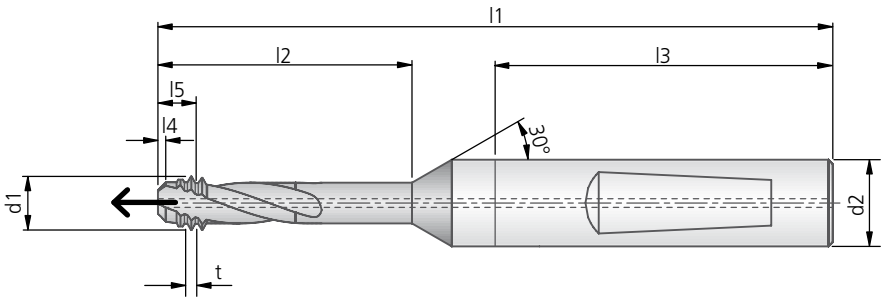
G-UBGF 2×D													DIN 6535 HE	DIN 6535 HA
Nominal ∅	t	l1	l2.7	l2.9	l3	l10	d1	d2	d3	d3.1	AD	Z	uncoated  Order No.	uncoated  Order No.
G1/8-28	0,907	79,0	22,1	20,3	45	0,5	8,8	12	11,0	10,0	8,40	2	80641025000001	88641025000001
G1/4-19	1,337	102,0	30,8	28,5	48	0,8	11,8	16	15,5	13,5	11,44	2	80641025000002	88641025000002

Thread engagements see page 57.

TiAlN coated tools are available on request.

● very good | ◐ good

Direct circular drill thread milling tool with 3 or 4 cutting edges with front chamfer



M-DBGF 2×D										DIN 6535 HE	DIN 6535 HA
										TiAlN	TiAlN
Nominal ∅	t	l1	l2	l3	l4	l5	d1	d2	Z	Order No.	Order No.
M6 / M7	1,00	60,0	17,8	36	0,4	3,8	4,7	8	3	80752001000018	88752001000018
M8	1,25	71,0	23,2	40	0,5	4,7	6,3	10	4	80752001000020	88752001000020
M10	1,50	76,0	28,5	40	0,6	5,5	7,8	10	4	80752001000022	88752001000022
M12	1,75	86,0	34,0	45	0,6	6,5	9,5	12	4	80752001000024	88752001000024

M-DBGF 3×D										DIN 6535 HE	DIN 6535 HA
										TiAlN	TiAlN
Nominal ∅	t	l1	l2	l3	l4	l5	d1	d2	Z	Order No.	Order No.
M6 / M7	1,00	65,0	23,8	36	0,4	3,8	4,7	8	3	80758001000018	88758001000018
M8	1,25	79,0	31,2	40	0,5	4,7	6,3	10	4	80758001000020	88758001000020
M10	1,50	85,0	38,5	40	0,6	5,5	7,8	10	4	80758001000022	88758001000022
M12	1,75	100,0	46,0	45	0,6	6,5	9,5	12	4	80758001000024	88758001000024

Thread engagements see page 57.

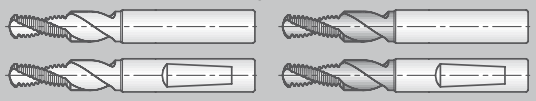
Guideline values for drill thread milling: page 76.

KOMET JEL® BGF | UBGF | DBGF

Recommended cutting data

Guideline values for drill thread milling

v_c (m/min) = Cutting speed
f_b (mm/rev.) = Drilling feed
f_z (mm/tooth) = Milling feed



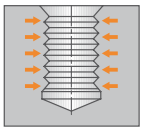
Material group		Strength Rm (N/mm²)	Hardness HB	Surface / Material	BGF | UBGF un-coated v_c m/min	BGF | UBGF TiAlN v_c m/min	BGF | UBGF AlCrN v_c m/min	BGF | UBGF ≤ Ø 6 f_b mm/rev.	BGF | UBGF ≤ Ø 12 f_b mm/rev.	BGF | UBGF ≤ Ø 6 f_z mm/tooth	BGF | UBGF ≤ Ø 12 f_z mm/tooth	DBGF TiAlN v_c m/min	DBGF f_z mm/tooth
P	1.1	≤400	≤120	magnetic soft iron								100-150	0,03-0,10
P	1.2	≤700	≤200	structural, case hardened steel								100-150	0,03-0,10
P	1.3	≤850	≤250	carbon steel								100-150	0,03-0,10
P	1.4	≤850	≤250	alloy steel								100-150	0,03-0,10
P	1.5	>850 ≤1200	>250 ≤350	alloy/heat treated steel								100-150	0,03-0,10
P	1.6	>1200	>350	alloy/heat treated steel								100-150	0,03-0,10
H	1.7	≤1400	≤400	hardened steel to 45 HRC									
H	1.8	≤2200	≤600	hardened steel to 58 HRC									
M	2.1	≤850	≤250	stainless steel, sulphuretted									
M	2.2	≤850	≤250	austentic									
M	2.3	≤1000	≤300	ferritic, ferritic & austentic, martensitic									
K	3.1	≤500	≤150	grey cast iron	50-80	80-120	80-120	0,10-0,15	0,15-0,22	0,02-0,05	0,05-0,10	100-200	0,05-0,15
K	3.2	>500 ≤1000	>150 ≤300	grey cast iron, heat treated	50-80	80-120	80-120	0,10-0,15	0,15-0,22	0,02-0,05	0,05-0,10	100-200	0,05-0,15
K	3.3	400-500	200-250	vermicular cast iron		80-100		0,10-0,15	0,15-0,22	0,02-0,05	0,05-0,10	100-150	0,05-0,15
K	3.4	≤700	≤200	spheroidal graphite cast iron	50-80	80-120		0,10-0,15	0,15-0,22	0,02-0,05	0,05-0,10	100-200	0,05-0,15
K	3.5	>700 ≤1000	>200 ≤300	spheroidal graphite cast iron, heat treated								100-200	0,05-0,15
K	3.6	≤700	≤200	malleable iron								100-200	0,05-0,15
K	3.7	>700 <1000	>200 ≤300	malleable iron heat treated								100-200	0,05-0,15
S	4.1	≤700	≤200	pure titanium									
S	4.2	≤900	≤270	titanium alloys									
S	4.3	>900 ≤1250	>270 ≤300	titanium alloys									
S	5.1	≤500	≤150	pure nickel									
S	5.2	≤900	<270	nickel alloys, heat resistant									
S	5.3	>900 ≤1200	>270 ≤350	nickel alloys, high heat resistance									
N	6.1	≤350	≤100	non-alloy copper									
N	6.2	≤700	≤200	short chip, brass, bronze, red brass	100-300			0,10-0,30	0,06-0,10	0,03-0,06	0,06-0,10	100-200	0,05-0,15
N	6.3	≤700	≤200	long chip brass								100-200	0,05-0,15
N	6.4	≤500	≤470	Cu-Al-Fe alloy (Ampco)									
N	7.1	≤350	≤100	Al, Mg non-alloy	100-400	100-400		0,10-0,25	0,25-0,30	0,03-0,06	0,06-0,10	100-400	0,05-0,20
N	7.2	≤600	≤180	Al wrought alloy, breaking strain (A 5) <14 %	100-400	100-400		0,10-0,25	0,25-0,30	0,03-0,06	0,06-0,10	100-400	0,05-0,20
N	7.3	≤600	≤180	Al wrought alloy, breaking strain (A 5) ≥14 %	100-400	100-400		0,03-0,06	0,06-0,12	0,03-0,06	0,06-0,10	100-400	0,05-0,20
N	7.4	≤600	≤180	Al cast alloy, Si <10 %	100-300	100-400		0,10-0,25	0,25-0,30	0,03-0,06	0,06-0,10	100-400	0,05-0,20
N	7.5	≤600	≤180	Al cast alloy, Si ≥10 %		100-300		0,10-0,25	0,25-0,30	0,03-0,06	0,06-0,10	100-300	0,05-0,20
N	8.1			thermoplastics	60-120	60-120		0,10-0,25	0,25-0,30	0,03-0,06	0,06-0,10	100-200	0,05-0,20
N	8.2			thermosetting plastics	60-100	60-100		0,10-0,25	0,25-0,30	0,03-0,06	0,06-0,10	100-200	0,05-0,20
N	8.3			fibre reinforced plastics	40-60	60-80		0,10-0,15	0,15-0,22	0,02-0,05	0,05-0,10	100-150	0,05-0,20

Cutting values shown are relating to the basic recommendations for cutting materials given.

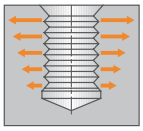
1. 

Chips packed or glued at the thread profile
- poor coolant

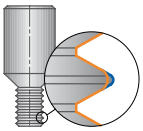
→ improve coolant (i.e. add flood coolant, lateral flute coolant supply for through holes)
→ add coolant flutes flutes on shank

2. 

Thread go-gage doesn't fit
- thread too small → reduce tool radius in offset register
- chips in thread → improve coolant

3. 

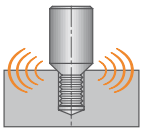
Thread is getting tapered
- poor tool clamping → improve tool holding (i.e. shrink fit holders)
- thread milling feed too high → reduce thread milling feed

4. 

Erratic tool wear
- tool run out too high → use better tool holders (i.e. shrink fit holders)

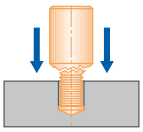
5. 

Counterbore chips are winding around the tool
- chamfer feed too low → increase chamfer feed

6. 

Loud drilling noise (especially towards the final drilling depth)
- chip problem

→ reduce drill feed rate
→ use tool with coolant through
→ add peck cycle

7. 

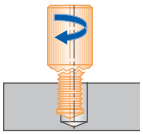
Tool breakage while drilling (especially in long chipping material)
- chip problem

→ reduce drill feed rate
→ use tool with coolant through
→ add peck cycle (multiple pecks)

8. 

Chips glued up in the flutes
- poor coolant

→ improve coolant situation
→ use tool with coolant through
→ use coated tool

9. 

Chippage,tool breakage while thread milling
- feed rate thread milling too high → check that the chip grooves are free of chips after the boring operation
- vibrations → reduce feed rate (check whether NC feeds relate to centre point or external track)

10. 

Poor thread surface (harmonics)
- vibrations

→ check tool holder (do not use modular systems !)
→ check workpiece clamping and fixture. Where the clamping set-up is unstable introduce a distribution of the cutting force.
→ reduce cutting speed
→ increase tooth feed rate
→ introduce distribution of cutting force

KOMET JEL® TOMILL GWF

Producing threads with the highest precision

The KOMET JEL® TOMILL GWF is suitable for producing large thread diameters according to the 2/3 concept. Our tools have a helix angle of approximately 15° to the right, which provides for extremely quiet working conditions. The cubic capacity complies with the JEL® standard, and the shank is manufactured to DIN 6535.

KOMET JEL® TOMILL GWF SR
Thread milling right to the base of the hole.

KOMET JEL® TOMILL GWF GP
Using this tool greatly reduces machining time. Chamfering, face milling and thread milling using one tool.

KOMET JEL® TOMILL GWF GS
Counterboring and thread milling in a single clamping arrangement.

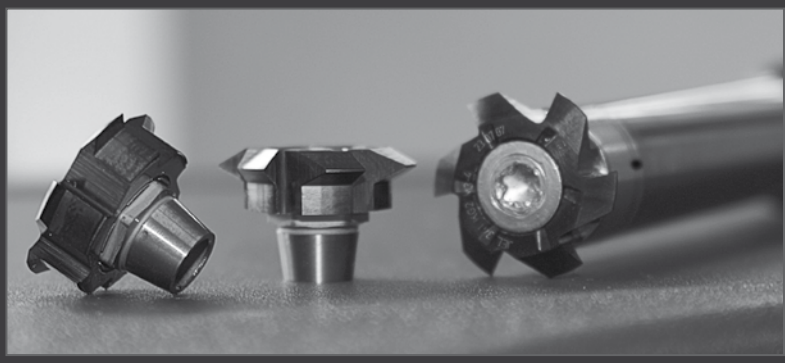
KOMET JEL® TOMILL CUT

Five holders with seven thread milling heads, three chamfering heads and, on request, grooving heads in various forms.

Thread milling
- For pitch 1,0 - 6,0 mm, as well as UN22 - UN4 T.P.I and G 14 - G 11 T.P.I
- For metric- and metric fine ISO threads from M20x1, as well as 13/16“ and G½
- Thread lengths up to 136 mm can be produced

90° chamfering and deburring
- Carbide chamfer head, TiAlN coated
- 90°-chamfering of the bore top as well as the bore exit
- Deburring of workpiece edges
- Chamfer heads with other angle (combinations) are available on request

Grooving
- Grooving heads in various designs are available on request
- Solid carbide or PCD tipped



BENEFITS for you:

- One and the same tool for different tolerances
- One and the same tool for different diameters > nominal Ø with same pitch
- One and the same tool for blind and through holes
- One and the same tool for different materials
- Exact and repeatable thread depth
- No chip root remaining in the thread
- High speed cutting (HSC) possible

JEL® TPT

CNC programs for various control systems can be configured online at http://tpt.kometgroup.com or can be obtained on request by telephoning: +49 711 788910.
Also available as "TPT Mobile" app, with identical features for mobile end devices like iPhone and iPad, in the webshop App Store as well as Google Play™ for Android™ smartphones.

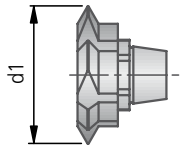
KOMET SERVICE® – Chapter 9
The KOMET SERVICE® TOOL*life*Box icon describes tools that are available for the high quality cost-efficient refurbishment of tools.

KOMET JEL® TOMILL CUT

Thread milling, chamfering and deburring, grooving > Ø 20 mm

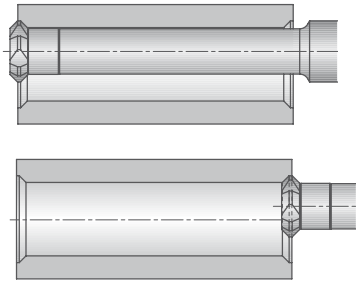
Material P M K N S H ● ● ● ● ● ◐ | M | MF | UN | G | S.C. TiAlN | DIN 6535 HE | DIN 6535 HA

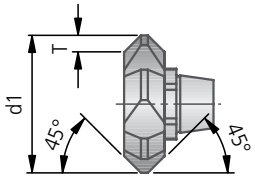
Thread milling head
TiAlN coated
Cylindrical connection with d1=34



			M | MF		UN			G		
Suitable for holder	d1	Z	Metric ISO thread DIN 13 Thread	Nut d min	american Unified thread ANSI B1.1 Thread	Nut d min	Order No.	Whitworth pipe thread DIN EN ISO 228 Thread	Nut d min	Order No.
❶	16	6	M1,0 - M2,0	20	UN24 - UN12	13/16-20 UNEF	50341001001020	G14	G1/2	50341001251400
			M1,5 - M2,5		UN18 - UN10		50341001001525	G11		50341001251100
❷	20	6	M1,0 - M2,0	24	UN24-UN12	1-8UNC	50341002001020			–
			M3,0 - M4,0		UN8-UN6		50341002003040			–
❸	34	6	M5,0 - M6,0	48	UN5-UN4	1-3/4-5UNC	50341004005060			–

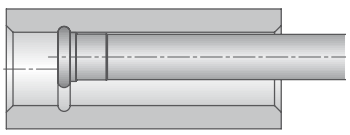
Chamfering head
TiAlN coated
Cylindrical connection with d1=34

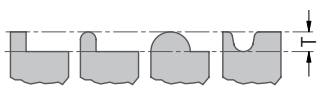




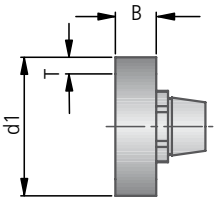
Chamfering and deburring					
Suitable for holder	d1	Z	T	Bore d min	Order No.
❶	16	6	1,4	16,5	50391045011600
❷	20	6	2,4	20,5	50391045022000
❸	34	6	3,5	34,5	50391045043400

Grooving head
in various designs available on request
solid carbide or PCD tipped
Cylindrical connection with d1=34





Examples of possible designs



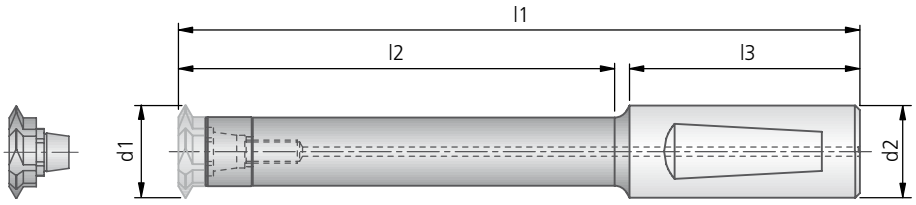
Grooving				
Suitable for holder	d1 max	B max	T max	Bore d min
❶	16	4,5	1,4	16,5
❷	20	5,5	2,4	20,5
❸	34	9,5	3,5	34,5

● very good | ◐ good

Thread milling

Chamfering and deburring

Grooving



Holder			DIN 6535 HE	DIN 6535 HA		Dismantling key	Suitable for milling, chamfering and grooving heads
Cylindrical shank Ø d2×l3	l1	l2	Order No.	Order No.	Screw DIN 7991 Order No. Article	Order No. Article	
16 × 48	100	50	50310016001050	58310016001050	55021 04020 M4×20	50300099001620 D16/20	❶
16 × 48	130	80	50310016001080	58310016001080			
20 × 50	112	60	50310020002060	58310020002060	55021 05025 M5×25	50300099001620 D16/20	❷
20 × 50	148	96	50310020002096	58310020002096			
25 × 56	197	136	50310025004136	58310025004136	55021 08035 M8×35	–	❸

Supply includes:
Holder with screw. Please order separately: dismantling key.

Example application
KOMET JEL® TOMILL CUT for M48, 70 mm deep, in a plate made of St50-3

Challenge
Material: construction steel St50-3
Workpiece: Plate
Production of an M48 thread, blind hole 70 mm deep

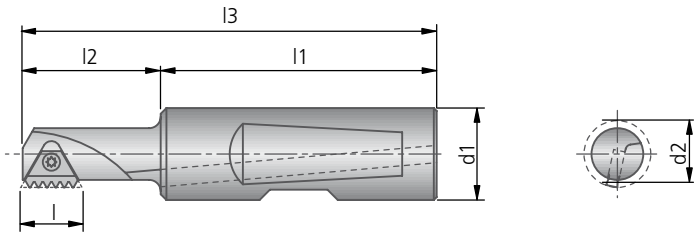
Solution
Thread milling head M5.0-6.0 TiAlN, fitted on holder shank 25×56, l2=136

Cutting values
v_c = 80 m/min
f_z = 0.14 mm/tooth
t_h= 7.2 min

Guideline values for thread milling: page 96.

KOMET JEL® XAM

Thread milling tool with carbide inserts



XAM holder		Ø 12 mm (11.11)						Ø 16 mm (15.16)						
	Order No.	50987000001111						50987000001516						
		d2	d1	l	l1	l2	l3	d2	d1	l	l1	l2	l3	
		12,00	16,0	11,0	48,0	22,0	72,0	16,00	20,0	16,0	50,0	32,0	82,0	
XAM carbide inserts		10.03						16.T3						
	l × s (mm)	10×3,18						16×3,97						
	Pitch	No. of milling teeth z	lz	uncoated Order No.	TiN Order No.			No. of milling teeth z	lz	uncoated Order No.	TiN Order No.			
M metric ISO thread DIN 13	1,00	9	9,00	50111002000111	50115002000111			15	15,0	50161002000111	50165002000111			
	1,25	7	8,75	50111002000112	50115002000112									
	1,50	5	7,50	50111002000113	50115002000113			10	15,0	50161002000113	50165002000113			
	2,00							7	14,0	50161002000115	50165002000115			
	2,50													
	3,00													
Lower milling limit for internal thread		16 mm						22 mm						
UN american Unified thread ANSI B1.1	24	8	8,46	50111010000009										
	20							11	13,97	50161010000012				
	16	5	7,94					9	14,29					
	12							6	12,70	50161010000017				
	8													
Lower milling limit for internal thread		5/8"						7/8"						
G Whitworth pipe thread* DIN EN ISO 228	19	6	8,02	50111025000002										
	14							8	14,51	50161025000003				
	11													
Lower milling limit for internal thread		G 3/8"						G 1/2"						
NPT american NPT thread ANSI B2.1	14							8	14,51					
	11 1/2													
Lower milling limit for internal thread														
NPTF american NPTF thread ANSI B2.1	14							8	14,51					
	11 1/2													
Lower milling limit for internal thread														

* For Whitworth pipe thread the insert can be used both for internal and for external thread.

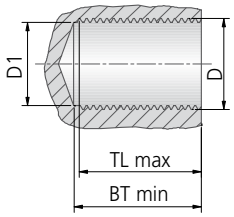
		Ø 21,10 mm (20.22)						Ø 26,30 mm (25.27)					
		50987000002022						50987000002527					
		d2	d1	l	l1	l2	l3	d2	d1	l	l1	l2	l3
		21,10	25,0	22,0	56,0	44,0	100,0	26,30	25,0	27,0	60,0	54,0	114,0
		22.04						27.06					
		22×4,76						27×6,35					
	Pitch	No. of milling teeth z	lz	uncoated Order No.	TiN Order No.			No. of milling teeth z	lz	uncoated Order No.	TiN Order No.		
	1,00	21	21,0	50221002000111	50225002000111								
	1,25												
	1,50	13	19,5	50221002000113	50225002000113			17	25,5	50271002000113	50275002000113		
	2,00	10	20,0	50221002000115	50225002000115			12	24,0	50271002000115	50275002000115		
	2,50												
	3,00	6	18,0		50225002000117			8	24,0				
		28 mm						36 mm					
	24												
	20												
	16												
	12												
	8	5	18,88	50221010000021	50225010000021			7	22,23	50271010000021	50275010000021		
	19												
	14												
	11	8	18,47	50221025000004	50225025000004			10	23,09	50271025000004	50275025000004		
		G 1"						G 1.1/8"					
	14	11	19,95										
	11 1/2							11	24,29				
	14	11	19,95										
	11 1/2							11	24,29				

Guideline values for thread milling: page 96.

KOMET JEL® TOMILL GWF

Thread engagements

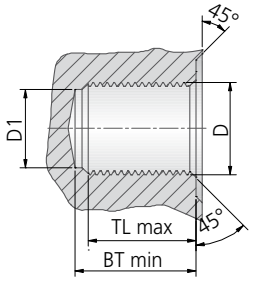
GWF SR



BT = drill depth
TL = full thread length
*with axial readjustment

GWF SR			
d1×l2	BT min	Thread length on tool	TL max
10×16	TL + min. 0,20 mm	16,00	16,00
12×20	TL + min. 0,20 mm	20,00	20,00
16×16	TL + min. 0,20 mm	16,00	*28,00
16×25	TL + min. 0,20 mm	25,00	*38,00
20×20	TL + min. 0,20 mm	20,00	*38,00
20×32	TL + min. 0,20 mm	32,00	*48,00

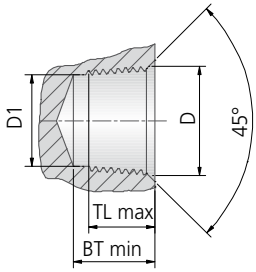
GWF GP



BT = drill depth
TL = full thread length
*with axial readjustment

GWF GP			
d1×l2	BT min	Thread length on tool	TL max
16×25	TL + 1 × t + 0,20 mm	25,00	*36,00
20×32	TL + 1 × t + 0,20 mm	32,00	*45,00

GWF GS

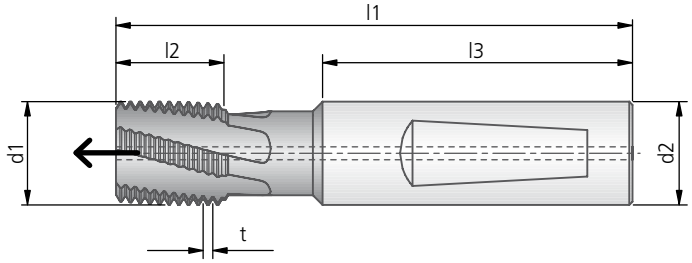


NPT-GWF GS			
d1×l2×t	Dimension	BT min	TL max
12,5×18,3×14	½ -14 – ¾-14 NPT	20,20	18,10
19×22,2×11½	1-11½ – 2-11½ NPT	24,60	22,10

NPTF-GWF GS			
d1×l2×t	Dimension	BT min	TL max
12,5×18,3×14	½ -14 – ¾-14 NPTF	20,20	18,10
19×22,2×11½	1-11½ – 2-11½ NPTF	24,60	22,10

BT = drill depth
for safety reasons BT (boring depth) 0.2 deeper than deepest tool position
TL = full thread length

For thread ∅ (d_{min} nut) which is smaller than those shown on this page, please use our MGF or MKG thread milling tools.



* without neck recess

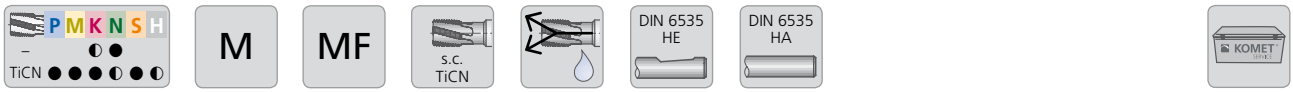
M-GWF SR, MF-GWF SR							DIN 6535 HE	DIN 6535 HA
							uncoated	uncoated
d1 × l2 × t t = pitch in mm	Nut d min	l1	l2	l3	d2	Z	Order No.	Order No.
10×16×M1*	15,0	70,0	16,0	40	10	4	80802002001100	88802002001100
10×16×M1,5*	15,0	70,0	16,5	40	10	4	80802002001150	88802002001150
12×20×M1*	18,0	80,0	20,0	45	12	4	80802004001100	88802004001100
12×20×M1,5*	18,0	80,0	19,5	45	12	4	80802004001150	88802004001150
16×16×M1	24,0	80,0	16,0	48	16	5	80802005001100	88802005001100
16×16×M1,5	24,0	80,0	16,5	48	16	5	80802005001150	88802005001150
16×16×M2	24,0	80,0	16,0	48	16	5	80802005001200	88802005001200
16×25×M1	24,0	90,0	25,0	48	16	5	80802006001100	88802006001100
16×25×M1,5	24,0	90,0	25,5	48	16	5	80802006001150	88802006001150
16×25×M2	24,0	90,0	24,0	48	16	5	80802006001200	88802006001200
16×25×M3*	24,0	90,0	27,0	48	16	4	80802006001300	88802006001300
20×20×M1	30,0	92,0	21,0	50	20	5	80802007001100	88802007001100
20×20×M1,5	30,0	92,0	21,0	50	20	5	80802007001150	88802007001150
20×20×M2	30,0	92,0	20,0	50	20	5	80802007001200	88802007001200
20×20×M3	30,0	92,0	21,0	50	20	5	80802007001300	88802007001300
20×32×M1	30,0	105,0	33,0	50	20	5	80802008001100	88802008001100
20×32×M1,5	30,0	105,0	33,0	50	20	5	80802008001150	88802008001150
20×32×M2	30,0	105,0	32,0	50	20	5	80802008001200	88802008001200
20×32×M3	30,0	105,0	33,0	50	20	5	80802008001300	88802008001300
							TiCN	TiCN
10×16×M1*	15,0	70,0	16,0	40	10	4	80842002001100	88842002001100
10×16×M1,5*	15,0	70,0	16,5	40	10	4	80842002001150	88842002001150
12×20×M1*	18,0	80,0	20,0	45	12	4	80842004001100	88842004001100
12×20×M1,5*	18,0	80,0	19,5	45	12	4	80842004001150	88842004001150
16×16×M1	24,0	80,0	16,0	48	16	5	80842005001100	88842005001100
16×16×M1,5	24,0	80,0	16,5	48	16	5	80842005001150	88842005001150
16×16×M2	24,0	80,0	16,0	48	16	5	80842005001200	88842005001200
16×25×M1	24,0	90,0	25,0	48	16	5	80842006001100	88842006001100
16×25×M1,5	24,0	90,0	25,5	48	16	5	80842006001150	88842006001150
16×25×M2	24,0	90,0	24,0	48	16	5	80842006001200	88842006001200
16×25×M3*	24,0	90,0	27,0	48	16	4	80842006001300	88842006001300
20×20×M1	30,0	92,0	21,0	50	20	5	80842007001100	88842007001100
20×20×M1,5	30,0	92,0	21,0	50	20	5	80842007001150	88842007001150
20×20×M2	30,0	92,0	20,0	50	20	5	80842007001200	88842007001200
20×20×M3	30,0	92,0	21,0	50	20	5	80842007001300	88842007001300
20×32×M1	30,0	105,0	33,0	50	20	5	80842008001100	88842008001100
20×32×M1,5	30,0	105,0	33,0	50	20	5	80842008001150	88842008001150
20×32×M2	30,0	105,0	32,0	50	20	5	80842008001200	88842008001200
20×32×M3	30,0	105,0	33,0	50	20	5	80842008001300	88842008001300

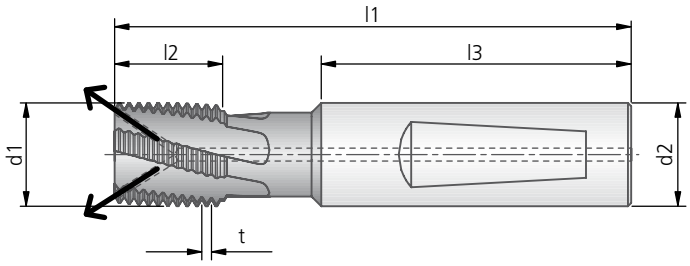
● very good | ◐ good

Guideline values for thread milling: page 95.

KOMET JEL® TOMILL GWF SR

Thread milling tool M-GWF SR, MF-GWF SR





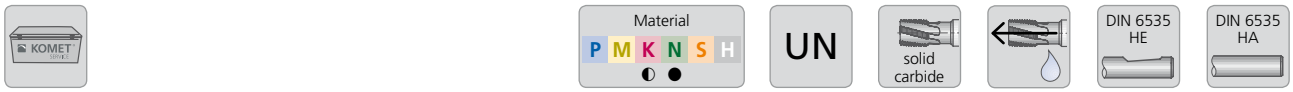
* without neck recess

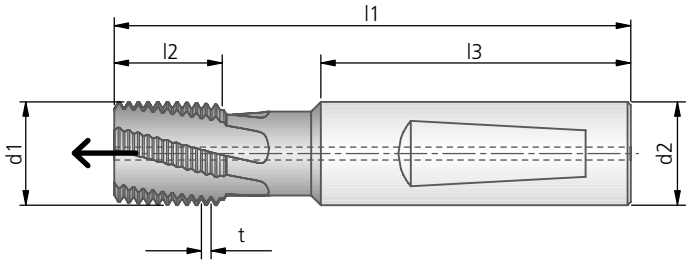
M-GWF SR, MF-GWF SR							DIN 6535 HE	DIN 6535 HA
							uncoated	uncoated
d1 × l2 × t t = pitch in mm	Nut d min	l1	l2	l3	d2	Z	Order No.	Order No.
12×20×M1*	18,0	80,0	20,0	45	12	4	80803004001100	88803004001100
12×20×M1,5*	18,0	80,0	19,5	45	12	4	80803004001150	88803004001150
16×25×M1	24,0	90,0	25,0	48	16	5	80803006001100	88803006001100
16×25×M1,5	24,0	90,0	25,5	48	16	5	80803006001150	88803006001150
20×32×M1,5	30,0	105,0	33,0	50	20	5	80803008001150	88803008001150
20×32×M2	30,0	105,0	32,0	50	20	5	80803008001200	88803008001200
							TiCN	TiCN
12×20×M1*	18,0	80,0	20,0	45	12	4	80843004001100	88843004001100
12×20×M1,5*	18,0	80,0	19,5	45	12	4	80843004001150	88843004001150
16×25×M1	24,0	90,0	25,0	48	16	5	80843006001100	88843006001100
16×25×M1,5	24,0	90,0	25,5	48	16	5	80843006001150	88843006001150
20×32×M1,5	30,0	105,0	33,0	50	20	5	80843008001150	88843008001150
20×32×M2	30,0	105,0	32,0	50	20	5	80843008001200	88843008001200

For thread ∅ (d_{min} nut) which is smaller than those shown on this page, please use our MGF or MKG thread milling tools.

Thread engagements see page 84.

● very good | ◐ good





* without neck recess

UN-GWF SR							DIN 6535 HE	DIN 6535 HA
							uncoated	uncoated
d1 × l2 × t t = t.p.i.	Nut d min	l1	l2	l3	d2	Z	Order No.	Order No.
10×16×UN24*	15,0	70,0	15,8	40	10	4		
12×20×UN16*	18,0	80,0	20,6	45	12	4		
12×20×UN18*	18,0	80,0	19,8	45	12	4		
12×20×UN20*	18,0	80,0	20,3	45	12	4		
12×20×UN24*	18,0	80,0	20,1	45	12	4		
16×16×UN12	24,0	80,0	14,8	48	16	5	80802005001012	88802005001012
16×16×UN14	24,0	80,0	16,3	48	16	5		
16×16×UN16	24,0	80,0	15,9	48	16	5		
16×16×UN18	24,0	80,0	15,5	48	16	5		
16×16×UN20	24,0	80,0	16,5	48	16	5	80802005001020	88802005001020
16×16×UN24	24,0	80,0	15,8	48	16	5	80802005001024	88802005001024
16×25×UN12	24,0	90,0	25,4	48	16	5	80802006001012	88802006001012
16×25×UN14	24,0	90,0	25,4	48	16	5		
16×25×UN16	24,0	90,0	25,4	48	16	5		
16×25×UN18	24,0	90,0	25,4	48	16	5		
16×25×UN20	24,0	90,0	25,4	48	16	5	80802006001020	88802006001020
16×25×UN24	24,0	90,0	25,4	48	16	5	80802006001024	88802006001024
20×20×UN8	30,0	92,0	19,05	50	20	5	80802007001008	88802007001008
20×20×UN12	30,0	92,0	21,2	50	20	5	80802007001012	88802007001012
20×20×UN14	30,0	92,0	19,9	50	20	5		
20×20×UN16	30,0	92,0	20,6	50	20	5		
20×20×UN18	30,0	92,0	21,2	50	20	5		
20×20×UN20	30,0	92,0	20,3	50	20	5	80802007001020	88802007001020
20×20×UN24	30,0	92,0	21,2	50	20	5	80802007001024	88802007001024
20×32×UN8	30,0	105,0	31,8	50	20	5	80802008001008	88802008001008
20×32×UN12	30,0	105,0	31,8	50	20	5	80802008001012	88802008001012
20×32×UN20	30,0	105,0	31,8	50	20	5	80802008001020	88802008001020

For thread ∅ (d_{min} nut) which is smaller than those shown on this page, please use our MGF or MKG thread milling tools.
Thread engagements see page 84.

TiCN coated tools are available on request.

Guideline values for thread milling: page 95.

KOMET JEL® TOMILL GWF SR

Thread milling tool G-GWF SR

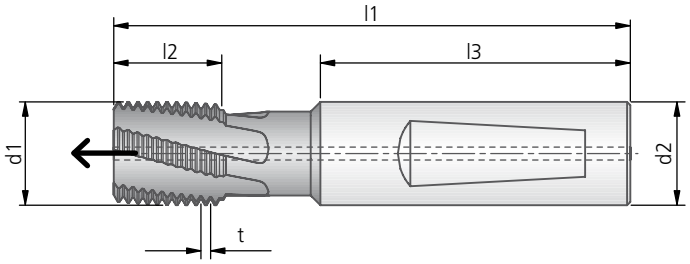
P M K N S H
– ◐ ●
TiCN ● ● ● ◐ ● ◐

G

s.c. TiCN

DIN 6535 HE

DIN 6535 HA



G-GWF SR							DIN 6535 HE	DIN 6535 HA
							uncoated	uncoated
d1 × l2 × t t = t.p.i.	Nut d min	l1	l2	l3	d2	Z	Order No.	Order No.
16×16×G14	G ½"	80,0	16,3	48	16	5		
16×25×G14	G ½"	90,0	25,4	48	16	5	80802006002014	88802006002014
20×20×G14	G ⅞"	92,0	19,9	50	20	5	80802007002014	88802007002014
20×20×G11	G 1"	92,0	20,8	50	20	5	80802007002011	88802007002011
20×32×G14	G ⅞"	105,0	32,7	50	20	5	80802008002014	88802008002014
20×32×G11	G1"	105,0	32,3	50	20	5	80802008002011	88802008002011
							TiCN	TiCN
16×16×G14	G ½"	80,0	16,3	48	16	5		
16×25×G14	G ½"	90,0	25,4	48	16	5	80842006002014	88842006002014
20×20×G14	G ⅞"	92,0	19,9	50	20	5	80842007002014	88842007002014
20×20×G11	G 1"	92,0	20,8	50	20	5	80842007002011	88842007002011
20×32×G14	G ⅞"	105,0	32,7	50	20	5	80842008002014	88842008002014
20×32×G11	G1"	105,0	32,3	50	20	5	80842008002011	88842008002011

For thread ∅ (d_{min} nut) which is smaller than those shown on this page, please use our MGF or MKG thread milling tools.

Thread engagements see page 84.

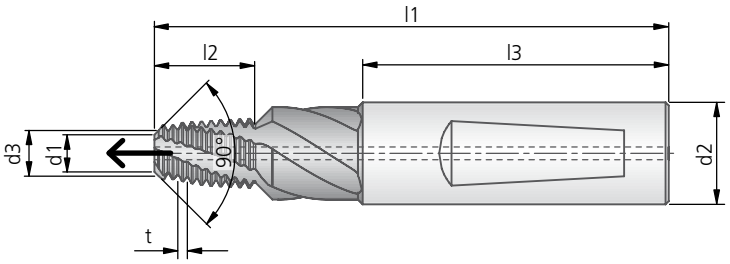
● very good | ◐ good

Thread milling tool NPT-GWF GS, NPTF-GWF GS

P M K N S H
– TiCN

NPT | NPTF | s.c. TiCN | DIN 6535 HE | DIN 6535 HA

chamfering and thread milling with one tool



NPT-GWF GS								DIN 6535 HE	DIN 6535 HA
								uncoated	uncoated
d1 × l2 × t t = t.p.i.	Nut d min	l1	l2	l3	d2	d3	Z	Order No.	Order No.
12,5×18,3×14	½" - 14	90,0	21,3	48	16	5,30	5	80872016000005	88872016000005
19,0×22,2×11½	1" - 11½	92,0	25,5	50	20	10,50	5	80872016000007	88872016000007
								TiCN	TiCN
12,5×18,3×14	½" - 14	90,0	21,3	48	16	5,30	5	80875016000005	88875016000005
19,0×22,2×11½	1" - 11½	92,0	25,5	50	20	10,50	5	80875016000007	88875016000007

NPTF-GWF GS								DIN 6535 HE	DIN 6535 HA
								uncoated	uncoated
d1 × l2 × t t = t.p.i.	Nut d min	l1	l2	l3	d2	d3	Z	Order No.	Order No.
12,5×18,3×14	½" - 14	90,0	21,3	48	16	5,30	5	80872017000005	88872017000005
19,0×22,2×11½	1" - 11½	92,0	25,5	50	20	10,50	5	80872017000007	88872017000007
								TiCN	TiCN
12,5×18,3×14	½" - 14	90,0	21,3	48	16	5,30	5	80875017000005	88875017000005
19,0×22,2×11½	1" - 11½	92,0	25,5	50	20	10,50	5	80875017000007	88875017000007

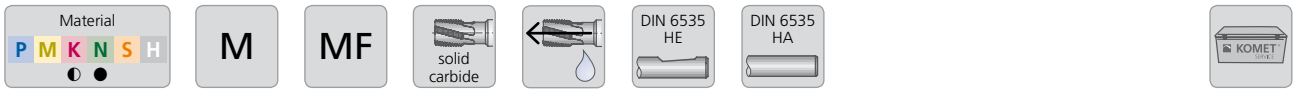
For thread ∅ (d_{min} nut) which is smaller than those shown on this page, please use our MGF thread milling tools.

Thread engagements see page 84.

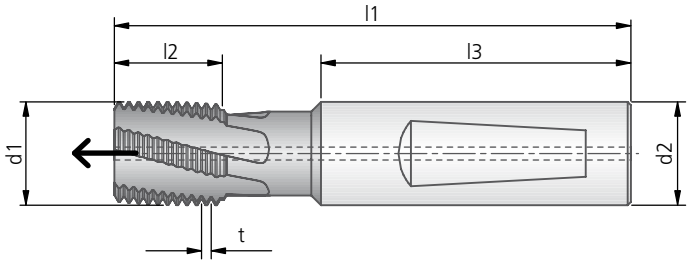
Guideline values for thread milling: page 95.

KOMET JEL® TOMILL GWF SR

Thread milling tool M-GWF SR, MF-GWF SR



for external thread



* without neck recess

M-GWF SR, MF-GWF SR							DIN 6535 HE	DIN 6535 HA
							uncoated	uncoated
d1 × l2 × t t = pitch in mm	Nut d min	l1	l2	l3	d2	Z	Order No.	Order No.
10×16×M1*	15,0	70,0	16,0	40	10	4		
10×16×M1,5*	15,0	70,0	16,5	40	10	4		
12×20×M1*	18,0	80,0	20,0	45	12	4		
12×20×M1,5*	18,0	80,0	19,5	45	12	4		
16×16×M1	24,0	80,0	16,0	48	16	5		
16×16×M1,5	24,0	80,0	16,5	48	16	5		
16×16×M2	24,0	80,0	16,0	48	16	5		
16×25×M1	24,0	90,0	25,0	48	16	5		
16×25×M1,5	24,0	90,0	25,5	48	16	5	80819006001150	88819006001150
16×25×M2	24,0	90,0	24,0	48	16	5		
20×20×M1	30,0	92,0	21,0	50	20	5		
20×20×M1,5	30,0	92,0	21,0	50	20	5		
20×20×M2	30,0	92,0	20,0	50	20	5		
20×20×M3	30,0	92,0	21,0	50	20	5		
20×32×M1	30,0	105,0	33,0	50	20	5		
20×32×M1,5	30,0	105,0	33,0	50	20	5	80819008001150	88819008001150
20×32×M2	30,0	105,0	32,0	50	20	5		
20×32×M3	30,0	105,0	33,0	50	20	5		

TiCN coated tools are available on request.

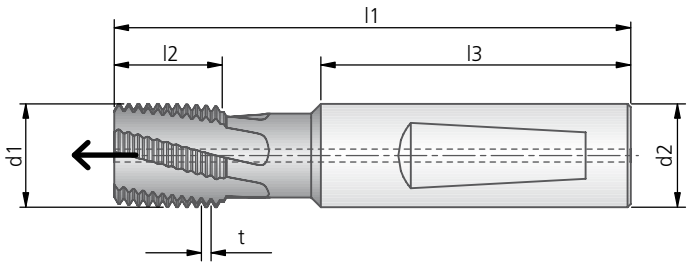
● very good | ◐ good

Thread milling tool M-GWF XS, MF-GWF XS

Material P M K N S H

M | MF | s.c. TiCN | DIN 6535 HE | DIN 6535 HA

for machining steel ≥ 900 N/mm² tensile strength



M-GWF XS, MF-GWF XS							DIN 6535 HE	DIN 6535 HA
							TiCN	TiCN
d1 × l2 × t t = pitch in mm	Nut d min	l1	l2	l3	d2	Z	Order No.	Order No.
16×25×M1	24,0	90,0	25,0	48	16	4	80806006001100	88806006001100
16×25×M1,5	24,0	90,0	25,5	48	16	4	80806006001150	88806006001150
20×32×M1,5	30,0	105,0	33,0	50	20	4	80806008001150	88806008001150
20×32×M2	30,0	105,0	32,0	50	20	4	80806008001200	88806008001200
20×32×M3	30,0	105,0	33,0	50	20	4	80806008001300	88806008001300

For thread ∅ (d_{min} nut) which is smaller than those shown on this page, please use our MGF XS thread milling tools.

Thread engagements see page 84.

Guideline values for thread milling: page 95.

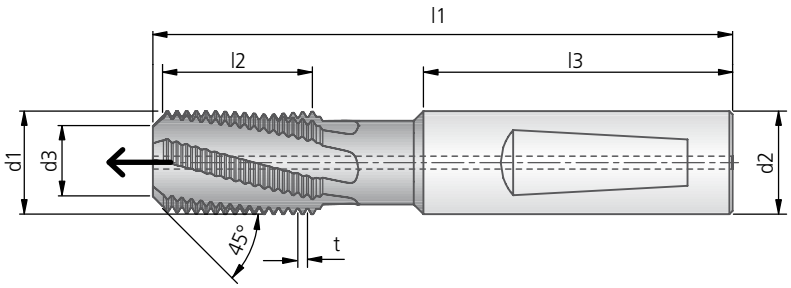
KOMET JEL® TOMILL GWF GP

Thread milling tool M-GWF GP, MF-GWF GP

P M K N S H
– ◐ ●
TiCN ● ● ● ◐ ● ◐

M | MF | s.c. TiCN | DIN 6535 HE | DIN 6535 HA

Spot facing, chamfering and thread milling with one tool



M-GWF GP, MF-GWF GP								DIN 6535 HE	DIN 6535 HA
								uncoated	uncoated
d1 × l2 × t t = pitch in mm	Nut d min	l1	l2	l3	d2	d3	Z	Order No.	Order No.
16×25×M1	24,0	90,0	24,0	48	16	12,90	5	80882006001100	88882006001100
16×25×M1,5	24,0	90,0	24,0	48	16	11,20	5	80882006001150	88882006001150
16×25×M2	24,0	90,0	22,0	48	16	9,60	5	80882006001200	88882006001200
20×32×M1	30,0	105,0	32,0	50	20	16,90	5	80882008001100	88882008001100
20×32×M1,5	30,0	105,0	31,5	50	20	15,20	5	80882008001150	88882008001150
20×32×M2	30,0	105,0	30,0	50	20	13,60	5	80882008001200	88882008001200
20×32×M3	30,0	105,0	30,0	50	20	10,50	5	80882008001300	88882008001300
								TiCN	TiCN
16×25×M1	24,0	90,0	24,0	48	16	12,90	5	80885006001100	88885006001100
16×25×M1,5	24,0	90,0	24,0	48	16	11,20	5	80885006001150	88885006001150
16×25×M2	24,0	90,0	22,0	48	16	9,60	5	80885006001200	88885006001200
20×32×M1	30,0	105,0	32,0	50	20	16,90	5	80885008001100	88885008001100
20×32×M1,5	30,0	105,0	31,5	50	20	15,20	5	80885008001150	88885008001150
20×32×M2	30,0	105,0	30,0	50	20	13,60	5	80885008001200	88885008001200
20×32×M3	30,0	105,0	30,0	50	20	10,50	5	80885008001300	88885008001300

● very good | ◐ good

P M K N S H
– ◐ ●
TiCN ● ● ● ◐ ● ◐

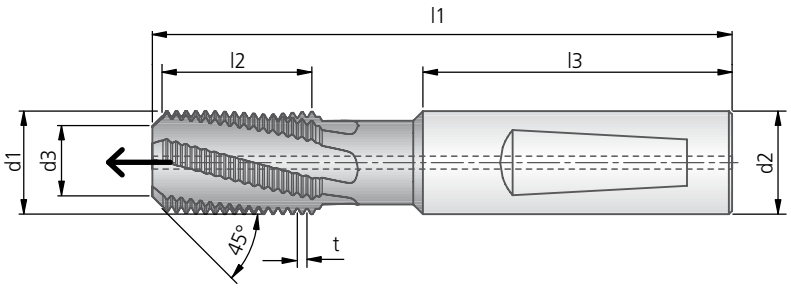
G

s.c. TiCN

DIN 6535 HE

DIN 6535 HA

Spot facing, chamfering and thread milling with one tool



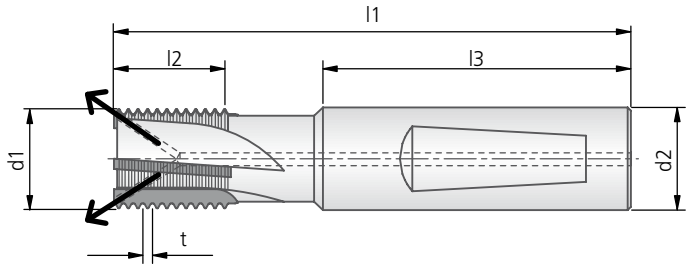
G-GWF GP								DIN 6535 HE	DIN 6535 HA
								uncoated	uncoated
d1 × l2 × t t = t.p.i.	Nut d min	l1	l2	l3	d2	d3	Z	Order No.	Order No.
16×25×G14	G ½"	90,0	23,6	48	16	9,80	5	**80882006002014**	**88882006002014**
20×32×G14	G ⅞"	105,0	30,8	50	20	13,80	5	**80882008002014**	**88882008002014**
20×32×G11	G 1"	105,0	30,0	50	20	12,20	5	**80882008002011**	**88882008002011**
								TiCN	TiCN
16×25×G14	G ½"	90,0	23,6	48	16	9,80	5	**80885006002014**	**88885006002014**
20×32×G14	G ⅞"	105,0	30,8	50	20	13,80	5	**80885008002014**	**88885008002014**
20×32×G11	G 1"	105,0	30,0	50	20	12,20	5	**80885008002011**	**88885008002011**

Guideline values for thread milling: page 95.

KOMET JEL® TOMILL GWF SR

Thread milling tool M-GWF SR PKD, MF-GWF SR PKD

for cutting lightweight structural materials such as aluminium, magnesium and fibre-reinforced plastics

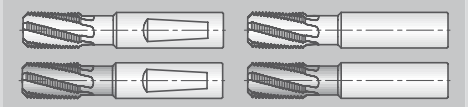


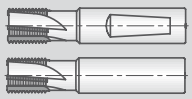
M-GWF SR PKD, MF-GWF SR PKD							DIN 6535 HE	DIN 6535 HA
d1 × l2 × t t = pitch in mm	Nut d min	l1	l2	l3	d2	z	 Order No.	 Order No.
16×16×1,5	24	80	16,5	48	16	4	**30802005001150**	**38802005001150**
20×20×1,5	30	92	19,5	50	20	4	**30802007001150**	**38802007001150**

● very good | ◐ good

Guideline values for thread milling

v_c (m/min) = Cutting speed
f_z (mm/tooth) = Milling feed





Material group		Strength Rm (N/mm²)	Hardness HB	Material	GWF uncoated v_c m/min	GWF TiCN v_c m/min	GWF ≤ Ø 12 f_z mm/tooth	GWF ≥ Ø 16 f_z mm/tooth	GWF PKD PCD v_c m/min	GWF PKD Ø 16 f_z mm/tooth	GWF PKD Ø 20 f_z mm/tooth
P	1.1	≤400	≤120	magnetic soft iron		80-150	0,04-0,06	0,08-0,15			
P	1.2	≤700	≤200	structural, case hardened steel		80-100	0,04-0,06	0,08-0,15			
P	1.3	≤850	≤250	carbon steel		80-100	0,04-0,06	0,08-0,15			
P	1.4	≤850	≤250	alloy steel		80-100	0,04-0,06	0,08-0,15			
P	1.5	>850 ≤1200	>250 ≤350	alloy/heat treated steel		60-80	0,04-0,06	0,04-0,10			
P	1.6	>1200	>350	alloy/heat treated steel		50-60	0,03-0,05	0,04-0,10			
H	1.7	≤1400	≤400	hardened steel to 45 HRC		30-50	0,015-0,02	0,03-0,08			
H	1.8	≤2200	≤600	hardened steel to 58 HRC		20-40	0,015-0,02				
M	2.1	≤850	≤250	stainless steel, sulphuretted		60-80	0,03-0,05	0,08-0,15			
M	2.2	≤850	≤250	austentic		60-80	0,03-0,05	0,04-0,10			
M	2.3	≤1000	≤300	ferritic, ferritic & austentic, martensitic		60-80	0,02-0,04	0,04-0,10			
K	3.1	≤500	≤150	grey cast iron	50-80	80-120	0,04-0,10	0,08-0,15			
K	3.2	>500 ≤1000	>150 ≤300	grey cast iron, heat treated	50-80	80-120	0,04-0,08	0,08-0,12			
K	3.3	400-500	200-250	vermicular cast iron		80-100	0,04-0,08	0,08-0,15			
K	3.4	≤700	≤200	spheroidal graphite cast iron		80-120	0,04-0,10	0,08-0,15			
K	3.5	>700 ≤1000	>200 ≤300	spheroidal graphite cast iron, heat treated		80-100	0,04-0,08	0,08-0,12			
K	3.6	≤700	≤200	malleable iron		80-100	0,04-0,10	0,08-0,15			
K	3.7	>700 <1000	>200 ≤300	malleable iron heat treated		80-100	0,04-0,08	0,08-0,12			
S	4.1	≤700	≤200	pure titanium		40-100	0,03-0,08	0,08-0,15			
S	4.2	≤900	≤270	titanium alloys		40-100	0,03-0,08	0,08-0,15			
S	4.3	>900 ≤1250	>270 ≤300	titanium alloys		40-80	0,03-0,06	0,08-0,12			
S	5.1	≤500	≤150	pure nickel		50-60	0,04-0,06	0,04-0,10			
S	5.2	≤900	<270	nickel alloys, heat resistant		30-40	0,04-0,06	0,04-0,10			
S	5.3	>900 ≤1200	>270 ≤350	nickel alloys, high heat resistance		10-30	0,03-0,05	0,04-0,08			
N	6.1	≤350	≤100	non-alloy copper	100-300	100-400	0,07-0,12	0,10-0,20			
N	6.2	≤700	≤200	short chip, brass, bronze, red brass	100-300	100-400	0,07-0,12	0,10-0,20	300-1500	0,04-0,15	0,05-0,20
N	6.3	≤700	≤200	long chip brass	100-300	100-400	0,07-0,12	0,10-0,20			
N	6.4	≤500	≤470	Cu-Al-Fe alloy (Ampco)	60-80	60-80	0,03-0,06	0,08-0,15			
N	7.1	≤350	≤100	Al, Mg non-alloy	100-400	100-400	0,07-0,12	0,10-0,20	400-2000	0,05-0,15	0,06-0,20
N	7.2	≤600	≤180	Al wrought alloy, breaking strain (A 5) <14 %	100-400	100-400	0,07-0,12	0,10-0,20	400-2000	0,05-0,15	0,06-0,20
N	7.3	≤600	≤180	Al wrought alloy, breaking strain (A 5) ≥14 %	100-400	100-400	0,07-0,12	0,10-0,20	400-2000	0,05-0,15	0,06-0,20
N	7.4	≤600	≤180	Al cast alloy, Si <10 %	100-300	100-400	0,07-0,12	0,10-0,20	400-2000	0,05-0,15	0,06-0,20
N	7.5	≤600	≤180	Al cast alloy, Si ≥10 %	100-200	100-250	0,07-0,12	0,10-0,20	400-2000	0,05-0,15	0,06-0,20
N	8.1			thermoplastics	80-100	100-120	0,06-0,12	0,08-0,20			
N	8.2			thermosetting plastics	80-100	100-120	0,06-0,12	0,08-0,15			
N	8.3			fibre reinforced plastics	50-60	60-80	0,06-0,12	0,08-0,15	500-2000	0,05-0,20	0,06-0,25

Cutting values shown are relating to the basic recommendations for cutting materials given.

KOMET JEL® TOMILL CUT | XAM

Recommended cutting data

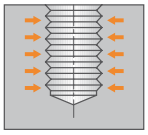
Guideline values for thread milling									
Material group		Strength Rm (N/mm²)	Hardness HB	v_c (m/min) = Cutting speed f_z (mm/tooth) = Milling feed Surface Material	TOMILL CUT		XAM		
							uncoated	TiN	
					v_c m/min	f_z mm/tooth	v_c m/min	v_c m/min	f_z mm/tooth
P	1.1	≤400	≤120	magnetic soft iron	80-100	0,08-0,12		80-150	0,08-0,15
P	1.2	≤700	≤200	structural, case hardened steel	80-100	0,08-0,12		80-100	0,08-0,15
P	1.3	≤850	≤250	carbon steel	80-100	0,08-0,12		80-100	0,08-0,15
P	1.4	≤850	≤250	alloy steel	80-100	0,08-0,12		80-100	0,08-0,15
P	1.5	>850 ≤1200	>250 ≤350	alloy/heat treated steel	60-80	0,04-0,08		60-80	0,04-0,10
P	1.6	>1200	>350	alloy/heat treated steel	50-60	0,04-0,08		50-60	0,04-0,10
H	1.7	≤1400	≤400	hardened steel to 45 HRC	30-50	0,03-0,08		30-50	0,03-0,08
H	1.8	≤2200	≤600	hardened steel to 58 HRC					
M	2.1	≤850	≤250	stainless steel, sulphuretted	60-80	0,04-0,08		60-80	0,08-0,15
M	2.2	≤850	≤250	austentic	60-80	0,04-0,08		60-80	0,04-0,10
M	2.3	≤1000	≤300	ferritic, ferritic & austentic, martensitic	60-80	0,04-0,08		60-80	0,04-0,10
K	3.1	≤500	≤150	grey cast iron	80-120	0,08-0,15	50-80	80-120	0,08-0,15
K	3.2	>500 ≤1000	>150 ≤300	grey cast iron, heat treated	80-120	0,08-0,15	50-80	80-120	0,08-0,12
K	3.3	400-500	200-250	vermicular cast iron	80-100	0,08-0,15		80-100	0,08-0,15
K	3.4	≤700	≤200	spheroidal graphite cast iron	80-120	0,08-0,15		80-120	0,08-0,15
K	3.5	>700 ≤1000	>200 ≤300	spheroidal graphite cast iron, heat treated	80-120	0,08-0,15		80-100	0,08-0,12
K	3.6	≤700	≤200	malleable iron	80-120	0,08-0,15		80-100	0,08-0,15
K	3.7	>700 <1000	>200 ≤300	malleable iron heat treated	80-120	0,08-0,15		80-100	0,08-0,12
S	4.1	≤700	≤200	pure titanium	40-80	0,04-0,08		40-100	0,08-0,15
S	4.2	≤900	≤270	titanium alloys	40-80	0,04-0,08		40-100	0,08-0,15
S	4.3	>900 ≤1250	>270 ≤300	titanium alloys	40-80	0,04-0,08		40-80	0,08-0,12
S	5.1	≤500	≤150	pure nickel	20-40	0,04-0,06		50-60	0,04-0,10
S	5.2	≤900	<270	nickel alloys, heat resistant	20-40	0,04-0,06		30-40	0,04-0,10
S	5.3	>900 ≤1200	>270 ≤350	nickel alloys, high heat resistance	20-40	0,04-0,06		10-30	0,04-0,08
N	6.1	≤350	≤100	non-alloy copper	100-300	0,10-0,15	100-300	100-400	0,10-0,20
N	6.2	≤700	≤200	short chip, brass, bronze, red brass	100-300	0,10-0,15	100-300	100-400	0,10-0,20
N	6.3	≤700	≤200	long chip brass	100-300	0,10-0,15	100-300	100-400	0,10-0,20
N	6.4	≤500	≤470	Cu-Al-Fe alloy (Ampco)			60-80	60-80	0,08-0,15
N	7.1	≤350	≤100	Al, Mg non-alloy	100-400	0,10-0,15	100-400	100-400	0,10-0,20
N	7.2	≤600	≤180	Al wrought alloy, breaking strain (A 5) <14 %	100-400	0,10-0,15	100-400	100-400	0,10-0,20
N	7.3	≤600	≤180	Al wrought alloy, breaking strain (A 5) ≥14 %	100-400	0,10-0,15	100-400	100-400	0,10-0,20
N	7.4	≤600	≤180	Al cast alloy, Si <10 %	100-400	0,15-0,20	100-300	100-400	0,10-0,20
N	7.5	≤600	≤180	Al cast alloy, Si ≥10 %	100-400	0,15-0,20	100-200	100-250	0,10-0,20
N	8.1			thermoplastics	100-120	0,10-0,20	80-100	100-120	0,08-0,20
N	8.2			thermosetting plastics	100-120	0,10-0,15	80-100	100-120	0,08-0,15
N	8.3			fibre reinforced plastics	60-80	0,10-0,15	50-60	60-80	0,08-0,15

Cutting values shown are relating to the basic recommendations for cutting materials given.

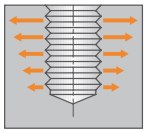
1. 

Chips packed or glued at the thread profile
- poor coolant

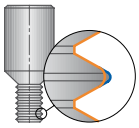
→ improve coolant (i.e. add flood coolant, lateral flute coolant supply for through holes)
→ add coolant flutes flutes on shank

2. 

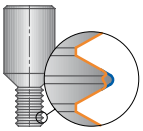
Thread go-gage doesn't fit
- thread too small → reduce tool radius in offset register
- chips in thread → improve coolant

3. 

Thread is getting tapered
- poor tool clamping → improve tool holding (i.e. shrink fit holders)
- thread milling feed too high → reduce thread milling feed

4. 

Erratic tool wear
- tool run out too high → use better tool holders (i.e. shrink fit holders), check material for homogeneity

5. 

Chippage, tool breakage
- feed rate thread milling too high → reduce thread milling feed
- vibrations → check tool holder (don't use modular systems!!), change feeds and speeds

6. 

Poor thread surface
- tool overhang too long → check part clamping an and fixture. Use multiple cuts when part is clamped weak
- non-suitable tool for this application → reduce cutting speed, increase feed/tooth, prefer conventional milling

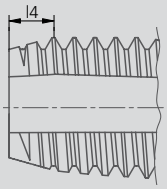
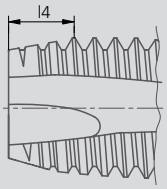
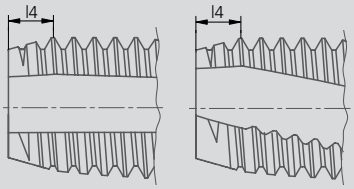
KOMET JEL® DOREX | KOMET JEL® TAREX | KOMET JEL® SIREX | KOMET JEL® GG

Machining threads

KOMET JEL® tap drills open up a wide range of applications in thread cutting operations. Whether you wish to machine wet, with internal coolant supply, use minimal lubrication or machine dry – we will supply you with the optimum tap drill.

Compared to HSS-E taps carbide taps have substantial advantages:

- Up to 20x longer tool life than HSS-E taps
- Fewer tool change times due to longer tool life
- Higher cutting speeds – so shorter cycle times
- Significant reduction in production costs due to longer tool life, higher cutting speeds and fewer tool changes

Chamfer form					
Type of flute	straight flutes	straight flutes spiral point	straight or helical flutes		
					
	A	B	C	D	E
No. of threads l4	6 - 8	3,5 - 5,5	2 - 3	3,5 - 5	1,5 - 2
Application mainly for	short through hole threads	through hole threads	blind and through hole threads in short chipping materials	blind hole threads with long thread run-out (plug tap) and through hole threads	blind hole threads with short thread run-out (bottoming taps)

KOMET JEL® GG HML

Taps with carbide strips

Taps with carbide strips combine the benefits of a flexible HSS shank and hard cutting edge. As a result, slight alignment faults can be compensated for and at the same time, long tool life achieved. This tap is the specialist for machining vermicular cast iron (GJV) and grey cast iron (GG). When used by our customers, it has so far proven itself on machining centres and transfer lines with flying colours: With a tool life of up to 75,000 threads in vermicular cast iron (GJV), this tap is the ideal tool for reliable and efficient machining.

BENEFITS for you:

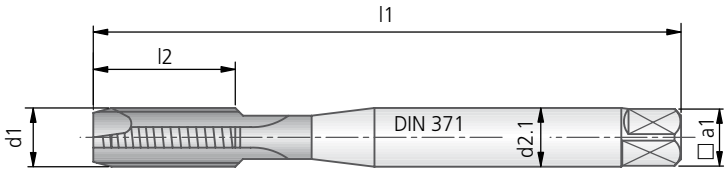
- Compensation of slight alignment faults
- Long tool life
- Fewer machine downtimes

Taps

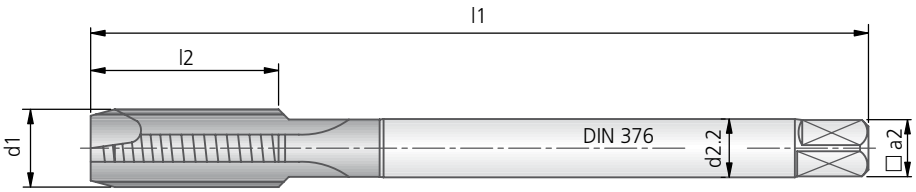
KOMET JEL® DOREX

HSS-E Taps

M1,4 - M10



M11 - M30

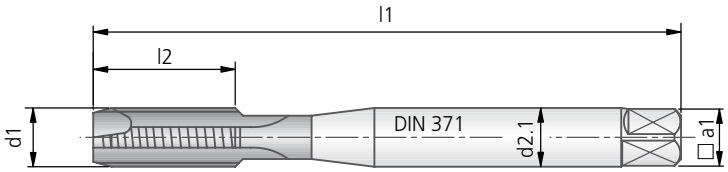


						DOREX VAV	DOREX TiN
					Cutting material ▸	HSS-E vaporized	HSS-E TiN
					Surface ▸		
Nominal Ø					Shank Ø DIN 371 ▸		
d1	P	l1	l2	d2.1	a1	Order No.	Order No.
M1,4	0,30	40		2,5	2,1		
M1,6	0,35	40	8,0	2,5	2,1		
M1,7	0,35	40		2,5	2,1		
M1,8	0,35	40		2,5	2,1		
M2	0,40	45	8,0	2,8	2,1	20136001000008	
M2,2	0,45	45		2,8	2,1		
M2,3	0,40	45		2,8	2,1		
M2,5	0,45	50	9,0	2,8	2,1		
M2,6	0,45	50		2,8	2,1		
M3	0,50	56	11,0	3,5	2,7	20136001000013	20322001000013
M3,5	0,60	56		4,0	3,0		
M4	0,70	63	13,0	4,5	3,4	20136001000015	20322001000015
M4,5	0,75	70		6,0	4,9		
M5	0,80	70	16,0	6,0	4,9	20136001000017	20322001000017
M6	1,00	80	18,0	6,0	4,9	20136001000018	20322001000018
M7	1,00	80	18,0	7,0	5,5		
M8	1,25	90	18,0	8,0	6,2	20136001000020	20322001000020
M9	1,25	90		9,0	7,0		
M10	1,50	100	21,0	10,0	8,0	20136001000022	20322001000022
Nominal Ø					Shank Ø DIN 376 ▸		
d1	P	l1	l2	d2.2	a2	Order No.	Order No.
M11	1,50	100		8,0	6,2		
M12	1,75	110	24,0	9,0	7,0	20137001000024	20323001000024
M14	2,00	110	24,0	11,0	9,0	20137001000025	
M16	2,00	110	27,0	12,0	9,0		
M18	2,50	125	32,0	14,0	11,0		
M20	2,50	140	32,0	16,0	12,0		
M22	2,50	140	32,0	18,0	14,5		
M24	3,00	160	38,0	18,0	14,5		
M27	3,00	160		20,0	16,0		
M30	3,50	180		22,0	18,0		

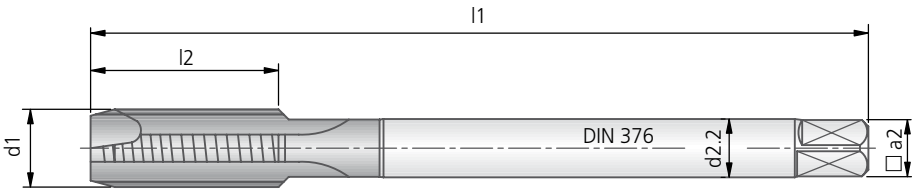
● very good | ◐ good

HSS-PM Taps

M1,4 - M10



M11 - M30



* without neck

						TINIB
					Cutting material ▸	HSS-PM
					Surface ▸	TiCN
Nominal Ø					Shank Ø DIN 371 ▸	
d1	P	l1	l2	d2.1	a1	Order No.
M1,4	0,30	40		2,5	2,1	
M1,6	0,35	40		2,5	2,1	
M1,7	0,35	40		2,5	2,1	
M1,8	0,35	40		2,5	2,1	
M2	0,40	45	8,0	2,8	2,1	20694001000008*
M2,2	0,45	45		2,8	2,1	
M2,3	0,40	45		2,8	2,1	
M2,5	0,45	50	9,0	2,8	2,1	20694001000011*
M2,6	0,45	50		2,8	2,1	
M3	0,50	56	11,0	3,5	2,7	20694001000013*
M3,5	0,60	56		4,0	3,0	
M4	0,70	63	13,0	4,5	3,4	20694001000015*
M4,5	0,75	70		6,0	4,9	
M5	0,80	70	16,0	6,0	4,9	20694001000017*
M6	1,00	80	18,0	6,0	4,9	20694001000018*
M7	1,00	80		7,0	5,5	
M8	1,25	90	18,0	8,0	6,2	20694001000020
M9	1,25	90		9,0	7,0	
M10	1,50	100	21,0	10,0	8,0	20694001000022
Nominal Ø					Shank Ø DIN 376 ▸	
d1	P	l1	l2	d2.2	a2	Order No.
M11	1,50	100		8,0	6,2	
M12	1,75	110	24,0	9,0	7,0	
M14	2,00	110		11,0	9,0	
M16	2,00	110		12,0	9,0	
M18	2,50	125		14,0	11,0	
M20	2,50	140		16,0	12,0	
M22	2,50	140		18,0	14,5	
M24	3,00	160		18,0	14,5	
M27	3,00	160		20,0	16,0	
M30	3,50	180		22,0	18,0	

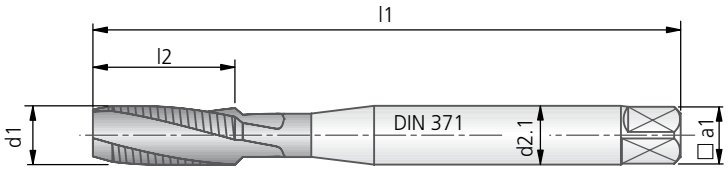
Guideline values for tapping: page 114.

KOMET JEL® FEDUC

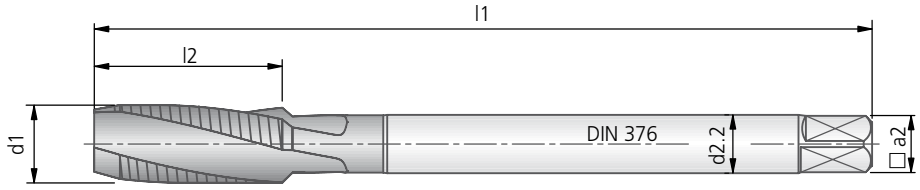
HSS-PM Taps

Material: P M K N S H ● ● ● | M | tolerance field: ISO 2 | chamfer form: C | HSS-PM | DIN 371 | DIN 376

M1,4 - M10



M11 - M30

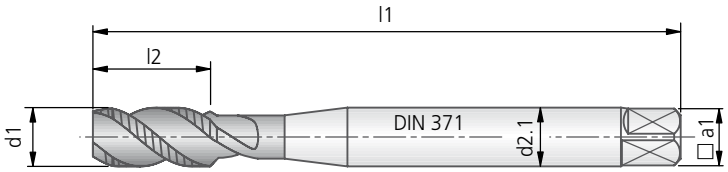


* without neck

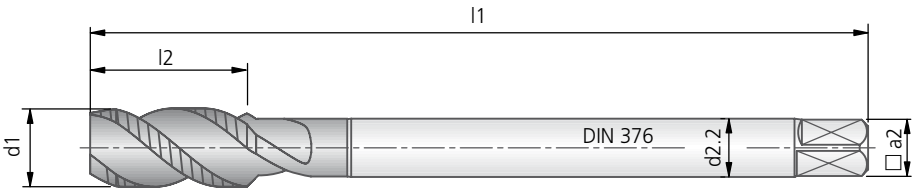
						FEDUC
					Cutting material ▸	HSS-PM
					Surface ▸	TiCN
					Shank ∅ DIN 371 ▸	
Nominal ∅ d1	P	l1	l2	d2.1	a1	Order No.
M1,4	0,30	40		2,5	2,1	
M1,6	0,35	40		2,5	2,1	
M1,7	0,35	40		2,5	2,1	
M1,8	0,35	40		2,5	2,1	
M2	0,40	45	8,0	2,8	2,1	
M2,2	0,45	45		2,8	2,1	
M2,3	0,40	45		2,8	2,1	
M2,5	0,45	50	9,0	2,8	2,1	
M2,6	0,45	50		2,8	2,1	
M3	0,50	56	11,0	3,5	2,7	20692001000013*
M3,5	0,60	56		4,0	3,0	
M4	0,70	63	13,0	4,5	3,4	20692001000015*
M4,5	0,75	70		6,0	4,9	
M5	0,80	70	16,0	6,0	4,9	20692001000017*
M6	1,00	80	18,0	6,0	4,9	20692001000018*
M7	1,00	80		7,0	5,5	
M8	1,25	90	18,0	8,0	6,2	20692001000020
M9	1,25	90		9,0	7,0	
M10	1,50	100	21,0	10,0	8,0	20692001000022
					Shank ∅ DIN 376 ▸	
Nominal ∅ d1	P	l1	l2	d2.2	a2	Order No.
M11	1,50	100		8,0	6,2	
M12	1,75	110	24,0	9,0	7,0	20693001000024
M14	2,00	110		11,0	9,0	
M16	2,00	110		12,0	9,0	
M18	2,50	125		14,0	11,0	
M20	2,50	140		16,0	12,0	
M22	2,50	140		18,0	14,5	
M24	3,00	160		18,0	14,5	
M27	3,00	160		20,0	16,0	
M30	3,50	180		22,0	18,0	

● very good | ◐ good

M1,4 - M10



M11 - M30



* without neck

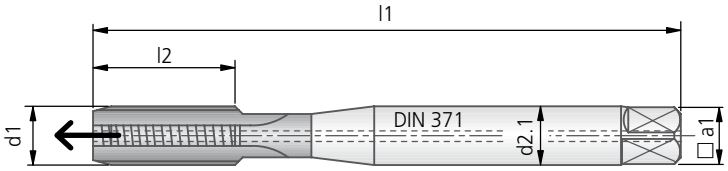
						TAREX VAV	TAREX TiN
					Cutting material ▸	HSS-E vaporized	HSS-E TiN
					Surface ▸		
Nominal ∅					Shank ∅ DIN 371 ▸		
d1	P	l1	l2	d2.1	a1	Order No.	Order No.
M1,4	0,30	40		2,5	2,1		
M1,6	0,35	40		2,5	2,1		
M1,7	0,35	40		2,5	2,1		
M1,8	0,35	40		2,5	2,1		
M2	0,40	45	4,0	2,8	2,1		
M2,2	0,45	45		2,8	2,1		
M2,3	0,40	45		2,8	2,1		
M2,5	0,45	50	4,0	2,8	2,1		
M2,6	0,45	50		2,8	2,1		
M3	0,50	56	5,0	3,5	2,7	20170001000013	20346001000013
M3,5	0,60	56	5,0	4,0	3,0		
M4	0,70	63	7,0	4,5	3,4	20170001000015	20346001000015
M4,5	0,75	70		6,0	4,9		
M5	0,80	70	8,0	6,0	4,9	20170001000017	20346001000017
M6	1,00	80	10,0	6,0	4,9	20170001000018	20346001000018
M7	1,00	80		7,0	5,5		
M8	1,25	90	12,0	8,0	6,2	20170001000020	20346001000020
M9	1,25	90		9,0	7,0		
M10	1,50	100	14,0	10,0	8,0	20170001000022	20346001000022
Nominal ∅					Shank ∅ DIN 376 ▸		
d1	P	l1	l2	d2.2	a2	Order No.	Order No.
M11	1,50	100		8,0	6,2		
M12	1,75	110	16,0	9,0	7,0	20171001000024	20347001000024
M14	2,00	110	20,0	11,0	9,0	20171001000025	
M16	2,00	110	20,0	12,0	9,0	20171001000026	
M18	2,50	125	24,0	14,0	11,0	20171001000027	
M20	2,50	140	24,0	16,0	12,0	20171001000028	
M22	2,50	140	24,0	18,0	14,5		
M24	3,00	160	28,0	18,0	14,5		
M27	3,00	160		20,0	16,0		
M30	3,50	180		22,0	18,0		

Guideline values for tapping: page 114.

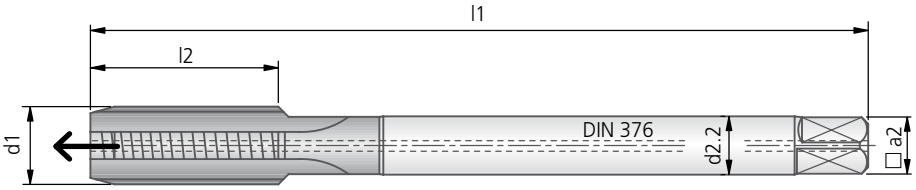
KOMET JEL® GG

HSS-E Taps

M4 - M10



M11 - M16



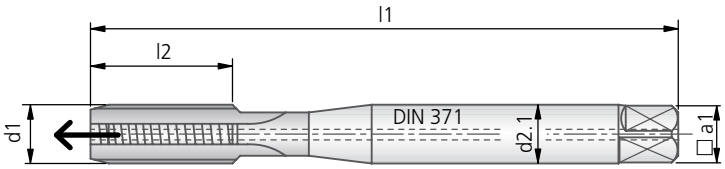
						GG IK TiCN
					Cutting material ▸	HSS-E
					Surface ▸	TiCN
Nominal Ø					Shank Ø DIN 371 ▸	
d1	P	l1	l2	d2.1	a1	Order No.
M4	0,70	63		4,5	3,4	
M4,5	0,75	70		6,0	4,9	
M5	0,80	70		6,0	4,9	
M6	1,00	80	18,0	6,0	4,9	20756001000018
M7	1,00	80		7,0	5,5	
M8	1,25	90	18,0	8,0	6,2	20756001000020
M9	1,25	90		9,0	7,0	
M10	1,50	100	21,0	10,0	8,0	20756001000022
Nominal Ø					Shank Ø DIN 376 ▸	
d1	P	l1	l2	d2.2	a2	Order No.
M11	1,50	100		8,0	6,2	
M12	1,75	110	24,0	9,0	7,0	20757001000024
M14	2,00	110		11,0	9,0	
M16	2,00	110		12,0	9,0	

● very good | ◐ good

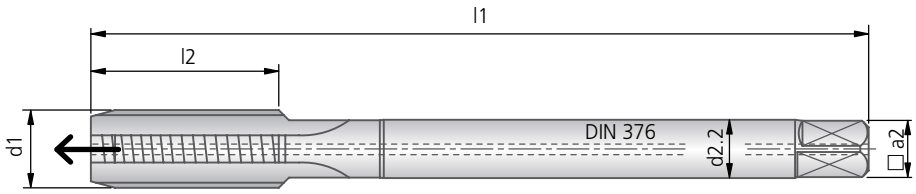
HSS-E Taps with carbide strips

especially for CGI and grey cast iron

M6 - M10



M12

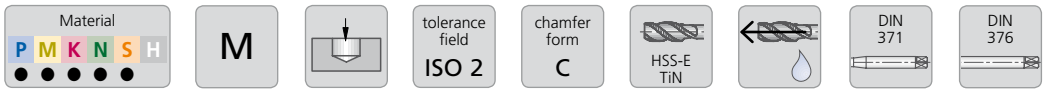


						GG IK
					Cutting material ▸ Surface ▸	HSS-E, carbide tipped uncoated
Nominal ∅					Shank ∅ DIN 371 ▸	
d1	P	l1	l2	d2.1	a1	Order No.
M6	1,00	80	18,0	6,0	4,9	90456001000018
M8	1,25	90	18,0	8,0	6,2	90456001000020
M10	1,50	100	21,0	10,0	8,0	90456001000022
Nominal ∅					Shank ∅ DIN 376 ▸	
d1	P	l1	l2	d2.2	a2	Order No.
M12	1,75	110	24,0	9,0	7,0	90457001000024

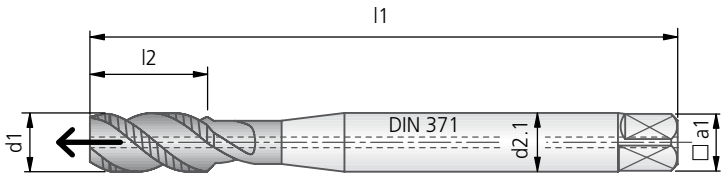
Guideline values for tapping: page 114.

KOMET JEL® TAREX

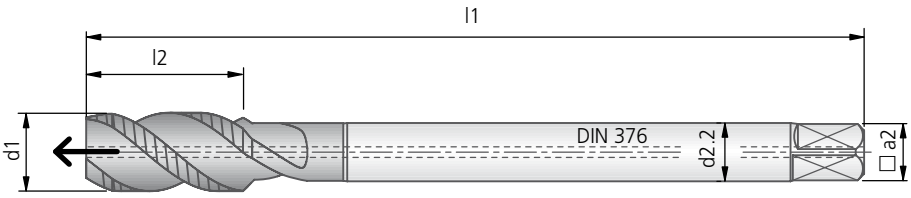
HSS-E Taps



M4 - M10



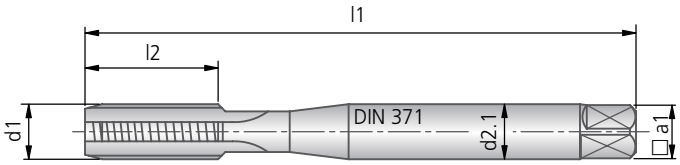
M11 - M16



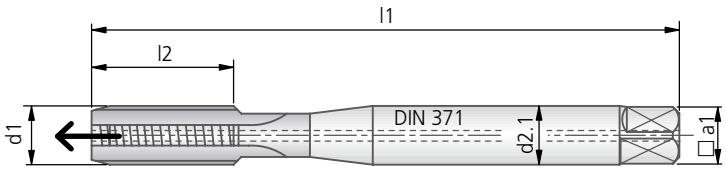
						TAREX IK TiN
					Cutting material ▸	HSS-E
					Surface ▸	TiN
Nominal ∅					Shank ∅ DIN 371 ▸	
d1	P	l1	l2	d2.1	a1	Order No.
M4	0,70	63		4,5	3,4	
M4,5	0,75	70		6,0	4,9	
M5	0,80	70		6,0	4,9	
M6	1,00	80	10,0	6,0	4,9	20546001000018
M7	1,00	80		7,0	5,5	
M8	1,25	90	12,0	8,0	6,2	20546001000020
M9	1,25	90		9,0	7,0	
M10	1,50	100	14,0	10,0	8,0	20546001000022
Nominal ∅					Shank ∅ DIN 376 ▸	
d1	P	l1	l2	d2.2	a2	Order No.
M11	1,50	100		8,0	6,2	
M12	1,75	110	16,0	9,0	7,0	20547001000024
M14	2,00	110		11,0	9,0	
M16	2,00	110		12,0	9,0	

● very good | ◐ good

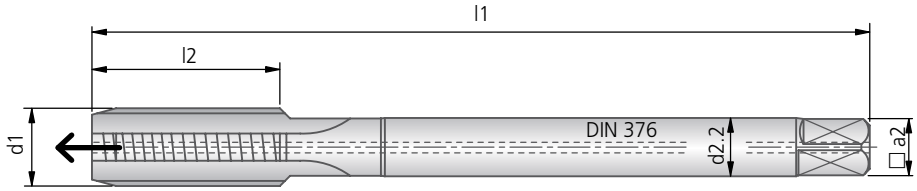
M3 - M3,5
without central coolant supply



M4 - M10



M11 - M16



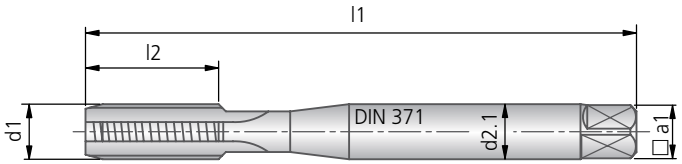
						GG
					Cutting material ▸ Surface ▸	solid carbide uncoated
					Shank ∅ DIN 371 ▸	
Nominal ∅ d1	P	l1	l2	d2.1	a1	Order No.
M3	0,50	56	11,0	3,5	2,7	
M3,5	0,60	56		4,0	3,0	
M4	0,70	63	13,0	4,5	3,4	80456001000015
M5	0,80	70	16,0	6,0	4,9	80456001000017
M6	1,00	80	18,0	6,0	4,9	80456001000018
M7	1,00	80		7,0	5,5	
M8	1,25	90	18,0	8,0	6,2	80456001000020
M9	1,25	90		9,0	7,0	
M10	1,50	100	21,0	10,0	8,0	80456001000022
					Shank ∅ DIN 376 ▸	
Nominal ∅ d1	P	l1	l2	d2.2	a2	Order No.
M11	1,50	100		8,0	6,2	
M12	1,75	110	24,0	9,0	7,0	80457001000024
M14	2,00	110		11,0	9,0	
M16	2,00	110		12,0	9,0	

Guideline values for tapping: page 114.

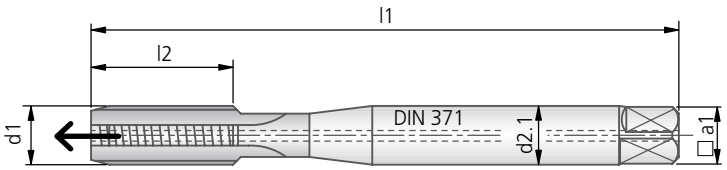
KOMET JEL® SIREX

Solid carbide taps

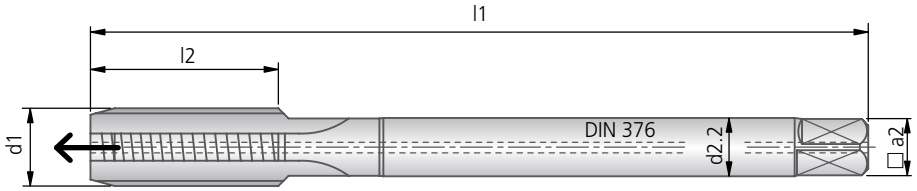
M3 - M3,5
without central coolant supply



M4 - M10



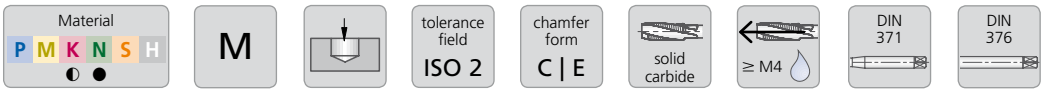
M11 - M16



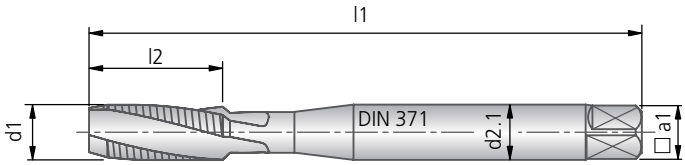
						SIREX
					Cutting material ▸ Surface ▸	solid carbide uncoated
Nominal ∅					Shank ∅ DIN 371 ▸	
d1	P	l1	l2	d2.1	a1	Order No.
M3	0,50	56	11,0	3,5	2,7	80420001000013
M3,5	0,60	56		4,0	3,0	
M4	0,70	63	13,0	4,5	3,4	80420001000015
M5	0,80	70	16,0	6,0	4,9	80420001000017
M6	1,00	80	18,0	6,0	4,9	80420001000018
M7	1,00	80		7,0	5,5	
M8	1,25	90	18,0	8,0	6,2	80420001000020
M9	1,25	90		9,0	7,0	
M10	1,50	100	21,0	10,0	8,0	80420001000022
Nominal ∅					Shank ∅ DIN 376 ▸	
d1	P	l1	l2	d2.2	a2	Order No.
M11	1,50	100		8,0	6,2	
M12	1,75	110	24,0	9,0	7,0	80421001000024
M14	2,00	110		11,0	9,0	
M16	2,00	110		12,0	9,0	

● very good | ◐ good

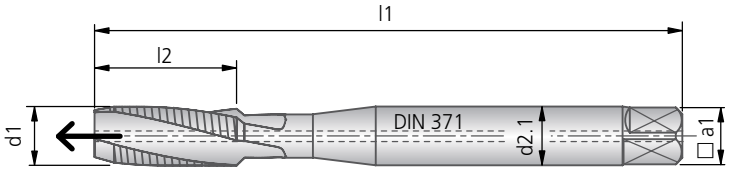
Solid carbide taps



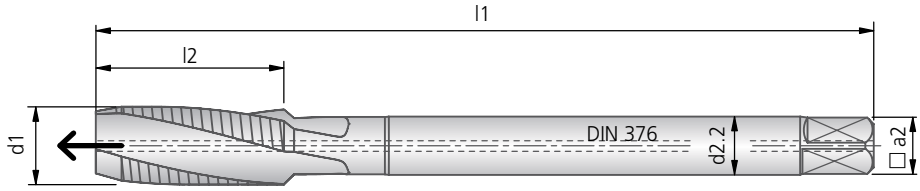
M3 - M3,5
without central coolant supply



M4 - M10



M11 - M16



						SIREX SR	SIREX SR
					Cutting material ▸	solid carbide	solid carbide
					Surface ▸	uncoated	uncoated
Nominal ∅					Shank ∅ DIN 371 ▸		
d1	P	l1	l2	d2.1	a1	Order No. chamfer form C	Order No. chamfer form E
M3	0,50	56	11,0	3,5	2,7	80444001000013	
M3,5	0,60	56		4,0	3,0		
M4	0,70	63	13,0	4,5	3,4	80444001000015	
M5	0,80	70	16,0	6,0	4,9	80444001000017	
M6	1,00	80	18,0	6,0	4,9	80444001000018	80416001000018
M7	1,00	80		7,0	5,5		
M8	1,25	90	18,0	8,0	6,2	80444001000020	80416001000020
M9	1,25	90		9,0	7,0		
M10	1,50	100	21,0	10,0	8,0	80444001000022	80416001000022
Nominal ∅					Shank ∅ DIN 376 ▸		
d1	P	l1	l2	d2.2	a2	Order No.	Order No.
M11	1,50	100		8,0	6,2		
M12	1,75	110	24,0	9,0	7,0	80445001000024	
M14	2,00	110		11,0	9,0		
M16	2,00	110		12,0	9,0		

Guideline values for tapping: page 114.

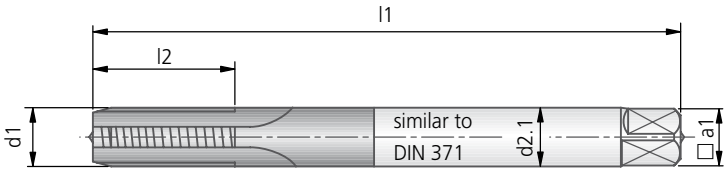
KOMET JEL® SIREX XH

Solid carbide taps

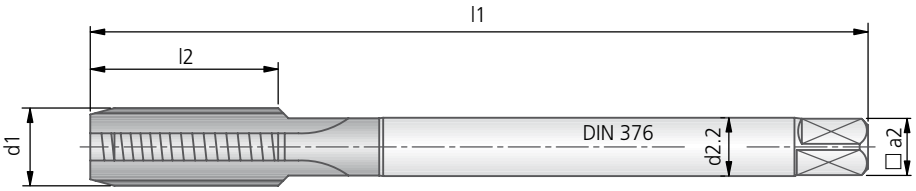
Material P M K N S H | M | tolerance field ISO 2X | chamfer form C | D | s.c. TiAlN | DIN 371 | DIN 376

for hard machining from 45 HRC hardness

M3 - M10



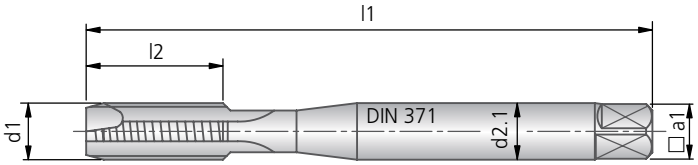
M11 - M16



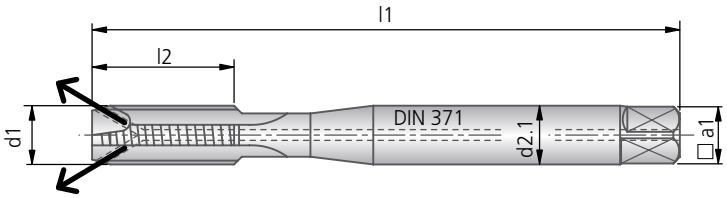
						SIREX XH ≤ 58 HRC	SIREX XH ≤ 52 HRC
					Cutting material ▸	solid carbide	solid carbide
					Surface ▸	TiAlN	TiAlN
					Shank ∅ similar to DIN 371 ▸		
Nominal ∅ d1	P	l1	l2	d2.1	a1	Order No. chamfer form D	Order No. chamfer form C
M3	0,50	56		3,5	2,7		
M3,5	0,60	56		4,0	3,0		
M4	0,70	63	18,0	4,5	3,4	80126001000015	80128001000015
M5	0,80	70	20,0	6,0	4,9	80126001000017	80128001000017
M6	1,00	80	24,0	6,0	4,9	80126001000018	80128001000018
M7	1,00	80		7,0	5,5		
M8	1,25	90	24,0	8,0	6,2	80126001000020	80128001000020
M9	1,25	90		9,0	7,0		
M10	1,50	100	26,0	10,0	8,0	80126001000022	80128001000022
Nominal ∅					Shank ∅ DIN 376 ▸		
d1	P	l1	l2	d2.2	a2	Order No.	Order No.
M11	1,50	100		8,0	6,2		
M12	1,75	110	26,0	9,0	7,0	80127001000024	80129001000024
M14	2,00	110	26,0	11,0	9,0	80127001000025	80129001000025
M16	2,00	110	27,0	12,0	9,0	80127001000026	80129001000026

● very good | ◐ good

M3 - M3,5
without central coolant supply



M4 - M10

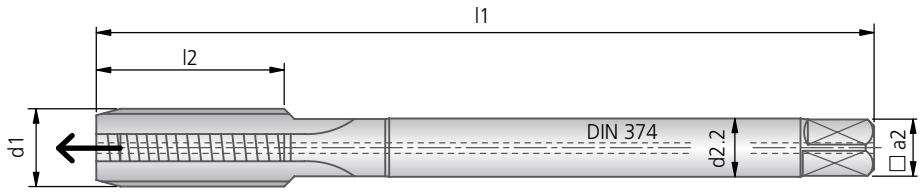


						DOREX
					Cutting material ▸ Surface ▸	solid carbide uncoated
					Shank ∅ DIN 371 ▸	
Nominal ∅ d1	P	l1	l2	d2.1	a1	Order No.
M3	0,50	56		3,5	2,7	
M3,5	0,60	56		4,0	3,0	
M4	0,70	63		4,5	3,4	
M5	0,80	70		6,0	4,9	
M6	1,00	80	18,0	6,0	4,9	80418001000018
M7	1,00	80		7,0	5,5	
M8	1,25	90	18,0	8,0	6,2	80418001000020
M9	1,25	90		9,0	7,0	
M10	1,50	100	21,0	10,0	8,0	80418001000022

Guideline values for tapping: page 114.

KOMET JEL® SIREX

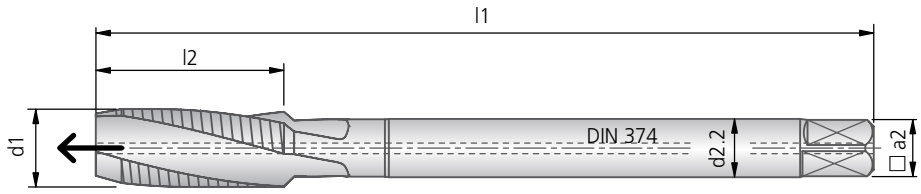
Solid carbide taps



					SIREX
				Cutting material ▸ Surface ▸	solid carbide uncoated
Nominal ∅				Shank ∅ DIN 374 ▸	
d1 × P	l1	l2	d2.1	a1	Order No.
M4×0,5	63	10	4,5	3,4	80420002000029
M5×0,5	70		6,0	4,9	
M6×0,5	80		6,0	4,9	
M6×0,75	80	14	6,0	4,9	80420002000048
M8×0,5	80		8,0	4,9	
M8×0,75	80		8,0	4,9	
M8×1	90	18	8,0	4,9	80420002000070
Nominal ∅				Shank ∅ DIN 374 ▸	
d1 × P	l1	l2	d2.2	a2	Order No.
M10×0,75	90		7,0	5,5	
M10×1	90	18	7,0	5,5	80421002000094
M10×1,25	100		7,0	5,5	
M11×1	90		8,0	6,2	
M12×1	100		9,0	7,0	
M12×1,25	100		9,0	7,0	
M12×1,5	100	20	9,0	7,0	80421002000113
M14×1	100		11,0	9,0	
M14×1,25	100		11,0	9,0	
M14×1,5	100	20	11,0	9,0	80421002000131
M15×1	100		12,0	9,0	
M15×1,5	100		12,0	9,0	
M16×1	100		12,0	9,0	
M16×1,5	100	20	12,0	9,0	80421002000147
M18×1	110		14,0	11,0	
M18×1,5	110		14,0	11,0	
M20×1,5	125		16,0	12,0	

● very good | ◐ good

Material P M K N S H | MF | tolerance field ISO 2 | chamfer form C | solid carbide | DIN 374



					SIREX SR
				Cutting material ▸ Surface ▸	solid carbide uncoated
Nominal ∅				Shank ∅ DIN 374 ▸	
d1 × P	l1	l2	d2.1	a1	Order No.
M4×0,5	63	10	4,5	3,4	80444002000029
M5×0,5	70		6,0	4,9	
M6×0,5	80		6,0	4,9	
M6×0,75	80	14	6,0	4,9	80444002000048
M8×0,5	80		8,0	4,9	
M8×0,75	80		8,0	4,9	
M8×1	90	18	8,0	4,9	80444002000070
Nominal ∅				Shank ∅ DIN 374 ▸	
d1 × P	l1	l2	d2.2	a2	Order No.
M10×0,75	90		7,0	5,5	
M10×1	90	18	7,0	5,5	80445002000094
M10×1,25	100		7,0	5,5	
M11×1	90		8,0	6,2	
M12×1	100		9,0	7,0	
M12×1,25	100		9,0	7,0	
M12×1,5	100	20	9,0	7,0	80445002000113
M14×1	100		11,0	9,0	
M14×1,25	100		11,0	9,0	
M14×1,5	100	20	11,0	9,0	80445002000131
M15×1	100		12,0	9,0	
M15×1,5	100		12,0	9,0	
M16×1	100		12,0	9,0	
M16×1,5	100	20	12,0	9,0	80445002000147
M18×1	110		14,0	11,0	
M18×1,5	110		14,0	11,0	
M20×1,5	125		16,0	12,0	

Guideline values for tapping: page 114.

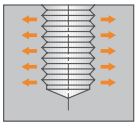
KOMET JEL® Taps

Recommended cutting data

Guideline values for tapping					Cutting speed					Coolant			
				Cutting material	HSS-E			Solid carbide					
Material group		Strength Rm (N/mm²)	Hardness HB	Surface	uncoated	coated	with carbide strips	uncoated	coated				
				Material	v_c m/min	v_c m/min	v_c m/min	v_c m/min	v_c m/min	Emulsion	Oil	Dry	Air
P	1.1	≤400	≤120	magnetic soft iron	15 - 30	20 - 50				✓	✓		
P	1.2	≤700	≤200	structural, case hardened steel	15 - 25	20 - 40				✓	✓		
P	1.3	≤850	≤250	carbon steel	15 - 20	20 - 35				✓	✓		
P	1.4	≤850	≤250	alloy steel	10 - 15	20 - 30				✓	✓		
P	1.5	>850 ≤1200	>250 ≤350	alloy/heat treated steel	5 - 10	15 - 20				✓	✓		
P	1.6	>1200	>350	alloy/heat treated steel	2 - 5	10 - 15					✓		
H	1.7	≤1400	≤400	hardened steel to 45 HRC					2 - 8		✓		
H	1.8	≤2200	≤600	hardened steel to 58 HRC					2 - 5		✓		
M	2.1	≤850	≤250	stainless steel, sulphuretted	5 - 10	10 - 25					✓		
M	2.2	≤850	≤250	austentic	4 - 8	10 - 20					✓		
M	2.3	≤1000	≤300	ferritic, ferritic & austentic, martensitic	3 - 5	7 - 12					✓		
K	3.1	≤500	≤150	grey cast iron	10 - 20	20 - 25	20 - 50	20 - 50		✓		✓	
K	3.2	>500 ≤1000	>150 ≤300	grey cast iron, heat treated	5 - 10	15 - 20	20 - 50	20 - 50		✓			
K	3.3	400-500	200-250	vermicular cast iron			20 - 40			✓			
K	3.4	≤700	≤200	spheroidal graphite cast iron	10 - 20	20 - 40		20 - 50		✓			
K	3.5	>700 ≤1000	>200 ≤300	spheroidal graphite cast iron, heat treated	5 - 10	10 - 15		20 - 50		✓	✓		
K	3.6	≤700	≤200	malleable iron	10 - 15	30 - 40		20 - 50		✓	✓		
K	3.7	>700 <1000	>200 ≤300	malleable iron heat treated	5 - 10	10 - 20		20 - 50		✓	✓		
S	4.1	≤700	≤200	pure titanium	5 - 15	10 - 15				✓	✓		
S	4.2	≤900	≤270	titanium alloys	3 - 10	10 - 15				✓	✓		
S	4.3	>900 ≤1250	>270 ≤300	titanium alloys	1 - 5	5 - 10					✓		
S	5.1	≤500	≤150	pure nickel	7 - 10	10 - 15					✓		
S	5.2	≤900	<270	nickel alloys, heat resistant	4 - 8	5 - 10					✓		
S	5.3	>900 ≤1200	>270 ≤350	nickel alloys, high heat resistance	3 - 5	4 - 7					✓		
N	6.1	≤350	≤100	non-alloy copper	10 - 15	15 - 20				✓	✓		
N	6.2	≤700	≤200	short chip, brass, bronze, red brass	25 - 30	40 - 50		25 - 60		✓		✓	
N	6.3	≤700	≤200	long chip brass	10 - 20	30 - 40				✓	✓		
N	6.4	≤500	≤470	Cu-Al-Fe alloy (Ampco)	2 - 5	5 - 8		5 - 9		✓	✓		
N	7.1	≤350	≤100	Al, Mg non-alloy	10 - 15	20 - 50				✓			
N	7.2	≤600	≤180	Al wrought alloy, breaking strain (A 5) <14 %	15 - 20	20 - 40				✓			
N	7.3	≤600	≤180	Al wrought alloy, breaking strain (A 5) ≥14 %	10 - 15	20 - 40				✓			
N	7.4	≤600	≤180	Al cast alloy, Si <10 %	20 - 30	25 - 50		25 - 80		✓			
N	7.5	≤600	≤180	Al cast alloy, Si ≥10 %	15 - 25	20 - 30		20 - 60		✓			
N	8.1			thermoplastics	15 - 25	20 - 30				✓		✓	
N	8.2			thermosetting plastics	5 - 10	10 - 15		10 - 30		✓			✓
N	8.3			fibre reinforced plastics	3 - 5	8 - 12		8 - 25		✓			

Cutting values shown are relating to the basic recommendations for cutting materials given.

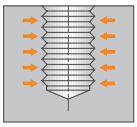
1.



Oversized thread

- wrong tools → select the right tools as shown in the catalogue
- cutting edge geometry not suitable for materials to be machined → select the right tools as shown in the catalogue
- material built-up at tap flanks
  → improve coolant system
  → use coated tap
- minor diameter too small, tool is cutting full profile → select correct core diameter
- chip jam
  → blind bore: increase spindle speed. Correct tool selection (spiral flute)
  → through hole: correct tool selection (spiral point)
- tolerance of tap drill to thread gauge does not agree → use tap drill with right tolerance
- angular or positional error in core bore → adjust workpiece clamping, use tapping chuck with axis parallel float

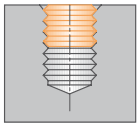
2.



Thread too tigh

- tolerance of tap drill to thread gauge does not agree → use tap drill with right tolerance
- wrong tool type → select the right tools as shown in the catalogue

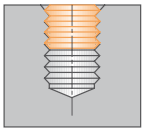
3.



Thread is cut wrongly axially

- cutting lead pressure on tapping chuck too great → select the right cutting lead pressure

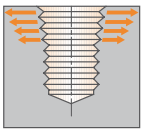
4.



Pitch distortion
(plug gauge cannot be screwed in over full thread length on the workpiece)

- tap is not cutting true to pitch
  → select right tool
  → select right cutting lead pressure
  → with length adjustment chucks reduce feed to 95%

5.



Thread oversize at the entry

- wrong cutting lead pressure
  → use compensation chuck(tension)
  → use lead srcrew
  → select right tool

6.

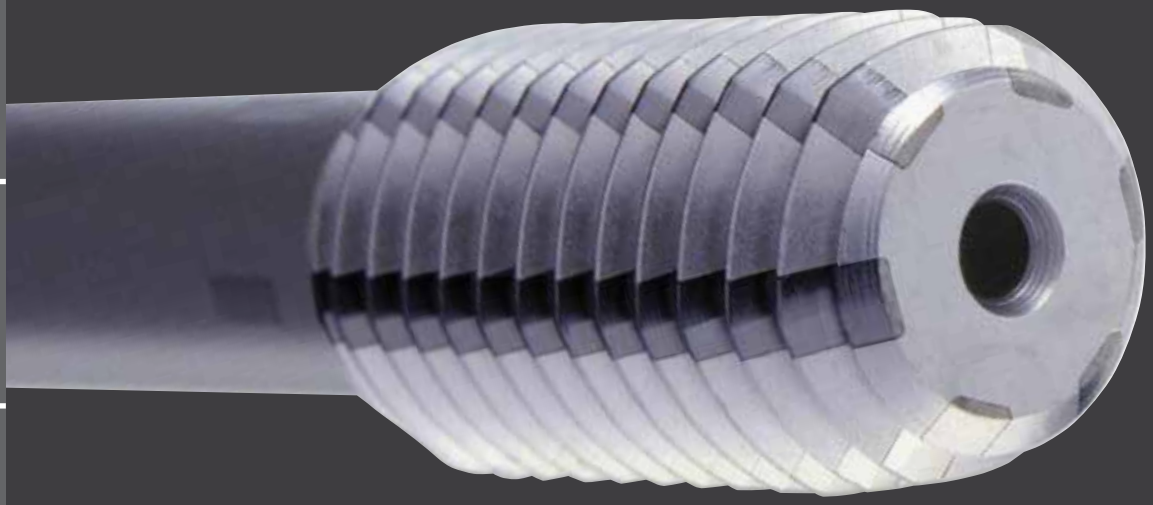
Thread surface not clean

- wrong tool type → select right tool
- chip jam → see "thread too large – chip jam"
- core diameter too small → select right core diameter
- material built-up on thread flanks
  → use tools with surface treatment
  → improve coolant system
- cutting speed to low → increase cutting speed

7.

Tool life too short

- wrong tool type → select right tool type
- cutting speed too high or too low → adjust cutting speed
- composition and supply of coolant inadequate → provide suitable, sufficient coolant
- premature wear due to lack of or unsuitable surface treatment → use coated tools, if necessary solid carbide tools

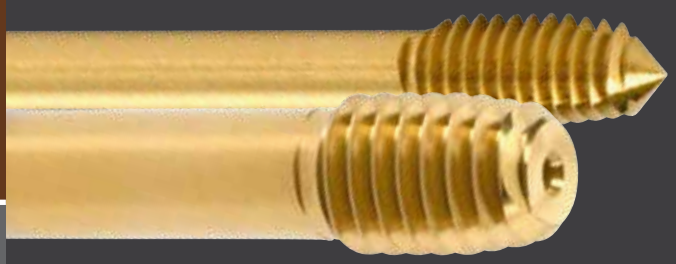


In contrast to thread cutting, no chips are produced when threads are made using thread formers. Materials with a breaking elongation >5% and a tensile strength <1000 N/mm² are suitable for when forming threads. Formed threads have a smoother surface and greater tensile strength under dynamic stress than cut threads.

Solid carbide thread formers have a tool life that is up to 20 times longer than those made of HSS-E.

The patented thread former made of HSS-E with brazed carbide inserts are particularly well suited for use on transfer lines. The flexible base body compensates for small alignment errors, whilst the carbide achieves the longest tool life at the cutting point.

Limitations: Thin-walled components with a wall thickness <2x lead cannot be formed.

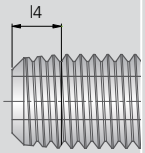
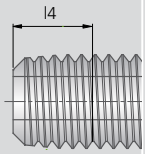
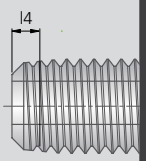


Roll form tap KOMET JEL® MOREX S

With the KOMET JEL® MOREX S solid carbide thread former, the KOMET GROUP is expanding the fields of application for solid carbide thread formers. Above all, these tools are especially suitable for steel materials with small dimensions.

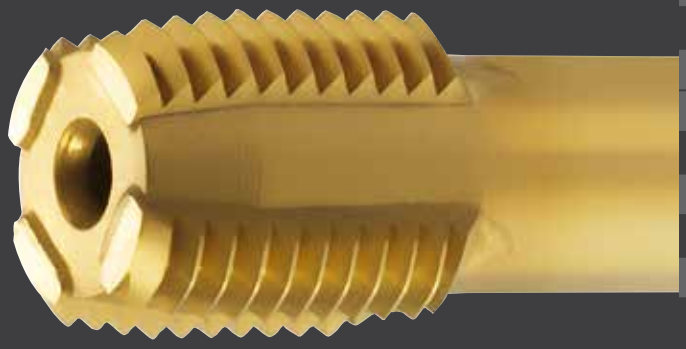
BENEFITS for you:

- Enhanced fields of application – especially in small dimensions, where it was not previously possible to use solid carbide thread formers
- Excellent performance and extremely long tool life for all easy-to-shape materials thanks to a combination of design and optimised geometry
- Short cycle times thanks to the high cutting speed

Chamfer form			
	 C	 D	 E
No. of threads l4	2 - 3,5	3,5 - 5,5	1,5 - 2
Application mainly for	blind and through hole	through hole threads	blind hole threads with short thread run-out (bottoming taps)

Roll form tap HSS-E with carbide strips

The successfull roll form tap MOREX HML has been refined by KOMET JEL® to the brandnew type MOREX R. This new design allows highest tool life in all materials qualified for roll form tapping. Based on the combination of flexible shank and a hard thread profile, this unique tool outmatches conventional carbide roll form taps particularly in steel materials.
Furthermore the used tool can be refurbished 2-3 times.



BENEFITS for you:

- Highest tool life can be achieved in all materials which are suitable for roll form tapping
- Tools can be refurbished several times
- Keeps tool costs down: Simply send in any worn standard tools, and in return you will receive reconditioned tools
- Supplied "just in time"
- Small misalignment will be compensated; big advantage when used on transfer lines

For standard tools customers can get a special service. When sending the used tool back to KOMET, it will be traded in to a refurbished tool immediately without additional delivery time.
Depending on the thread dimension this is a cost advantage between 20-40% versus a brand new tool.
Besides the responsible reduction of material resources, we benefit from the maximum tool life achievable and high tool cost savings.

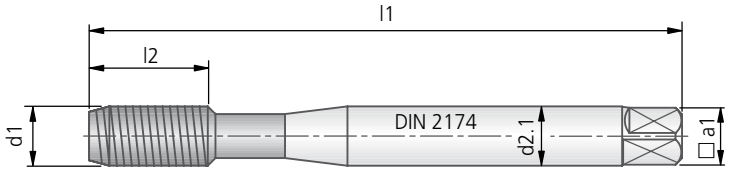
Roll form taps

KOMET JEL® MOREX

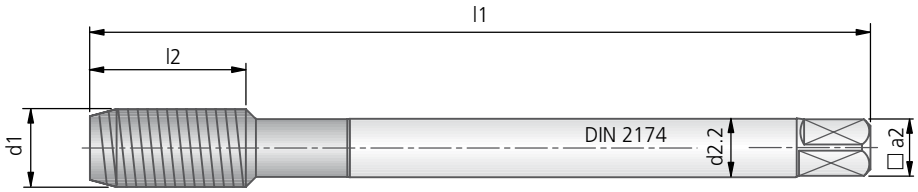
HSS-E Roll form taps

up to and including M7 with full tip

≤ M10



≥ M11



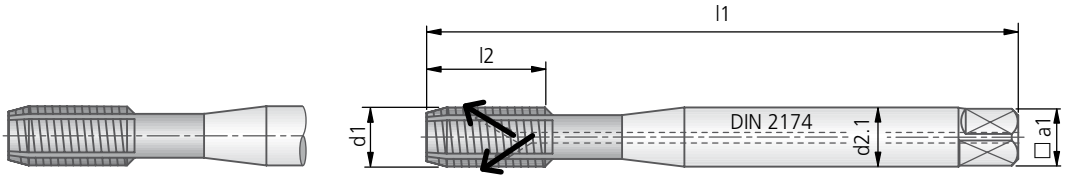
						MOREX TiN
					Cutting material ▸	HSS-E
					Surface ▸	TiN
Nominal ∅					Shank ∅ DIN 2174 ▸	
d1	P	l1	l2	d2.1	a1	Order No.
M1	0,25	40		2,5	2,1	
M1,1	0,25	40		2,5	2,1	
M1,2	0,25	40		2,5	2,1	
M1,4	0,30	40		2,5	2,1	
M1,6	0,35	40		2,5	2,1	
M1,7	0,35	40		2,5	2,1	
M1,8	0,35	40		2,5	2,1	
M2	0,40	45	8,0	2,8	2,1	20374001000008
M2,2	0,45	45		2,8	2,1	
M2,3	0,40	45		2,8	2,1	
M2,5	0,45	50	9,0	2,8	2,1	20374001000011
M2,6	0,45	50		2,8	2,1	
M3	0,50	56	11,0	3,5	2,7	20374001000013
M3,5	0,60	56		4,0	3,0	
M4	0,70	63	13,0	4,5	3,4	20374001000015
M4,5	0,75	70		6,0	4,9	
M5	0,80	70	16,0	6,0	4,9	20374001000017
M6	1,00	80	18,0	6,0	4,9	20374001000018
M7	1,00	80		7,0	5,5	
M8	1,25	90	18,0	8,0	6,2	20374001000020
M9	1,25	90		9,0	7,0	
M10	1,50	100	21,0	10,0	8,0	20374001000022
Nominal ∅					Shank ∅ DIN 2174 ▸	
d1	P	l1	l2	d2.2	a2	Order No.
M11	1,50	100		8,0	6,2	
M12	1,75	110		9,0	7,0	
M14	2,00	110		11,0	9,0	
M16	2,00	110		12,0	9,0	
M18	2,50	125		14,0	11,0	
M20	2,50	140		16,0	12,0	

● very good | ◐ good

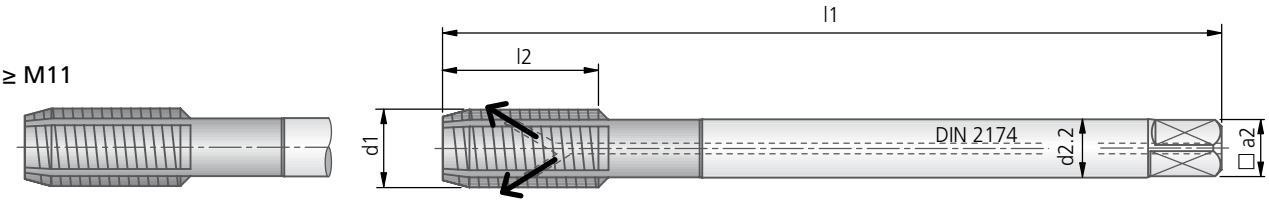
HSS-E Roll form taps

MOREX N TiN: up to and including M7 with full tip, limit to front of the cutting edge shape C

≤ M10



≥ M11

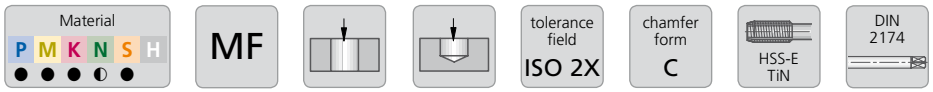


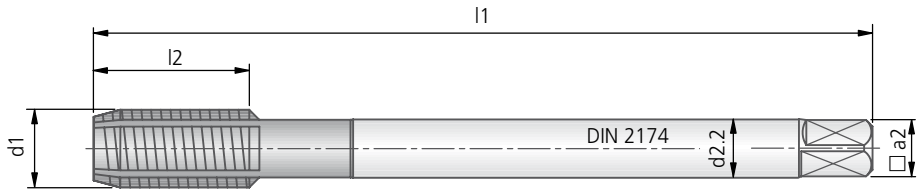
						MOREX N TiN	MOREX N TiN	MOREX N IKS TiN
						HSS-E TiN	HSS-E TiN	HSS-E TiN
Nominal Ø								
d1	P	l1	l2	d2.1	a1	Order No. chamfer form C	Order No. chamfer form E	Order No. chamfer form C
M1	0,25	40		2,5	2,1			
M1,1	0,25	40		2,5	2,1			
M1,2	0,25	40		2,5	2,1			
M1,4	0,30	40		2,5	2,1			
M1,6	0,35	40		2,5	2,1			
M1,7	0,35	40		2,5	2,1			
M1,8	0,35	40		2,5	2,1			
M2	0,40	45		2,8	2,1			
M2,2	0,45	45		2,8	2,1			
M2,3	0,40	45		2,8	2,1			
M2,5	0,45	50		2,8	2,1			
M2,6	0,45	50		2,8	2,1			
M3	0,50	56	11,0	3,5	2,7	20376001000013		
M3,5	0,60	56		4,0	3,0			
M4	0,70	63	13,0	4,5	3,4	20376001000015		
M4,5	0,75	70		6,0	4,9			
M5	0,80	70	16,0	6,0	4,9	20376001000017		
M6	1,00	80	18,0	6,0	4,9	20376001000018	20378001000018	20598001000018
M7	1,00	80		7,0	5,5			
M8	1,25	90	18,0	8,0	6,2	20376001000020	20378001000020	20598001000020
M9	1,25	90		9,0	7,0			
M10	1,50	100	21,0	10,0	8,0	20376001000022	20378001000022	20598001000022
Nominal Ø								
d1	P	l1	l2	d2.2	a2	Order No.	Order No.	Order No.
M11	1,50	100		8,0	6,2			
M12	1,75	110	24,0	9,0	7,0	20377001000024		20599001000024
M14	2,00	110	24,0	11,0	9,0	20377001000025		
M16	2,00	110		12,0	9,0			
M18	2,50	125		14,0	11,0			
M20	2,50	140		16,0	12,0			

Guideline values for thread forming: page 136.

KOMET JEL® MOREX N

HSS-E Roll form taps

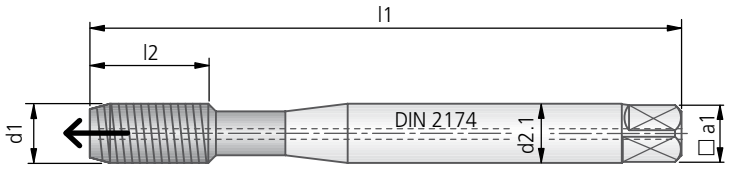




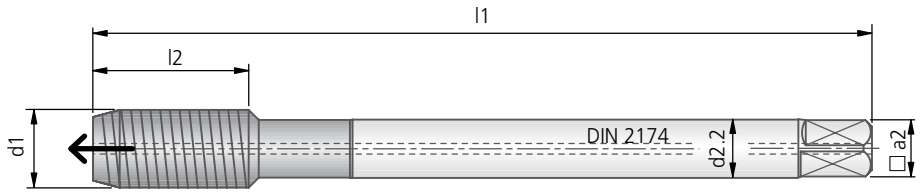
					MOREX N TiN
				Cutting material ▸	HSS-E
				Surface ▸	TiN
				Shank ∅ DIN 2174 ▸	
Nominal ∅ d1 × P	l1	l2	d2.2	a2	Order No.
M3,5×0,35	56		2,5	2,1	
M4×0,35	63		2,8	2,1	
M4×0,5	63		2,8	2,1	
M5×0,5	70		3,5	2,7	
M6×0,5	80		4,5	3,4	
M6×0,75	80		4,5	3,4	
M7×0,75	80		5,5	4,3	
M8×0,5	80		6,0	4,9	
M8×0,75	80		6,0	4,9	
M8×1	90		6,0	4,9	
M9×1	90		7,0	5,5	
M10×0,75	90		7,0	5,5	
M10×1	90	18,0	7,0	5,5	20377002000094
M10×1,25	100		7,0	5,5	
M11×1	90		8,0	6,2	
M12×1	100		9,0	7,0	
M12×1,25	100		9,0	7,0	
M12×1,5	100	20,0	9,0	7,0	20377002000113
M14×1	100		11,0	9,0	
M14×1,25	100		11,0	9,0	
M14×1,5	100	20,0	11,0	9,0	20377002000131
M15×1	100		12,0	9,0	
M15×1,5	100		12,0	9,0	
M16×1	100		12,0	9,0	
M16×1,5	100	20,0	12,0	9,0	20377002000147
M18×1	110		14,0	11,0	
M18×1,5	110		14,0	11,0	
M18×2	125		14,0	11,0	
M20×1	125		16,0	12,0	
M20×1,5	125		16,0	12,0	
M20×2	140		16,0	12,0	

● very good | ◐ good

≤ M10



≥ M11



						MOREX IK	MOREX IK	MOREX IK TiN
					Cutting material ▸	solid carbide	solid carbide	solid carbide
					Surface ▸	uncoated	uncoated	TiN
Nominal Ø					Shank Ø DIN 2174 ▸			
d1	P	l1	l2	d2.1	a1	Order No. chamfer form C	Order No. chamfer form E	Order No. chamfer form C
M1	0,25	40		2,5	2,1			
M1,1	0,25	40		2,5	2,1			
M1,2	0,25	40		2,5	2,1			
M1,4	0,30	40		2,5	2,1			
M1,6	0,35	40		2,5	2,1			
M1,7	0,35	40		2,5	2,1			
M1,8	0,35	40		2,5	2,1			
M2	0,40	45		2,8	2,1			
M2,2	0,45	45		2,8	2,1			
M2,3	0,40	45		2,8	2,1			
M2,5	0,45	50		2,8	2,1			
M2,6	0,45	50		2,8	2,1			
M3	0,50	56		3,5	2,7			
M3,5	0,60	56		4,0	3,0			
M4	0,70	63	13,0	4,5	3,4	80474001000015		80574001000015
M4,5	0,75	70		6,0	4,9			
M5	0,80	70	16,0	6,0	4,9	80474001000017		80574001000017
M6	1,00	80	18,0	6,0	4,9	80474001000018	80472001000018	80574001000018
M7	1,00	80		7,0	5,5			
M8	1,25	90	18,0	8,0	6,2	80474001000020	80472001000020	80574001000020
M9	1,25	90		9,0	7,0			
M10	1,50	100	21,0	10,0	8,0	80474001000022	80472001000022	80574001000022
Nominal Ø					Shank Ø DIN 2174 ▸			
d1	P	l1	l2	d2.2	a2	Order No.	Order No.	Order No.
M11	1,50	100		8,0	6,2			
M12	1,75	110	24,0	9,0	7,0	80475001000024		80575001000024
M14	2,00	110		11,0	9,0			
M16	2,00	110		12,0	9,0			
M18	2,50	125		14,0	11,0			
M20	2,50	140		16,0	12,0			

Guideline values for thread forming: page 136.

KOMET JEL® MOREX N

Solid carbide roll form taps

P M K N S H
– TiN ● ● ● ● ●

M

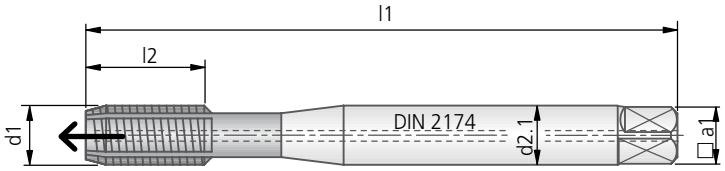
tolerance field ISO 2X

chamfer form C

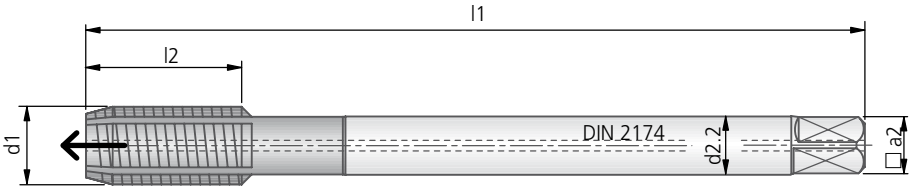
s.c. TiN

DIN 2174

≤ M10



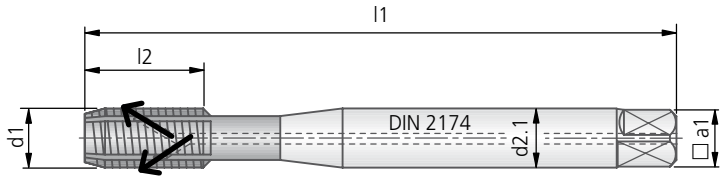
≥ M11



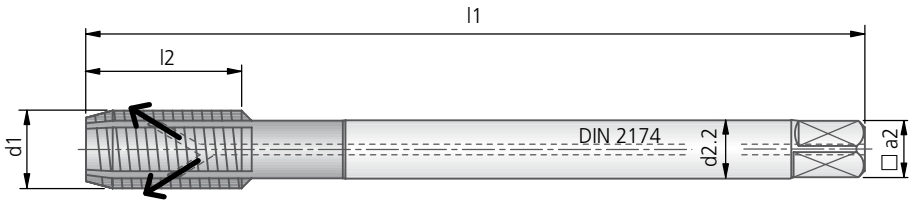
						MOREX N IK	MOREX N IK TiN
					Cutting material ▸	solid carbide	solid carbide
					Surface ▸	uncoated	TiN
Nominal Ø					Shank Ø DIN 2174 ▸		
d1	P	l1	l2	d2.1	a1	Order No.	Order No.
M1	0,25	40		2,5	2,1		
M1,1	0,25	40		2,5	2,1		
M1,2	0,25	40		2,5	2,1		
M1,4	0,30	40		2,5	2,1		
M1,6	0,35	40		2,5	2,1		
M1,7	0,35	40		2,5	2,1		
M1,8	0,35	40		2,5	2,1		
M2	0,40	45		2,8	2,1		
M2,2	0,45	45		2,8	2,1		
M2,3	0,40	45		2,8	2,1		
M2,5	0,45	50		2,8	2,1		
M2,6	0,45	50		2,8	2,1		
M3	0,50	56		3,5	2,7		
M3,5	0,60	56		4,0	3,0		
M4	0,70	63	13,0	4,5	3,4	80476001000015	80576001000015
M4,5	0,75	70		6,0	4,9		
M5	0,80	70	16,0	6,0	4,9	80476001000017	80576001000017
M6	1,00	80	18,0	6,0	4,9	80476001000018	80576001000018
M7	1,00	80		7,0	5,5		
M8	1,25	90	18,0	8,0	6,2	80476001000020	80576001000020
M9	1,25	90		9,0	7,0		
M10	1,50	100	21,0	10,0	8,0	80476001000022	80576001000022
Nominal Ø					Shank Ø DIN 2174 ▸		
d1	P	l1	l2	d2.2	a2	Order No.	Order No.
M11	1,50	100		8,0	6,2		
M12	1,75	110	24,0	9,0	7,0	80477001000024	80577001000024
M14	2,00	110		11,0	9,0		
M16	2,00	110		12,0	9,0		
M18	2,50	125		14,0	11,0		
M20	2,50	140		16,0	12,0		

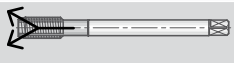
● very good | ◐ good

≤ M10



≥ M11



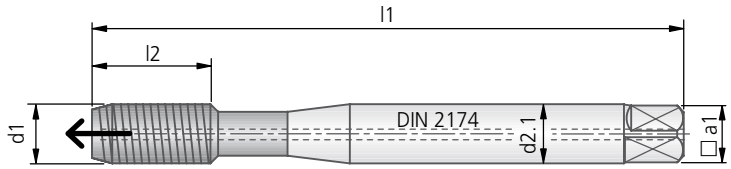
						MOREX N IKS	MOREX N IKS TiN
					Cutting material ▸	solid carbide	solid carbide
					Surface ▸	uncoated	TiN
Nominal ∅					Shank ∅ DIN 2174 ▸		
d1	P	l1	l2	d2.1	a1	Order No.	Order No.
M1	0,25	40		2,5	2,1		
M1,1	0,25	40		2,5	2,1		
M1,2	0,25	40		2,5	2,1		
M1,4	0,30	40		2,5	2,1		
M1,6	0,35	40		2,5	2,1		
M1,7	0,35	40		2,5	2,1		
M1,8	0,35	40		2,5	2,1		
M2	0,40	45		2,8	2,1		
M2,2	0,45	45		2,8	2,1		
M2,3	0,40	45		2,8	2,1		
M2,5	0,45	50		2,8	2,1		
M2,6	0,45	50		2,8	2,1		
M3	0,50	56		3,5	2,7		
M3,5	0,60	56		4,0	3,0		
M4	0,70	63	13,0	4,5	3,4	80494001000015	80594001000015
M4,5	0,75	70		6,0	4,9		
M5	0,80	70	16,0	6,0	4,9	80494001000017	80594001000017
M6	1,00	80	18,0	6,0	4,9	80494001000018	80594001000018
M7	1,00	80		7,0	5,5		
M8	1,25	90	18,0	8,0	6,2	80494001000020	80594001000020
M9	1,25	90		9,0	7,0		
M10	1,50	100	21,0	10,0	8,0	80494001000022	80594001000022
Nominal ∅					Shank ∅ DIN 2174 ▸		
d1	P	l1	l2	d2.2	a2	Order No.	Order No.
M11	1,50	100		8,0	6,2		
M12	1,75	110	24,0	9,0	7,0	80495001000024	80595001000024
M14	2,00	110		11,0	9,0		
M16	2,00	110		12,0	9,0		
M18	2,50	125		14,0	11,0		
M20	2,50	140		16,0	12,0		

Guideline values for thread forming: page 136.

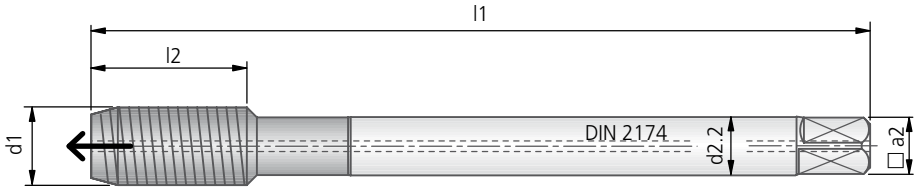
KOMET JEL® MOREX S

Solid carbide roll form taps

M3 without central coolant supply
M3,5 - M10



≥ M11



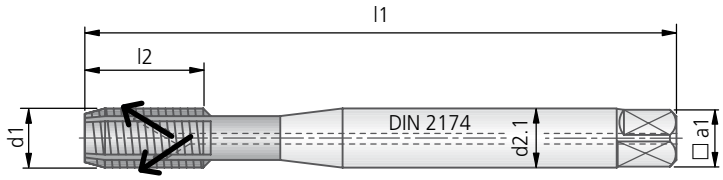
						MOREX S IK TiN
					Cutting material ▸	solid carbide
					Surface ▸	TiN
Nominal ∅					Shank ∅ DIN 2174 ▸	
d1	P	l1	l2	d2.1	a1	Order No.
M3	0,50	56	6,0	3,5	2,7	80584001000013
M3,5	0,60	56		4,0	3,0	
M4	0,70	63	6,0	4,5	3,4	80584001000015
M4,5	0,75	70		6,0	4,9	
M5	0,80	70	6,0	6,0	4,9	80584001000017
M6	1,00	80	6,0	6,0	4,9	80584001000018
M7	1,00	80		7,0	5,5	
M8	1,25	90	8,0	8,0	6,2	80584001000020
M9	1,25	90		9,0	7,0	
M10	1,50	100		10,0	8,0	
Nominal ∅					Shank ∅ DIN 2174 ▸	
d1	P	l1	l2	d2.2	a2	Order No.
M11	1,50	100		8,0	6,2	
M12	1,75	110		9,0	7,0	
M14	2,00	110		11,0	9,0	
M16	2,00	110		12,0	9,0	
M18	2,50	125		14,0	11,0	
M20	2,50	140		16,0	12,0	

Patent applied for inside and outside Germany

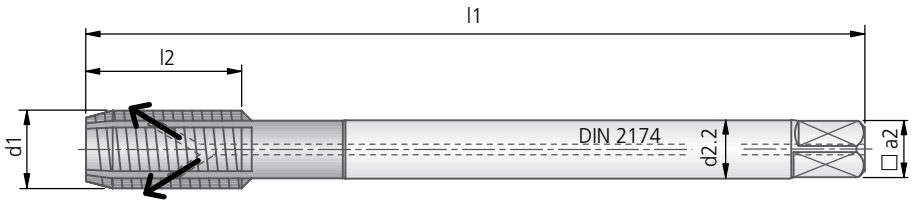
● very good | ◐ good

Solid carbide roll form taps

M3 without central coolant supply
M3,5 - M10



≥ M11



						MOREX S N IKS TiN
					Cutting material ▸	solid carbide
					Surface ▸	TiN
Nominal ∅					Shank ∅ DIN 2174 ▸	
d1	P	l1	l2	d2.1	a1	Order No.
M3	0,50	56		3,5	2,7	80586001000013
M3,5	0,60	56		4,0	3,0	
M4	0,70	63	6,0	4,5	3,4	80586001000015
M4,5	0,75	70		6,0	4,9	
M5	0,80	70	6,0	6,0	4,9	80586001000017
M6	1,00	80	6,0	6,0	4,9	80586001000018
M7	1,00	80		7,0	5,5	
M8	1,25	90	8,0	8,0	6,2	80586001000020
M9	1,25	90		9,0	7,0	
M10	1,50	100		10,0	8,0	
Nominal ∅					Shank ∅ DIN 2174 ▸	
d1	P	l1	l2	d2.2	a2	Order No.
M11	1,50	100		8,0	6,2	
M12	1,75	110		9,0	7,0	
M14	2,00	110		11,0	9,0	
M16	2,00	110		12,0	9,0	
M18	2,50	125		14,0	11,0	
M20	2,50	140		16,0	12,0	

Guideline values for thread forming: page 136.

KOMET JEL® MOREX S

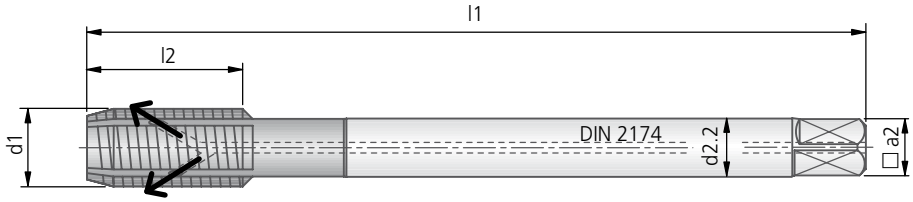
Solid carbide roll form taps

					MOREX S IK TiN
					Cutting material ▸ solid carbide
					Surface ▸ TiN
					Shank ∅ DIN 2174 ▸ 
Nominal ∅ d1 × P	l1	l2	d2.2	a2	Order No.
M8×0,5	80		6,0	4,9	
M8×0,75	80		6,0	4,9	
M8×1	90	8,0	6,0	4,9	80585002000070
M9×1	90		7,0	5,5	
M10×0,75	90		7,0	5,5	
M10×1	90	10,0	7,0	5,5	80585002000094
M10×1,25	100		7,0	5,5	
M11×1	90		8,0	6,2	
M12×1	100		9,0	7,0	
M12×1,25	100		9,0	7,0	
M12×1,5	100		9,0	7,0	
M14×1	100		11,0	9,0	
M14×1,25	100		11,0	9,0	

Patent applied for inside and outside Germany

● very good | ◐ good

Solid carbide roll form taps



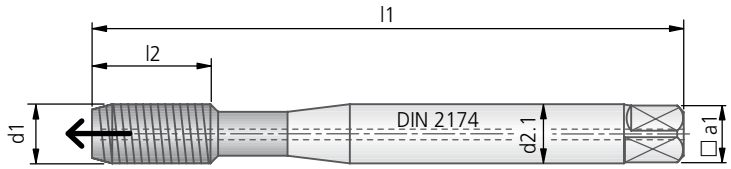
					MOREX S N IKS TiN
					Cutting material ▸ solid carbide
					Surface ▸ TiN
Nominal ∅				Shank ∅ DIN 2174 ▸	
d1 × P	l1	l2	d2.2	a2	Order No.
M8×0,5	80		6,0	4,9	
M8×0,75	80		6,0	4,9	
M8×1	90	8,0	6,0	4,9	80587002000070
M9×1	90		7,0	5,5	
M10×0,75	90		7,0	5,5	
M10×1	90	10,0	7,0	5,5	80587002000094
M10×1,25	100		7,0	5,5	
M11×1	90		8,0	6,2	
M12×1	100		9,0	7,0	
M12×1,25	100		9,0	7,0	
M12×1,5	100		9,0	7,0	
M14×1	100		11,0	9,0	
M14×1,25	100		11,0	9,0	

Guideline values for thread forming: page 136.

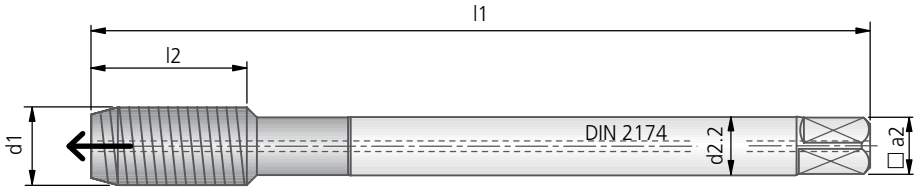
KOMET JEL® MOREX HML

HSS-E Roll form taps with carbide strips

M5 without central coolant supply
M6 - M10



≥ M12

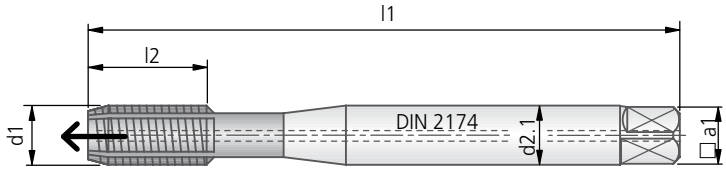


						MOREX HML IK	MOREX HML IK TiN
					Cutting material ▸	HSS-E, carbide tipped	HSS-E, carbide tipped
					Surface ▸	uncoated	TiN
Nominal ∅					Shank ∅ DIN 2174 ▸		
d1	P	l1	l2	d2.1	a1	Order No.	Order No.
M5	0,80	70		6,0	5,0		
M6	1,00	80	18,0	6,0	5,0	90174001000018	90374001000018
M8	1,25	90	18,0	8,0	6,0	90174001000020	90374001000020
M10	1,50	100	21,0	10,0	8,0	90174001000022	90374001000022
Nominal ∅					Shank ∅ DIN 2174 ▸		
d1	P	l1	l2	d2.2	a2	Order No.	Order No.
M12	1,75	110	24,0	9,0	7,0	90175001000024	90375001000024
M14	2,00	110		11,0	9,0		
M16	2,00	110		12,0	9,0		

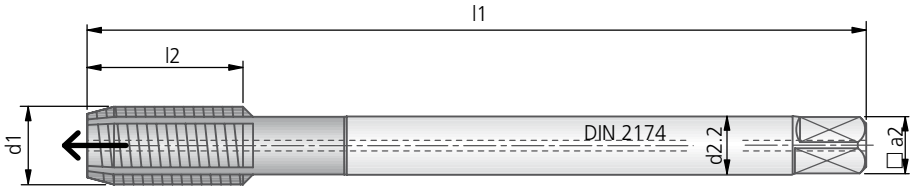
● very good | ◐ good

HSS-E Roll form taps with carbide strips

≤ M10



M12



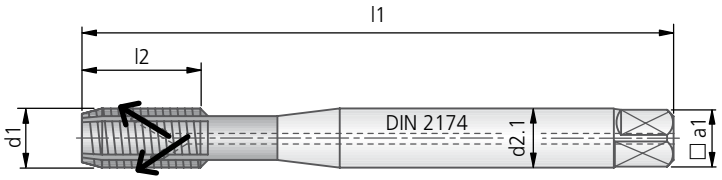
						MOREX N HML IK
					Cutting material ▸ Surface ▸	HSS-E, carbide tipped uncoated
Nominal ∅					Shank ∅ DIN 2174 ▸	
d1	**P**	**l1**	**l2**	**d2.1**	**a1**	**Order No.**
M6	1,00	80	18,0	6,0	4,9	**90176001000018**
M8	1,25	90	18,0	8,0	6,2	**90176001000020**
M10	1,50	100	21,0	10,0	8,0	**90176001000022**
Nominal ∅					Shank ∅ DIN 2174 ▸	
d1	**P**	**l1**	**l2**	**d2.2**	**a2**	**Order No.**
M12	1,75	110	24,0	9,0	7,0	**90177001000024**

Guideline values for thread forming: page 136.

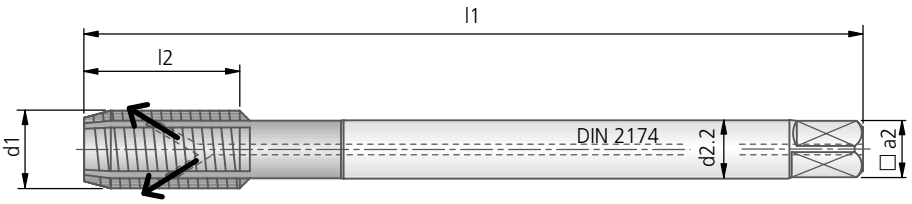
KOMET JEL® MOREX N HML

HSS-E Roll form taps with carbide strips

≤ M10



M12



						MOREX N HML IKS TiN
						Cutting material ▸ HSS-E, carbide tipped
						Surface ▸ TiN
Nominal Ø						Shank Ø DIN 2174 ▸ 
d1	P	l1	l2	d2.1	a1	Order No.
M6	1,00	80	18,0	6,0	4,9	90496001000018
M8	1,25	90	18,0	8,0	6,2	90496001000020
M10	1,50	100	21,0	10,0	8,0	90496001000022
Nominal Ø						Shank Ø DIN 2174 ▸ 
d1	P	l1	l2	d2.2	a2	Order No.
M12	1,75	110	24,0	9,0	7,0	90497001000024

● very good | ◐ good

HSS-E Roll form taps with carbide strips

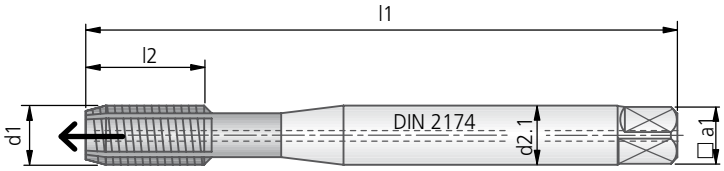
					MOREX HML IK
				Cutting material ▸	HSS-E, carbide tipped
				Surface ▸	uncoated
Nominal ∅				Shank ∅ DIN 2174 ▸	
d1 × P	l1	l2	d2.2	a2	Order No.
M10×1	90	18,0	7,0	6,0	90175002000094
M12×1	100		9,0	7,0	
M12×1,5	100	20,0	9,0	7,0	90175002000113
M14×1	100		11,0	9,0	
M14×1,5	100		11,0	9,0	
M16×1	100		12,0	9,0	
M16×1,5	100		12,0	9,0	
M18×1	110		14,0	11,0	
M18×1,5	110		14,0	11,0	
M20×1	125		16,0	12,0	
M20×1,5	125		16,0	12,0	

Guideline values for thread forming: page 136.

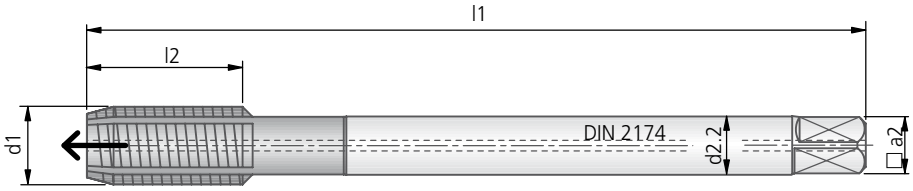
KOMET JEL® MOREX R

HSS-E Roll form taps with carbide strips

≤ M10



M12



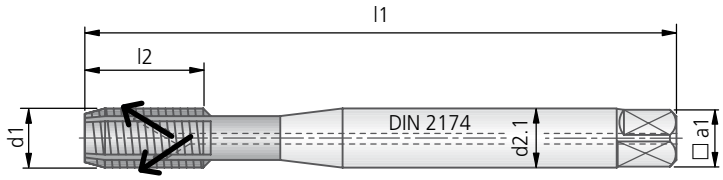
						MOREX R IK TiN
					Cutting material ▸	HSS-E, carbide tipped
					Surface ▸	TiN
Nominal Ø					Shank Ø DIN 2174 ▸	
d1	P	l1	l2	d2.1	a1	Order No.
M10	1,50	100	11	10,0	8,0	90774001000022
Nominal Ø					Shank Ø DIN 2174 ▸	
d1	P	l1	l2	d2.2	a2	Order No.
M12	1,75	110	13	9,0	7,0	90775001000024
M14	2,00	110		11,0	9,0	
M16	2,00	110	18	12,0	9,0	90775001000026
M18	2,50	125		14,0	11,0	
M20	2,50	140	22	16,0	12,0	90775001000028
M24	3,00	160		18,0	14,5	
M27	3,00	160		20,0	16,0	
M30	3,50	180		22,0	18,0	
M33	3,50	180		25,0	20,0	
M36	4,00	200		28,0	22,0	

Patent applied for inside and outside Germany

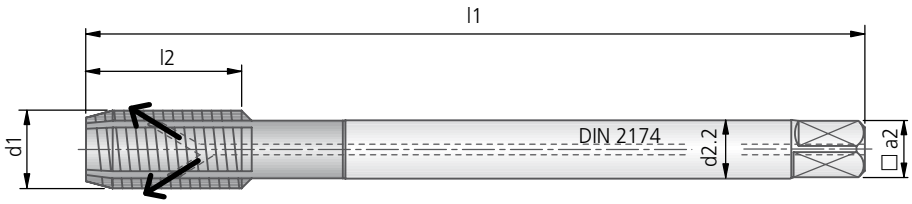
● very good | ◐ good

HSS-E Roll form taps with carbide strips

≤ M10



M12

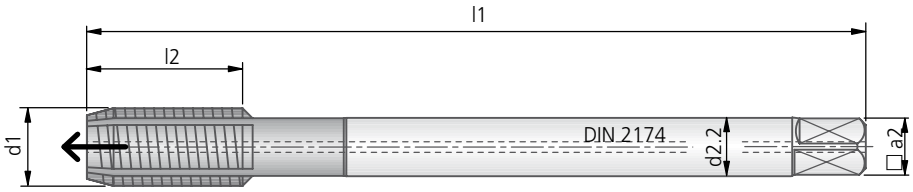


						MOREX R IKS TiN
					Cutting material ▸	HSS-E, carbide tipped
					Surface ▸	TiN
Nominal ∅					Shank ∅ DIN 2174 ▸	
d1	**P**	**l1**	**l2**	**d2.1**	**a1**	**Order No.**
M10	1,50	100	11	10,0	8,0	**90776001000022**
Nominal ∅					Shank ∅ DIN 2174 ▸	
d1	**P**	**l1**	**l2**	**d2.2**	**a2**	**Order No.**
M12	1,75	110	13	9,0	7,0	**90777001000024**
M14	2,00	110		11,0	9,0	
M16	2,00	110	18	12,0	9,0	**90777001000026**
M18	2,50	125		14,0	11,0	
M20	2,50	140	22	16,0	12,0	**90777001000028**
M24	3,00	160		18,0	14,5	
M27	3,00	160		20,0	16,0	
M30	3,50	180		22,0	18,0	
M33	3,50	180		25,0	20,0	
M36	4,00	200		28,0	22,0	

Guideline values for thread forming: page 136.

KOMET JEL® MOREX R

HSS-E Roll form taps with carbide strips

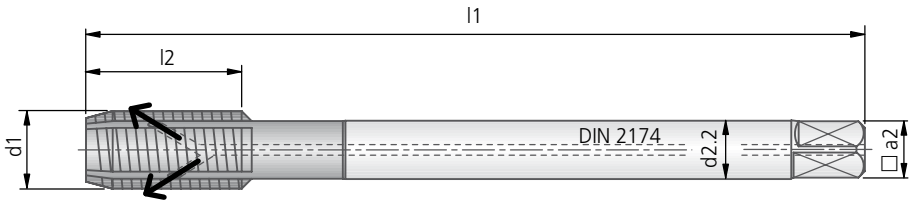


					MOREX R IK TiN
				Cutting material ▸	HSS-E, carbide tipped
				Surface ▸	TiN
Nominal ∅				Shank ∅ DIN 2174 ▸	
d1 × P	l1	l2	d2.2	a2	Order No.
M10×1	90	11,0	7,0	6,0	90775002000094
M12×1	100		9,0	7,0	
M12×1,5	100	13,0	9,0	7,0	90775002000113
M14×1	100		11,0	9,0	
M14×1,5	100		11,0	9,0	
M16×1	100		12,0	9,0	
M16×1,5	100	18,0	12,0	9,0	90775002000147
M18×1	110		14,0	11,0	
M18×1,5	110		14,0	11,0	
M20×1	125		16,0	12,0	
M20×1,5	125		16,0	12,0	

Patent applied for inside and outside Germany

● very good | ◐ good

HSS-E Roll form taps with carbide strips



					MOREX R IKS TiN
				Cutting material ▸	HSS-E, carbide tipped
				Surface ▸	TiN
Nominal ∅				Shank ∅ DIN 2174 ▸	
d1 × P	l1	l2	d2.2	a2	Order No.
M10×1	90	11,0	7,0	6,0	90777002000094
M12×1	100		9,0	7,0	
M12×1,5	100	13,0	9,0	7,0	90777002000113
M14×1	100		11,0	9,0	
M14×1,5	100		11,0	9,0	
M16×1	100		12,0	9,0	
M16×1,5	100	18,0	12,0	9,0	90777002000147
M18×1	110		14,0	11,0	
M18×1,5	110		14,0	11,0	
M20×1	125		16,0	12,0	
M20×1,5	125		16,0	12,0	

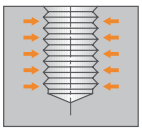
Guideline values for thread forming: page 136.

KOMET JEL® Roll form taps

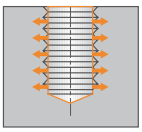
Recommended cutting data

Guideline values for thread forming					Cutting speed				Coolant			
Material group		Strength Rm (N/mm²)	Hardness HB	Material	HSS-E uncoated v_c m/min	HSS-E coated v_c m/min	HSS-E with carbide strips Solid carbide uncoated v_c m/min	HSS-E with carbide strips Solid carbide coated v_c m/min	Emulsion	Oil	Dry	Air
P	1.1	≤400	≤120	magnetic soft iron	30 - 40	30 - 50		30 - 80	✓	✓		
P	1.2	≤700	≤200	structural, case hardened steel	25 - 35	30 - 50		30 - 80	✓	✓		
P	1.3	≤850	≤250	carbon steel	20 - 30	30 - 50		30 - 80	✓	✓		
P	1.4	≤850	≤250	alloy steel	20 - 25	20 - 30		20 - 50		✓		
P	1.5	>850 ≤1200	>250 ≤350	alloy/heat treated steel		20 - 30		20 - 50		✓		
P	1.6	>1200	>350	alloy/heat treated steel								
H	1.7	≤1400	≤400	hardened steel to 45 HRC								
H	1.8	≤2200	≤600	hardened steel to 58 HRC								
M	2.1	≤850	≤250	stainless steel, sulphuretted		20 - 40		20 - 50		✓		
M	2.2	≤850	≤250	austentic		20 - 30		20 - 40		✓		
M	2.3	≤1000	≤300	ferritic, ferritic & austentic, martensitic		20 - 30		20 - 40		✓		
K	3.1	≤500	≤150	grey cast iron								
K	3.2	>500 ≤1000	>150 ≤300	grey cast iron, heat treated								
K	3.3	400-500	200-250	vermicular cast iron								
K	3.4	≤700	≤200	spheroidal graphite cast iron		20 - 40		20 - 60	✓	✓		
K	3.5	>700 ≤1000	>200 ≤300	spheroidal graphite cast iron, heat treated		20 - 30		20 - 40	✓	✓		
K	3.6	≤700	≤200	malleable iron								
K	3.7	>700 <1000	>200 ≤300	malleable iron heat treated								
S	4.1	≤700	≤200	pure titanium	10 - 15	20 - 30				✓		
S	4.2	≤900	≤270	titanium alloys	8 - 12	20 - 25				✓		
S	4.3	>900 ≤1250	>270 ≤300	titanium alloys	5 - 10	10 - 15				✓		
S	5.1	≤500	≤150	pure nickel	10 - 15	15 - 20		10 - 30		✓		
S	5.2	≤900	<270	nickel alloys, heat resistant	5 - 10	10 - 15		10 - 20		✓		
S	5.3	>900 ≤1200	>270 ≤350	nickel alloys, high heat resistance		5 - 10				✓		
N	6.1	≤350	≤100	non-alloy copper	20 - 30	20 - 50	20 - 60	20 - 80	✓	✓		
N	6.2	≤700	≤200	short chip, brass, bronze, red brass								
N	6.3	≤700	≤200	long chip brass	20 - 30	20 - 50	20 - 60	20 - 80	✓	✓		
N	6.4	≤500	≤470	Cu-Al-Fe alloy (Ampco)								
N	7.1	≤350	≤100	Al, Mg non-alloy		20 - 50	20 - 60	20 - 80	✓	✓		
N	7.2	≤600	≤180	Al wrought alloy, breaking strain (A 5) <14 %		20 - 50	20 - 60	20 - 80	✓	✓		
N	7.3	≤600	≤180	Al wrought alloy, breaking strain (A 5) ≥14 %		20 - 50	20 - 60	20 - 80	✓	✓		
N	7.4	≤600	≤180	Al cast alloy, Si <10 %		20 - 50	20 - 60	20 - 80	✓	✓		
N	7.5	≤600	≤180	Al cast alloy, Si ≥10 %		20 - 50	20 - 60	20 - 80	✓	✓		
N	8.1			thermoplastics								
N	8.2			thermosetting plastics								
N	8.3			fibre reinforced plastics								

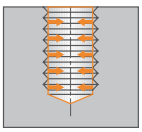
Cutting values shown are relating to the basic recommendations for cutting materials given.

1. 

Thread too tigh
- tolerance of thread forming tool does not align with thread gauge
  → use thread forming tool with right tolerance

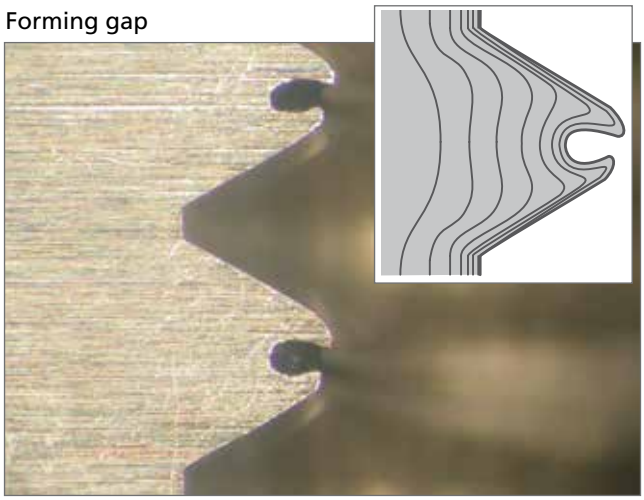
2. 

Core diameter too large on thread
- wrong drill diameter (too large)
  → use smaller drill

3. 

Core diameter too small or torque too high
- drill diameter too small
  → use larger core boring tool

Forming gap



KOMET JEL® JSF

Synchro tapping chuck

Modern CNC machines allow synchronous thread tapping without a compensating chuck, also called "rigid tapping".

The backlash of the spindle causes stress to one side of the cut tap or form tap, respectively. This may result in a reduced tool life and lack of quality in the surface of the thread.

KOMET JEL® synchro tapping chucks compensate for the length errors caused by the backlash and create the prerequisites for achieving optimum performance from your tapping tools.

BENEFITS for you:

- Optimum tool performance
- Lengths can be adjusted from both sides
- Maximum tool life
- Wet operation, MQL 1-channel system or MQL 2-channel system

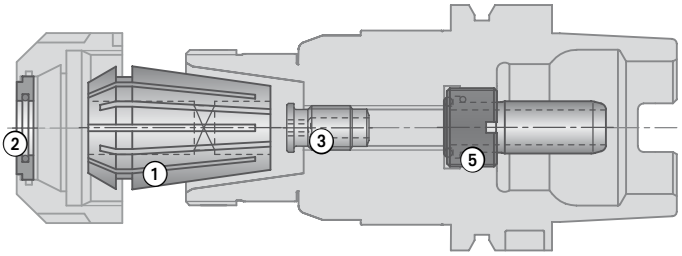
Synchro tapping chuck

KOMET JEL® JSF

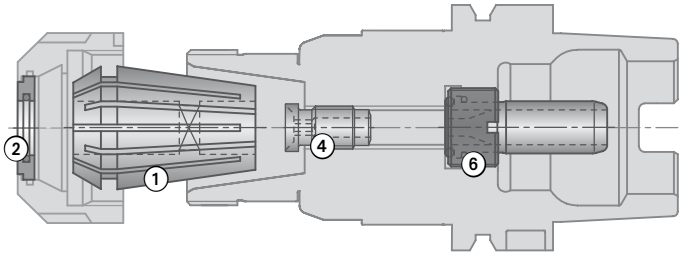
Synchro tapping chuck with HSK-A adaptor ISO 12164-1

A synchro tapping chuck for three types of cooling lubricant supply: By choosing the appropriate cooling lubricant delivery set and adjustment screw, the synchro tapping chuck can be used in wet operation, in the MQL 1-channel system and the MQL 2-channel system.

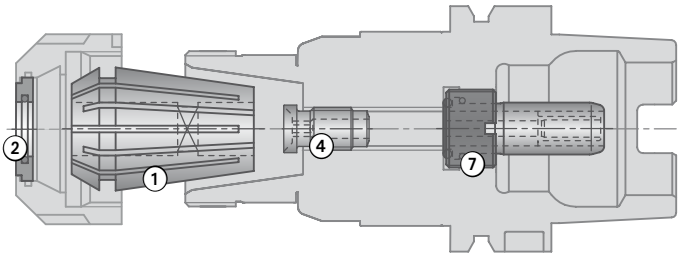
A Wet operation (max. 50 bar)

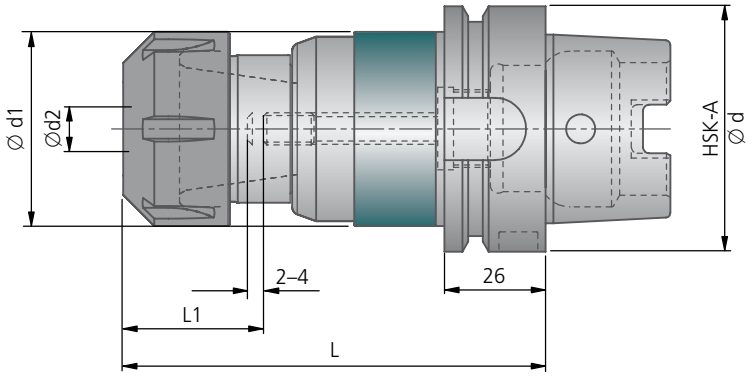


B MQL 1-channel system



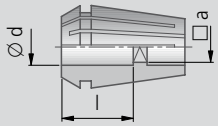
C MQL 2-channel system

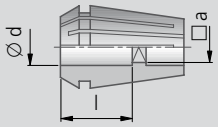


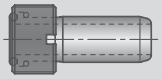
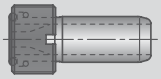
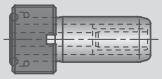
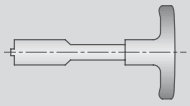


JSF HSK-A							A	B	C	
for thread	HSK-A Ø d	Ø d1	Clamping range for collet Ø d2	L	Adjust-ment range L1	kg	Wet operation **Order No.** Article	MQL 1-channel system **Order No.** Article	MQL 2-channel system **Order No.** Article	Collet Size
M4 – M12	63	34	4,5 – 11,2	96	26	0,98	**50795126002000** JSF-HSK-A63-20-96	**50795226002000** JSF-HSK-A63-20-96	**50795326002000** JSF-HSK-A63-20-96	ER20
M4 – M12	63	34	4,5 – 11,2	160	26	1,40	**50796126002000** JSF-HSK-A63-20-160	**50796226002000** JSF-HSK-A63-20-160	**50796326002000** JSF-HSK-A63-20-160	ER20
M4 – M20	63	50	4,5 – 18,0	109	26	1,48	**50795126003200** JSF-HSK-A63-32-109	**50795226003200** JSF-HSK-A63-32-109	**50795326003200** JSF-HSK-A63-32-109	ER32

Supply includes: Synchro tapping chuck with collet nut, coolant supply unit ⑤, ⑥ or ⑦ and Allen key for adjusting screw. Please order separately: collet ①, seal disc ② and adjusting screw ③ or ④.

ER20							
				Collet ① with square drive	 Seal disc ② for collet nut	Adjusting screw ③ for wet operation 	Adjusting screw ④ for MQL 
Ø d	□ a	l	Norm	Order No.	Order No.	Order No.	Order No.
4,5	3,4	14/18	DIN	52805 20045	52806 20045	51391 20002	51391 30002
5,0	4,3	18	DIN	52805 20055	52806 20055	51391 20003	51391 30003
6,0	4,9	18	DIN	52805 20060	52806 20060	51391 20001	51391 30001
7,0	5,5	18	DIN	52805 20070	52806 20070	51391 20004	51391 30004
8,0	6,2	18	DIN	52805 20080	52806 20080	51391 20005	51391 30005
9,0	7,0	22	DIN	52805 20090	52806 20090	51391 20006	51391 30006
10,0	8,0	22	DIN	52805 20100	52806 20100	51391 20007	51391 30007
11,0	9,0	25	DIN	52805 20110	52806 20110	51391 20008	51391 30008

ER32							
				Collet ① with square drive	 Seal disc ② for collet nut	Adjusting screw ③ for wet operation 	Adjusting screw ④ for MQL 
Ø d	□ a	l	Norm	Order No.	Order No.	Order No.	Order No.
6,0	4,9	18	DIN	52805 32060	52806 32060	51391 20014	51391 30014
7,0	5,5	18	DIN	52805 32070	52806 32070	51391 20015	51391 30015
8,0	6,2	18	DIN	52805 32080	52806 32080	51391 20016	51391 30016
9,0	7,0	22	DIN	52805 32090	52806 32090	51391 20009	51391 30009
10,0	8,0	22	DIN	52805 32100	52806 32100	51391 20010	51391 30010
11,0	9,0	25	DIN	52805 32110	52806 32110	51391 20011	51391 30011
12,0	9,0	25	DIN	52805 32120	52806 32120	51391 20011	51391 30011
14,0	11,0	25	DIN	52805 32140	52806 32140	51391 20012	51391 30012
16,0	12,0	25	DIN	52805 32160	52806 32160	51391 20013	51391 30013

Coolant supply unit			Key
⑤ for wet operation 	⑥ for MQL 1-channel system 	⑦ for MQL 2-channel system 	
Order No.	Order No.	Order No.	Order No.
61000 00387	61000 00388	61000 00389	18021 01063

Supply coolant supply unit includes: Coolant tube, locking collar and two O rings.

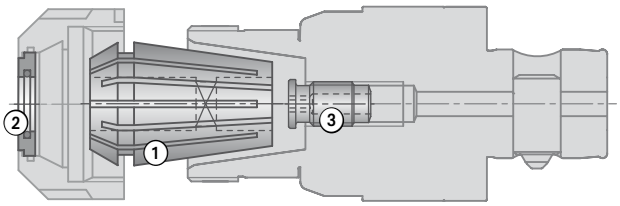
Note re. supply: Only use the keys listed for assembly.
This will prevent coolant flowing back into the machine spindle/clamping system.
A specific coolant hose for the machine can also be fitted on all HSK adaptors.

KOMET JEL® JSF

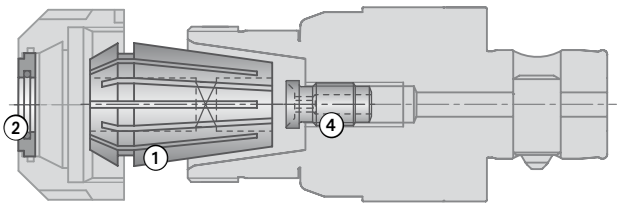
Synchro tapping chuck with ABS® adaptor

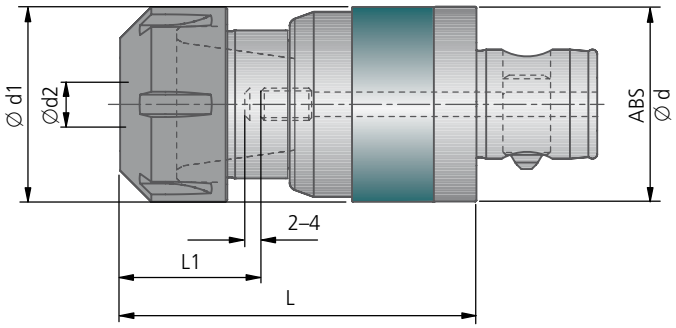
A synchro tapping chuck for two types of cooling lubricant supply: By choosing the appropriate adjustment screw, the synchro tapping chuck can be used in wet operation and in the MQL 1-channel system.

A Wet operation (max. 50 bar)



B MQL 1-channel system





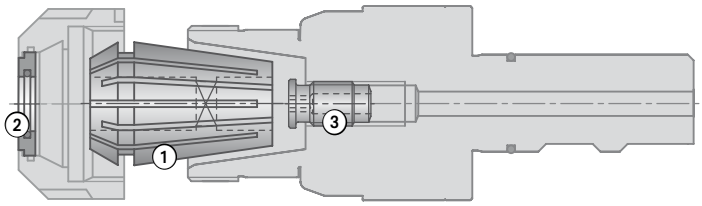
JSF ABS®							A | B		
for thread	ABS Ø d	Ø d1	Clamping range for collet Ø d2	L	Adjustment range L1	kg	Wet operation and MQL 1-channel system: Article	Order No.	Collet Size
M4 – M12	32	34	4,5 – 11,2	78	26	0,41	JSF ABS32-20-78	**50795131002000**	ER20
M4 – M12	50	34	4,5 – 11,2	84,5	26	0,69	JSF ABS50-20-84,5	**50795135002000**	ER20
M4 – M20	50	50	4,5 – 18,0	90,5	26	1,01	JSF ABS50-32-90,5	**50795135003200**	ER32

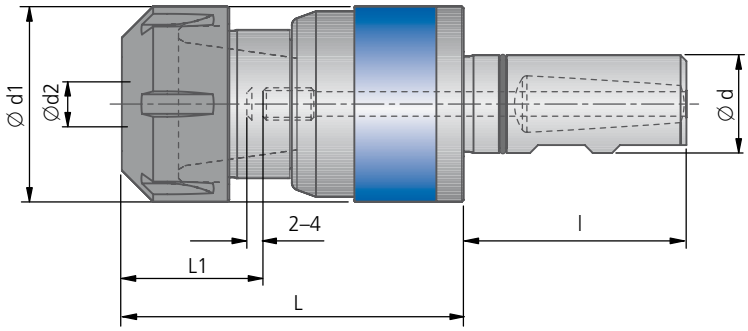
Supply includes: Synchro tapping chuck with collet nut and Allen key for adjusting screw.
Please order separately: collet ①, seal disc ② and adjusting screw ③ or ④ (page 141).

Patent applied for inside and outside Germany

Synchro tapping chuck with cylindrical shank DIN 1835

A Wet operation
(max. 50 bar)



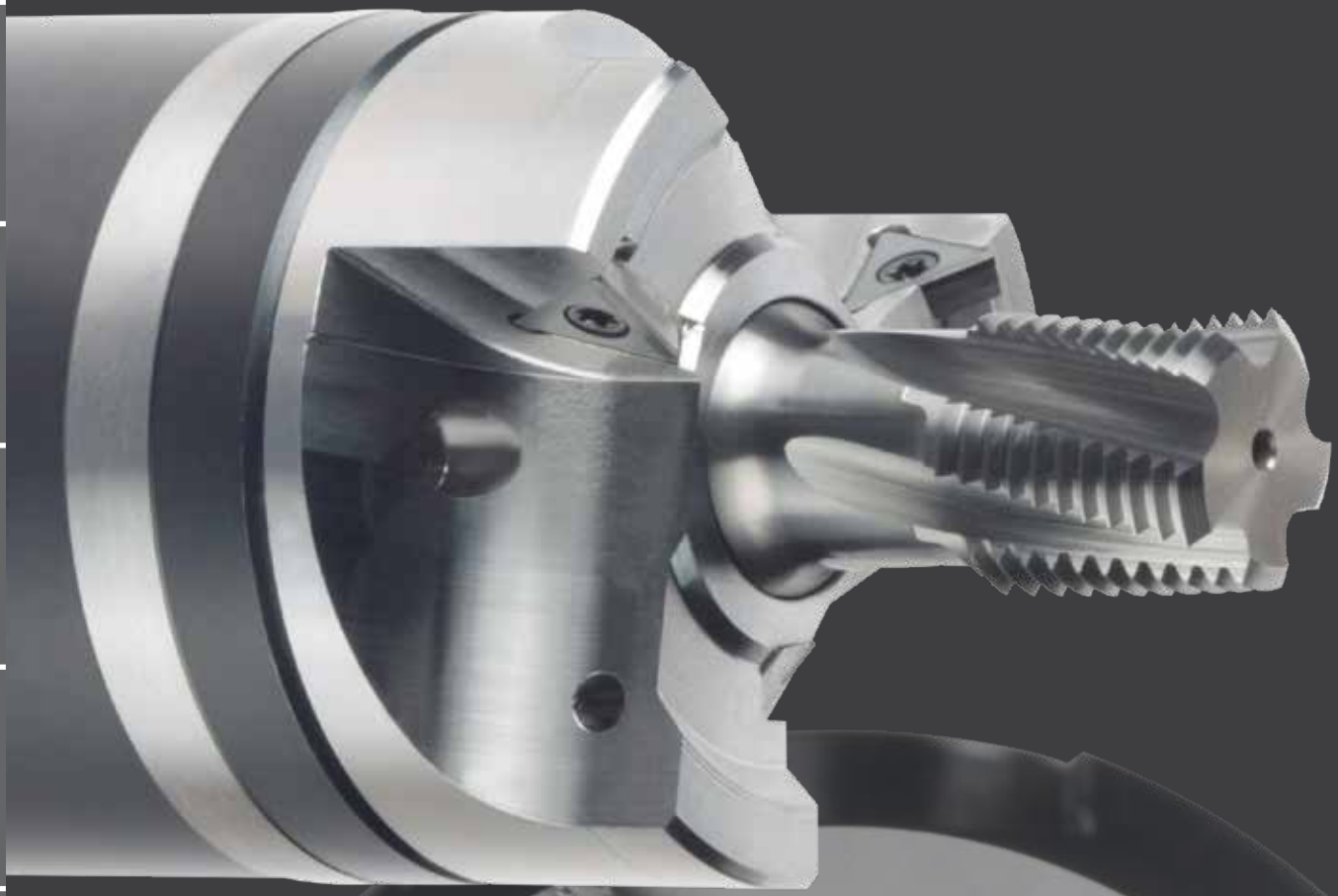


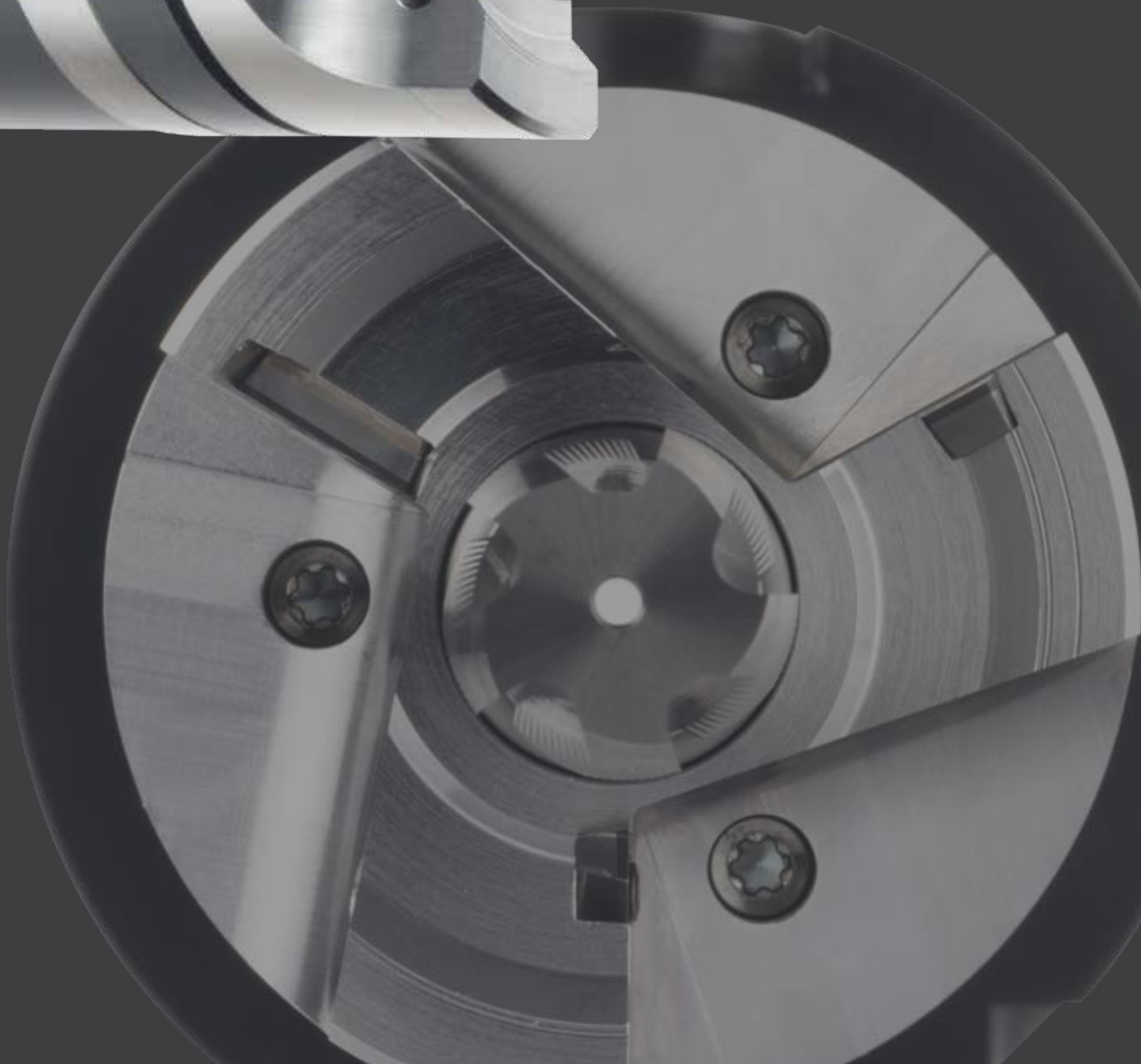
JSF ZS							A		
							Wet operation		
for thread	Cylindrical shank **Ø d × l**	**Ø d1**	Clamping range for collet **Ø d2**	**L**	Adjust-ment range **L1**	kg	Article	**Order No.**	Collet Size
M4 – M12	25 × 57	34	4,5 – 11,2	73	26	0,54	JSF-ZS1835-20-71	**50795104002000**	ER20
M4 – M12	25 × 57	50	4,5 – 18,0	87,5	26	0,65	JSF-ZS1835-32-88	**50795104003200**	ER32

Supply includes: Synchro tapping chuck with collet nut and Allen key for adjusting screw.
Please order separately: collet ①, seal disc ② and adjusting screw ③ (page 141).

Modular Tool System

especially for machining aluminium





Boring, counterboring and thread milling with the shortest possible delivery times

KOMET JEL® VABOS, the variable boring and countersinking system, is a modular tool system which is particularly notable for its extremely high flexibility.
A broad based range of machining tasks can be carried out with just a few components – a central tool combined with inserts for universal shaping. When manufacturing bores and threads on CNC machines significant time savings and improvements in quality can be achieved.

BENEFITS for you:

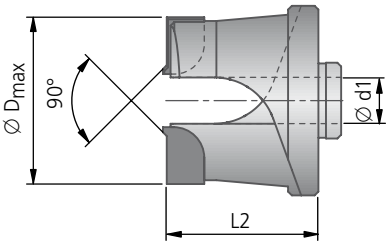
- Large number of possible combinations
- One tool holder sufficient
- Lower tool costs
- Exchangeable head
- Easy exchangeability at re-tipping
- Easy assembly of the central tool
- HSK-A63 basic holder kept in stock as standard in two lengths
- Can be supplied as insert tools or in PCD brazed version
- Shortest possible delivery times

VABOS EASY

KOMET JEL® VABOS EASY

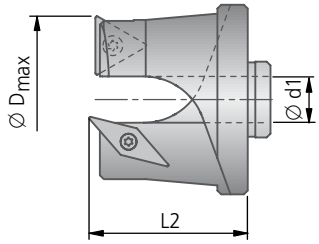
Head

with PCD brazed



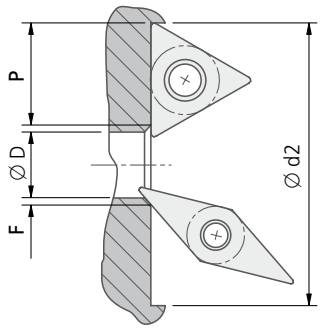
PCD head					
Ø D max.	Ø d1	L2 max.	kg	No. of flutes 2 Order No.	No. of flutes 3 Order No.
25,6	6	20		507350..	507360..
28,6	8	25		507350..	507360..
35,6	10	25		507350..	507360..
42,6	12	25		507350..	507360..
44,6	14	30		507350..	507360..
48,6	16	30		507350..	507360..

with inserts



Indexable insert head					
Ø D max.	Ø d1	L2 max.	kg	No. of flutes 2 Order No.	No. of flutes 3 Order No.
25,6	6	20		507150..	507160..
28,6	8	25		507150..	507160..
35,6	10	25		507150..	507160..
42,6	12	25		507150..	507160..
44,6	14	30		507150..	507160..
48,6	16	30		507150..	507160..

Calculating the achievable spotface diameter in conjunction with boring and 90° countersinking using inserts.



Bore diameter D		
shank Ø d1	Ø D min	Ø D max
6	4,0	6,0
8	6,0	8,0
10	8,0	10,0
12	10,0	12,0
14	12,0	14,0
16	14,0	16,0

Chamfer width F		
	F min	F max
W89 03..0.02..	0,1	1,5

Cutting length P		
	P min	P max
W30 04...02..	5,3	6,3
W30 04...03..	5,2	6,1
W30 04...04..	5,2	5,8
W30 14...02..	7,5	9,1
W30 14...04..	7,4	8,6

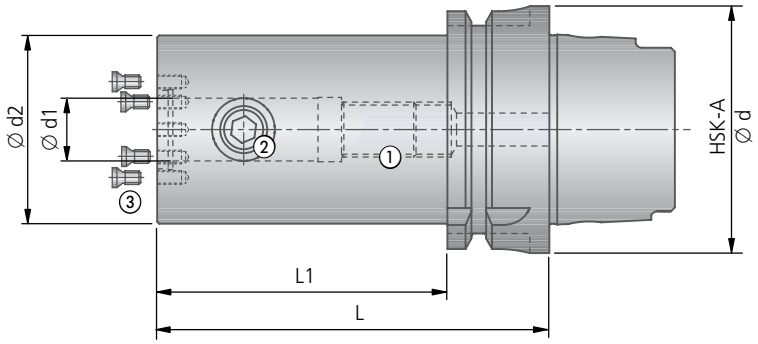
Spotface diameter d2 = bore diameter D + 2 × chamfer width F + 2 × cutting length P of inserts

Example: Bore diameter D = 5,0 mm, chamfer width F = 0,5 mm, cutting length P = 7,5 mm

Ø d2 = 5,0 + 2 × 0,5 + 2 × 7,5
Ø d2 = 21,0 mm

Holder with HSK-A Adaptor ISO 12164-1

internal coolant supply ■



Short version							Assembly parts			Accessories
HSK-A Ø d	Ø d1	Ø d2	L	L1	kg	Order No.	Adjusting screw ① Order No.	Clamping screw ② Order No.	Location screw ③ Order No. Article	Screwdriver for ③ Order No. Article
63	6	25	80	54		50775026000600	N00 71020	N00 70160	N00 57521 S/M3,5×7,3-10IP 2,8 Nm	L05 00850 10IP
63	8	28	80	54		50775026000800	N00 71070	N00 70210		
63	10	35	80	54		50775026001000	N00 71130	M8×12		
63	12	42	90	64		50775026001200	N00 71220	N00 70320		
63	14	44	90	64		50775026001400	N00 71220	N00 70360		
63	16	48	100	74		50775026001600	N00 71400	N00 70400		

Long version							Assembly parts			Accessories
HSK-A Ø d	Ø d1	Ø d2	L	L1	kg	Order No.	Adjusting screw ① Order No.	Clamping screw ② Order No.	Location screw ③ Order No. Article	Screwdriver for ③ Order No. Article
63	6	25	160	134		50776026000600	N00 71020	N00 70160	N00 57521 S/M3,5×7,3-10IP 2,8 Nm	L05 00850 10IP
63	8	28	160	134		50776026000800	N00 71070	N00 70210		
63	10	35	160	134		50776026001000	N00 71130	M8×12		
63	12	42	160	134		50776026001200	N00 71220	N00 70320		
63	14	44	160	134		50776026001400	N00 71230	N00 70360		
63	16	48	160	134		50776026001600	N00 71400	N00 70400		

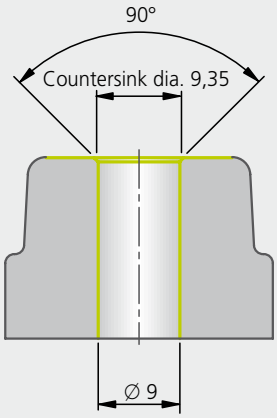
Supply includes:
HSK-A adaptor with assembly parts.
Please order coolant supply connection and key separately (chapter 9).

KOMET JEL® VABOS EASY

Modular Tool System

Application 1:

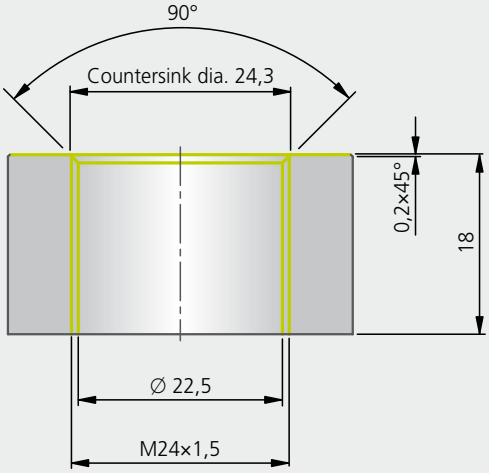
- Boring
- 90° countersinking
- Spotfacing

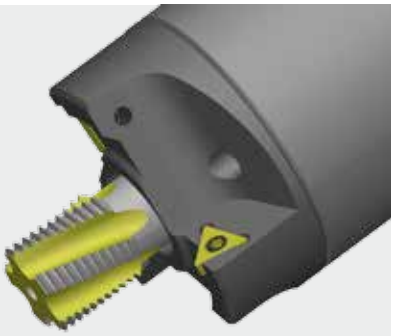


Application 2:

Existing bore
Shaped counterbore:

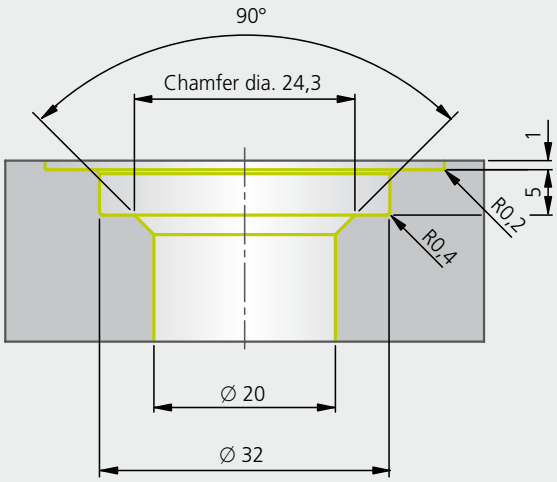
- Spotfacing and
- 90° chamfering
- External deburring
- Thread milling M24×1,5

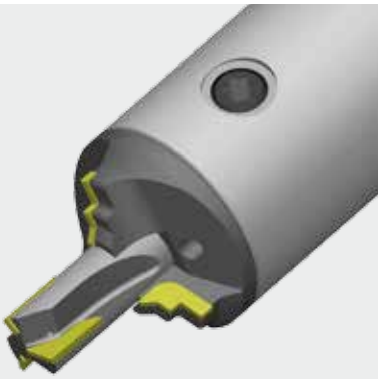




Application 3:

- Circular boring ∅ 20 mm
- Machining of complete counterbore





Order No. / Order date | Please state Customer No. | Signature | KOMET internal

Company:
Address:

Contact:
Department:
Phone:
Fax:
E-Mail:

☐ Order ☐ Enquiry

Quantity:

Please provide workpiece sketch!

This order is subject to the KOMET GROUP GmbH conditions of supply and payment.

The ideas factory

The IDEEN-FABRIK reflects the evolution of the KOMET GROUP from a tool manufacturer into a creative expert for solutions covering all aspects of boring, reaming, thread milling and mechatronic tools.

The central objective is to offer our customers and employees scope for creative working and learning.

On a total area of 2,500 m², we have created a modern, multi-storey factory environment. The IDEEN-FABRIK was deliberately not constructed as a separate, detached training building, but integrated directly above a manufacturing business.

While the metal swarf flies down below, ideas are exchanged above. By this, we aim to demonstrate that the work here is always associated with new ideas and creative ambition.

With the IDEEN-FABRIK and the comprehensive seminar programme for customers and employee qualification, we aim to offer you a measurable and permanent competitive advantage in your markets.

Ask for our no-obligation specialist seminar brochure.

TOOLS+IDEAS®

The KOMET GROUP is the worldwide technology leader for innovative tool concepts and complete solutions for drilling machining.

Our customers know us as a manufacturer of premium tools, and know the ideas behind our solutions. The further creativity is still unused, and remains to be discovered. We have set ourselves the objective of exploiting the added value thus created for the benefit of our customers.

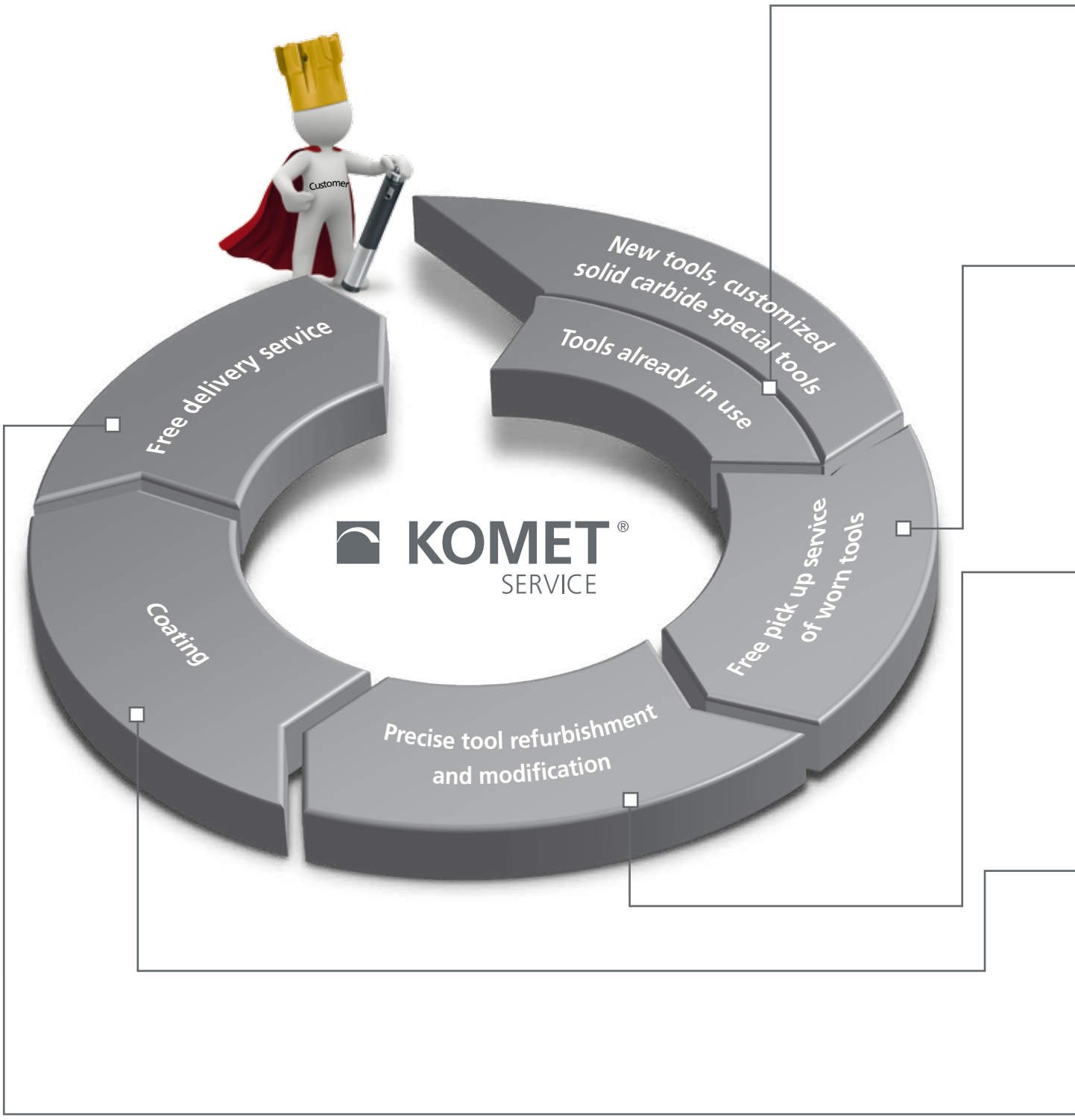
We call this TOOLS+IDEAS. A new and different way of being able to offer our customers long-term, sustainable advantages through a plus in support and services.

Our IDEEN-FABRIK in Besigheim is the first step in this direction.

Informations

KOMET SERVICE ®
the service brand name of the KOMET GROUP

A network of local partners that provide professional tool refurbishment, trade tools and manufacture customized solid carbide special tools. Everything from a single source. Fast, flexible and always close to you.



From stock or individually manufactured

Get your solid carbide TOOL*life* tools directly from your KOMET SERVICE® partner or have your own customized solid carbide special tools manufactured.
Your KOMET SERVICE® partner will happily refurbish these tools along with all tools from other brands.

One call does it all

Get on a regular pick-up schedule or arrange a one-time pick-up of your tools needing refurbishment by your KOMET SERVICE® partner. It's fast and it's free.

Tools refurbished to original quality

Our refurbishing experts fairly assess the current state of your tools (irrespective of the manufacturer) in order to recommend refurbishment or replacement.
KOMET GROUP tools are refurbished according to strict criteria to restore the original geometry or original tipping. By request you receive a measurement report. Our partners will also professionally modify tools for you, quickly and flexibly.

Coating – fully customized

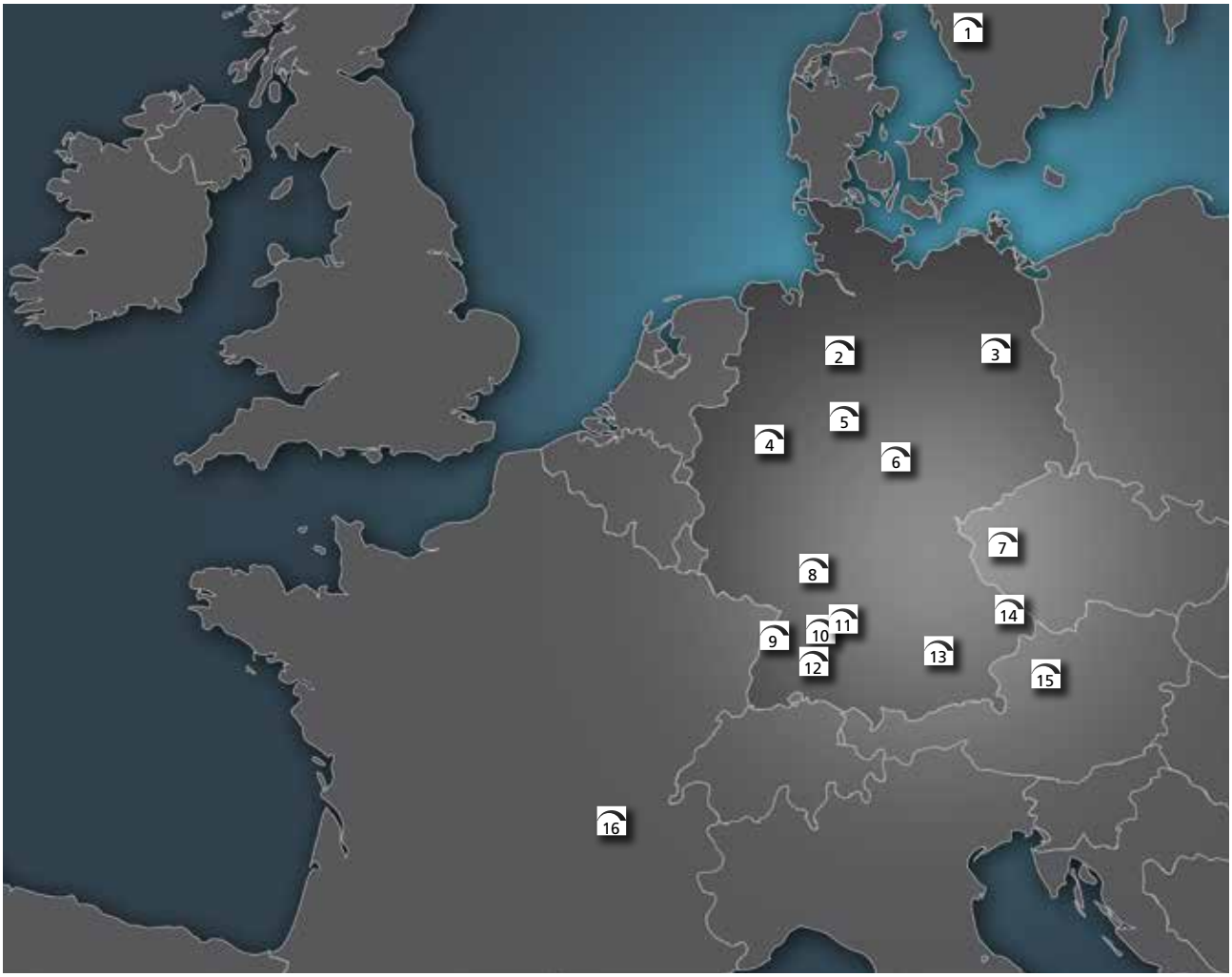
KOMET GROUP tools are of course given the original coatings once more. We customize our service to your needs, even with other standard coatings, all within a few days.

Just-in-time delivery

Your KOMET SERVICE® partner will return your KOMET GROUP tools refurbished to their original quality within 5 or 10 days (without or with coating) – safely stored in the KOMET SERVICE® TOOL*life* box.

KOMET SERVICE ® Partner

Europe



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Fast, flexible and always close to you

www.kometservice.com

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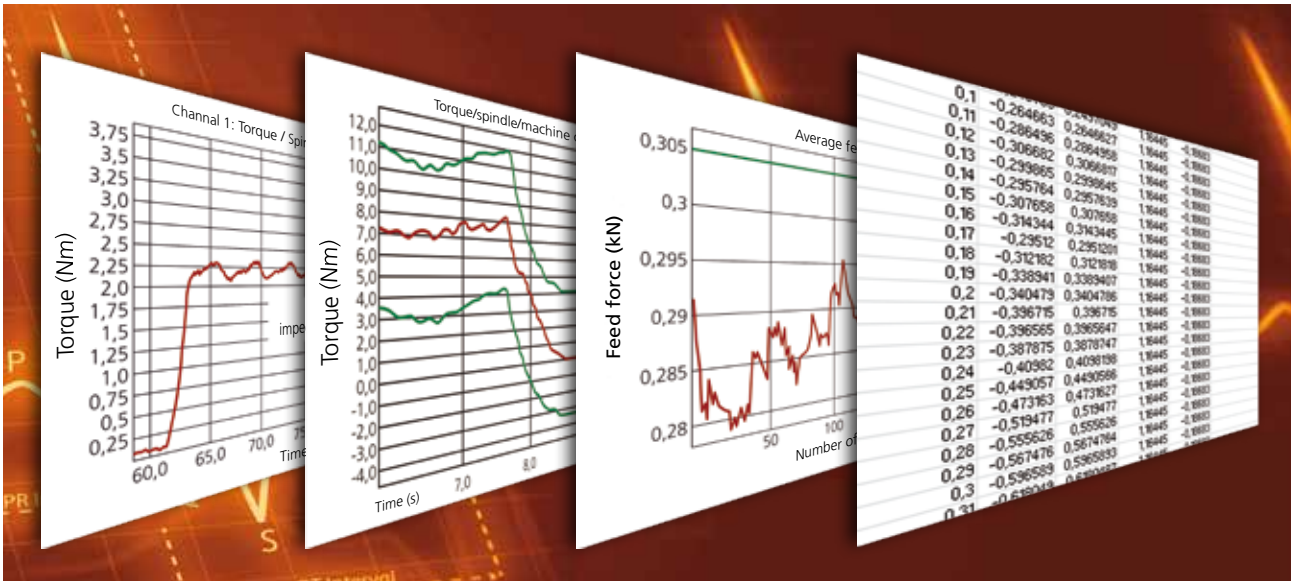
KOMET® BRINKHAUS ToolScope

Process monitoring – the benefit for your production



Visualisation Monitoring Optimisation Documentation

Next generation process monitoring

Growing automation in the machining industry increases the demand for more process and machine tool monitoring, which can help minimize machine down time and reduce scrap rates, detect and manage wear in mass series production, thereby improving the delivery times to your customers.

Based on the latest technology of process and machine tool monitoring, the ToolScope System from KOMET® BRINKHAUS relies on a unique, patented method for statistical process monitoring which not only detects breakage but also recognizes considerably smaller process deviations. In addition to the usual procedures of process control, the ToolScope System provides a procedure for monitoring quality while a process is running.

KOMET® BRINKHAUS ToolScope adds considerable value to your production

KOMET® BRINKHAUS ToolScope has an advantage over other systems not only because it features the latest technology, but also because of its modularity and user-friendliness. Above that, many additional modules like Adaptive Feed Control, Condition Monitoring or Energy Monitoring underline the multiplicity of the system. Finally we offer with our wide network of application tools and process specialist service up to the complete management of system and production process.

BENEFITS for you:

- Wide network of KOMET® tool and process experts, which can support the operation of the system
- Online visualization of the process (oscilloscope function) to support the set-up procedure, e.g. in order to promptly detect the jamming of chips
- Six Sigma Strategy: statistical process verification and process quality monitoring
- Dynamic Monitoring Module: Process monoitoring for small batch runs which alleviates the need for a learning period
- Adaptive Control (AC) Module: Optimization of the essential operating time through process acceleration for tools that are underused, and speed reduction for tools that are overused
- Measuring without (additional) sensors: The sensor data is read directly from the CNC via Profibus or TCP/IP
- Automatic documentation of the process data as a PDF, PNG or Excel file
- Monitoring for tool wear and missing tool
- Monitoring of any and all possible sensor signals
- Evaluating analogue sensor signals with up to 10 kHz
- Monitoring of the vibration behavior of bearings, axles, spindles and tools
- Operation via the machine control system HMI or using a touch screen
- Modular program structure enables the optimal adjustment to customer needs
- Many additional modules like chatter recognition and control, Condition Monitoring, Energy Monitoring etc.

Dimensions (W×D×H)	Data – mm (inch)	Note
IPC version	215×272×114 (8.465×10.708×4.488)	
DIN Rail Module	200×140×110 (7.874×5.512×4.331)	
Touch Panel PC version	410×320×90 (16.142×12.598×3.543)	15" Display

Interfaces	Sampling frequency	Note
Profibus with synchronous actions / PLC-Transfere	Sampling frequency approx. 20 - 30 Hz	
Profibus with compile cycle	Sampling frequency approx. 100 - 500 Hz	see below
TCP/IP	yes	HMI-visualization over TCP/IP
Analog input channels	up to 10 kHz	16 inputs, during monitoring perhaps lower sample rate
Digital input/output channels		16 input/output channels each

Supported control systems
Siemens 840D SL, 840D PL, Heidenhain >iTNC530, Fanuc >3xi, Bosch Rexroth, Beckhoff. From year of manufacture 2005 applies for all control systems, other types and years of manufacture possible on request.

Profibus connection (Siemens)	
Requirements for compile cycle Sample rate approx. 100 Hz	**Drive hardware:** SIMODRIVE® 611D based drive system, digital drive, delivers digital current/torque information **Control hardware:** SINUMERIK® 840D, • NCU: 572.3 or 573.2 or higher (572.2 only SW4.4), • storage: min. 32 MB, • PROFIBUS interface **Control software:** SINUMERIK® 840D technology board, version 05.03.06 (NCU_05.03.18) or 04.04.11 (NCU_04.04.37) or higher
Requirements for compile cycle Sample rate approx. 100 - 500 Hz	**In addition to the above mentioned requirements, the following must apply:** **Control software:** SINUMERIK® 840D, NC-Software ≥ 06.03

Visualization on HMI (only Siemens)	
Requirements	Windows® 95 and later, network card

Start monitoring with the KOMET® BRINKHAUS ToolScope system
Monitoring can automatically be started by changing from G0 to G1. Furthermore the processes can automatically be stored in reference to the tool number, workpiece number, program name, etc.

Functionality	
Visualization	Each process can easily and continously be visualized (oscilloscope function).
Data logging	Each process is automatically stored on the hard disk (logbook).
Filtering	The system offers a variety of filters such as average value, effective value, RMS, variance, etc. as standard for the filtering of the input signals.
Monitoring tool breakage	The basic system contains a self learning algorithm to recognize tool breakage. The tolerance bands are simply and automatically identified.
Monitoring tool wear	The system offers tracing and monitoring of tool wear. By setting warning thresholds, the operator can be forewarned of worn tools.
Six Sigma Strategy (optional) Online statistical process control	With this monitoring algorithm, minimal process deviations such as wear, larger cavities, changes in material can be recognized during consistant serial production processes. This is equivalent to conducting real-time quality control while a process is running.
Adaptive Control (AC) Module (optional)	With adaptive control, the feed is optimized so that the effective power of the tool remains as constant as possible. Therefore, the essential operation time can signi-ficantly be reduced, e.g. during roughing. Moreover, the feed can be reduced if an effective power limit is exceeded, thus protecting the tool.
Dynamic Monitoring Module (optional)	With this monitoring strategy, the process and the tool can be monitored from as early as lot size 1. Here the system is also fully self-learing.

KOMET® BRINKHAUS ToolScope Basic system including installation / commissioning: Order No. E65 01010		
Enhanced with:	Dynamic Monitoring Module Order No. E65 21020	Adaptive Control (AC) Module Order No. E65 21030

Special solutions

Combination tools
Take advantage of our know-how to reduce your production costs.

The development of innovative special tools in close cooperation with our customers is part of our everyday business.
Below you will see a few examples of special solutions:

PCD special boring tool

PCD special milling tool (buttress thread)
KOMET JEL® VABOS-M PKD

Drill thread milling tool
KOMET JEL® VABOS-M

Drill thread milling tool
KOMET JEL® VABOS-K

Machining example:
Housing in G-AlSi10Mg
- drilling ∅ 5 mm
- chamfering 90°
- spot facing ∅ 50 mm with PCD
- thread milling M6

Cylcle time: 3.9 secs.

Find the suitable thread milling tool – App for iPhone and Android™

Software for thread milling tools
Quick and easy tool selection, and generation of CNC programmes for standard thread milling cutters and thread mills manufactured by the KOMET GROUP:

24 hours a day, across the globe, at http://tpt.kometgroup.com

Benefits:
- Free service
- Simply register, and you will instantly be provided with a password
- Program is ready to use

BENEFITS for you:

- You can enter the machining task
- All possible tools will be proposed, with the machining time given for each
- Tool drawings will be displayed
- CNC programs for six different control systems in six different languages, in metric or imperial

CNC programs for various control systems can be configured online at http://tpt.kometgroup.com or can be obtained on request by telephoning: +49 711 788910.
Also available as "TPT Mobile" app, with identical features for mobile end devices like iPhone and iPad, in the webshop App Store as well as Google Play™ for Android™ smartphones.

Tap drill diameters for milled and cut threads

M Metric thread			
	Milled and cut threads		
Size	Nominal Ø	Pitch	Tap drill Ø
M 1	1,0	0,25	0,75
M 1,1	1,1	0,25	0,85
M 1,2	1,2	0,25	0,95
M 1,4	1,4	0,30	1,10
M 1,6	1,6	0,35	1,25
M 1,8	1,8	0,35	1,45
M 2	2,0	0,40	1,60
M 2,2	2,2	0,45	1,75
M 2,5	2,5	0,45	2,05
M 3	3,0	0,50	2,50
M 3,5	3,5	0,60	2,90
M 4	4,0	0,70	3,30
M 4,5	4,5	0,75	3,70
M 5	5,0	0,80	4,20
M 6	6,0	1,00	5,00
M 7	7,0	1,00	6,00
M 8	8,0	1,25	6,80
M 9	9,0	1,25	7,80
M10	10,0	1,50	8,50
M11	11,0	1,50	9,50
M12	12,0	1,75	10,20
M14	14,0	2,00	12,00
M16	16,0	2,00	14,00
M18	18,0	2,50	15,50
M20	20,0	2,50	17,50
M22	22,0	2,50	19,50
M24	24,0	3,00	21,00
M27	27,0	3,00	24,00
M30	30,0	3,50	26,50
M33	33,0	3,50	29,50
M36	36,0	4,00	32,00
M39	39,0	4,00	35,00
M42	42,0	4,50	37,50
M45	45,0	4,50	40,50
M48	48,0	5,00	43,00
M52	52,0	5,00	47,00
M56	56,0	5,50	50,50
M60	60,0	5,50	54,50
M64	64,0	6,00	58,00

MF Metric fine thread			
	Milled and cut threads		
Size	Nominal Ø	Pitch	Tap drill Ø
M2,5×0,35	2,5	0,35	2,15
M3×0,35	3	0,35	2,65
M3,5×0,35	3,5	0,35	3,15
M4×0,5	4	0,50	3,50
M5×0,5	5	0,50	4,50
M6×0,5	6	0,50	5,50
M6×0,75	6	0,75	5,30
M8×0,5	8	0,50	7,50
M8×0,75	8	0,75	7,30
M8×1	8	1,00	7,00
M10×0,75	10	0,75	9,30
M10×1	10	1,00	9,00
M12×1	12	1,00	11,00
M12×1,5	12	1,50	10,50
M14×1	14	1,00	13,00
M14×1,5	14	1,50	12,50
M15×1,5	15	1,50	13,50
M16×1	16	1,00	15,00
M16×1,5	16	1,50	14,50
M17×1,5	17	1,50	15,50
M18×1	18	1,00	17,00
M18x1,5	18	1,50	16,50
M18×2	18	2,00	16,00
M20×1	20	1,00	19,00
M20×1,5	20	1,50	18,50
M20×2	20	2,00	18,00
M22×1	22	1,00	21,00
M22×1,5	22	1,50	20,50
M22×2	22	2,00	20,00
M24×1	24	1,00	23,00
M24×1,5	24	1,50	22,50
M24×2	24	2,00	22,00
M30×1,5	30	1,50	28,50
M30×2	30	2,00	28,00
M30×3	30	3,00	27,00
M33×1,5	33	1,50	31,50
M33×2	33	2,00	31,00
M33×3	33	3,00	30,00
M36×1,5	36	1,50	34,50
M36×2	36	2,00	34,00
M36×3	36	3,00	33,00
M40×1,5	40	1,50	38,50
M40×2	40	2,00	38,00
M40×3	40	3,00	37,00
M42×1,5	42	1,50	40,50
M42×2	42	2,00	40,00
M42×3	42	3,00	39,00
M48×1,5	48	1,50	46,50
M48×2	48	2,00	46,00
M48×3	48	3,00	45,00
M48×4	48	4,00	44,00

MF Metric fine thread			
	Milled and cut threads		
Size	Nominal Ø	Pitch	Tap drill Ø
M50×1,5	50	1,50	48,50
M50×2	50	2,00	48,00
M50×3	50	3,00	47,00
M56×2	56	2,00	54,00
M56×4	56	4,00	52,00
M60×1,5	60	1,50	58,50
M60×2	60	2,00	58,00
M60×3	60	3,00	57,00
M60×4	60	4,00	56,00
M64×1,5	64	1,50	62,50
M64×2	64	2,00	62,00
M64×3	64	3,00	61,00
M64×4	64	4,00	60,00
M72×2	72	2,00	70,00
M72×3	72	3,00	69,00
M72×4	72	4,00	68,00
M72×6	72	6,00	66,00
M80×2	80	2,00	78,00
M80×4	80	4,00	76,00
M80×6	80	6,00	74,00
M90×2	90	2,00	88,00
M90×4	90	4,00	86,00
M90×6	90	6,00	84,00
M95×2	95	2,00	93,00
M95×6	95	6,00	89,00
M100×6	100	6,00	94,00

Tap drill diameters for milled and cut threads

UNC – American Unified coarse thread

Size	Milled and cut threads		
	Nominal Ø	Pitch t.p.i.	Tap drill Ø
Nr. 4	2,845	40	2,35
Nr. 5	3,175	40	2,65
Nr. 6	3,505	32	2,85
Nr. 8	4,166	32	3,50
Nr. 10	4,820	24	3,90
Nr. 12	5,486	24	4,50
1/4	6,350	20	5,10
5/16	7,938	18	6,60
3/8	9,525	16	8,00
7/16	11,112	14	9,40
1/2	12,700	13	10,80
9/16	14,288	12	12,20
5/8	15,875	11	13,50
3/4	19,050	10	16,50
7/8	22,225	9	19,50
1"	25,400	8	22,50
1 1/8"	28,575	7	25,00
1 1/4"	31,750	7	38,00
1 3/8"	34,925	6	30,75
1 1/2"	38,100	6	34,00
1 3/4"	44,450	5	39,50
2"	50,800	4 1/2	45,00

UNF – American Unified fine thread

Size	Milled and cut threads		
	Nominal Ø	Pitch t.p.i.	Tap drill Ø
Nr. 4	2,845	48	2,30
Nr. 5	3,175	44	2,60
Nr. 6	3,505	40	2,85
Nr.8	4,166	36	3,45
Nr. 10	4,826	32	4,05
Nr. 12	5,486	28	4,60
1/4	6,350	28	5,45
5/16	7,938	24	6,90
3/8	9,525	24	8,45
7/16	11,112	20	9,85
1/2	12,700	20	11,45
9/16	14,288	18	12,90
5/8	15,875	18	14,45
3/4	19,050	16	17,45
7/8	22,225	14	20,40
1"	25,400	12	23,30
1 1/8"	28,575	12	26,45
1 1/4"	31,750	12	29,65
1 3/8"	34,925	12	32,80
1 1/2"	38,100	12	36,00

UNEF – American Unified extra fine thread

Size	Milled and cut threads		
	Nominal Ø	Pitch t.p.i.	Tap drill Ø
Nr. 12	5,486	32	4,75
1/4	6,350	32	5,55
5/16	7,938	32	7,15
3/8	9,525	32	8,70
7/16	11,112	28	10,20
1/2	12,700	28	11,80
9/16	14,288	24	13,20
5/8	15,875	24	14,80
11/16	17,462	24	16,40
3/4	19,050	20	17,80
13/16	20,637	20	19,40
7/8	22,225	20	20,95
15/16	23,812	20	22,50
1"	25,400	20	24,15
1 1/16"	26,987	18	25,60
1 1/8"	28,575	18	27,20
1 3/16"	30,162	18	28,75
1 1/4"	31,750	18	30,35
1 5/16"	33,337	18	31,95
1 3/8"	34,925	18	33,50
1 7/16"	36,512	18	35,10
1 1/2"	38,100	18	36,70

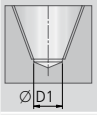
G Pipe thread DIN EN ISO 228

Size	Milled and cut threads		
	Nominal Ø	Pitch t.p.i.	Tap drill Ø
G 1/8"	9,728	28	8,82
G 1/4"	13,157	19	11,82
G 3/8"	16,662	19	15,32
G 1/2"	20,955	14	19,10
G 5/8"	22,911	14	21,10
G 3/4"	26,441	14	24,60
G 7/8"	30,201	14	28,40
G 1"	33,249	11	30,80
G 1 1/8"	37,897	11	35,50
G 1 1/4"	41,910	11	39,50
G 1 3/8"	44,323	11	41,90
G 1 1/2"	47,803	11	45,40
G 1 3/4"	53,746	11	51,40
G 2"	59,614	11	57,20
G 2 1/4"	65,710	11	63,20
G 2 1/2"	75,184	11	72,80
G 2 3/4"	81,834	11	79,10
G 3"	87,884	11	85,50

EG Helical wire insert thread

Size	Milled and cut threads		
	Nominal Ø	Pitch	Tap drill Ø
EG M3	3	0,50	3,15
EG M3,5	3,5	0,60	3,70
EG M4	4	0,70	4,20
EG M4,5	4,5	0,75	4,75
EG M5	5	0,80	5,25
EG M6	6	1,00	6,30
EG M7	7	1,00	7,30
EG M8	8	1,25	8,40
EG M10	10	1,50	10,50
EG M12	12	1,75	12,50
EG M14	14	2,00	14,50
EG M16	16	2,00	16,50
EG M18	18	2,50	18,75
EG M20	20	2,50	20,75
EG M22	22	2,50	22,75
EG M24	24	3,00	24,75
EG M27	27	3,00	27,75
EG M30	30	3,50	31,00

NPT, NPTF – without using a reamer

Size	Milled and cut threads		
	Pitch t.p.i.	Tap drill Ø D1 **NPT**	Tap drill Ø D1 **NPTF**
1/16	27	6,15	6,10
1/8	27	8,50	8,45
1/4	18	11,00	10,90
3/8	18	14,50	14,30
1/2	14	17,85	17,60
3/4	14	23,20	23,00
1"	11 1/2	29,00	28,75
1 1/4"	11 1/2	37,80	37,50
1 1/2"	11 1/2	44,00	43,75
2"	11 1/2	56,00	55,75

Tap drill diameters for milled and cut threads

W Whitworth thread			
	Milled and cut threads		
Size	Nominal Ø	Pitch t.p.i.	Tap drill Ø
1/8"	3,175	40	2,60
3/16"	4,762	24	3,60
1/4"	6,350	20	5,10
5/16"	7,938	18	6,50
3/8"	9,525	16	7,90
7/16"	11,113	14	9,25
1/2"	12,700	12	10,50
5/8"	15,876	11	13,50
3/4"	19,051	10	16,50
7/8"	22,226	9	19,25
1"	25,401	8	22,00
1 1/8"	28,576	7	24,75
1 1/4"	31,751	7	27,75
1 3/8"	34,926	6	30,50
1 1/2"	38,101	6	33,50
1 5/8"	41,277	5	35,50
1 3/4"	44,452	5	39,00
1 7/8"	47,627	41/2	41,50
2"	50,802	41/2	44,50

BSF Whitworth fine thread			
	Milled and cut threads		
Size	Nominal Ø	Pitch t.p.i.	Tap drill Ø
1/4"	6,350	26	5,30
9/32"	7,142	26	6,10
5/16"	7,938	22	6,80
3/8"	9,525	20	8,30
7/16"	11,113	18	9,70
1/2"	12,700	16	11,10
9/16"	14,288	16	12,70
5/8"	15,875	14	14,00
11/16"	17,463	14	15,50
3/4"	19,050	12	16,75
13/16"	20,638	12	18,50
7/8"	22,225	11	19,75
1"	25,400	10	22,75
1 1/8"	28,575	9	25,50
1 1/4"	31,750	9	28,75
1 3/8"	34,925	8	31,50
1 1/2"	38,100	8	34,80
1 5/8"	41,275	8	38,00
1 3/4"	44,450	7	40,50
2"	50,800	7	47,00

NPSF – American cylindrical pipe thread			
	Milled and cut threads		
Size	Nominal Ø	Pitch t.p.i.	Tap drill Ø
NPSF 1/16	7,582	27	6,35
NPSF 1/8	9,929	27	8,75
NPSF 1/4	13,236	18	11,3
NPSF 3/8	16,673	18	14,75
NPSF 1/2	20,819	14	18,20
NPSF 3/4	26,166	14	23,50
NPSF 1"	32,718	11/2	29,50

RC without using a reamer		
	Milled and cut threads	
Size	Pitch t.p.i.	Tap drill Ø
RC 1/16	28	6,20
RC 1/8	28	8,20
RC 1/4	19	11,00
RC 3/8	19	14,50
RC 1/2	14	18,00
RC 3/4	14	23,50
RC 1"	11	29,50
RC 1 1/4"	11	38,25
RC 1 1/2"	11	44,25
RC 2"	11	55,75
RC 2 1/2"	11	71,25
RC 3"	11	83,75

RP – ISO 7/1, DIN 2999-1, DIN EN 10226,1			
	Milled and cut threads		
Size	Nominal Ø	Pitch t.p.i.	Tap drill Ø
RP 1/16	7,723	28	6,55
RP 1/8	9,728	28	8,60
RP 1/4	13,157	19	11,50
RP 3/8	16,662	19	15,00
RP 1/2	20,955	14	18,50
RP 3/4	26,441	14	24,00
RP 1"	33,249	11	30,25
RP 1 1/4"	41,910	11	39,00
RP 1 1/2"	47,803	11	44,85
RP 2"	59,614	11	56,50

Tap drill diameters for formed threads

M Metric thread			
	Formed threads		
Size	Nominal Ø	Pitch	Tap drill Ø
M 1,8	1,8	0,35	1,66
M 2	2,0	0,40	1,84
M 2,2	2,2	0,45	2,02
M 2,5	2,5	0,45	2,32
M 3	3,0	0,50	2,80
M 3,5	3,5	0,60	3,25
M 4	4,0	0,70	3,71
M 4,5	4,5	0,75	4,19
M 5	5,0	0,80	4,67
M 6	6,0	1,00	5,54
M 7	7,0	1,00	6,54
M 8	8,0	1,25	7,43
M 9	9,0	1,25	8,43
M10	10,0	1,50	9,31
M11	11,0	1,50	10,31
M12	12,0	1,75	11,20
M14	14,0	2,00	13,00
M16	16,0	2,00	15,00

MF Metric fine thread			
	Formed threads		
Size	Nominal Ø	Pitch	Tap drill Ø
M2,5×0,35	2,5	0,35	2,36
M3×0,35	3	0,35	2,86
M3,5×0,35	3,5	0,35	3,36
M4×0,5	4	0,50	3,80
M5×0,5	5	0,50	4,80
M6×0,5	6	0,50	5,80
M6×0,75	6	0,75	5,69
M8×0,5	8	0,50	7,80
M8×0,75	8	0,75	7,69
M8×1	8	1,00	7,54
M10×0,75	10	0,75	9,69
M10×1	10	1,00	9,54
M12×1	12	1,00	11,54
M12×1,5	12	1,50	11,31
M14×1	14	1,00	13,54
M14×1,5	14	1,50	13,31
M15×1,5	15	1,50	14,31
M16×1	16	1,00	15,54
M16×1,5	16	1,50	15,31

MF Metric fine thread			
	Formed threads		
Size	Nominal Ø	Pitch	Tap drill Ø
M17×1,5	17	1,50	16,31
M18×1	18	1,00	17,54
M18x1,5	18	1,50	17,31
M18×2	18	2,00	17,00
M20×1	20	1,00	19,54
M20×1,5	20	1,50	19,31
M20×2	20	2,00	19,00
M22×1	22	1,00	21,54
M22×1,5	22	1,50	21,31
M22×2	22	2,00	21,00
M24×1	24	1,00	23,54
M24×1,5	24	1,50	23,31
M24×2	24	2,00	23,00
M30×1,5	30	1,50	29,31
M30×2	30	2,00	29,00
M33×1,5	33	1,50	32,31
M33×2	33	2,00	32,00
M36×1,5	36	1,50	35,31
M36×2	36	2,00	35,00

The tap drill diameters listed are guidelines. The actual tap drill diameters have to be investigated in use as these depend on the fluidity of the material and the forming speed.

UNC – American Unified coarse thread			
	Formed threads		
Size	Nominal Ø	Pitch t.p.i.	Tap drill Ø
Nr. 4	2,845	40	2,58
Nr. 5	3,175	40	2,91
Nr. 6	3,505	32	3,18
Nr. 8	4,166	32	3,84
Nr. 10	4,820	24	4,33
Nr. 12	5,486	24	5,00
1/4	6,350	20	5,77
5/16	7,938	18	7,29
3/8	9,525	16	8,79
7/16	11,112	14	10,28
1/2	12,700	13	11,80
9/16	14,288	12	13,23

UNF – American Unified fine thread			
	Formed threads		
Size	Nominal Ø	Pitch t.p.i.	Tap drill Ø
Nr. 4	2,845	48	2,63
Nr. 5	3,175	44	2,94
Nr. 6	3,505	40	3,24
Nr.8	4,166	36	3,88
Nr. 10	4,826	32	4,50
Nr. 12	5,486	28	5,11
1/4	6,350	28	5,98
5/16	7,938	24	7,45
3/8	9,525	24	9,04
7/16	11,112	20	10,53
1/2	12,700	20	12,12
9/16	14,288	18	13,64
5/8	15,875	18	15,23
3/4	19,050	16	18,32
7/8	22,225	14	21,39
1"	25,400	12	24,34
1 1/8"	28,575	12	27,52
1 1/4"	31,750	12	30,69
1 3/8"	34,925	12	33,87
1 1/2"	38,100	12	37,04

UNEF – American Unified extra fine thread			
	Formed threads		
Size	Nominal Ø	Pitch t.p.i.	Tap drill Ø
Nr. 12	5,486	32	5,16
1/4	6,350	32	6,02
5/16	7,938	32	7,61
3/8	9,525	32	9,20
7/16	11,112	28	10,74
1/2	12,700	28	12,33
9/16	14,288	24	13,80
5/8	15,875	24	15,39
11/16	17,462	24	16,98
3/4	19,050	20	18,47
13/16	20,637	20	20,05
7/8	22,225	20	21,64
15/16	23,812	20	23,23
1"	25,400	20	24,82
1 1/16"	26,987	18	26,34
1 1/8"	28,575	18	27,93
1 3/16"	30,162	18	29,51
1 1/4"	31,750	18	31,10
1 5/16"	33,337	18	32,69
1 3/8"	34,925	18	34,28
1 7/16"	36,512	18	35,86
1 1/2"	38,100	18	37,45

KOMET JEL® Thread milling, drill thread milling

Achievable thread lengths

Material	Drill thread milling	Thread milling	Thread milling
	BGF 	MKG 	MGF 
Steel		2,0 × D	2,0 × D
Stainless steel		2,0 × D	2,0 × D
Grey cast iron	2,5 × D	2,0 × D	2,5 × D
Nodular grey cast iron	2,0 × D	2,0 × D	2,0 × D
Titanium alloys		1,5 × D	1,5 × D
Nickel alloys		1,5 × D	1,5 × D
Copper alloys	2,5 × D	2,0 × D	2,5 × D
Aluminium	2,5 × D / 3 × D	2,0 × D	2,5 × D / 3 × D
Plastics	2,5 × D	2,0 × D	2,5 × D

Formulae

Formula symbols and abbreviations used		
n	r.p.m.	Spindle speed
z		No. of teeth
v_c	m/min	Cutting speed
f_z	mm/teeth	Milling feed
f	mm/rev	Boring feed
r_f	mm	Tool radius
e	mm	Eccentricity
g	mm	Amount of withdrawal for conventional milling
g	mm	Amount of withdrawal for climb milling
D	mm	Nominal thread diameter
R1	mm	Nominal thread radius
R2	mm	Radius entry loop, external path (J)
z	mm	z dimension entry and exit loop
R3	mm	Radius entry loop, centre path (J)
R4	mm	Radius full circle, centre path (=e)

Path feeds

Entry loop contour path

$$F_1 = n \times z \times f_z$$

Entry loop centre point path

$$F_1 = n \times z \times f_z \times \frac{e}{r_f + R_1}$$

Full circle contour path

$$F_2 = n \times z \times f_z$$

Full circle centre point path

$$F_2 = n \times z \times f_z \times \frac{2 \times e}{D}$$

Exit loop contour path

$$F_3 = n \times z \times f_z \times 2{,}5$$

Exit loop centre point path

$$F_3 = F_2 \times 2{,}5$$

Formulae

$v_c = \frac{D \times \pi \times n}{1000}$ Cutting speed in m/min

$n = \frac{v_c \times 1000}{D \times \pi}$ Spindle speed in r.p.m.

$r_f = R1 - e$ Tool radius in mm

$e = R1 - r_f$ Eccentricity in mm

$g = 1{,}3 \times \text{pitch} + \frac{e}{\tan(\frac{\alpha}{2})}$ Amount of withdrawal for conventional milling in mm

$g = \frac{e}{\tan(\frac{\alpha}{2})}$① Amount of withdrawal for climb milling in mm

① where α = 90° countersink angle = tan45° = 1 where countersink angle is 60° the amount of withdrawal is larger

$R_1 = \frac{D}{2}$ Nominal thread radius in mm

$R_2 = \frac{r_f + R_1}{2}$ Radius entry loop, external path (J) in mm

$z = p \times 0{,}15$ z dimension entry and exit loop in mm

$R_3 = \frac{e}{2}$ Radius entry loop, centre path (J) in mm

$R_4 = e$ Radius full circle, centre path (=e) in mm

CNC program – step-by-step explanation

Machining task:
Thread: M10, depth = 20.560 (EL)
Bore: blind bore, D = 8,500 mm,
cyl. depth = 22,060 mm
Chamfer steps:
1) tapered, D = 10,300 mm, W = 90,0°

Material:
7.2 aluminium alloy (A5 < 14%),
AlMn 1 Mg 0,5, 3.0525

Tool:
BGF-M10 2.0D, uncoated

Milling tool radius	= 3,980 mm
Eccentricity	= 1,020 mm
Order No.:	80.9410.01.000022
Drawing No.:	80.9410.01.000022.01
Main time:	**4,0 secs**

Cutting values (external track):

v_c	= 400 m/min	n	= 14980 min^{-1}
f_s	= 0,300 mm/rev	F	= 4494 mm/min (chamfering)
f_b	= 0,300 mm/rev	F	= 4494 mm/min (drilling)
f_{z1}	= 0,100 mm/tooth	F1	= 2996 mm/min (thread milling)

NC machine:

Drive:	standard NC machine
Max. spindle speed:	15000 min^{-1}
Control:	SINUMERIK®
Ref.:	contour path, incremental

NC options:

Entry loop:	180°
Exit loop:	180°
Milling method:	conventional milling
Chip removal:	single, degressive

Note: Deepest tool position = –23,370 mm
For control systems where the feed relates to the central track, the figures given in brackets must be used

`N5 G00 G53 G40 G60 G90 D0 Z+0.0000`	Initialisation, absolute coordinates
`N10 G80`	Deselect any existing cycles
`N15 T1 M06`	Tool selection
`N20 G54 X+0.0000 Y+0.0000 M07`	Zero point shift
`N25 Z+1.0000 D1 S14980 M03`	Move to start pos. 1 mm above workpiece
`N30 G01 Z-1.3000 F1498`	Start bore with reduced boring feed
`N35 G01 Z-15.6580 F4494`	Bore to first boring depth
`N40 G00 Z+0.0000`	Clear chips (“chip clearance”, “blow through”)
`N45 G00 Z-14.6580`	Move to start position for second boring depth
`N50 G01 Z-23.3700`	Bore to end bore depth
`N55 G00 Z+0.0000`	Clear chips
`;(C O N V E N T I O N A L M I L L I N G)`	
`N60 G00 Z-20.4000`	Move to start position for thread milling
`N65 G01 G91 G42 G64 X+0.0000 Y+3.9800 F2996 ;(F340)`	Incremental coordinates, select milling radius adjustment, no movement
`N70 G02 X+0.0000 Y-8.9800 I+0.0000 J-4.4900 Z-0.2250`	Entry loop with pitch adjustment (Z = 0,15×P)
`N75 G02 X+0.0000 Y+0.0000 I+0.0000 J+5.0000 Z-1.5000 ;(F611)`	Thread finish milling to nominal dimension (Z = P)
`N80 G02 X+0.0000 Y+8.9800 I+0.0000 J+4.4900 Z-0.2250 F7490 ;(F851)`	Exit loop with pitch adjustment (Z = 0,15×P)
`N85 G00 G40 G60 X+0.0000 Y-3.9800`	Deselect milling radius adjustment
`N90 G00 G53 G40 G90 D0 Z+0.0000 M95`	Exit status
`N95 M30`	End of program

JEL® TPT KOMET JEL® TPT
see page 159

Setting

Preparations on tool

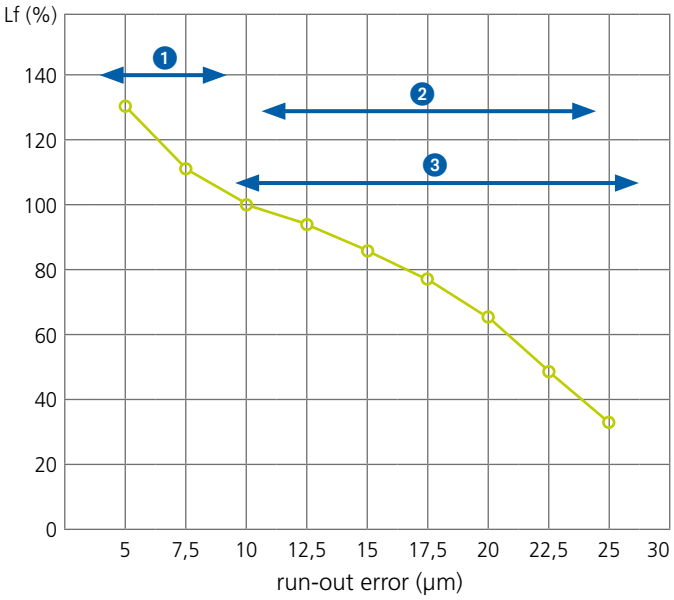
Tool clamping

- Correct alignment of clamping screw on clamping surface for Whistle-Notch adaptor
- Minimise overhang but the cutting sweep for the tool should be beyond the adaptor

Effect of concentricity on tool life using a solid carbide thread milling tool as an example

Material: heat treated steel, Rm = 1000 N/mm²
Size: M10
Cutting values: v_c = 100 m/min, f_z = 0,06 mm/tooth

1. thermal expansion or hydr. expansion chuck
2. HE cyl. with side screw
3. collet



Tool measurement

- Only measure tool length on pre-setter.
- Check concentricity at drill tip resp. thread milling section <0.02 mm
- Use tool radius shown on the CNC program

Preparations on machine

- Inkey tool length and tool radius into offset register of the control

Program test

- Do a test run over the workpiece (increase tool length in tool record)
- Check machining time. If the time recorded is clearly different to that given in the program, there is an error in the feed rate calculation (contour path/centrer point path
- Optimise coolant supply. If flood coolant used, i.e. direct coolant flow onto the milling section of the tool. For through holes use flood coolant if there is no lateral flute coolant supply on the tool.

Milling method for different materials

Setting

Cast aluminium

- Can be carried out without peck cycle
- For tools with internal coolant there is no need for chip clearance after boring.

Long chipping aluminium

- At least once peck cycle
- Radial division of cut may be necessary if a thread with very low burring is required

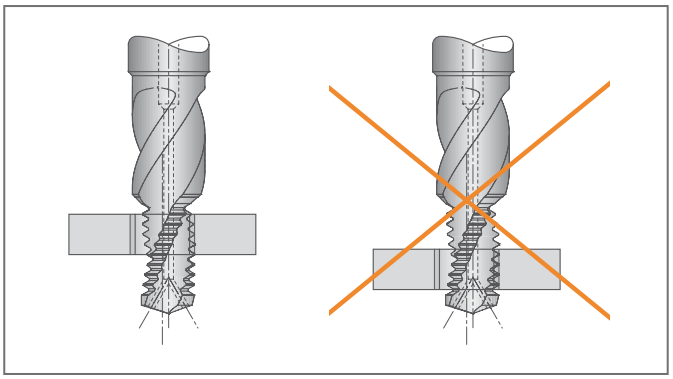
Grey cast iron

- No chip clearance
- Conventional thread milling in one path. Over 2×D two pathes may be required.

Special cases

Through hole

- For tool with internal coolant, switch to external coolant for milling
- To reduce side load, preferably work with milling section on shank side



Angled bore exit / cutting through cross holes

- Reduce bore feed rate at bore exit by 60%

Cavities (inclusions) in cast materials

- Reduce bore feed rate by 40-60%

Important: See page 174 for more application details and safety notes!

Hardness comparison table

Extract from DIN 50150				
Tensile strength	Vickers hardness	Brinell hardness	Rockwell hardness	
Rm (N/mm²)	HV	HB	HRC	HRB
350	110	105		62
385	120	114		67
415	130	124		71
450	140	133		75
480	150	143		79
510	160	152		82
545	170	162		85
575	180	171		87
610	190	181		90
640	200	190		92
675	210	199		94
705	220	209		95
740	230	219		97
770	240	228	20	98
800	250	238	22	100
835	260	247	24	101
865	270	257	26	102
900	280	266	27	104
930	290	276	29	105
965	300	285	30	
1030	320	304	32	
1095	340	323	34	
1155	360	342	37	
1220	380	361	39	
1290	400	380	41	
1350	420	399	43	
1420	440	418	45	
1485	460	437	46	
1555	480	456	48	
1595	490	466	48	
1665	510	485	50	
1740	530	504	51	
1810	550	523	52	
1880	570	542	54	
1955	590	561	55	
2030	610	580	56	
2105	630	599	57	
2180	650	618	58	

Torque calculations for tapping and thread forming

Formula symbols and abbreviations used		
M	Nm	Torque
k_c	N/mm²	Specific cutting force
h	mm	Thread pitch
D	mm	Nominal thread diameter

$$M = \frac{\text{Factor*}}{8000} \times k_c \times h^2 \times D$$

Factor*		
	Tapping	Thread forming
New tool	1,0	2,5
Used tool	2,5	3,5

Specific cutting force k_c	
Material	**k_c (N/mm²)**
Steel 1000-1300 N/mm²	3600
Steel 800-1000 N/mm²	2600
Steel 600- 850 N/mm²	2500
Steel <600 N/mm²	2300
Stainless steel	3200
Cast bronze	1900
GG-20 (HB 170 (grey cast iron) – **for tapping only**	1600
Malleable Iron- hard	1250
Copper	1100
Malleable Iron - soft	900
Brass (CuZn)	720
Alu-Si alloy	680
Zinc alloy	440

KOMET JEL® Circular interpolation grooving

An exceptional tool concept

Method description:

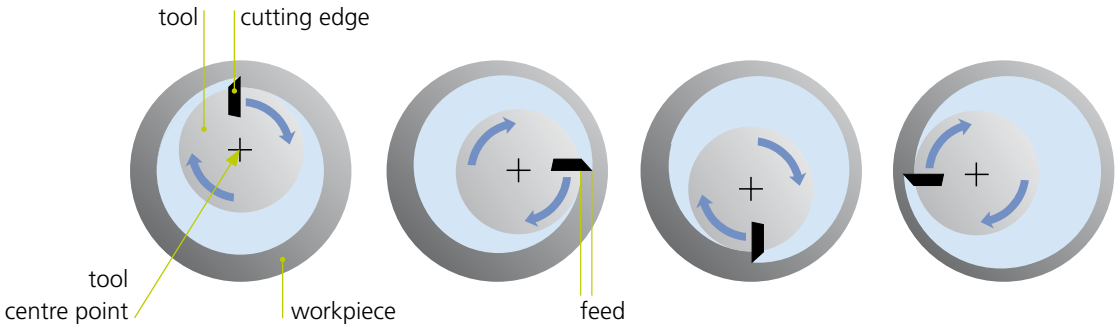
With circular interpolation grooving, the principle of external grooving is transferred from a machining centre to a lathe by programming the machining centre spindle as an axis. The tool is then moved outwards at grooving depth on a helical interpolation path programmed by the machine control. At every point on the circular path the cutting edge is vertical to the bore tangent.

Application areas:

For all internal and external grooves, angled grooves and annular slots.

Tool design:

An extremely wide variety of tool designs specifically matched to the machining task in question.



Tool size	Aluminium / Alum. alloy	Grey cast iron / SG cast iron
very small tools	solid carbide mono, TiAlN coating	solid carbide mono TiAlN coating
up to ∅ 32 mm	solid carbide tool carrier cutting edge PCD tipped	solid carbide tool carrier, cutting edge with solid carbide tip, TiAlN coating
larger than ∅ 32 mm	steel tool carrier PCD brazed cutting edge	steel tool carrier solid carb. brazed cutting edge, TiAlN coating

KOMET JEL® Circular interpolation grooving

An exceptional tool concept

Machine requirements:

To carry out programming on a machining centre, the machine spindle has to be programmed and controlled as an axis. This is a basic requirement that must be clarified with the relevant machine manufacturer and/or control manufacturer.

Coolant system:

A sufficient high pressure internal coolant system is required for internal grooving subject to the bore depth and the cutting properties of the material.

Cutting data:

Rotation speed of tool centre point:
120 - 360 min^{-1} (depending on machine)

Cutting speed at cutting edge:
4 - 25 m/min (depending on machine)

Feed rates:
0.03 - 0.15 mm (depending on material)

BENEFITS for you:

- Short cycle times
- Better surface finish than with milling as cutting edge constantly engaged
- High cutting feed settings
- Economic production
- A single tool for roughing and finishing
- Less likelihood of vibrations
- Stable tools because of asymmetric construction, even with an unfavourable diameter to length ratio
- Turning process can be carried out on a machining centre
- Problem-free division of cut for grooves which are particularly deep
- Specially arranged coolant bores guarantee chip removal even from deep grooves
- Circular external grooving allows maximum rigidity in tool design
- Extremely good surface finish in grooves
- Extremely good repeatability of grooves in aluminium, e.g. Ø 25 mm: up to 5×D <0.001 mm, up to 8×D <0.015 mm

Application example:

Workpiece: Main brake cylinder

Material: Cast aluminium

Machine: BA 400-4 (4-spindle)

Task:
Internal production of several internal grooves in one machining operation

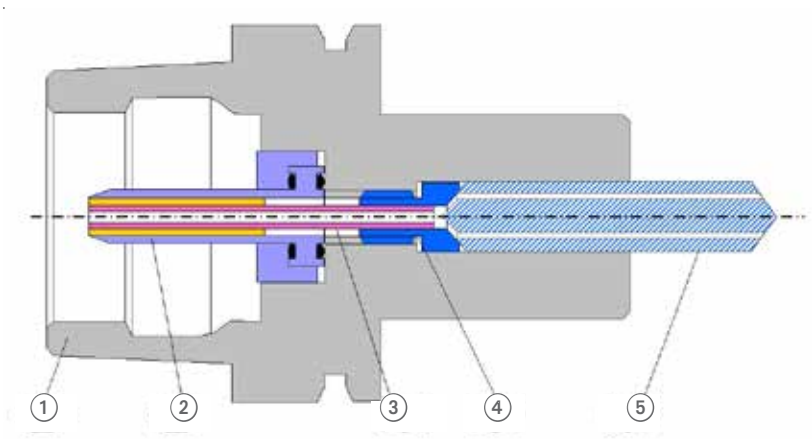
Tool:
Circular external grooving tool with multiple grooving profile for roughing and finishing operation

Important: See page 174 for more application details and safety notes!

KOMET JEL® MQL

Miniumum Quantity Lubrication

In order to combine the advantages which minimum quantity lubrication can offer in a production system, all the components which make up this system need to be examined and aligned with each other in the best possible way.



① Tool adaptor
② Coolant pipe
③ Minimal lubrication pipe
④ Length adjustment screw
⑤ Tool

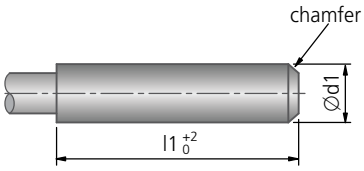
Advantages and disadvantages of minimum quantity lubrication

Advantages:
- No need to dispose of coolant
- No maintenance for coolant and machine
- No thermal shock to the tool
- Better lubricating effect
- Minimum costs for lubricating medium

Disadvantages:
- Increased thermal and mechanical stresses on the tool
- Connections need to be optimised
- Tools need to be optimised

By working continuously with leading MWL system suppliers the KOMET GROUP can also be your partner for applications with minimum quantity lubrication.

Form HA

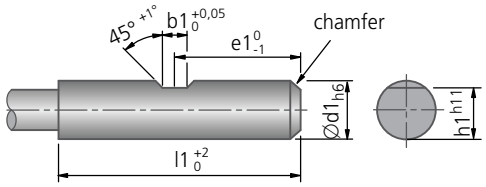


Allocation of tool adaptors:
- Shrink fit chuck
- Expanding chuck
- Collet holder (SZV)

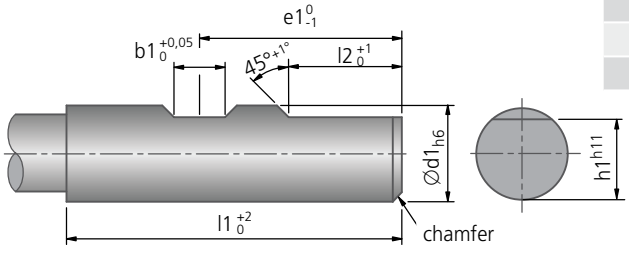
Ø d1	l1+2	Ø d1	l1+2
2	28	12	45
3	28	14	45
4	28	16	48
5	28	18	48
6	36	20	50
8	36	25	56
10	40	32	60

Form HB

∅ d1= 6 – 20 mm
with a clamping flat



∅ d1= 25 – 32 mm
with two clamping flats

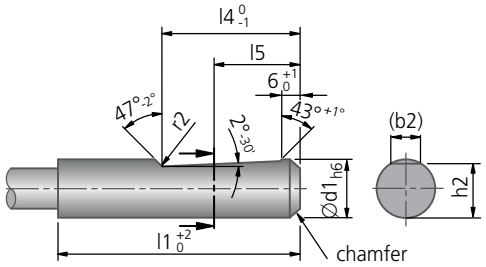


Allocation of tool adaptors:
Adaptor sleeve Weldon (HWD)

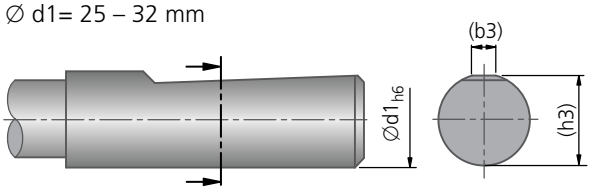
Ø d1h6	b1+0,05	e1-1	h1h11	l1+2	l2+1
6	4,2	18	5,1	36	
8	5,5	18	6,9	36	
10	7	20	8,5	40	
12	8	22,5	10,4	45	
14	8	22,5	12,7	45	
16	10	24	14,2	48	
18	10	24	16,2	48	
20	11	25	18,2	50	
25	12	32	23	56	17
32	14	36	30	60	19

Form HE

∅ d1= 6 – 20 mm



∅ d1= 25 – 32 mm



Allocation of tool adaptors:
Adaptor sleeve Whistle Notch (FWD)

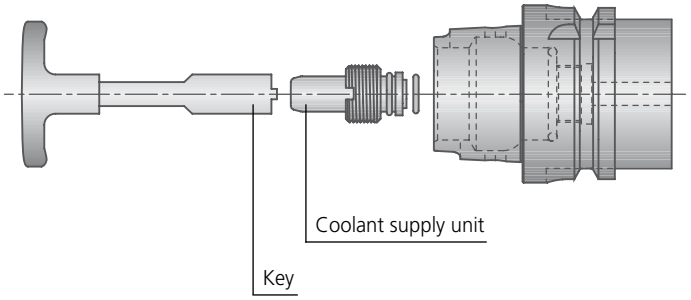
Ø d1h6	(b2) ~	(b3)	h2h11	(h3)	l1+2	l4-1	l5 Nom.dia.	r2 min.
6	4,3		5,1		36	25	18	1,2
8	5,5		6,9		36	25	18	1,2
10	7,1		8,5		40	28	20	1,2
12	8,2		10,4		45	33	22,5	1,2
14	8,1		12,7		45	33	22,5	1,2
16	10,1		14,2		48	36	24	1,6
18	10,8		16,2		48	36	24	1,6
20	11,4		18,2		50	38	25	1,6
25	13,6	9,3	23	24,1	56	44	32	1,6
32	15,5	9,9	30	31,2	60	48	35	1,6

Important: See page 174 for more application details and safety notes!

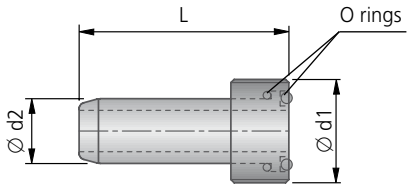
KOMET® HSK-A

Accessories HSK-A

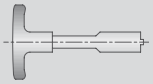
Mounting of the coolant supply unit



Note:
The coolant supply unit should be fitted in the tool with the key, to ensure a seal is produced.
A coolant supply unit specifically for the machine can also be fitted, if required, using the thread in the tool.



Supply coolant supply unit includes:
Coolant tube, locking collar and two O rings.

HSK-A size	Key	Coolant supply unit						
						O ring face side and over tube		
	Order No.	Order No.	Ø d1	Ø d2	L	Article		Order No.
32	18021 01032	51391 00032	M10×1,0	6	26	5×1,2	2×	52914 00512
40	18021 01040	51391 00040	M12×1,0	8	29,1	7,5×1,5	2×	52914 00751
50	18021 01050	51391 00050	M16×1,0	10	32,7	9×2	2×	52914 00920
63	18021 01063	51391 00063	M18×1,0	12	36,2	10×2,5 10×2	1× 1×	52914 01025 52914 01020
80	18021 01080	51391 00080	M20×1,5	14	39,7	13×2	2×	52914 01320
100	18021 01100	51391 00100	M24×1,5	16	43,6	14×3	2×	52914 01430

Note re. supply:
The coolant supply connection for the tool adaptors must be ordered separately.
Only use the keys listed for assembly.
This will prevent coolant flowing back into the machine spindle/clamping system.
A specific coolant hose for the machine can also be fitted on all HSK adaptors.

Usage and Safety Notes

Balancing note:

Tool holders or adaptors are only balanced as supplied, i.e. no allowance has been made for items which can alter this, such as boring tools, milling cutters, inserts, etc. When used at high speeds, we recommend precision balancing be carried out when the tool is fitted ready for use.

Hazard warning:

If using tungsten carbide-based hard metal products together with cobalt as a binder metal, please read our safety data sheets, which are available for you to download from our website.
(http://www.kometgroup.com/navigation-top/download/service/datenblaetter.html)

TOOLS+IDEAS®

A PLUS for our customers and the environment

The company targets

The KOMET GROUP pursues a consistent policy of investments and achieves long-term and profitable growth via continuous improvement of products and processes as well as via consistent qualification of employees. This increases the value of the company. The KOMET GROUP consistently increases its innovation quota via research and development, offering the market new products every year. The KOMET GROUP is a premium quality manufacturer and motivates employee qualification and customers in their IDEAS FACTORY. The training quota of vocational beginners is exemplary for the entire field of business.

The products and services

KOMET GROUP products and services offer the customer incomparable added value. The KOMET GROUP develops, manufactures and sells the comprehensive, modular portfolio on bore machining as full-range suppliers. The KOMET GROUP offers the innovative technologies, thereby taking the high economic viability, best quality and most attractive designs into account. The KOMET GROUP sees itself not purely as a tool manufacturer, but rather as suppliers of innovative solutions and ideas for the benefit of the customer: TOOLS+IDEAS®.

The customer

The KOMET GROUP places value on long-term, binding customer relations, seeing itself as a partner of the customer in a balance of benefit supplies and benefit harvests.
The KOMET GROUP records customers' demands and then produces the most effective ideas and tool solutions for their machining tasks. The KOMET GROUP offers the customer information and collaboration via their worldwide presence in local Service Centres. The IDEAS FACTORY supports vocation-related training and further qualifications for customers.

The environment / surroundings

The KOMET GROUP feels itself obliged to avoid any wastage, and therefore commits itself to responsible usage of raw materials and careful utilisation of remaining materials.
The KOMET GROUP management is well aware of its responsibilities towards society, and creates the foundations for modern working environments and working conditions. The specifications on ergonomics and work safety are taken into account. Beholden to the founder, Robert Breuning, the KOMET GROUP supports the site at Besigheim, maintaining direct contact to schools and social facilities in the region.

With these claims in mind, the KOMET GROUP has introduced a modern, integrated management system, known as KMS (KOMET Management System), which is certified in accordance with ISO 9001:2008, ISO 14001:2009 and the German „Akkreditierungs-und Zulassungsverordnung Arbeitsförderung – AZAV".

Certification

http://www.kometgroup.com/navigation-top/download/service/zertifikate.html

Energy efficiency and resource conservation

The KOMET GROUP is now also focussing on the issue of „energy efficiency". The reason is that metal machining companies need intelligent products, processes and systems in this regard as well, in order to successfully meet the challenges that the future holds.
Bluecompetence is the sustainability initiative launched by the VDMA (German Engineering Association) with which the KOMET GROUP has also associated itself. By combining the resources, expertise and strengths of all members of the VDMA, the intention is to consolidate and enhance the joint global position as the technology leader in sustainable production and products.

KOMET® APP

Products
Product menu with a short, descriptive text to the portfolio

KOMET® GROUP

Cutting data
Cutting data: speed, feed, processing time, power and torque can be calculated.

Calculator screen
Here you can enter the diameter and the cutting speed, is automatically calculated.

Material classification
International translation table for material classification.

Technical dictionary
German/English with full-text search. Many common words from the machining and tool world.

Videos
Links to the KOMET GROUP product videos on YouTube®

YouTube is a registered trademark for the Google Inc.

Numerical Index

Numerical Index

Numerical Index

Numerical Index

Numerical Index

Numerical Index

Fax Order +49 7143 373233

KOMET SERVICE

Enquiry: Solid carbide grooving head

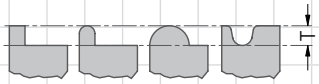
Company:
Customer No.:
Address:

Contact:
Department:
Phone:
Fax:
E-Mail:

Grooving form:

Grooving head
Available in various forms on request
Solid carbide version
Cylindrical connection with d1=34

Examples of possible grooving forms



Workpiece:
Tools required _____units
Workpiece _____units/year

Material to be machined:

- ☐ construction steel, good machinability
- ☐ tool steel
- ☐ stainless steels
- ☐ hardened steels
- ☐ malleable cast iron
- ☐ spheroidal graphite cast iron
- ☐ non-ferrous metal (refractory)
- ☐ non-ferrous metal (malleable)
- ☐

Material name

Tensile strength Rm (N/mm²)

Hardness (HRc, HB, HV)

Parameter			
d1 max	B max	T max	drill dia. d min
16	4,5	1,4	16,5
20	5,5	2,4	20,5
34	9,5	3,5	34,5

A fax form is available to download from www.kometgroup.com

Fax Order +49 7143 373233

KOMET GROUP

KomPass THREADING

Customer No. – please specify	Order No.	Order date	Supplier No.

Company

Contact person (surname) Name

Branch Department/site

Street

Town/city, postcode

Tel. Fax

Date Signature

Delivery address (if different)

Company

Contact person (surname) Name

Branch Department/site

Street

Town/city, postcode

Tel. Fax

Order quantity	Order No.	Tool name / Item Article	Customer material number	Additional information

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