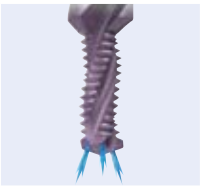
Gewindefräser
Thread milling cutters

BGF

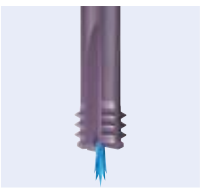


Vollhartmetall-Bohrgewindefräser
- für die Komplettbearbeitung von Kernloch, Senkfase und Gewinde in einem Arbeitsgang
- mit korrigiertem Gewindeprofil (abmessungsgebunden)

Solid carbide drill thread mills
- for the complete machining of thread hole, chamfer and thread in one work process
- with corrected thread profile (for one single thread size only)

287 - 306

ZBGF

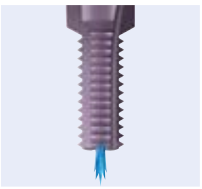


Vollhartmetall-Zirkularbohrgewindefräser
- für die Bearbeitung von Kernloch und Gewinde in einem Arbeitsgang
- mit korrigiertem Gewindeprofil (abmessungsübergreifend, steigungsgebunden)

Solid carbide circular drill thread mills
- for the machining of thread hole and thread in one work process
- with corrected thread profile (for different thread sizes, but for one pitch only)

307 - 314

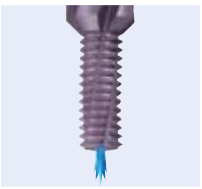
GSF



Vollhartmetall-Gewindefräser mit Senkfase
- für die Bearbeitung von Senkfase und Gewinde in einem Arbeitsgang
- mit korrigiertem Gewindeprofil (abmessungsgebunden)

Solid carbide thread milling cutters with countersinking step
- for the machining of countersunk edge and thread in one work process
- with corrected thread profile (for one single thread size only)

GSF-Z

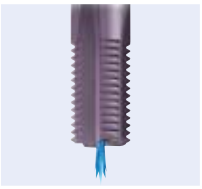


Vollhartmetall-Gewindefräser mit Senkfase
- für die Bearbeitung von Senkfase und Gewinde in einem Arbeitsgang
- mit korrigiertem Gewindeprofil (abmessungsgebunden)
- hohe Nutzenzahl
- optimierte Schneidengeometrie

Solid carbide thread milling cutters with countersinking step
- for the machining of countersunk edge and thread in one work process
- with corrected thread profile (for one single thread size only)
- increased number of flutes
- optimized cutting geometry

315 - 335

GF



Vollhartmetall-Gewindefräser
- mit Standard-Gewindeprofil (abmessungsübergreifend, steigungsgebunden)

Solid carbide thread milling cutters
- with standard thread profile (for different thread sizes, but for one pitch only)

GF-Z

Vollhartmetall-Gewindefräser
- mit Standard-Gewindeprofil (abmessungsübergreifend, steigungsgebunden)
- hohe Nutzenzahl
- optimierte Schneidengeometrie

Solid carbide thread milling cutters
- with standard thread profile (for different thread sizes, but for one pitch only)
- increased number of flutes
- optimized cutting geometry

GF-Vario-Z

Vollhartmetall-Gewindefräser variabel
- mit korrigiertem Gewindeprofil (abmessungsübergreifend, steigungsgebunden)
- hohe Nutzenzahl
- optimierte Schneidengeometrie

Solid carbide thread milling cutters, variable
- with corrected thread profile (for different thread sizes, but for one pitch only)
- increased number of flutes
- optimized cutting geometry

GF-H

Vollhartmetall-Gewindefräser für die Hartbearbeitung
- mit korrigiertem Gewindeprofil (abmessungsgebunden)

Solid carbide thread milling cutters for hard machining
- with corrected thread profile (for one single thread size only)

336 - 352

Wegweiser und Schnittwerte

Bitte beachten:
Die in den jeweiligen Spalten angegebenen Schnittwerte sind Richtwerte, welche je nach Einsatzbedingungen (Material, Schmierung, Maschine, usw.) angepasst werden müssen.
Die Eignung ist folgendermaßen gekennzeichnet:

- **Gewindefräser sehr gut geeignet**
- Gewindefräser gut geeignet

v_c = Schnittgeschwindigkeit [m/min]
f_z = Vorschub pro Zahn [mm]
f_b = Vorschub beim Bohren [mm/U]

Product finder and cutting data

Please note:
The cutting values listed in the respective columns are standard values which have to be adjusted to individual work conditions (material, lubrication, machine etc.).
The suitability is marked as follows:

- **Thread milling cutter is very suitable**
- Thread milling cutter is suitable

v_c = Cutting speed [m/min]
f_z = Feed per tooth [mm]
f_b = Drilling feed [mm/U]

		Einsatzgebiete ± Material Range of application ± material			Material-Beispiele Material examples	Material-Nummern Material numbers
P		**Stahlwerkstoffe**	**Steel materials**			
	1.1	Kaltfließpressstähle, Baustähle, Automatenstähle, u.a.	Cold-extrusion steels, Construction steels, Free-cutting steels, etc.	≤ 600 N/mm²	Cq15	1.1132
					S235JR (St37-2)	1.0037
					10SPb20	1.0722
	2.1	Baustähle, Einsatzstähle, Stahlguss, u.a.	Construction steels, Cementation steels, Steel castings, etc.	≤ 800 N/mm²	E360 (St70-2)	1.0070
					16MnCr5	1.7131
					GS-25CrMo4	1.7218
	3.1	Einsatzstähle, Vergütungsstähle, Kaltarbeitsstähle, u.a.	Cementation steels, Heat-treatable steels, Cold work steels, etc.	≤ 1000 N/mm²	20MoCr3	1.7320
					42CrMo4	1.7225
					102Cr6	1.2067
	4.1	Vergütungsstähle, Kaltarbeitsstähle, Nitrierstähle, u.a.	Heat-treatable steels, Cold work steels, Nitriding steels, etc.	≤ 1200 N/mm²	50CrMo4	1.7228
					X45NiCrMo4	1.2767
					31CrMo12	1.8515
	5.1	Hochlegierte Stähle, Kaltarbeitsstähle, Warmarbeitsstähle, u.a.	High-alloyed steels, Cold work steels, Hot work steels, etc.	≤ 1400 N/mm²	X38CrMoV5-3	1.2367
					X100CrMoV8-1-1	1.2990
					X40CrMoV5-1	1.2344
M		**Nichtrostende Stahlwerkstoffe**	**Stainless steel materials**			
	1.1	Ferritisch, martensitisch	Ferritic, martensitic	≤ 950 N/mm²	X2CrTi12	1.4512
	2.1	Austenitisch	Austenitic	≤ 950 N/mm²	X6CrNiMoTi17-12-2	1.4571
	3.1	Austenitisch-ferritisch (Duplex)	Austenitic-ferritic (Duplex)	≤ 1100 N/mm²	X2CrNiMoN22-5-3	1.4462
	4.1	Austenitisch-ferritisch hitzebeständig (Super Duplex)	Austenitic-ferritic heat-resistant (Super Duplex)	≤ 1250 N/mm²	X2CrNiMoN25-7-4	1.4410
K		**Gusswerkstoffe**	**Cast materials**			
	1.1	Gusseisen mit Lamellengrafit (GJL)	Cast iron with lamellar graphite (GJL)	100-250 N/mm²	EN-GJL-200 (GG20)	EN-JL-1030
	1.2			250-450 N/mm²	EN-GJL-300 (GG30)	EN-JL-1050
	2.1	Gusseisen mit Kugelgrafit (GJS)	Cast iron with nodular graphite (GJS)	350-500 N/mm²	EN-GJS-400-15 (GGG40)	EN-JS-1030
	2.2			500-900 N/mm²	EN-GJS-700-2 (GGG70)	EN-JS-1070
	3.1	Gusseisen mit Vermiculargrafit (GJV)	Cast iron with vermicular graphite (GJV)	300-400 N/mm²	GJV 300	
	3.2			400-500 N/mm²	GJV 450	
	4.1	Temperguss (GTMW, GTMB)	Malleable cast iron (GTMW, GTMB)	250-500 N/mm²	EN-GJMW-350-4 (GTW-35)	EN-JM-1010
	4.2			500-800 N/mm²	EN-GJMB-450-6 (GTS-45)	EN-JM-1140
N		**Nichteisenwerkstoffe**	**Non ferrous materials**			
		Aluminium-Legierungen	**Aluminium alloys**			
	1.1	Aluminium-Knetlegierungen	Aluminium wrought alloys	≤ 200 N/mm²	EN AW-AlMn1	EN AW-3103
	1.2			≤ 350 N/mm²	EN AW-AlMgSi	EN AW-6060
	1.3			≤ 550 N/mm²	EN AW-AlZn5Mg3Cu	EN AW-7022
	1.4	Aluminium-Gusslegierungen	Aluminium cast alloys	Si ≤ 7%	EN AC-AlMg5	EN AC-51300
	1.5			7% < Si ≤ 12%	EN AC-AlSi9Cu3	EN AC-46500
	1.6			12% < Si ≤ 17%	GD-AlSi17Cu4FeMg	
		Kupfer-Legierungen	**Copper alloys**			
	2.1	Reinkupfer, niedriglegiertes Kupfer	Pure copper, low-alloyed copper	≤ 400 N/mm²	E-Cu 57	EN CW 004 A
	2.2	Kupfer-Zink-Legierungen (Messing, langspanend)	Copper-zinc alloys (brass, long-chipping)	≤ 550 N/mm²	CuZn37 (Ms63)	EN CW 508 L
	2.3	Kupfer-Zink-Legierungen (Messing, kurzspanend)	Copper-zinc alloys (brass, short-chipping)	≤ 550 N/mm²	CuZn36Pb3 (Ms58)	EN CW 603 N
	2.4	Kupfer-Aluminium-Legierungen (Alubronze, langspanend)	Copper-aluminium alloys (alu bronze, long-chipping)	≤ 800 N/mm²	CuAl10Ni5Fe4	EN CW 307 G
	2.5	Kupfer-Zinn-Legierungen (Zinnbronze, langspanend)	Copper-tin alloys (tin bronze, long-chipping)	≤ 700 N/mm²	CuSn8P	EN CW 459 K
	2.6	Kupfer-Zinn-Legierungen (Zinnbronze, kurzspanend)	Copper-tin alloys (tin bronze, short-chipping)	≤ 400 N/mm²	CuSn7 ZnPb (Rg7)	2.1090
	2.7	Kupfer-Sonderlegierungen	Special copper alloys	≤ 600 N/mm²	(Ampco 8)	
	2.8			≤ 1400 N/mm²	(Ampco 45)	
		Magnesium-Legierungen	**Magnesium alloys**			
	3.1	Magnesium-Knetlegierungen	Magnesium wrought alloys	≤ 500 N/mm²	MgAl6Zn	3.5612
	3.2	Magnesium-Gusslegierungen	Magnesium cast alloys	≤ 500 N/mm²	EN-MCMgAl9Zn1	EN-MC21120
		Kunststoffe	**Synthetics**			
	4.1	Duroplaste (kurzspanend)	Duroplastics (short-chipping)		Bakelit, Pertinax	
	4.2	Thermoplaste (langspanend)	Thermoplastics (long-chipping)		PMMA, POM, PVC	
	4.3	Faserverstärkte Kunststoffe (Faseranteil ≤ 30%)	Fibre-reinforced synthetics (fibre content ≤ 30%)		GFK, CFK, AFK	
	4.4	Faserverstärkte Kunststoffe (Faseranteil > 30%)	Fibre-reinforced synthetics (fibre content > 30%)		GFK, CFK, AFK	
		Besondere Werkstoffe	**Special materials**			
	5.1	Grafit	Graphite		C 8000	
	5.2	Wolfram-Kupfer-Legierungen	Tungsten-copper alloys		W-Cu 80/20	
	5.3	Verbundwerkstoffe	Composite materials		Hylite, Alucobond	
S		**Spezialwerkstoffe**	**Special materials**			
		Titan-Legierungen	**Titanium alloys**			
	1.1	Reintitan	Pure titanium	≤ 450 N/mm²	Ti1	3.7025
	1.2	Titan-Legierungen	Titanium alloys	≤ 900 N/mm²	TiAl6V4	3.7165
	1.3			≤ 1250 N/mm²	TiAl4Mo4Sn2	3.7185
		Nickel-, Kobalt- und Eisen-Legierungen	**Nickel alloys, cobalt alloys and iron alloys**			
	2.1	Reinnickel	Pure nickel	≤ 600 N/mm²	Ni 99,6	2.4060
	2.2	Nickel-Basis-Legierungen	Nickel-base alloys	≤ 1000 N/mm²	Monel 400	2.4360
	2.3			≤ 1600 N/mm²	Inconel 718	2.4668
	2.4	Kobalt-Basis-Legierungen	Cobalt-base alloys	≤ 1000 N/mm²	Udimet 605	
	2.5			≤ 1600 N/mm²	Haynes 25	2.4964
	2.6	Eisen-Basis-Legierungen	Iron-base alloys	≤ 1500 N/mm²	Incoloy 800	1.4958
H		**Harte Werkstoffe**	**Hard materials**			
	1.1	Hochfeste Stähle, gehärtete Stähle, Hartguss	High strength steels, hardened steels, hard castings	44 - 50 HRC	Weldox 1100	
	1.2			50 - 55 HRC	Hardox 550	
	1.3			55 - 60 HRC	Armox 600T	
	1.4			60 - 63 HRC	Ferro-Titanit	
	1.5			63 - 66 HRC	HSSE	







GSF, GSF-Z **GF, GF-Z** **GF-Vario-Z** **GF-KEG** **ZGF** **ZIRK-GF** **GF-H**

gerade- und 15° drallgenutet (R15) straight flutes and 15° spiral flutes (R15)		**30° drallgenutet (R30)** 30° spiral flutes (R30)								
v_c		v_c		f_z			v_c	f_z		
unbeschichtet uncoated	**TICN**	**unbeschichtet** uncoated	**TICN**	**ø d_1 ≤ 4 mm**	**ø d_1 ≤ 8 mm**	**ø d_1 > 8 mm**	**TICN**			
40 - 100	**80 - 250**	40 - 100	**80 - 250**	0,005 - 0,04	0,04 - 0,07	0,05 - 0,15			**1.1**	**P**
30 - 80	**60 - 150**	30 - 80	**60 - 150**	0,005 - 0,04	0,04 - 0,07	0,05 - 0,15			**2.1**	
20 - 60	**40 - 120**	20 - 60	**40 - 120**	0,005 - 0,03	0,03 - 0,05	0,04 - 0,12			**3.1**	
20 - 60	**40 - 120**			0,003 - 0,02	0,02 - 0,05	0,04 - 0,12			**4.1**	
20 - 60	**40 - 120**			0,003 - 0,02	0,02 - 0,05	0,04 - 0,12			**5.1**	
	40 - 120		**40 - 120**	0,003 - 0,03	0,03 - 0,05	0,04 - 0,12			**1.1**	**M**
	40 - 120		**40 - 120**	0,003 - 0,03	0,03 - 0,05	0,04 - 0,12			**2.1**	
	30 - 80			0,003 - 0,02	0,02 - 0,05	0,04 - 0,10			**3.1**	
	30 - 60			0,003 - 0,02	0,02 - 0,04	0,03 - 0,08			**4.1**	
80 - 140	**100 - 200**	80 - 140	**100 - 200**		0,04 - 0,07	0,05 - 0,15			**1.1**	**K**
80 - 140	**100 - 200**	80 - 140	**100 - 200**		0,04 - 0,07	0,05 - 0,15			**1.2**	
60 - 120	**80 - 200**	60 - 120	**80 - 200**		0,04 - 0,07	0,05 - 0,15			**2.1**	
60 - 120	**80 - 200**	60 - 120	**80 - 200**		0,04 - 0,07	0,05 - 0,15			**2.2**	
60 - 120	**80 - 200**	60 - 120	**80 - 200**		0,04 - 0,07	0,05 - 0,15			**3.1**	
60 - 120	**80 - 200**	60 - 120	**80 - 200**		0,04 - 0,07	0,05 - 0,15			**3.2**	
60 - 120	**80 - 200**	60 - 120	**80 - 200**		0,04 - 0,07	0,05 - 0,15			**4.1**	
60 - 120	**80 - 200**	60 - 120	**80 - 200**		0,04 - 0,07	0,05 - 0,15			**4.2**	
100 - 250	**150 - 400**	**100 - 250**	**150 - 400**	0,01 - 0,05	0,05 - 0,08	0,07 - 0,20			**1.1**	**N**
100 - 250	**150 - 400**	**100 - 250**	**150 - 400**	0,01 - 0,05	0,05 - 0,08	0,07 - 0,20			**1.2**	
100 - 250	**150 - 400**	**100 - 250**	**150 - 400**	0,01 - 0,05	0,05 - 0,08	0,07 - 0,20			**1.3**	
150 - 250	**150 - 400**	**150 - 250**	**150 - 400**	0,01 - 0,05	0,05 - 0,08	0,07 - 0,20			**1.4**	
150 - 250	**150 - 400**	150 - 250	**150 - 400**	0,01 - 0,05	0,05 - 0,08	0,07 - 0,20			**1.5**	
	100 - 200		**100 - 200**	0,01 - 0,05	0,05 - 0,08	0,07 - 0,20			**1.6**	
100 - 250	**150 - 400**	100 - 250	**150 - 400**	0,008 - 0,05	0,05 - 0,08	0,07 - 0,20			**2.1**	
100 - 250	**150 - 400**	100 - 250	**150 - 400**	0,008 - 0,05	0,05 - 0,08	0,07 - 0,20			**2.2**	
100 - 250	**150 - 400**	100 - 250	**150 - 400**	0,008 - 0,05	0,05 - 0,08	0,07 - 0,20			**2.3**	
60 - 150	**100 - 250**	60 - 150	**100 - 250**	0,008 - 0,04	0,04 - 0,07	0,05 - 0,15			**2.4**	
60 - 150	**100 - 250**	60 - 150	**100 - 250**	0,008 - 0,04	0,04 - 0,07	0,05 - 0,15			**2.5**	
80 - 200	**100 - 250**	80 - 200	**100 - 250**	0,008 - 0,04	0,04 - 0,07	0,05 - 0,15			**2.6**	
	40 - 80		**40 - 80**	0,003 - 0,02	0,02 - 0,05	0,04 - 0,15	40 - 60	0,008 - 0,03	**2.7**	
	30 - 60			0,003 - 0,02	0,02 - 0,05	0,04 - 0,15	40 - 60	0,008 - 0,03	**2.8**	
150 - 250	**150 - 400**	150 - 250	**150 - 400**	0,01 - 0,05	0,05 - 0,08	0,07 - 0,20			**3.1**	
150 - 250	**150 - 400**	150 - 250	**150 - 400**	0,01 - 0,05	0,05 - 0,08	0,07 - 0,20			**3.2**	
60 - 150	**100 - 400**	**60 - 150**	**100 - 400**	0,01 - 0,05	0,05 - 0,10	0,08 - 0,25			**4.1**	
60 - 150	**100 - 400**	**60 - 150**	**100 - 400**	0,01 - 0,05	0,05 - 0,10	0,08 - 0,25			**4.2**	
	80 - 120		**80 - 120**	0,01 - 0,05	0,05 - 0,10	0,08 - 0,25			**4.3**	
	80 - 120		**80 - 120**	0,01 - 0,05	0,05 - 0,10	0,08 - 0,25			**4.4**	
	100 - 200		**100 - 200**		0,04 - 0,07	0,08 - 0,25			**5.1**	
15 - 40	**30 - 60**	15 - 40	**30 - 60**		0,02 - 0,04	0,03 - 0,08			**5.2**	
									5.3	
15 - 50	**30 - 80**	15 - 50	**30 - 80**	0,003 - 0,03	0,03 - 0,05	0,04 - 0,10			**1.1**	**S**
15 - 50	**30 - 80**	15 - 50	**30 - 80**	0,003 - 0,03	0,03 - 0,05	0,04 - 0,10			**1.2**	
15 - 40	**30 - 60**			0,003 - 0,02	0,02 - 0,04	0,03 - 0,08			**1.3**	
	30 - 60		30 - 60	0,003 - 0,02	0,02 - 0,04	0,03 - 0,08			**2.1**	
	30 - 60			0,003 - 0,02	0,02 - 0,04	0,03 - 0,08			**2.2**	
	30 - 40			0,003 - 0,02	0,02 - 0,04	0,03 - 0,08			**2.3**	
	30 - 60			0,003 - 0,02	0,02 - 0,04	0,03 - 0,08			**2.4**	
	30 - 40			0,003 - 0,02	0,02 - 0,04	0,03 - 0,08			**2.5**	
	30 - 40			0,003 - 0,02	0,02 - 0,04	0,03 - 0,08			**2.6**	
	30 - 60				0,015 - 0,04	0,03 - 0,08			**1.1**	**H**
	30 - 60				0,015 - 0,04	0,03 - 0,08			**1.2**	
							40 - 60	0,005 - 0,025	**1.3**	
							30 - 40	0,005 - 0,015	**1.4**	
							30 - 40	0,005 - 0,015	**1.5**	

Gewindefräser sehr gut geeignet · thread milling cutter is very suitable
Gewindefräser gut geeignet · thread milling cutter is suitable

BGF-Z2

BGF-Z3

BGF-Z4

		v_c		v_c		v_c		f_b		f_z	
		unbeschichtet uncoated	TICN	unbeschichtet uncoated	TICN	TICN	TIALN-T3	ø $d_1 \leq 8$ mm	ø $d_1 > 8$ mm	ø $d_1 \leq 8$ mm	ø $d_1 > 8$ mm
P	1.1										
	2.1										
	3.1										
	4.1										
	5.1										
M	1.1										
	2.1										
	3.1										
	4.1										
K	1.1	80 - 140	**80 - 160**	80 - 140	**80 - 160**	80 - 160	**80 - 160**	0,10 - 0,25	0,20 - 0,40	0,04 - 0,07	0,05 - 0,12
	1.2	80 - 140	**80 - 160**	80 - 140	**80 - 160**	80 - 160	**80 - 160**	0,10 - 0,25	0,20 - 0,40	0,04 - 0,07	0,05 - 0,12
	2.1	80 - 140	80 - 160					0,10 - 0,15	0,15 - 0,25	0,04 - 0,07	0,05 - 0,12
	2.2	80 - 140	80 - 160					0,10 - 0,15	0,15 - 0,25	0,04 - 0,07	0,05 - 0,12
	3.1	80 - 140	**80 - 160**					0,10 - 0,25	0,20 - 0,40	0,04 - 0,07	0,05 - 0,12
	3.2	80 - 140	**80 - 160**					0,10 - 0,25	0,20 - 0,40	0,04 - 0,07	0,05 - 0,12
	4.1										
	4.2										
N	1.1	**100 - 250**	150 - 250					0,08 - 0,15	0,15 - 0,25	0,04 - 0,08	0,07 - 0,15
	1.2	**100 - 250**	150 - 250					0,08 - 0,15	0,15 - 0,25	0,04 - 0,08	0,07 - 0,15
	1.3	**100 - 250**	150 - 250					0,08 - 0,15	0,15 - 0,25	0,04 - 0,08	0,07 - 0,15
	1.4	**100 - 250**	150 - 400					0,15 - 0,25	0,20 - 0,40	0,04 - 0,08	0,07 - 0,15
	1.5	100 - 250	**150 - 400**	100 - 250	**150 - 400**	**150 - 400**	150 - 400	0,15 - 0,25	0,20 - 0,40	0,04 - 0,08	0,07 - 0,15
	1.6		**100 - 200**		**100 - 200**	**100 - 200**	100 - 200	0,15 - 0,25	0,20 - 0,40	0,04 - 0,08	0,07 - 0,15
	2.1										
	2.2	100 - 250	150 - 400					0,10 - 0,20	0,15 - 0,30	0,05 - 0,08	0,07 - 0,15
	2.3	100 - 250	150 - 400	100 - 250	150 - 400	150 - 400	150 - 400	0,10 - 0,20	0,15 - 0,30	0,05 - 0,08	0,07 - 0,15
	2.4										
	2.5										
	2.6	80 - 200	100 - 250					0,10 - 0,25	0,20 - 0,40	00,04 - 0,07	0,05 - 0,12
	2.7										
	2.8										
	3.1	100 - 250	**150 - 400**					0,10 - 0,20	0,15 - 0,30	0,04 - 0,08	0,07 - 0,15
	3.2	100 - 250	**150 - 400**					0,15 - 0,30	0,20 - 0,40	0,04 - 0,08	0,07 - 0,15
	4.1	60 - 150	100 - 400					0,15 - 0,30	0,20 - 0,40	0,05 - 0,10	0,08 - 0,20
	4.2										
	4.3										
	4.4										
	5.1										
	5.2										
	5.3										
S	1.1										
	1.2										
	1.3										
	2.1										
	2.2										
	2.3										
	2.4										
	2.5										
	2.6										
H	1.1										
	1.2										
	1.3										
	1.4										
	1.5										

ZBGF-T

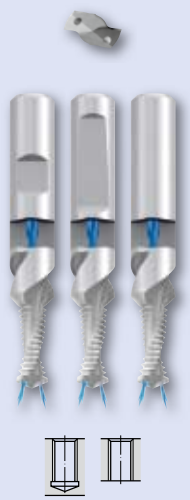
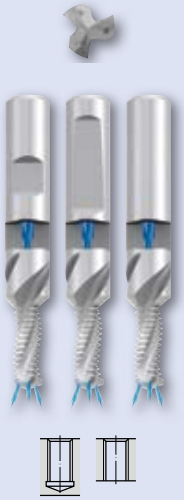
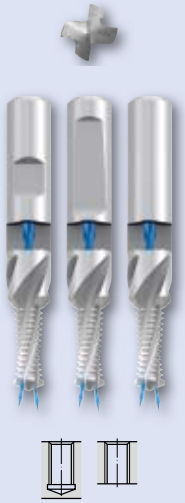
ZBGF-H

ZBGF-W

Gigant

	v_c beschichtet coated	f_z	v_c beschichtet coated	f_z	v_c beschichtet coated	f_z	v_c beschichtet coated	f_z		
					150 - 250	0,04 - 0,08	**250 - 500**	0,15 - 0,25	1.1	P
					150 - 250	0,04 - 0,08	**250 - 500**	0,15 - 0,25	2.1	
					100 - 250	0,03 - 0,08	**150 - 250**	0,10 - 0,15	3.1	
					100 - 250	0,03 - 0,08	**150 - 250**	0,10 - 0,15	4.1	
					100 - 200	0,02 - 0,06	**150 - 250**	0,10 - 0,15	5.1	
					100 - 180	0,02 - 0,05	**80 - 150**	0,10 - 0,15	1.1	M
					100 - 180	0,02 - 0,05	**80 - 150**	0,10 - 0,15	2.1	
					60 - 120	0,02 - 0,04	**60 - 120**	0,08 - 0,12	3.1	
					60 - 120	0,02 - 0,04	60 - 120	0,08 - 0,12	4.1	
	200 - 300	0,04 - 0,12			**200 - 300**	0,04 - 0,10	**180 - 400**	0,15 - 0,25	1.1	K
	200 - 300	0,04 - 0,12			**200 - 300**	0,04 - 0,10	**180 - 400**	0,15 - 0,25	1.2	
					150 - 250	0,05 - 0,08	**180 - 400**	0,15 - 0,25	2.1	
					150 - 250	0,05 - 0,08	**180 - 400**	0,15 - 0,25	2.2	
					150 - 250	0,05 - 0,08	**150 - 250**	0,10 - 0,15	3.1	
					150 - 250	0,05 - 0,08	**150 - 250**	0,10 - 0,15	3.2	
					200 - 300	0,05 - 0,10	**180 - 400**	0,15 - 0,25	4.1	
					200 - 300	0,05 - 0,10	**180 - 400**	0,15 - 0,25	4.2	
	200 - 300	0,04 - 0,08			**200 - 300**	0,05 - 0,10	**400 - 500**	0,15 - 0,30	1.1	N
	200 - 300	0,04 - 0,08			**200 - 300**	0,05 - 0,10	**400 - 500**	0,15 - 0,30	1.2	
	200 - 300	0,04 - 0,08			**200 - 300**	0,05 - 0,10	**400 - 500**	0,15 - 0,30	1.3	
	200 - 300	0,04 - 0,08			**200 - 300**	0,05 - 0,10	**400 - 500**	0,15 - 0,30	1.4	
	200 - 300	0,04 - 0,10			**200 - 300**	0,05 - 0,10	**400 - 500**	0,15 - 0,30	1.5	
	100 - 200	0,04 - 0,10			100 - 200	0,05 - 0,10	**150 - 250**	0,15 - 0,30	1.6	
					100 - 180	0,03 - 0,05	**250 - 500**	0,15 - 0,25	2.1	
					150 - 250	0,05 - 0,08	**250 - 500**	0,15 - 0,25	2.2	
					200 - 300	0,05 - 0,10	**250 - 500**	0,15 - 0,25	2.3	
					100 - 180	0,03 - 0,05	**150 - 250**	0,10 - 0,25	2.4	
					100 - 180	0,03 - 0,05	**150 - 250**	0,10 - 0,25	2.5	
					200 - 300	0,05 - 0,10	**150 - 250**	0,10 - 0,25	2.6	
			40 - 60	0,02 - 0,04			**80 - 150**	0,10 - 0,15	2.7	
			40 - 60	0,02 - 0,04			**80 - 150**	0,10 - 0,15	2.8	
	200 - 300	0,04 - 0,10			200 - 300	0,05 - 0,10	**400 - 500**	0,15 - 0,30	3.1	
	200 - 300	0,04 - 0,10			200 - 300	0,05 - 0,10	**400 - 500**	0,15 - 0,30	3.2	
					150 - 250	0,05 - 0,08	**180 - 400**	0,15 - 0,25	4.1	
							180 - 400	0,15 - 0,25	4.2	
					80 - 150	0,05 - 0,08	**80 - 150**	0,15 - 0,25	4.3	
					80 - 150	0,05 - 0,08	**80 - 150**	0,15 - 0,25	4.4	
									5.1	
									5.2	
									5.3	
					60 - 120	0,02 - 0,04	**60 - 120**	0,08 - 0,12	1.1	S
					60 - 120	0,02 - 0,04	**60 - 120**	0,08 - 0,12	1.2	
					60 - 120	0,02 - 0,04	**60 - 120**	0,08 - 0,12	1.3	
					60 - 120	0,02 - 0,04			2.1	
					60 - 120	0,02 - 0,04			2.2	
									2.3	
					60 - 120	0,02 - 0,04			2.4	
									2.5	
									2.6	
			60 - 100	0,03 - 0,06	60 - 100	0,02 - 0,06			1.1	H
			60 - 100	0,03 - 0,06	60 - 100	0,02 - 0,06			1.2	
			40 - 70	0,02 - 0,04					1.3	
			30 - 60	0,02 - 0,04					1.4	
			30 - 60	0,02 - 0,04					1.5	

Gewindefräser sehr gut geeignet · thread milling cutter is very suitable
Gewindefräser gut geeignet · thread milling cutter is suitable

Mit 2 Nuten With 2 flutes **BGF-Z2**	Mit 3 Nuten With 3 flutes **BGF-Z3**	Mit 4 Nuten With 4 flutes **BGF-Z4**	
			
Seite · Page			
288 - 289	290 - 291	292 - 293	**M**
294 - 295		296 - 297	**MF**
298 - 299			**UNC**
300 - 301			**UNF**
302 - 303			**G**
304 - 305			**EG M (STI)**

Mögliche Modifikationen · Possible modifications


Stirnfase am Bohrteil
Face chamfer on the drill part

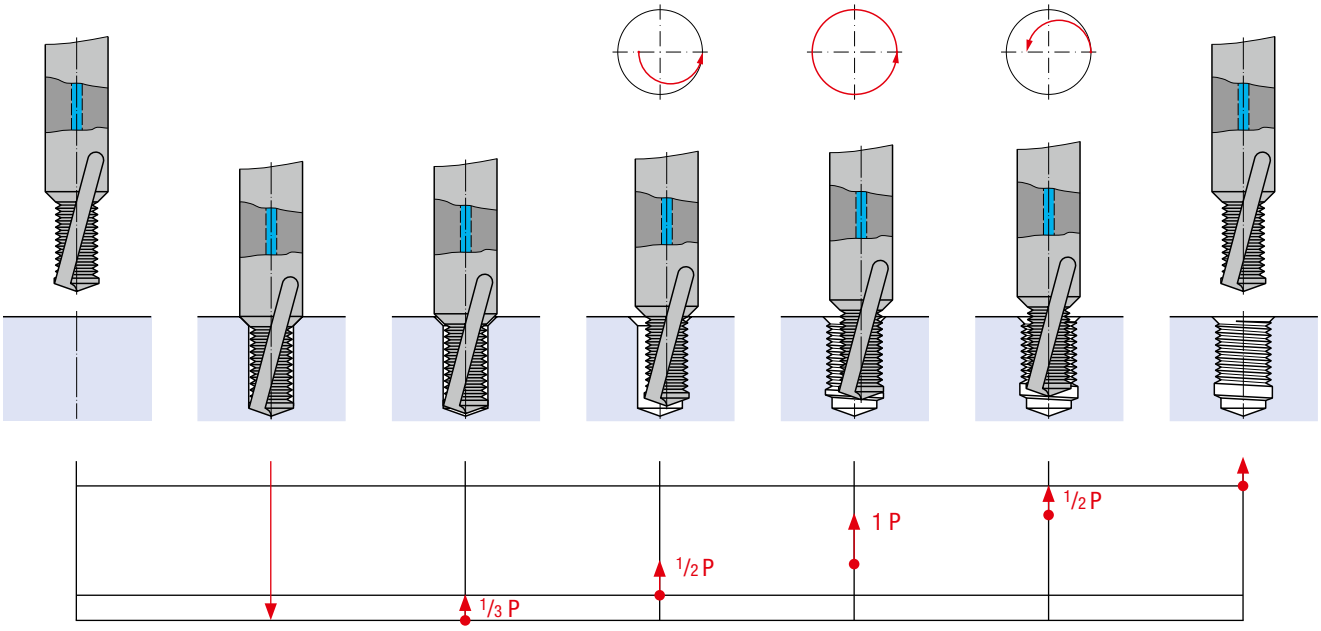

AZR/AZ (ausgesetzte Zähne)
AZR/AZ (alternating teeth)


Unvollständigen Gang entfernen
Remove incomplete thread


Schaftkühlnuten
Coolant grooves along the shank

Eine Beschreibung dieser Modifikationsmöglichkeiten finden Sie auf Seite 400 - 401
For a description of these modifications, see pages 400 - 401

Gewindefräszyklus · Thread milling cycle



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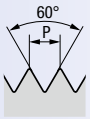
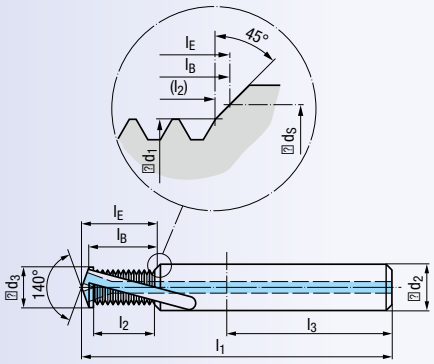
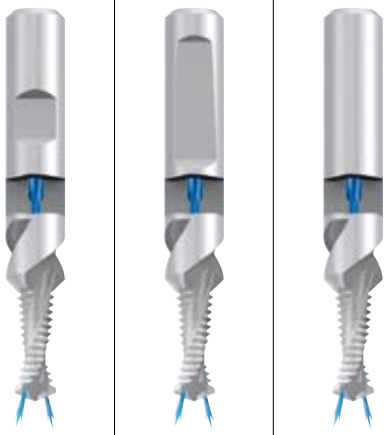
DIN 13





VHM | R30 | RH + LH | Z2 | DIN 6535 HB HE HA | 90° | ⍰D



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

K 1.1-3.2 | N 1.1-5 | N 2.2-3, 2.6 | N 3.1-2, 4.1

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident

⍰D mm	P mm	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_3	⍰d_S	l_B	l_E	Dimens.-Ident	GF422201 BGF-VHM-Z2 1,5xD R30-IKZ-HB	GF422501 BGF-VHM-Z2 1,5xD R30-IKZ-HE	GF422801 BGF-VHM-Z2 1,5xD R30-IKZ-HA
M 4	0,7	49	5,64	36	3,16	6	3,3	4,3	6,8	7,4	.0040	●	●	●
5	0,8	55	7,25	36	4,04	6	4,2	5,3	8,6	9,4	.0050	●	●	●
6	1	62	9,06	36	4,8	8	5	6,3	10,7	11,6	.0060	●	●	●
8	1,25	74	11,33	40	6,5	10	6,75	8,3	13,4	14,6	.0080	●	●	●
10	1,5	79	15,09	45	8,2	12	8,5	10,3	17,5	19,1	.0100	●	●	●
12	1,75	89	17,61	45	9,9	14	10,25	12,3	20,4	22,3	.0112	●	●	●
14	2	102	20,12	48	11,6	16	12	14,3	23,3	25,5	.0114	●	●	●
16	2	102	24,13	48	13,6	18	14	16,3	27,3	29,9	.0116	●	●	●

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

⍰D mm	P mm	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_3	⍰d_S	l_B	l_E	Dimens.-Ident	GF432201 BGF-VHM-Z2 2xD R30-IKZ-HB	GF432501 BGF-VHM-Z2 2xD R30-IKZ-HE	GF432801 BGF-VHM-Z2 2xD R30-IKZ-HA
M 4	0,7	49	7,74	36	3,16	6	3,3	4,3	8,9	9,5	.0040	●	●	●
5	0,8	55	9,65	36	4,04	6	4,2	5,3	11	11,8	.0050	●	●	●
6	1	62	12,06	36	4,8	8	5	6,3	13,7	14,6	.0060	●	●	●
8	1,25	74	15,08	40	6,5	10	6,75	8,3	17,1	18,3	.0080	●	●	●
10	1,5	79	19,59	45	8,2	12	8,5	10,3	22	23,6	.0100	●	●	●
12	1,75	89	22,86	45	9,9	14	10,25	12,3	25,7	27,5	.0112	●	●	●
14	2	102	28,12	48	11,6	16	12	14,3	31,3	33,5	.0114	●	●	●
16	2	102	32,13	48	13,6	18	14	16,3	35,3	37,9	.0116	●	●	●

Gewindetiefe
Thread depth

2,5 x D

Werkzeug-Ident · Tool ident

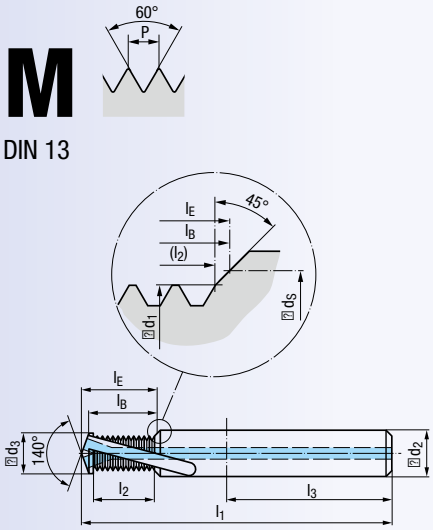
⍰D mm	P mm	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_3	⍰d_S	l_B	l_E	Dimens.-Ident	GF442201 BGF-VHM-Z2 2,5xD R30-IKZ-HB	GF442501 BGF-VHM-Z2 2,5xD R30-IKZ-HE	GF442801 BGF-VHM-Z2 2,5xD R30-IKZ-HA
M 6	1	65	15,10	36	4,8	8	5	6,3	16,7	17,6	.0060	●	●	●
8	1,25	80	20,08	40	6,5	10	6,75	8,3	22,1	23,3	.0080	●	●	●
10	1,5	85	25,59	45	8,2	12	8,5	10,3	28	29,6	.0100	●	●	●
12	1,75	95	29,86	45	9,9	14	10,25	12,3	32,7	34,5	.0112	●	●	●
14	2	110	36,12	48	11,6	16	12	14,3	39,3	41,5	.0114			
16	2	110	40,13	48	13,6	18	14	16,3	43,3	45,9	.0116			

Andere Abmessungen auf Anfrage
Other sizes upon request

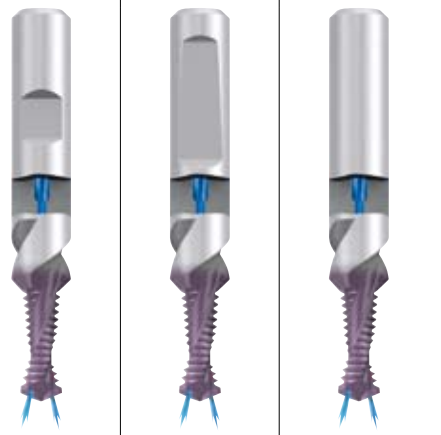
Bestell-Beispiel ´ Ordering example: **GF422201.0060**

M

DIN 13



VHM | TICN | R30 | RH + LH | Z2 | DIN 6535 HB HE HA | 90° | ⌀D



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

K 1.1-3.2 | N 1.1-6 | N 2.2-3, 2.6 | N 3.1-2, 4.1

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident

⌀D mm	P mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E	Dimens.-Ident	GF422206 BGF-VHM-Z2 1,5xD R30-IKZ-HB TICN	GF422506 BGF-VHM-Z2 1,5xD R30-IKZ-HE TICN	GF422806 BGF-VHM-Z2 1,5xD R30-IKZ-HA TICN
M 4	0,7	49	5,64	36	3,16	6	3,3	4,3	6,8	7,4	.0040	●	●	●
5	0,8	55	7,25	36	4,04	6	4,2	5,3	8,6	9,4	.0050	●	●	●
6	1	62	9,06	36	4,8	8	5	6,3	10,7	11,6	.0060	●	●	●
8	1,25	74	11,33	40	6,5	10	6,75	8,3	13,4	14,6	.0080	●	●	●
10	1,5	79	15,09	45	8,2	12	8,5	10,3	17,5	19,1	.0100	●	●	●
12	1,75	89	17,61	45	9,9	14	10,25	12,3	20,4	22,3	.0112	●	●	●
14	2	102	20,12	48	11,6	16	12	14,3	23,3	25,5	.0114	●	●	●
16	2	102	24,13	48	13,6	18	14	16,3	27,3	29,9	.0116	●	●	●

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

⌀D mm	P mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E	Dimens.-Ident	GF432206 BGF-VHM-Z2 2xD R30-IKZ-HB TICN	GF432506 BGF-VHM-Z2 2xD R30-IKZ-HE TICN	GF432806 BGF-VHM-Z2 2xD R30-IKZ-HA TICN
M 4	0,7	49	7,74	36	3,16	6	3,3	4,3	8,9	9,5	.0040	●	●	●
5	0,8	55	9,65	36	4,04	6	4,2	5,3	11	11,8	.0050	●	●	●
6	1	62	12,06	36	4,8	8	5	6,3	13,7	14,6	.0060	●	●	●
8	1,25	74	15,08	40	6,5	10	6,75	8,3	17,1	18,3	.0080	●	●	●
10	1,5	79	19,59	45	8,2	12	8,5	10,3	22	23,6	.0100	●	●	●
12	1,75	89	22,86	45	9,9	14	10,25	12,3	25,7	27,5	.0112	●	●	●
14	2	102	28,12	48	11,6	16	12	14,3	31,3	33,5	.0114	●	●	●
16	2	102	32,13	48	13,6	18	14	16,3	35,3	37,9	.0116	●	●	●

Gewindetiefe
Thread depth

2,5 x D

Werkzeug-Ident · Tool ident

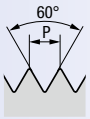
⌀D mm	P mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E	Dimens.-Ident	GF442206 BGF-VHM-Z2 2,5xD R30-IKZ-HB TICN	GF442506 BGF-VHM-Z2 2,5xD R30-IKZ-HE TICN	GF442806 BGF-VHM-Z2 2,5xD R30-IKZ-HA TICN
M 6	1	65	15,10	36	4,8	8	5	6,3	16,7	17,6	.0060	●	●	●
8	1,25	80	20,08	40	6,5	10	6,75	8,3	22,1	23,3	.0080	●	●	●
10	1,5	85	25,59	45	8,2	12	8,5	10,3	28	29,6	.0100	●	●	●
12	1,75	95	29,86	45	9,9	14	10,25	12,3	32,7	34,5	.0112	●	●	●
14	2	110	36,12	48	11,6	16	12	14,3	39,3	41,5	.0114			
16	2	110	40,13	48	13,6	18	14	16,3	43,3	45,9	.0116			

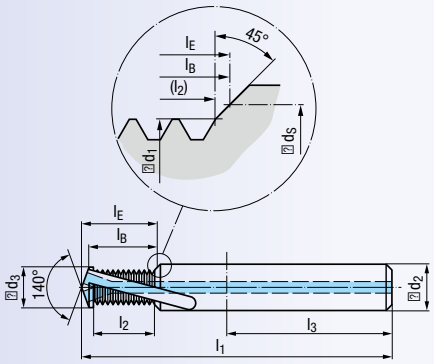
Andere Abmessungen auf Anfrage
Other sizes upon request

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

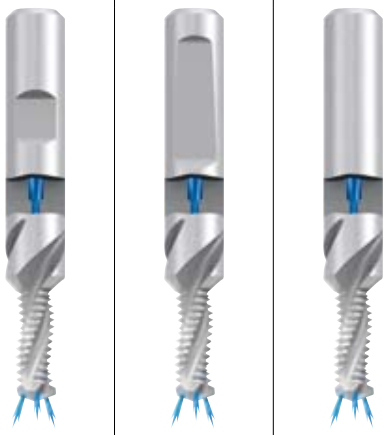
M

DIN 13





VHM | R30 | RH + LH | Z3 | DIN 6535 HB HE HA | 90° | ⍰D



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

K 1.1-2 | N 1.5, 2.3

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident

⍰D mm	P mm	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_3	⍰d_S	l_B	l_E	Dimens.-Ident	GF422251 BGF-VHM-Z3 1,5xD R30-IKZ-HB	GF422551 BGF-VHM-Z3 1,5xD R30-IKZ-HE	GF422851 BGF-VHM-Z3 1,5xD R30-IKZ-HA
M 6	1	62	9,06	36	4,8	8	5	6,3	10,7	11,6	.0060	●	●	●
8	1,25	74	11,33	40	6,5	10	6,75	8,3	13,4	14,6	.0080	●	●	●
10	1,5	79	15,09	45	8,2	12	8,5	10,3	17,5	19,1	.0100	●	●	●
12	1,75	89	17,61	45	9,9	14	10,25	12,3	20,4	22,3	.0112	●	●	●
16	2	102	24,13	48	13,6	18	14	16,3	27,3	29,9	.0116	●	●	●

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

⍰D mm	P mm	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_3	⍰d_S	l_B	l_E	Dimens.-Ident	GF432251 BGF-VHM-Z3 2xD R30-IKZ-HB	GF432551 BGF-VHM-Z3 2xD R30-IKZ-HE	GF432851 BGF-VHM-Z3 2xD R30-IKZ-HA
M 6	1	62	12,06	36	4,8	8	5	6,3	13,7	14,6	.0060	●	●	●
8	1,25	74	15,08	40	6,5	10	6,75	8,3	17,1	18,3	.0080	●	●	●
10	1,5	79	19,59	45	8,2	12	8,5	10,3	22	23,6	.0100	●	●	●
12	1,75	89	22,86	45	9,9	14	10,25	12,3	25,7	27,5	.0112	●	●	●
16	2	102	32,13	48	13,6	18	14	16,3	35,3	37,9	.0116	●	●	●

Gewindetiefe
Thread depth

2,5 x D

Werkzeug-Ident · Tool ident

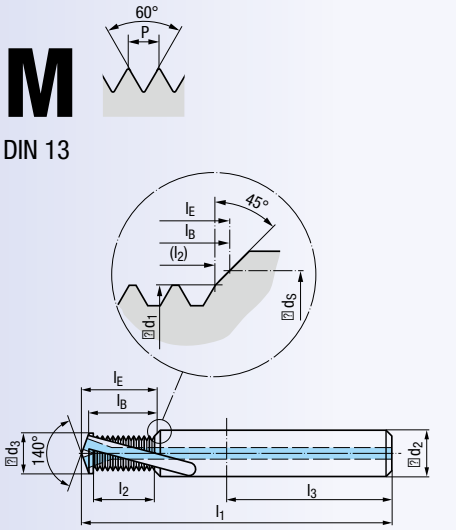
⍰D mm	P mm	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_3	⍰d_S	l_B	l_E	Dimens.-Ident	GF442251 BGF-VHM-Z3 2,5xD R30-IKZ-HB	GF442551 BGF-VHM-Z3 2,5xD R30-IKZ-HE	GF442851 BGF-VHM-Z3 2,5xD R30-IKZ-HA
M 6	1	65	15,10	36	4,8	8	5	6,3	16,7	17,6	.0060	●	●	●
8	1,25	80	20,08	40	6,5	10	6,75	8,3	22,1	23,3	.0080	●	●	●
10	1,5	85	25,59	45	8,2	12	8,5	10,3	28	29,6	.0100	●	●	●
12	1,75	95	29,86	45	9,9	14	10,25	12,3	32,7	34,5	.0112	●	●	●
16	2	110	40,13	48	13,6	18	14	16,3	43,3	45,9	.0116	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

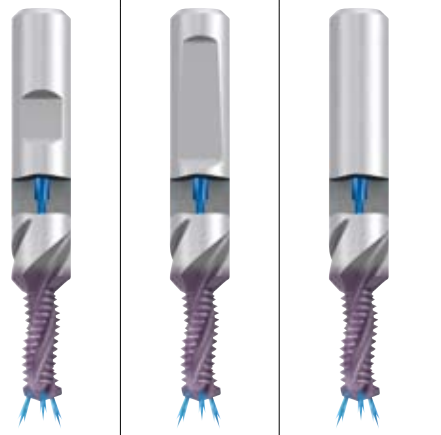
Bestell-Beispiel ´ Ordering example: **GF422251.0116**

M

DIN 13



VHM | TICN | R30 | RH + LH | Z3 | DIN 6535 HB HE HA | 90° | ⌀D



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

K 1.1-2 | N 1.5-6, 2.3

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident

⌀D mm	P mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E	Dimens.-Ident	GF422256 BGF-VHM-Z3 1,5xD R30-IKZ-HB TICN	GF422556 BGF-VHM-Z3 1,5xD R30-IKZ-HE TICN	GF422856 BGF-VHM-Z3 1,5xD R30-IKZ-HA TICN
M 6	1	62	9,06	36	4,8	8	5	6,3	10,7	11,6	.0060	●	●	●
8	1,25	74	11,33	40	6,5	10	6,75	8,3	13,4	14,6	.0080	●	●	●
10	1,5	79	15,09	45	8,2	12	8,5	10,3	17,5	19,1	.0100	●	●	●
12	1,75	89	17,61	45	9,9	14	10,25	12,3	20,4	22,3	.0112	●	●	●
16	2	102	24,13	48	13,6	18	14	16,3	27,3	29,9	.0116	●	●	●

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

⌀D mm	P mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E	Dimens.-Ident	GF432256 BGF-VHM-Z3 2xD R30-IKZ-HB TICN	GF432556 BGF-VHM-Z3 2xD R30-IKZ-HE TICN	GF432856 BGF-VHM-Z3 2xD R30-IKZ-HA TICN
M 6	1	62	12,06	36	4,8	8	5	6,3	13,7	14,6	.0060	●	●	●
8	1,25	74	15,08	40	6,5	10	6,75	8,3	17,1	18,3	.0080	●	●	●
10	1,5	79	19,59	45	8,2	12	8,5	10,3	22	23,6	.0100	●	●	●
12	1,75	89	22,86	45	9,9	14	10,25	12,3	25,7	27,5	.0112	●	●	●
16	2	102	32,13	48	13,6	18	14	16,3	35,3	37,9	.0116	●	●	●

Gewindetiefe
Thread depth

2,5 x D

Werkzeug-Ident · Tool ident

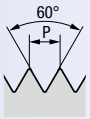
⌀D mm	P mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E	Dimens.-Ident	GF442256 BGF-VHM-Z3 2,5xD R30-IKZ-HB TICN	GF442556 BGF-VHM-Z3 2,5xD R30-IKZ-HE TICN	GF442856 BGF-VHM-Z3 2,5xD R30-IKZ-HA TICN
M 6	1	65	15,10	36	4,8	8	5	6,3	16,7	17,6	.0060	●	●	●
8	1,25	80	20,08	40	6,5	10	6,75	8,3	22,1	23,3	.0080	●	●	●
10	1,5	85	25,59	45	8,2	12	8,5	10,3	28	29,6	.0100	●	●	●
12	1,75	95	29,86	45	9,9	14	10,25	12,3	32,7	34,5	.0112	●	●	●
16	2	110	40,13	48	13,6	18	14	16,3	43,3	45,9	.0116	●	●	●

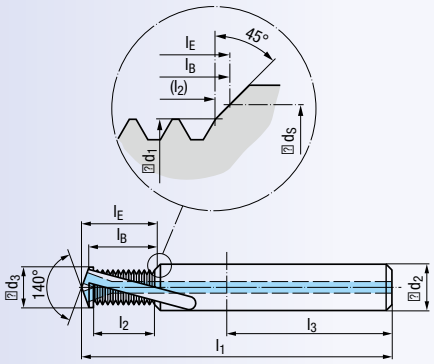
Andere Abmessungen auf Anfrage
Other sizes upon request

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

M

DIN 13

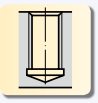


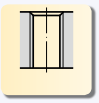


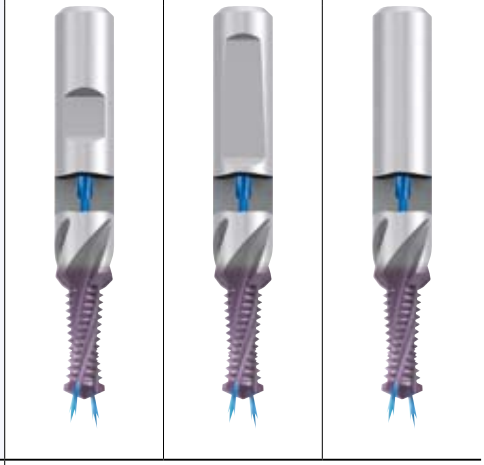
VHM | TICN

R20 | RH + LH

Z4 | DIN 6535 HB HE HA







Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

K 1.1-2 | N 1.5-6, 2.3

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident

⌀D mm	P mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E	Dimens.-Ident	GF429246 BGF-VHM-Z4 1,5xD R20-IKZ-HB TICN	GF429546 BGF-VHM-Z4 1,5xD R20-IKZ-HE TICN	GF429846 BGF-VHM-Z4 1,5xD R20-IKZ-HA TICN
M 6	1	62	9,06	36	4,8	8	5	6,3	10,7	11,6	.0060	●	●	●
8	1,25	74	11,33	40	6,5	10	6,75	8,3	13,4	14,6	.0080	●	●	●
10	1,5	79	15,09	45	8,2	12	8,5	10,3	17,5	19,1	.0100	●	●	●
12	1,75	89	17,61	45	9,9	14	10,25	12,3	20,4	22,3	.0112	●	●	●

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

⌀D mm	P mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E	Dimens.-Ident	GF439246 BGF-VHM-Z4 2xD R20-IKZ-HB TICN	GF439546 BGF-VHM-Z4 2xD R20-IKZ-HE TICN	GF439846 BGF-VHM-Z4 2xD R20-IKZ-HA TICN
M 6	1	62	12,06	36	4,8	8	5	6,3	13,7	14,6	.0060	●	●	●
8	1,25	74	15,08	40	6,5	10	6,75	8,3	17,1	18,3	.0080	●	●	●
10	1,5	79	19,59	45	8,2	12	8,5	10,3	22	23,6	.0100	●	●	●
12	1,75	89	22,86	45	9,9	14	10,25	12,3	25,7	27,5	.0112	●	●	●
16	2	102	32,13	48	13,6	18	14	16,3	35,3	37,9	.0116	●	●	●

Gewindetiefe
Thread depth

2,5 x D

Werkzeug-Ident · Tool ident

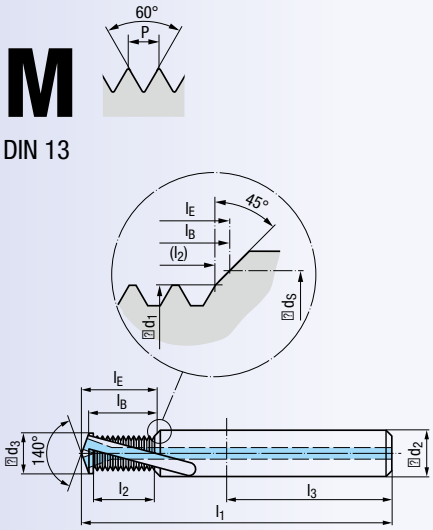
⌀D mm	P mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E	Dimens.-Ident	GF449246 BGF-VHM-Z4 2,5xD R20-IKZ-HB TICN	GF449546 BGF-VHM-Z4 2,5xD R20-IKZ-HE TICN	GF449846 BGF-VHM-Z4 2,5xD R20-IKZ-HA TICN
M 6	1	65	15,10	36	4,8	8	5	6,3	16,7	17,6	.0060	●	●	●
8	1,25	80	20,08	40	6,5	10	6,75	8,3	22,1	23,3	.0080	●	●	●
10	1,5	85	25,59	45	8,2	12	8,5	10,3	28	29,6	.0100	●	●	●
12	1,75	95	29,86	45	9,9	14	10,25	12,3	32,7	34,5	.0112	●	●	●
16	2	110	40,13	48	13,6	18	14	16,3	43,3	45,9	.0116	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

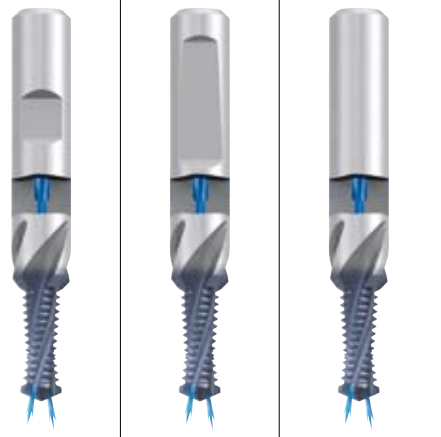
Bestell-Beispiel ´ Ordering example: **GF429246.0100**

M

DIN 13



VHM | TIALN T3 | R20 | RH + LH | Z4 | DIN 6535 HB HE HA | 90° | ⌀D



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

K 1.1-2 | N 1.5-6, 2.3

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident

⌀D mm	P mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E	Dimens.-Ident	GF429248 BGF-VHM-Z4 1,5xD R20-IKZ-HB TIALN-T3	GF429548 BGF-VHM-Z4 1,5xD R20-IKZ-HE TIALN-T3	GF429848 BGF-VHM-Z4 1,5xD R20-IKZ-HA TIALN-T3
M 6	1	62	9,06	36	4,8	8	5	6,3	10,7	11,6	.0060	●	●	●
8	1,25	74	11,33	40	6,5	10	6,75	8,3	13,4	14,6	.0080	●	●	●
10	1,5	79	15,09	45	8,2	12	8,5	10,3	17,5	19,1	.0100	●	●	●
12	1,75	89	17,61	45	9,9	14	10,25	12,3	20,4	22,3	.0112	●	●	●

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

⌀D mm	P mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E	Dimens.-Ident	GF439248 BGF-VHM-Z4 2xD R20-IKZ-HB TIALN-T3	GF439548 BGF-VHM-Z4 2xD R20-IKZ-HE TIALN-T3	GF439848 BGF-VHM-Z4 2xD R20-IKZ-HA TIALN-T3
M 6	1	62	12,06	36	4,8	8	5	6,3	13,7	14,6	.0060	●	●	●
8	1,25	74	15,08	40	6,5	10	6,75	8,3	17,1	18,3	.0080	●	●	●
10	1,5	79	19,59	45	8,2	12	8,5	10,3	22	23,6	.0100	●	●	●
12	1,75	89	22,86	45	9,9	14	10,25	12,3	25,7	27,5	.0112	●	●	●
16	2	102	32,13	48	13,6	18	14	16,3	35,3	37,9	.0116	●	●	●

Gewindetiefe
Thread depth

2,5 x D

Werkzeug-Ident · Tool ident

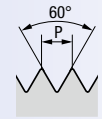
⌀D mm	P mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E	Dimens.-Ident	GF449248 BGF-VHM-Z4 2,5xD R20-IKZ-HB TIALN-T3	GF449548 BGF-VHM-Z4 2,5xD R20-IKZ-HE TIALN-T3	GF449848 BGF-VHM-Z4 2,5xD R20-IKZ-HA TIALN-T3
M 6	1	65	15,10	36	4,8	8	5	6,3	16,7	17,6	.0060	●	●	●
8	1,25	80	20,08	40	6,5	10	6,75	8,3	22,1	23,3	.0080	●	●	●
10	1,5	85	25,59	45	8,2	12	8,5	10,3	28	29,6	.0100	●	●	●
12	1,75	95	29,86	45	9,9	14	10,25	12,3	32,7	34,5	.0112	●	●	●
16	2	110	40,13	48	13,6	18	14	16,3	43,3	45,9	.0116	●	●	●

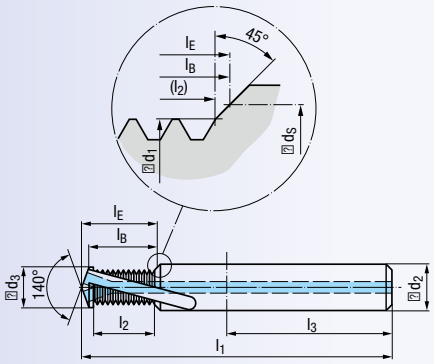
Andere Abmessungen auf Anfrage
Other sizes upon request

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

MF

DIN 13





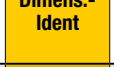
VHM

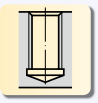
R30

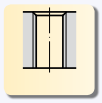
RH + LH

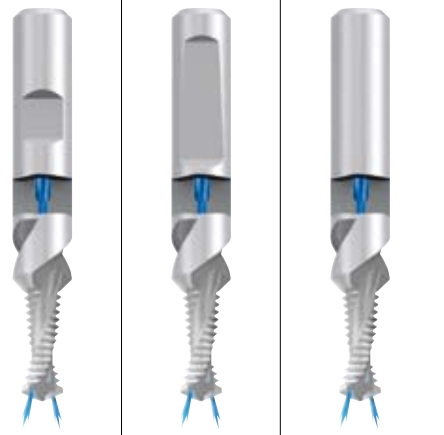
Z2

DIN 6535
HB
HE
HA









Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

K 1.1-3.2 | N 1.1-5 | N 2.2-3, 2.6 | N 3.1-2, 4.1

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident

⍰D mm	P mm	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_3	⍰d_S	l_B	l_E	Dimens.-Ident	GF422201 BGF-VHM-Z2 1,5xD R30-IKZ-HB	GF422501 BGF-VHM-Z2 1,5xD R30-IKZ-HE	GF422801 BGF-VHM-Z2 1,5xD R30-IKZ-HA
M 4	x 0,5	49	5,05	36	3,36	6	3,5	4,3	7	7,6	.0210			
5	x 0,5	55	7,56	36	4,34	6	4,5	5,3	8,5	9,3	.0218			
6	x 0,75	62	9,07	36	5,05	8	5,25	6,3	10,4	11,3	.0229	●	●	●
8	x 1	74	12,09	40	6,75	10	7	8,3	13,8	15	.0251	●	●	●
10	x 1	79	15,11	45	8,7	12	9	10,3	16,8	18,4	.0276	●	●	●
10	x 1,25	79	15,11	45	8,4	12	8,75	10,3	17,2	18,8	.0277	●	●	●
12	x 1	89	17,14	45	10,65	14	11	12,3	18,8	20,8	.0301			
12	x 1,25	89	18,88	45	10,4	14	10,75	12,3	20,9	22,9	.0302	●	●	●
12	x 1,5	89	18,12	45	10,15	14	10,5	12,3	20,5	22,5	.0303	●	●	●
14	x 1,5	102	21,14	48	12,1	16	12,5	14,3	23,6	25,8	.0331	●	●	●
16	x 1,5	102	24,15	48	14,1	18	14,5	16,3	26,6	29,2	.0359	●	●	●

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

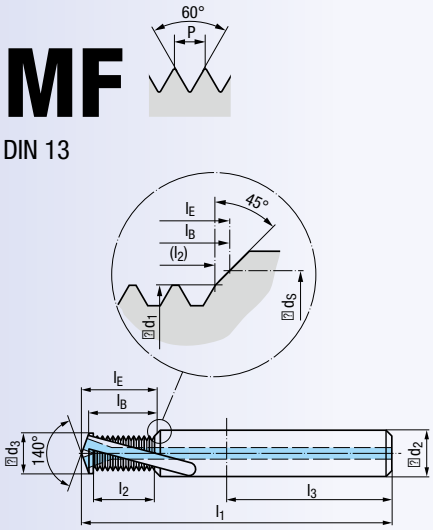
⍰D mm	P mm	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_3	⍰d_S	l_B	l_E	Dimens.-Ident	GF432201 BGF-VHM-Z2 2xD R30-IKZ-HB	GF432501 BGF-VHM-Z2 2xD R30-IKZ-HE	GF432801 BGF-VHM-Z2 2xD R30-IKZ-HA
M 4	x 0,5	49	8,05	36	3,36	6	3,5	4,3	9	9,6	.0210			
5	x 0,5	55	10,06	36	4,34	6	4,5	5,3	11	11,8	.0218			
6	x 0,75	62	12,07	36	5,05	8	5,25	6,3	13,4	14,3	.0229	●	●	●
8	x 1	74	16,09	40	6,75	10	7	8,3	17,8	19	.0251	●	●	●
10	x 1	79	20,11	45	8,7	12	9	10,3	21,8	23,4	.0276	●	●	●
10	x 1,25	79	20,11	45	8,4	12	8,75	10,3	22,2	23,8	.0277	●	●	●
12	x 1	89	24,14	45	10,65	14	11	12,3	25,8	27,8	.0301			
12	x 1,25	89	23,88	45	10,4	14	10,75	12,3	25,9	27,9	.0302	●	●	●
12	x 1,5	89	24,12	45	10,15	14	10,5	12,3	26,5	28,5	.0303	●	●	●
14	x 1,5	102	27,14	48	12,1	16	12,5	14,3	29,6	31,8	.0331	●	●	●
16	x 1,5	102	31,65	48	14,1	18	14,5	16,3	34,1	36,7	.0359	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

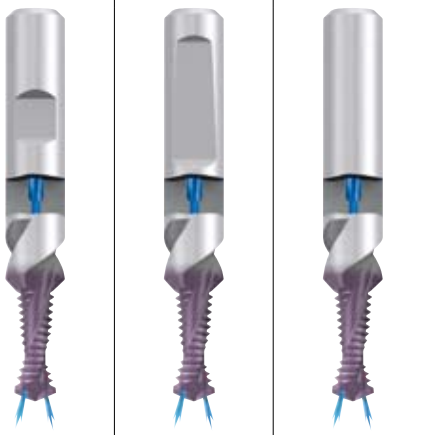
Bestell-Beispiel ´ Ordering example: **GF422201.0276**

MF

DIN 13



VHM | TICN | R30 | RH + LH | Z2 | DIN 6535 HB HE HA | 90° | ⌀D



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

K 1.1-3.2 | N 1.1-6 | N 2.2-3, 2.6 | N 3.1-2, 4.1

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident

⌀D mm	P mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E	Dimens.-Ident	GF422206 BGF-VHM-Z2 1,5xD R30-IKZ-HB TICN	GF422506 BGF-VHM-Z2 1,5xD R30-IKZ-HE TICN	GF422806 BGF-VHM-Z2 1,5xD R30-IKZ-HA TICN
M 4	0,5	49	5,05	36	3,36	6	3,5	4,3	7	7,6	.0210			
5	0,5	55	7,56	36	4,34	6	4,5	5,3	8,5	9,3	.0218			
6	0,75	62	9,07	36	5,05	8	5,25	6,3	10,4	11,3	.0229	●	●	●
8	1	74	12,09	40	6,75	10	7	8,3	13,8	15	.0251	●	●	●
10	1	79	15,11	45	8,7	12	9	10,3	16,8	18,4	.0276	●	●	●
10	1,25	79	15,11	45	8,4	12	8,75	10,3	17,2	18,8	.0277	●	●	●
12	1	89	17,14	45	10,65	14	11	12,3	18,8	20,8	.0301			
12	1,25	89	18,88	45	10,4	14	10,75	12,3	20,9	22,9	.0302	●	●	●
12	1,5	89	18,12	45	10,15	14	10,5	12,3	20,5	22,5	.0303	●	●	●
14	1,5	102	21,14	48	12,1	16	12,5	14,3	23,6	25,8	.0331	●	●	●
16	1,5	102	24,15	48	14,1	18	14,5	16,3	26,6	29,2	.0359	●	●	●

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

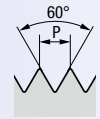
⌀D mm	P mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E	Dimens.-Ident	GF432206 BGF-VHM-Z2 2xD R30-IKZ-HB TICN	GF432506 BGF-VHM-Z2 2xD R30-IKZ-HE TICN	GF432806 BGF-VHM-Z2 2xD R30-IKZ-HA TICN
M 4	0,5	49	8,05	36	3,36	6	3,5	4,3	9	9,6	.0210			
5	0,5	55	10,06	36	4,34	6	4,5	5,3	11	11,8	.0218			
6	0,75	62	12,07	36	5,05	8	5,25	6,3	13,4	14,3	.0229	●	●	●
8	1	74	16,09	40	6,75	10	7	8,3	17,8	19	.0251	●	●	●
10	1	79	20,11	45	8,7	12	9	10,3	21,8	23,4	.0276	●	●	●
10	1,25	79	20,11	45	8,4	12	8,75	10,3	22,2	23,8	.0277	●	●	●
12	1	89	24,14	45	10,65	14	11	12,3	25,8	27,8	.0301			
12	1,25	89	23,88	45	10,4	14	10,75	12,3	25,9	27,9	.0302	●	●	●
12	1,5	89	24,12	45	10,15	14	10,5	12,3	26,5	28,5	.0303	●	●	●
14	1,5	102	27,14	48	12,1	16	12,5	14,3	29,6	31,8	.0331	●	●	●
16	1,5	102	31,65	48	14,1	18	14,5	16,3	34,1	36,7	.0359	●	●	●

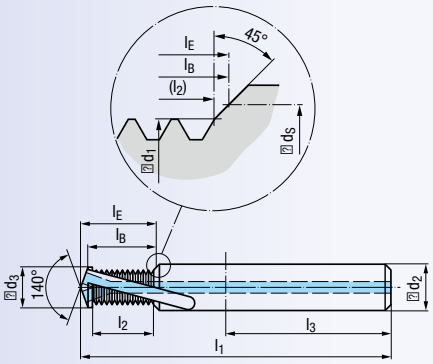
Andere Abmessungen auf Anfrage
Other sizes upon request

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

MF

DIN 13

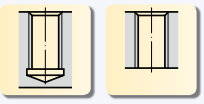


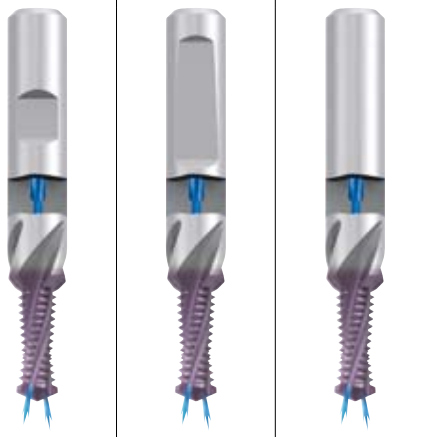


VHM | TICN

R20 | RH + LH

Z4 | DIN 6535 HB HE HA





Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

K 1.1-2 | N 1.5-6, 2.3

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

⌀D mm		P mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E	Dimens.-Ident	GF439246 BGF-VHM-Z4 2xD R20-IKZ-HB TICN	GF439546 BGF-VHM-Z4 2xD R20-IKZ-HE TICN	GF439846 BGF-VHM-Z4 2xD R20-IKZ-HA TICN
M 8	x	1	74	12,09	40	6,75	10	7	8,3	13,8	15	.0251	●	●	●
10	x	1	79	15,11	45	8,7	12	9	10,3	16,8	18,4	.0276	●	●	●
12	x	1,5	89	18,12	45	10,15	14	10,5	12,3	20,5	22,5	.0303	●	●	●
16	x	1,5	102	24,15	48	14,1	18	14,5	16,3	26,6	29,2	.0359	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

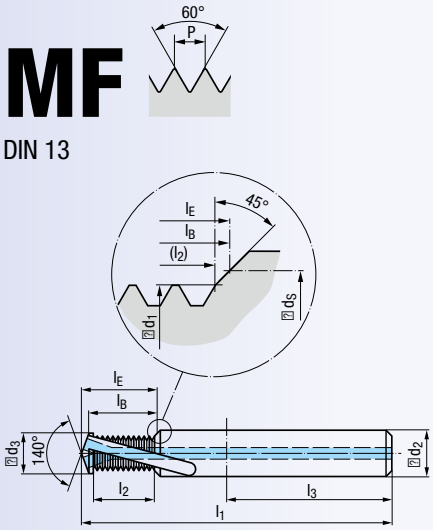
Gewinde-Tiefenlehrdorne
siehe Seite 544

Thread depth plug gauges,
see page 544

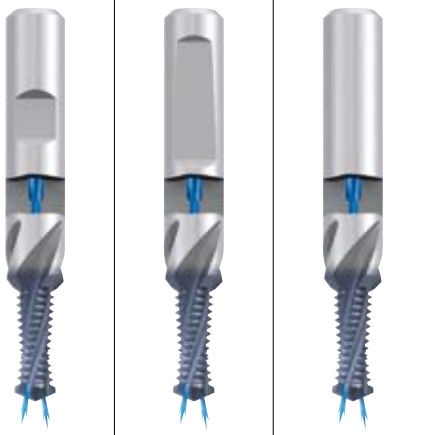
Bestell-Beispiel ´ Ordering example: **GF439246.0303**

MF

DIN 13



VHM | TIALN T3 | R20 | RH + LH | Z4 | DIN 6535 HB HE HA | 90° | ⌀D



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

K 1.1-2 | N 1.5-6, 2.3

Gewindetiefe
Thread depth

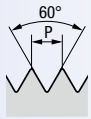
2 x D

Werkzeug-Ident · Tool ident

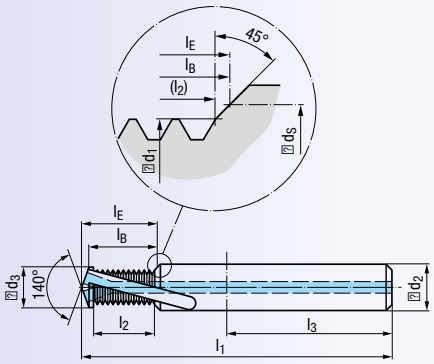
⌀D mm	P mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E	Dimens.-Ident	GF439248 BGF-VHM-Z4 2xD R20-IKZ-HB TIALN-T3	GF439548 BGF-VHM-Z4 2xD R20-IKZ-HE TIALN-T3	GF439848 BGF-VHM-Z4 2xD R20-IKZ-HA TIALN-T3
M 8	x 1	74	12,09	40	6,75	10	7	8,3	13,8	15	**.0251**	●	●	●
10	x 1	79	15,11	45	8,7	12	9	10,3	16,8	18,4	**.0276**	●	●	●
12	x 1,5	89	18,12	45	10,15	14	10,5	12,3	20,5	22,5	**.0303**	●	●	●
16	x 1,5	102	24,15	48	14,1	18	14,5	16,3	26,6	29,2	**.0359**	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

UNC



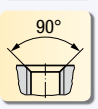
ASME B1.1

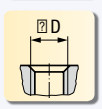


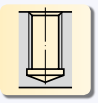
VHM

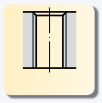
R30 | RH + LH

Z2 | DIN 6535 HB HE HA









Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

K 1.1-3.2 | N 1.1-5
N 2.2-3, 2.6 | N 3.1-2, 4.1

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident

⍰D inch	P Gg/1" (tpi)	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_3	⍰d_S	l_B	l_E	Dimens.-Ident	GF422201 BGF-VHM-Z2 1,5xD R30-IKZ-HB	GF422501 BGF-VHM-Z2 1,5xD R30-IKZ-HE	GF422801 BGF-VHM-Z2 1,5xD R30-IKZ-HA
Nr. 12	24	62	7,50	36	4,21	8	4,5	5,79	9,2	10	.5008			
1/4	20	62	8,99	36	4,85	8	5,2	6,65	11,1	12	.5009	●	●	●
5/16	18	74	11,39	40	6,25	10	6,6	8,25	13,7	14,9	.5010	●	●	●
3/8	16	79	14,40	45	7,65	12	8	9,83	16,9	18,4	.5011	●	●	●
7/16	14	79	16,45	45	9	12	9,4	11,43	19,3	21	.5012	●	●	●
1/2	13	89	17,71	45	10,35	14	10,75	13	20,8	22,8	.5013	●	●	●
9/16	12	102	21,31	48	11,8	16	12,25	14,61	24,7	26,9	.5014	●	●	●
5/8	11	102	23,21	48	13,1	18	13,5	16,18	26,9	29,3	.5015	●	●	●
3/4	10	115	28,10	50	16	20	16,5	19,35	32,1	35,1	.5016			

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

⍰D inch	P Gg/1" (tpi)	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_3	⍰d_S	l_B	l_E	Dimens.-Ident	GF432201 BGF-VHM-Z2 2xD R30-IKZ-HB	GF432501 BGF-VHM-Z2 2xD R30-IKZ-HE	GF432801 BGF-VHM-Z2 2xD R30-IKZ-HA
Nr. 12	24	62	10,66	36	4,21	8	4,5	5,79	12,4	13,2	.5008			
1/4	20	62	12,80	36	4,85	8	5,2	6,65	14,9	15,8	.5009	●	●	●
5/16	18	74	15,63	40	6,25	10	6,6	8,25	17,9	19,1	.5010	●	●	●
3/8	16	79	19,16	45	7,65	12	8	9,83	21,7	23,2	.5011	●	●	●
7/16	14	79	21,89	45	9	12	9,4	11,43	24,8	26,5	.5012	●	●	●
1/2	13	89	25,52	45	10,35	14	10,75	13	28,6	30,6	.5013	●	●	●
9/16	12	102	27,66	48	11,8	16	12,25	14,61	31	33,2	.5014	●	●	●
5/8	11	102	30,14	48	13,1	18	13,5	16,18	33,8	36,2	.5015	●	●	●
3/4	10	115	38,26	50	16	20	16,5	19,35	42,2	45,2	.5016			

Gewindetiefe
Thread depth

2,5 x D

Werkzeug-Ident · Tool ident

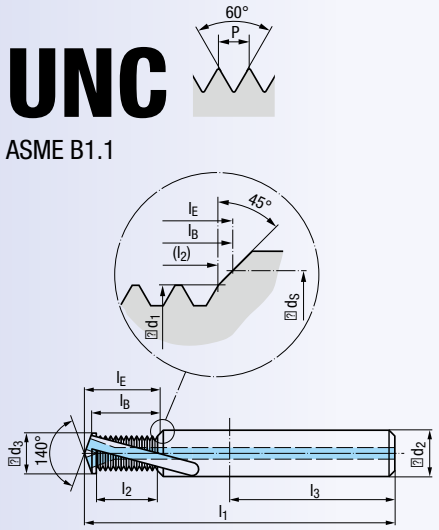
⍰D inch	P Gg/1" (tpi)	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_3	⍰d_S	l_B	l_E	Dimens.-Ident	GF442201 BGF-VHM-Z2 2,5xD R30-IKZ-HB	GF442501 BGF-VHM-Z2 2,5xD R30-IKZ-HE	GF442801 BGF-VHM-Z2 2,5xD R30-IKZ-HA
3/8	16	85	23,93	45	7,65	12	8	9,83	26,5	27,9	.5011	●	●	●
7/16	14	85	27,33	45	9	12	9,4	11,43	30,2	31,9	.5012	●	●	●
1/2	13	95	31,39	45	10,35	14	10,75	13	34,5	36,5	.5013	●	●	●
9/16	12	110	34,01	48	11,8	16	12,25	14,61	37,3	39,6	.5014	●	●	●
5/8	11	110	39,38	48	13,1	18	13,5	16,18	43	45,5	.5015			
3/4	10	125	45,88	50	16	20	16,5	19,35	49,9	52,9	.5016			

Andere Abmessungen auf Anfrage
Other sizes upon request

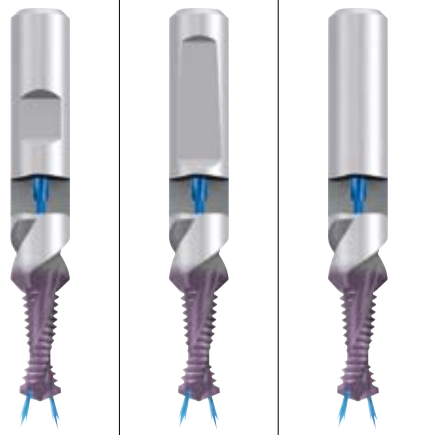
Bestell-Beispiel ´ Ordering example: **GF422201.5010**

UNC

ASME B1.1



VHM | TICN | R30 | RH + LH | Z2 | DIN 6535 HB HE HA | 90° | ⌀D



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

K 1.1-3.2 | N 1.1-6 | N 2.2-3, 2.6 | N 3.1-2, 4.1

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident

⌀D inch	P Gg/1" (tpi)	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E	Dimens.-Ident	GF422206 BGF-VHM-Z2 1,5xD R30-IKZ-HB TICN	GF422506 BGF-VHM-Z2 1,5xD R30-IKZ-HE TICN	GF422806 BGF-VHM-Z2 1,5xD R30-IKZ-HA TICN
Nr. 12	24	62	7,50	36	4,21	8	4,5	5,79	9,2	10	.5008			
1/4	20	62	8,99	36	4,85	8	5,2	6,65	11,1	12	.5009	●	●	●
5/16	18	74	11,39	40	6,25	10	6,6	8,25	13,7	14,9	.5010	●	●	●
3/8	16	79	14,40	45	7,65	12	8	9,83	16,9	18,4	.5011	●	●	●
7/16	14	79	16,45	45	9	12	9,4	11,43	19,3	21	.5012	●	●	●
1/2	13	89	17,71	45	10,35	14	10,75	13	20,8	22,8	.5013	●	●	●
9/16	12	102	21,31	48	11,8	16	12,25	14,61	24,7	26,9	.5014	●	●	●
5/8	11	102	23,21	48	13,1	18	13,5	16,18	26,9	29,3	.5015	●	●	●
3/4	10	115	28,10	50	16	20	16,5	19,35	32,1	35,1	.5016			

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

⌀D inch	P Gg/1" (tpi)	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E	Dimens.-Ident	GF432206 BGF-VHM-Z2 2xD R30-IKZ-HB TICN	GF432506 BGF-VHM-Z2 2xD R30-IKZ-HE TICN	GF432806 BGF-VHM-Z2 2xD R30-IKZ-HA TICN
Nr. 12	24	62	10,66	36	4,21	8	4,5	5,79	12,4	13,2	.5008			
1/4	20	62	12,80	36	4,85	8	5,2	6,65	14,9	15,8	.5009	●	●	●
5/16	18	74	15,63	40	6,25	10	6,6	8,25	17,9	19,1	.5010	●	●	●
3/8	16	79	19,16	45	7,65	12	8	9,83	21,7	23,2	.5011	●	●	●
7/16	14	79	21,89	45	9	12	9,4	11,43	24,8	26,5	.5012	●	●	●
1/2	13	89	25,52	45	10,35	14	10,75	13	28,6	30,6	.5013	●	●	●
9/16	12	102	27,66	48	11,8	16	12,25	14,61	31	33,2	.5014	●	●	●
5/8	11	102	30,14	48	13,1	18	13,5	16,18	33,8	36,2	.5015	●	●	●
3/4	10	115	38,26	50	16	20	16,5	19,35	42,2	45,2	.5016			

Gewindetiefe
Thread depth

2,5 x D

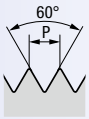
Werkzeug-Ident · Tool ident

⌀D inch	P Gg/1" (tpi)	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E	Dimens.-Ident	GF442206 BGF-VHM-Z2 2,5xD R30-IKZ-HB TICN	GF442506 BGF-VHM-Z2 2,5xD R30-IKZ-HE TICN	GF442806 BGF-VHM-Z2 2,5xD R30-IKZ-HA TICN
3/8	16	85	23,93	45	7,65	12	8	9,83	26,5	27,9	.5011	●	●	●
7/16	14	85	27,33	45	9	12	9,4	11,43	30,2	31,9	.5012	●	●	●
1/2	13	95	31,39	45	10,35	14	10,75	13	34,5	36,5	.5013	●	●	●
9/16	12	110	34,01	48	11,8	16	12,25	14,61	37,3	39,6	.5014	●	●	●
5/8	11	110	39,38	48	13,1	18	13,5	16,18	43	45,5	.5015			
3/4	10	125	45,88	50	16	20	16,5	19,35	49,9	52,9	.5016			

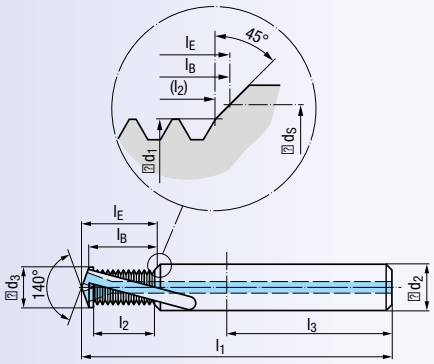
Andere Abmessungen auf Anfrage
Other sizes upon request

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

UNF



ASME B1.1



VHM

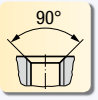
R30

RH + LH

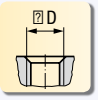
Z2

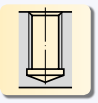
DIN 6535
HB
HE
HA

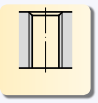
90°



⍰D







Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

K 1.1-3.2 | N 1.1-5 | N 2.2-3, 2.6 | N 3.1-2, 4.1

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident

⍰D inch	P Gg/1" (tpi)	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_3	⍰d_S	l_B	l_E	Dimens.-Ident	GF422201 BGF-VHM-Z2 1,5xD R30-IKZ-HB	GF422501 BGF-VHM-Z2 1,5xD R30-IKZ-HE	GF422801 BGF-VHM-Z2 1,5xD R30-IKZ-HA
Nr. 10	32	55	7,24	36	3,8	6	4,1	5,15	8,6	9,3	.5041			
Nr. 12	28	62	8,27	36	4,36	8	4,65	5,8	9,8	10,6	.5042			
1/4	28	62	9,16	36	5,26	8	5,5	6,65	10,6	11,6	.5043	●	●	●
5/16	24	74	11,74	40	6,6	10	6,9	8,25	13,5	14,7	.5044	●	●	●
3/8	24	79	13,87	45	8,2	12	8,5	9,85	15,6	17,2	.5045	●	●	●
7/16	20	79	17,91	45	9,55	12	9,9	11,4	19,9	21,7	.5046	●	●	●
1/2	20	89	19,20	45	11,1	14	11,5	13	21,2	23,3	.5047	●	●	●
9/16	18	102	21,32	48	12,5	16	12,9	14,6	23,6	25,9	.5048	●	●	●
5/8	18	102	22,74	48	14,1	18	14,5	16,2	25	27,6	.5049	●	●	●
3/4	16	115	28,78	50	17	20	17,5	19,4	31,3	34,5	.5050			

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

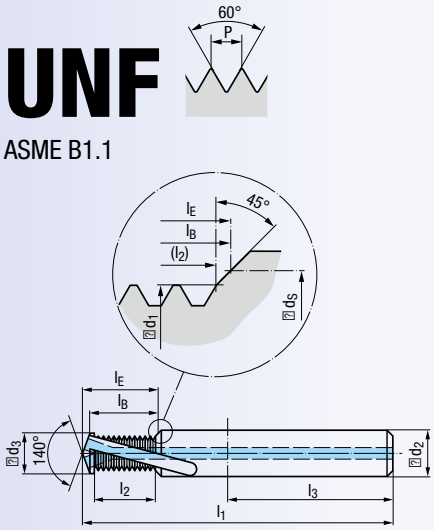
⍰D inch	P Gg/1" (tpi)	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_3	⍰d_S	l_B	l_E	Dimens.-Ident	GF432201 BGF-VHM-Z2 2xD R30-IKZ-HB	GF432501 BGF-VHM-Z2 2xD R30-IKZ-HE	GF432801 BGF-VHM-Z2 2xD R30-IKZ-HA
Nr. 10	32	55	9,63	36	3,8	6	4,1	5,15	11	11,7	.5041			
Nr. 12	28	62	10,99	36	4,36	8	4,65	5,8	12,5	13,3	.5042			
1/4	28	62	12,79	36	5,26	8	5,5	6,65	14,3	15,3	.5043	●	●	●
5/16	24	74	15,98	40	6,6	10	6,9	8,25	17,7	19	.5044	●	●	●
3/8	24	79	19,16	45	8,2	12	8,5	9,85	20,9	22,4	.5045	●	●	●
7/16	20	79	21,72	45	9,55	12	9,9	11,4	23,8	25,5	.5046	●	●	●
1/2	20	89	25,55	45	11,1	14	11,5	13	27,6	29,7	.5047	●	●	●
9/16	18	102	28,37	48	12,5	16	12,9	14,6	30,6	33	.5048	●	●	●
5/8	18	102	31,21	48	14,1	18	14,5	16,2	33,5	36,1	.5049	●	●	●
3/4	16	115	38,31	50	17	20	17,5	19,4	40,9	44,1	.5050			

Andere Abmessungen auf Anfrage
Other sizes upon request

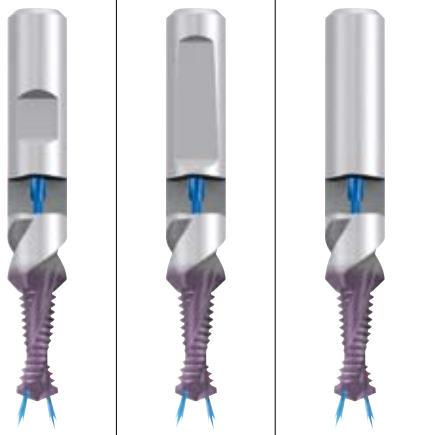
Bestell-Beispiel ´ Ordering example: **GF422201.5043**

UNF

ASME B1.1



VHM | TICN | R30 | RH + LH | Z2 | DIN 6535 HB HE HA | 90° | ⍰D



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

K 1.1-3.2 | N 1.1-6 | N 2.2-3, 2.6 | N 3.1-2, 4.1

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident

⍰D inch	P Gg/1" (tpi)	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_3	⍰d_S	l_B	l_E	Dimens.-Ident	GF422206 BGF-VHM-Z2 1,5xD R30-IKZ-HB TICN	GF422506 BGF-VHM-Z2 1,5xD R30-IKZ-HE TICN	GF422806 BGF-VHM-Z2 1,5xD R30-IKZ-HA TICN
Nr. 10	32	55	7,24	36	3,8	6	4,1	5,15	8,6	9,3	.5041			
Nr. 12	28	62	8,27	36	4,36	8	4,65	5,8	9,8	10,6	.5042			
1/4	28	62	9,16	36	5,26	8	5,5	6,65	10,6	11,6	.5043	●	●	●
5/16	24	74	11,74	40	6,6	10	6,9	8,25	13,5	14,7	.5044	●	●	●
3/8	24	79	13,87	45	8,2	12	8,5	9,85	15,6	17,2	.5045	●	●	●
7/16	20	79	17,91	45	9,55	12	9,9	11,4	19,9	21,7	.5046	●	●	●
1/2	20	89	19,20	45	11,1	14	11,5	13	21,2	23,3	.5047	●	●	●
9/16	18	102	21,32	48	12,5	16	12,9	14,6	23,6	25,9	.5048	●	●	●
5/8	18	102	22,74	48	14,1	18	14,5	16,2	25	27,6	.5049	●	●	●
3/4	16	115	28,78	50	17	20	17,5	19,4	31,3	34,5	.5050			

Gewindetiefe
Thread depth

2 x D

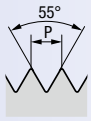
Werkzeug-Ident · Tool ident

⍰D inch	P Gg/1" (tpi)	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_3	⍰d_S	l_B	l_E	Dimens.-Ident	GF432206 BGF-VHM-Z2 2xD R30-IKZ-HB TICN	GF432506 BGF-VHM-Z2 2xD R30-IKZ-HE TICN	GF432806 BGF-VHM-Z2 2xD R30-IKZ-HA TICN
Nr. 10	32	55	9,63	36	3,8	6	4,1	5,15	11	11,7	.5041			
Nr. 12	28	62	10,99	36	4,36	8	4,65	5,8	12,5	13,3	.5042			
1/4	28	62	12,79	36	5,26	8	5,5	6,65	14,3	15,3	.5043	●	●	●
5/16	24	74	15,98	40	6,6	10	6,9	8,25	17,7	19	.5044	●	●	●
3/8	24	79	19,16	45	8,2	12	8,5	9,85	20,9	22,4	.5045	●	●	●
7/16	20	79	21,72	45	9,55	12	9,9	11,4	23,8	25,5	.5046	●	●	●
1/2	20	89	25,55	45	11,1	14	11,5	13	27,6	29,7	.5047	●	●	●
9/16	18	102	28,37	48	12,5	16	12,9	14,6	30,6	33	.5048	●	●	●
5/8	18	102	31,21	48	14,1	18	14,5	16,2	33,5	36,1	.5049	●	●	●
3/4	16	115	38,31	50	17	20	17,5	19,4	40,9	44,1	.5050			

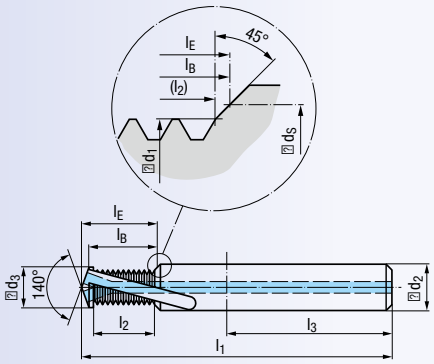
Andere Abmessungen auf Anfrage
Other sizes upon request

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

G



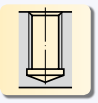
DIN EN ISO 228

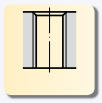


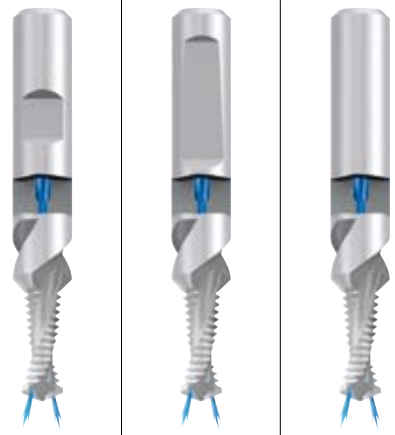
VHM

R30 | RH + LH

Z2 | DIN 6535 HB HE HA







Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

K 1.1-3.2 | N 1.1-5 | N 2.2-3, 2.6 | N 3.1-2, 4.1

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident													GF422201	GF422501	GF422801
Nenngröße Nom. size		P										Dimens.-Ident	BGF-VHM-Z2 1,5xD R30-IKZ-HB	BGF-VHM-Z2 1,5xD R30-IKZ-HE	BGF-VHM-Z2 1,5xD R30-IKZ-HA
	⍰D	Gg/1" (tpi)	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_3	⍰d_S	l_B	l_E				
G	1/8	28	79	14,56	45	8,5	12	8,8	10	16,1	17,7	**.4035**	●	●	●
	1/4	19	102	18,77	48	11,4	16	11,8	13,5	21	23,1	**.4036**	●	●	●
	3/8	19	102	25,46	48	14,85	18	15,25	17	27,7	30,5	**.4037**	●	●	●

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident													GF432201	GF432501	GF432801
Nenngröße Nom. size		P										Dimens.-Ident	BGF-VHM-Z2 2xD R30-IKZ-HB	BGF-VHM-Z2 2xD R30-IKZ-HE	BGF-VHM-Z2 2xD R30-IKZ-HA
	⍰D	Gg/1" (tpi)	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_3	⍰d_S	l_B	l_E				
G	1/8	28	79	19,10	45	8,5	12	8,8	10	20,6	22,2	**.4035**	●	●	●
	1/4	19	102	25,46	48	11,4	16	11,8	13,5	27,7	29,8	**.4036**	●	●	●
	3/8	19	102	33,48	48	14,85	18	15,25	17	35,7	38,5	**.4037**	●	●	●

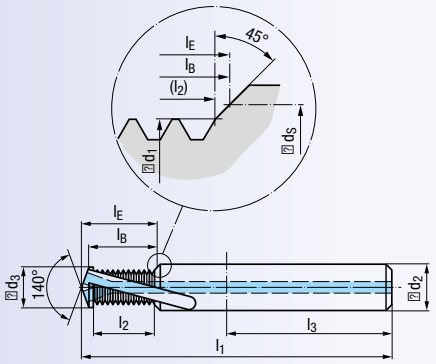
Andere Abmessungen auf Anfrage
Other sizes upon request

Bestell-Beispiel ´ Ordering example: **GF422201.4035**

G

55° P

DIN EN ISO 228

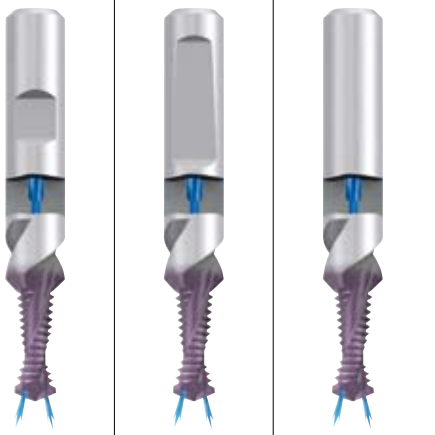


VHM | TICN

R30 | RH + LH

Z2 | DIN 6535 HB HE HA

90° | ⌀D



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

K 1.1-3.2 | N 1.1-6 | N 2.2-3, 2.6 | N 3.1-2, 4.1

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident

Nenngröße Nom. size	⌀D	P Gg/1" (tpi)	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E	Dimens.-Ident	GF422206 BGF-VHM-Z2 1,5xD R30-IKZ-HB TICN	GF422506 BGF-VHM-Z2 1,5xD R30-IKZ-HE TICN	GF422806 BGF-VHM-Z2 1,5xD R30-IKZ-HA TICN
G	1/8	28	79	14,56	45	8,5	12	8,8	10	16,1	17,7	.4035	●	●	●
	1/4	19	102	18,77	48	11,4	16	11,8	13,5	21	23,1	.4036	●	●	●
	3/8	19	102	25,46	48	14,85	18	15,25	17	27,7	30,5	.4037	●	●	●

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

Nenngröße Nom. size	⌀D	P Gg/1" (tpi)	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E	Dimens.-Ident	GF432206 BGF-VHM-Z2 2xD R30-IKZ-HB TICN	GF432506 BGF-VHM-Z2 2xD R30-IKZ-HE TICN	GF432806 BGF-VHM-Z2 2xD R30-IKZ-HA TICN
G	1/8	28	79	19,10	45	8,5	12	8,8	10	20,6	22,2	.4035	●	●	●
	1/4	19	102	25,46	48	11,4	16	11,8	13,5	27,7	29,8	.4036	●	●	●
	3/8	19	102	33,48	48	14,85	18	15,25	17	35,7	38,5	.4037	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

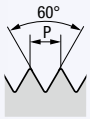
Programmierbeispiel für Bohrgewindefräser Typ BGF siehe Seite 407

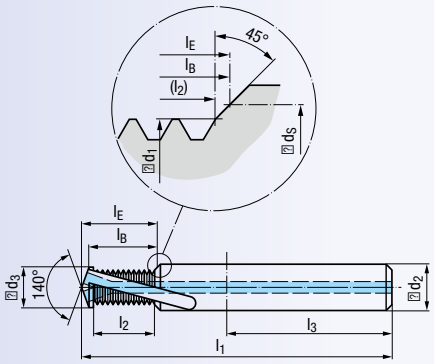
Programming example for drill thread mills type BGF, see page 407

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

EG M (STI)

DIN 8140-2

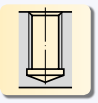


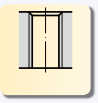


VHM

R30 | RH + LH

Z2 | DIN 6535 HB HE HA





Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

K 1.1-3.2 | N 1.1-5 | N 2.2-3, 2.6 | N 3.1-2, 4.1

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident													GF422201	GF422501	GF422801
Nenngröße Nom. size		P										Dimens.-Ident	BGF-VHM-Z2 1,5xD R30-IKZ-HB	BGF-VHM-Z2 1,5xD R30-IKZ-HE	BGF-VHM-Z2 1,5xD R30-IKZ-HA
	⌀D	mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E				
EG M	6	1	74	10,10	40	6	10	6,3	7,6	11,8	12,9	**.0971**	●	●	●
	8	1,25	79	12,60	45	8,1	12	8,4	9,9	14,6	16,1	**.0973**	●	●	●
	10	1,5	89	16,63	45	10	14	10,4	12,25	19,1	21	**.0975**	●	●	●
	12	1,75	102	19,38	48	12,1	16	12,5	14,6	22,2	24,5	**.0977**	●	●	●
	14	2	102	22,12	48	14,1	18	14,5	16,9	25,3	28	**.0978**	●	●	●
	16	2	115	26,17	50	16	20	16,5	18,9	29,4	32,4	**.0979**	●	●	●

Gewindetiefe
Thread depth

2 x D

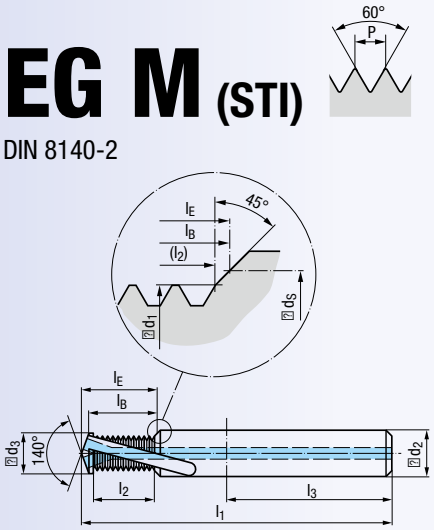
Werkzeug-Ident · Tool ident													GF432201	GF432501	GF432801
Nenngröße Nom. size		P										Dimens.-Ident	BGF-VHM-Z2 2xD R30-IKZ-HB	BGF-VHM-Z2 2xD R30-IKZ-HE	BGF-VHM-Z2 2xD R30-IKZ-HA
	⌀D	mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_3	⌀d_S	l_B	l_E				
EG M	6	1	74	13,10	40	6	10	6,3	7,6	14,8	15,9	**.0971**	●	●	●
	8	1,25	79	16,35	45	8,1	12	8,4	9,9	18,4	19,9	**.0973**	●	●	●
	10	1,5	89	21,13	45	10	14	10,4	12,25	23,6	25,5	**.0975**	●	●	●
	12	1,75	102	24,63	48	12,1	16	12,5	14,6	27,5	29,7	**.0977**	●	●	●
	14	2	102	30,12	48	14,1	18	14,5	16,9	33,3	36	**.0978**	●	●	●
	16	2	115	34,17	50	16	20	16,5	18,9	37,4	40,4	**.0979**	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

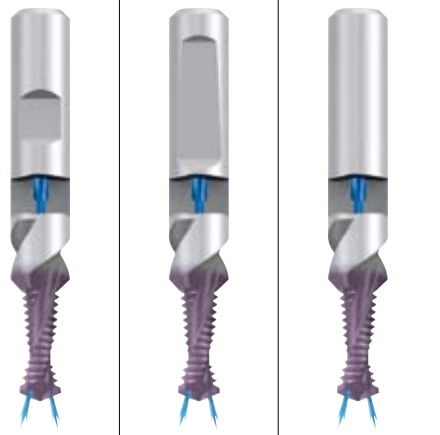
Bestell-Beispiel ´ Ordering example: **GF422201.0971**

EG M (STI)

DIN 8140-2



VHM | TICN | R30 | RH + LH | Z2 | DIN 6535 HB HE HA | 90° | ⍰D



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

K 1.1-3.2 | N 1.1-6 | N 2.2-3, 2.6 | N 3.1-2, 4.1

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident

Nenngröße Nom. size ⍰D	P mm	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_3	⍰d_S	l_B	l_E	Dimens.-Ident	GF422206 BGF-VHM-Z2 1,5xD R30-IKZ-HB TICN	GF422506 BGF-VHM-Z2 1,5xD R30-IKZ-HE TICN	GF422806 BGF-VHM-Z2 1,5xD R30-IKZ-HA TICN
EG M 6	1	74	10,10	40	6	10	6,3	7,6	11,8	12,9	**.0971**	●	●	●
8	1,25	79	12,60	45	8,1	12	8,4	9,9	14,6	16,1	**.0973**	●	●	●
10	1,5	89	16,63	45	10	14	10,4	12,25	19,1	21	**.0975**	●	●	●
12	1,75	102	19,38	48	12,1	16	12,5	14,6	22,2	24,5	**.0977**	●	●	●
14	2	102	22,12	48	14,1	18	14,5	16,9	25,3	28	**.0978**	●	●	●
16	2	115	26,17	50	16	20	16,5	18,9	29,4	32,4	**.0979**	●	●	●

Gewindetiefe
Thread depth

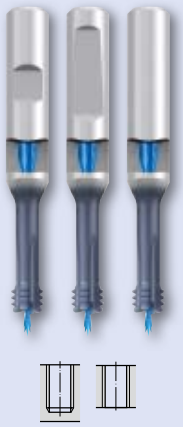
2 x D

Werkzeug-Ident · Tool ident

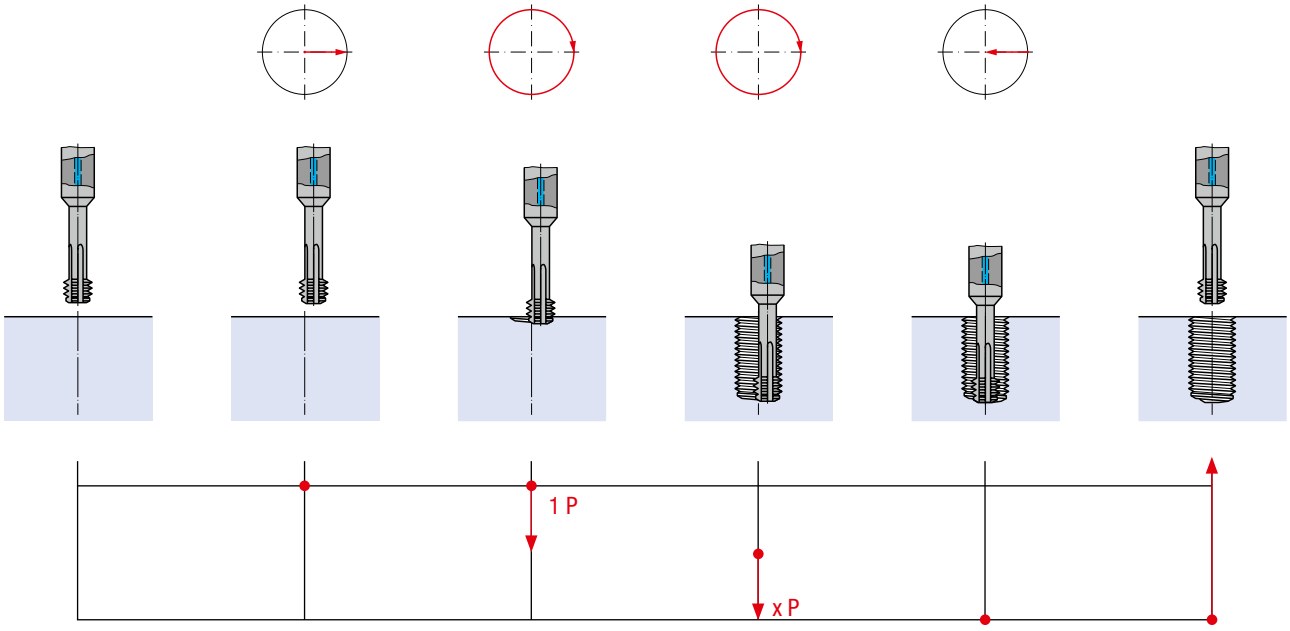
Nenngröße Nom. size ⍰D	P mm	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_3	⍰d_S	l_B	l_E	Dimens.-Ident	GF432206 BGF-VHM-Z2 2xD R30-IKZ-HB TICN	GF432506 BGF-VHM-Z2 2xD R30-IKZ-HE TICN	GF432806 BGF-VHM-Z2 2xD R30-IKZ-HA TICN
EG M 6	1	74	13,10	40	6	10	6,3	7,6	14,8	15,9	**.0971**	●	●	●
8	1,25	79	16,35	45	8,1	12	8,4	9,9	18,4	19,9	**.0973**	●	●	●
10	1,5	89	21,13	45	10	14	10,4	12,25	23,6	25,5	**.0975**	●	●	●
12	1,75	102	24,63	48	12,1	16	12,5	14,6	27,5	29,7	**.0977**	●	●	●
14	2	102	30,12	48	14,1	18	14,5	16,9	33,3	36	**.0978**	●	●	●
16	2	115	34,17	50	16	20	16,5	18,9	37,4	40,4	**.0979**	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

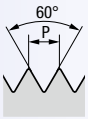
● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

Für die Bearbeitung von Aluminium und Grauguss For the machining of aluminium and cast iron	Für die Hartbearbeitung For hard materials	Für die Weichbearbeitung For soft/unhardened materials	
ZBGF-T	**ZBGF-H**	**ZBGF-W**	
			
Seite · Page			
308	309	310	**M, MF**
	311	312	**UNC**
	313	314	**UNF**

Gewindefräszyklus · Thread milling cycle

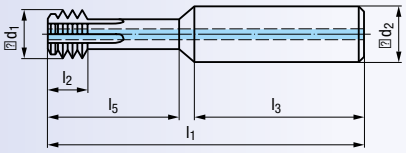


M, MF



DIN 13

VHM | TICN | RH + LH | RH-rot. | Z3 - Z4 | DIN 6535 HB HE HA | ⍰D



Für die Bearbeitung von Aluminium und Grauguss
For the machining of aluminium and cast iron

K 1.1-2 | N 1.1-6, 3.1-2

Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

Gewindetiefe
Thread depth

3 x D

Werkzeug-Ident · Tool ident

P mm	⍰D	l_1	l_2	l_3	l_5	⍰d_1	⍰d_2	Z	Dimens.-Ident	GF753276 ZBGF-T-VHM 3xD IKZ-HB TICN	GF753576 ZBGF-T-VHM 3xD IKZ-HE TICN	GF753876 ZBGF-T-VHM 3xD IKZ-HA TICN
1	M 6 - M 7	65	4	36	20	4,5	8	3	**.0060**	●	●	●
1,25	M 8 - M10 x 1,25	80	5	40	27	6,2	10	4	**.0080**	●	●	●
1,5	M10 - M12 x 1,5	85	6	40	34	7,75	10	4	**.0100**	●	●	●
1,75	M12	100	7	45	39	9,2	12	4	**.0112**	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

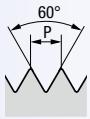
Programmierbeispiel für Zirkular-Bohrgewindefräser Typ ZBGF
siehe Seite 408

Programming example for circular drill thread mills type ZBGF,
see page 408

Bestell-Beispiel ´ Ordering example: **GF753276.0060**

M, MF

DIN 13



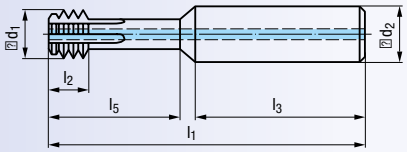
VHM | TIALN T3

RH | LH-rot.

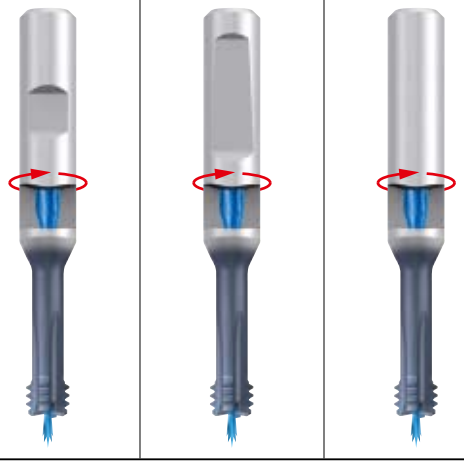
Z4

DIN 6535 HB HE HA

⌀D



Für die Hartbearbeitung
For hard materials



N 2.7-8 | H 1.1-5

Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

Gewindetiefe
Thread depth

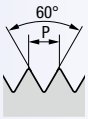
3 x D

Werkzeug-Ident · Tool ident										GF733208	GF733508	GF733808
P mm	⌀D	l_1	l_2	l_3	l_5	⌀d_1	⌀d_2	Z	Dimens.-Ident	ZBGF-H-VHM 2xD IKZ-HB TIALN-T3	ZBGF-H-VHM 2xD IKZ-HE TIALN-T3	ZBGF-H-VHM 2xD IKZ-HA TIALN-T3
1,25	M 8 - M10 x 1,25	71	5	40	19	6,2	10	4	**.0080**	●	●	●
1,5	M10 - M12 x 1,5	76	6	40	25	7,75	10	4	**.0100**	●	●	●
1,75	M12	86	7	45	31	9,2	12	4	**.0112**	●	●	●
2	M14 - M16	98	8	48	36	11,1	16	4	**.0114**	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

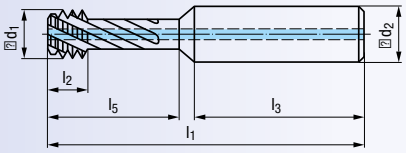
● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

M, MF

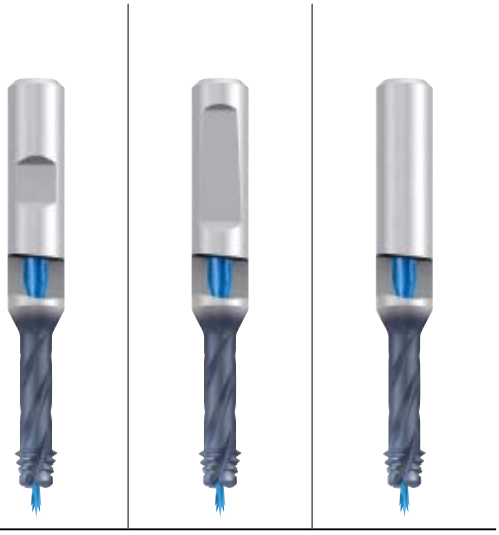


DIN 13

VHM | TIALN T4 | RH + LH | RH-rot. | R30 | Z3 - Z4 | DIN 6535 HB HE HA | ⍰D



Für die Weichbearbeitung
For soft/unhardened materials



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2 | N 1.1-6 | N 2.1-6
N 3.1-2 | N 4.1, 4.3-4 | S 1.1-3 | S 2.1-2, 2.4 | H 1.1-2

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

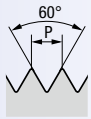
P mm	⍰D	l_1	l_2	l_3	l_5	⍰d_1	⍰d_2	Z	Dimens.-Ident	GF732257 ZBGF-W-VHM 2xD R30-IKZ-HB TIALN-T4	GF732557 ZBGF-W-VHM 2xD R30-IKZ-HE TIALN-T4	GF732857 ZBGF-W-VHM 2xD R30-IKZ-HA TIALN-T4
1	M 6 - M 7	60	4,6	36	16	4,5	8	3	**.0060**	●	●	●
1,25	M 8 - M10 x 1,25	71	5,7	40	21	6,2	10	4	**.0080**	●	●	●
1,5	M10 - M12 x 1,5	76	6,9	40	26	7,75	10	4	**.0100**	●	●	●
1,75	M12	86	7,9	45	32	9,2	12	4	**.0112**	●	●	●
2	M14 - M16	98	9,1	48	41	11,08	16	4	**.0114**	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

Bestell-Beispiel ´ Ordering example: **GF732257.0080**

UNC

ASME B1.1

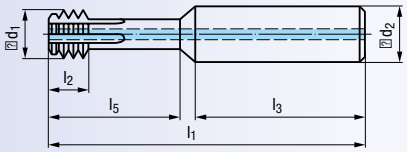


VHM | TIALN T3

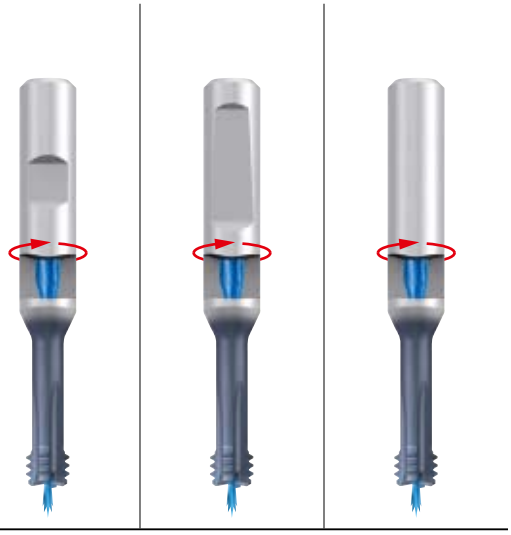
RH | LH-rot.

Z4 - Z5

DIN 6535 HB HE HA



Für die Hartbearbeitung
For hard materials



N 2.7-8 | H 1.1-5

Einsatzgebiete ± Material
Range of application ± material
» 282

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

D inch	P Gg/1" (tpi)	l_1	l_2	l_3	l_5	d_1	d_2	Z	Dimens.-Ident	GF733208 ZBGF-H-VHM 2xD IKZ-HB TIALN-T3	GF733508 ZBGF-H-VHM 2xD IKZ-HE TIALN-T3	GF733808 ZBGF-H-VHM 2xD IKZ-HA TIALN-T3
5/16	18	76	5,6	40	22	5,64	10	4	.5010	●	●	●
3/8	16	76	6,4	40	27	7,16	10	4	.5011	●	●	●
7/16	14	86	7,3	45	31	8,47	12	4	.5012	●	●	●
1/2	13	86	7,8	45	33	10,08	12	4	.5013	●	●	●
5/8	11	98	9,2	48	42	12,89	16	4	.5015	●	●	●
3/4	10	111	10,2	50	51	15,5	20	5	.5016	●	●	●

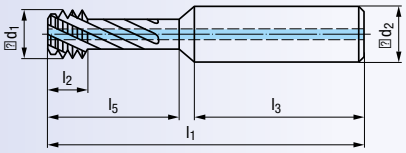
Andere Abmessungen auf Anfrage
Other sizes upon request

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

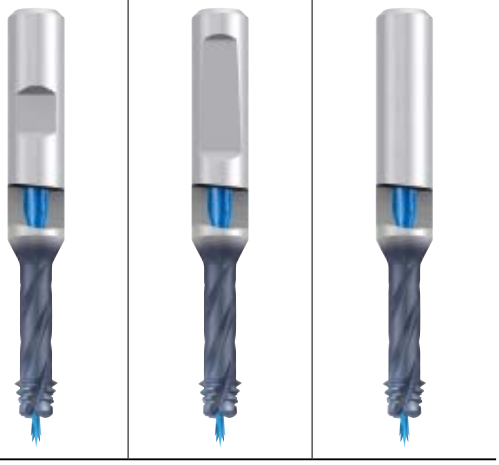
UNC

ASME B1.1

VHM | TIALN T4 | RH + LH | RH-rot. | R30 | Z3 - Z5 | DIN 6535 HB HE HA | ⌀D



Für die Weichbearbeitung
For soft/unhardened materials



Einsatzgebiete ± Material
Range of application ± material
» 282

P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2 | N 1.1-6 | N 2.1-6
N 3.1-2 | N 4.1, 4.3-4 | S 1.1-3 | S 2.1-2, 2.4 | H 1.1-2

Gewindetiefe
Thread depth

2 x D

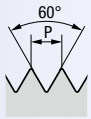
Werkzeug-Ident · Tool ident

⌀D inch	P Gg/1" (tpi)	l_1	l_2	l_3	l_5	⌀d_1	⌀d_2	Z	Dimens.-Ident	GF732257 ZBGF-W-VHM 2xD R30-IKZ-HB TIALN-T4	GF732557 ZBGF-W-VHM 2xD R30-IKZ-HE TIALN-T4	GF732857 ZBGF-W-VHM 2xD R30-IKZ-HA TIALN-T4
1/4	20	60	5,8	36	17	4,64	8	3	.5009	●	●	●
5/16	18	76	6,4	40	22	5,64	10	4	.5010	●	●	●
3/8	16	76	7,2	40	26	7,16	10	4	.5011	●	●	●
7/16	14	86	8,1	45	31	8,47	12	4	.5012	●	●	●
1/2	13	86	8,9	45	33	10,08	12	4	.5013	●	●	●
5/8	11	98	10,4	48	42	12,89	16	4	.5015	●	●	●
3/4	10	111	11,4	50	51	15,5	20	5	.5016	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

Bestell-Beispiel ´ Ordering example: **GF732257.5012**

UNF



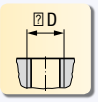
ASME B1.1

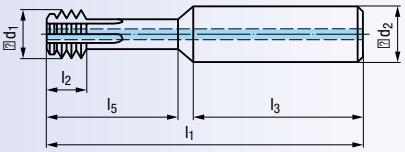
VHM | TIALN T3

RH | LH-rot.

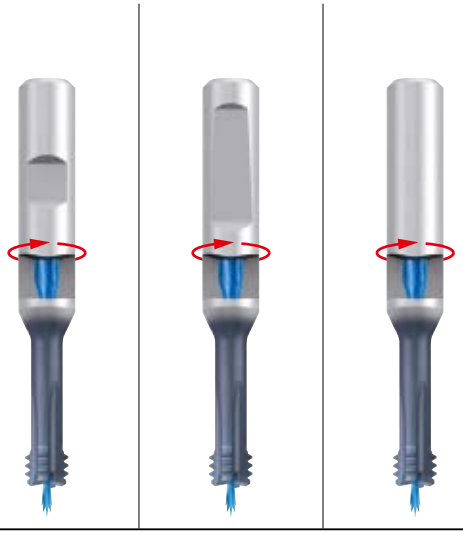
Z4 - Z5

DIN 6535
HB
HE
HA





Für die Hartbearbeitung
For hard materials



N 2.7-8 | H 1.1-5

Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

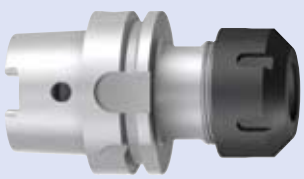
Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

⍰D inch	P Gg/1" (tpi)	l_1	l_2	l_3	l_5	⍰d_1	⍰d_2	Z	Dimens.-Ident	GF733208 ZBGF-H-VHM 2xD IKZ-HB TIALN-T3	GF733508 ZBGF-H-VHM 2xD IKZ-HE TIALN-T3	GF733808 ZBGF-H-VHM 2xD IKZ-HA TIALN-T3
5/16	24	76	4,2	40	22	5,64	10	4	.5044	●	●	●
3/8	24	76	4,2	40	27	7,14	10	4	.5045	●	●	●
7/16 - 1/2	20	86	5,1	45	33	8,45	12	4	.5046	●	●	●
9/16 - 5/8	18	98	5,6	48	41	11,27	16	4	.5048	●	●	●
3/4	16	111	6,4	50	51	15,38	20	5	.5050	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

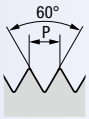


Spannzangen-Aufnahmen Typ KSN/Synchro
siehe Seite 613 - 615

Collet holders type KSN/Synchro,
see page 613 - 615

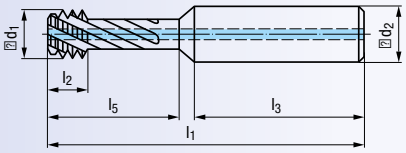
● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

UNF

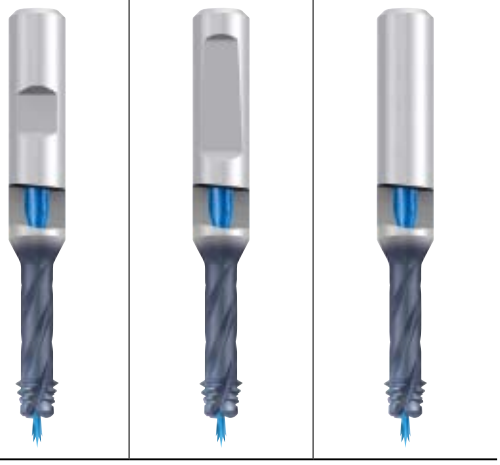


ASME B1.1

VHM | TIALN T4 | RH + LH | RH-rot. | R30 | Z3 - Z5 | DIN 6535 HB HE HA | ⌀D



Für die Weichbearbeitung
For soft/unhardened materials



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2 | N 1.1-6 | N 2.1-6
N 3.1-2 | N 4.1, 4.3-4 | S 1.1-3 | S 2.1-2, 2.4 | H 1.1-2

Gewindetiefe
Thread depth

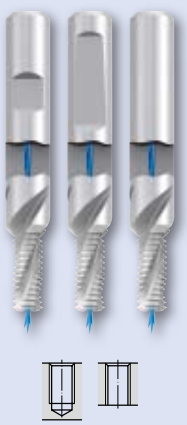
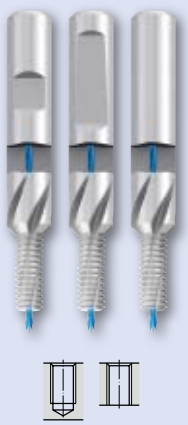
2 x D

Werkzeug-Ident · Tool ident

⌀D inch	P Gg/1" (tpi)	l_1	l_2	l_3	l_5	⌀d_1	⌀d_2	Z	Dimens.-Ident	GF732257 ZBGF-W-VHM 2xD R30-IKZ-HB TIALN-T4	GF732557 ZBGF-W-VHM 2xD R30-IKZ-HE TIALN-T4	GF732857 ZBGF-W-VHM 2xD R30-IKZ-HA TIALN-T4
1/4	28	60	3,5	36	17	4,66	8	3	**.5043**	●	●	●
5/16	24	76	4,8	40	22	5,64	10	4	**.5044**	●	●	●
3/8	24	76	4,8	40	26	7,14	10	4	**.5045**	●	●	●
7/16 - 1/2	20	86	5,8	45	33	8,45	12	4	**.5046**	●	●	●
9/16 - 5/8	18	98	6,4	48	41	11,27	16	4	**.5048**	●	●	●
3/4	16	111	7,2	50	51	15,38	20	5	**.5050**	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

Bestell-Beispiel ´ Ordering example: **GF732257.5050**

Gerade Nuten Straight flutes	Rechtsspiralnuten Right-hand spiral flutes	Rechtsspiralnuten Right-hand spiral flutes	
GSF	**GSF**	**GSF-Z**	
			
Seite · Page			
316 - 317	318 - 319	320 - 321	**M**
322 - 323	324 - 325	326 - 327	**MF**
334 - 335			**LK-M**
	328 - 329		**UNC**
	330 - 331		**UNF**
	332 - 333		**G**

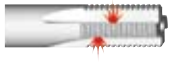
Mögliche Modifikationen · Possible modifications


Stirnfase ohne/mit Stirnschnitt
Face chamfer with/without cutting face


Unvollständigen Gang entfernen
Remove incomplete thread


Halsfreischliff
Recessed neck

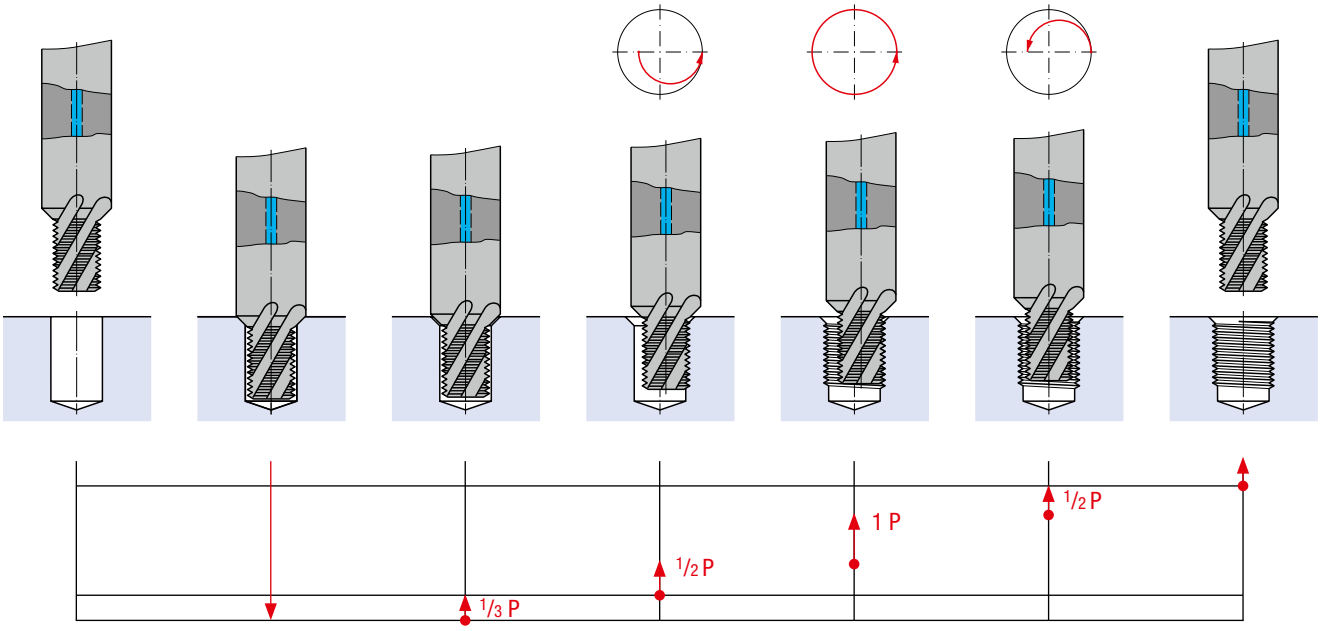

AZR/AZ (ausgesetzte Zähne)
AZR/AZ (alternating teeth)


IKZN (innere Kühlschmierstoff-Zufuhr mit Austritt in den Nuten)
IKZN (internal coolant-lubricant supply exiting in the flutes)


Schaftkühlnuten
Coolant grooves along the shank

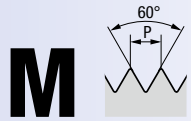
Eine Beschreibung dieser Modifikationsmöglichkeiten finden Sie auf Seite 400 - 401
For a description of these modifications, see pages 400 - 401

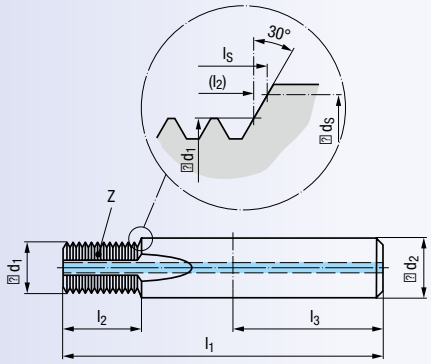
Gewindefräszyklus · Thread milling cycle



M

DIN 13

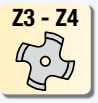




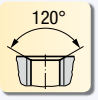
VHM

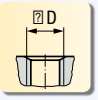
RH + LH

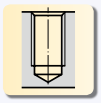
Z3 - Z4

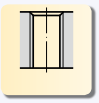


DIN 6535
HB
HE
HA









Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | K 1.1-4.2 | N 1.1-5, 2.1-6
N 3.1-2 | N 4.1-2, 5.2 | S 1.1-3

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident

⌀D mm	P mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_S	l_S	Z	Dimens.-Ident	GF323101 GSF-VHM 1,5xD IKZ-HB	GF323401 GSF-VHM 1,5xD IKZ-HE	GF323701 GSF-VHM 1,5xD IKZ-HA
M 3	0,5	42	4,7	28	2,4	4	3,3	5	3	.0030			● [1]
4	0,7	55	5,9	36	3,15	6	4,3	6,3	3	.0040	●	●	●
5	0,8	55	7,6	36	4	6	5,3	7,9	3	.0050	●	●	●
6	1	62	9,5	36	4,8	8	6,3	9,9	3	.0060	●	●	●
8	1,25	74	13,1	40	6,5	10	8,3	13,6	3	.0080	●	●	●
10	1,5	80	15,7	45	8,2	12	10,3	16,3	3	.0100	●	●	●
12	1,75	90	18,3	45	9,9	14	12,3	19	4	.0112	●	●	●
14	2	100	23	48	11,6	16	14,3	23,7	4	.0114	●	●	●
16	2	102	25	48	13,6	18	16,3	25,7	4	.0116	●	●	●

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

⌀D mm	P mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_S	l_S	Z	Dimens.-Ident	GF333101 GSF-VHM 2xD IKZ-HB	GF333401 GSF-VHM 2xD IKZ-HE	GF333701 GSF-VHM 2xD IKZ-HA
M 3	0,5	42	6,2	28	2,4	4	3,3	6,5	3	.0030			● [2]
4	0,7	55	8,7	36	3,15	6	4,3	9,1	3	.0040	●	●	●
5	0,8	55	10,8	36	4	6	5,3	11,1	3	.0050	●	●	●
6	1	62	12,5	36	4,8	8	6,3	12,9	3	.0060	●	●	●
8	1,25	74	16,8	40	6,5	10	8,3	17,4	3	.0080	●	●	●
10	1,5	80	20,2	45	8,2	12	10,3	20,8	3	.0100	●	●	●
12	1,75	90	25,3	45	9,9	14	12,3	26	4	.0112	●	●	●
14	2	100	29	48	11,6	16	14,3	29,7	4	.0114	●	●	●
16	2	102	33	48	13,6	18	16,3	33,7	4	.0116	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

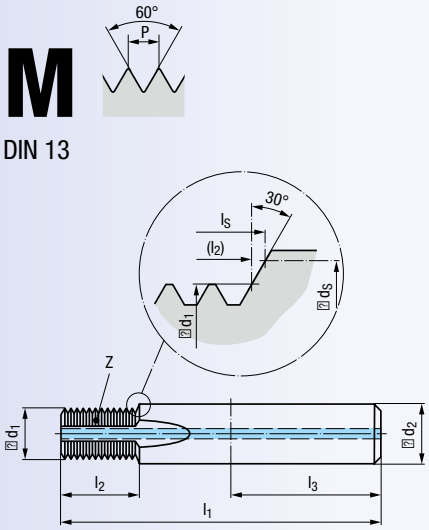
[1] M3 ohne innere Kühlschmierstoff-Zufuhr IKZ! Werkzeug-Ident = **GF303701**
M3 without internal coolant-lubricant supply IKZ! Tool ident = **GF303701**

[2] M3 ohne innere Kühlschmierstoff-Zufuhr IKZ! Werkzeug-Ident = **GF313701**
M3 without internal coolant-lubricant supply IKZ! Tool ident = **GF313701**

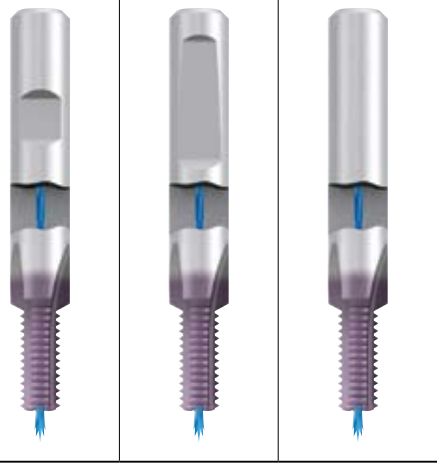
Bestell-Beispiel ´ Ordering example: **GF323101.0040**

M

DIN 13



VHM | TICN | RH + LH | Z3 - Z4 | DIN 6535 HB HE HA | 120° | D



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2
N 1.1-5.2 | S 1.1-2.6 | H 1.1-2

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident

D mm	P mm	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	Dimens.-Ident	GF323106 GSF-VHM 1,5xD IKZ-HB TICN	GF323406 GSF-VHM 1,5xD IKZ-HE TICN	GF323706 GSF-VHM 1,5xD IKZ-HA TICN
M 3	0,5	42	4,7	28	2,4	4	3,3	5	3	.0030			● [1]
4	0,7	55	5,9	36	3,15	6	4,3	6,3	3	.0040	●	●	●
5	0,8	55	7,6	36	4	6	5,3	7,9	3	.0050	●	●	●
6	1	62	9,5	36	4,8	8	6,3	9,9	3	.0060	●	●	●
8	1,25	74	13,1	40	6,5	10	8,3	13,6	3	.0080	●	●	●
10	1,5	80	15,7	45	8,2	12	10,3	16,3	3	.0100	●	●	●
12	1,75	90	18,3	45	9,9	14	12,3	19	4	.0112	●	●	●
14	2	100	23	48	11,6	16	14,3	23,7	4	.0114	●	●	●
16	2	102	25	48	13,6	18	16,3	25,7	4	.0116	●	●	●

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

D mm	P mm	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	Dimens.-Ident	GF333106 GSF-VHM 2xD IKZ-HB TICN	GF333406 GSF-VHM 2xD IKZ-HE TICN	GF333706 GSF-VHM 2xD IKZ-HA TICN
M 3	0,5	42	6,2	28	2,4	4	3,3	6,5	3	.0030			● [2]
4	0,7	55	8,7	36	3,15	6	4,3	9,1	3	.0040	●	●	●
5	0,8	55	10,8	36	4	6	5,3	11,1	3	.0050	●	●	●
6	1	62	12,5	36	4,8	8	6,3	12,9	3	.0060	●	●	●
8	1,25	74	16,8	40	6,5	10	8,3	17,4	3	.0080	●	●	●
10	1,5	80	20,2	45	8,2	12	10,3	20,8	3	.0100	●	●	●
12	1,75	90	25,3	45	9,9	14	12,3	26	4	.0112	●	●	●
14	2	100	29	48	11,6	16	14,3	29,7	4	.0114	●	●	●
16	2	102	33	48	13,6	18	16,3	33,7	4	.0116	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

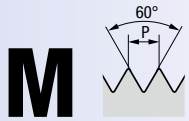
[1] M3 ohne innere Kühlschmierstoff-Zufuhr IKZ! Werkzeug-Ident = **GF303706**
M3 without internal coolant-lubricant supply IKZ! Tool ident = **GF303706**

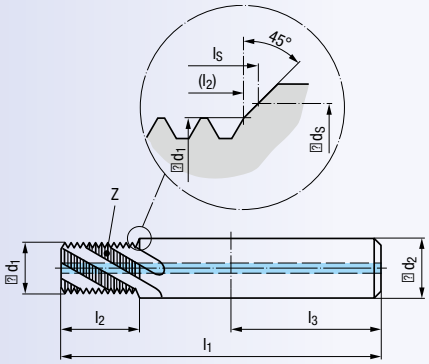
[2] M3 ohne innere Kühlschmierstoff-Zufuhr IKZ! Werkzeug-Ident = **GF313706**
M3 without internal coolant-lubricant supply IKZ! Tool ident = **GF313706**

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

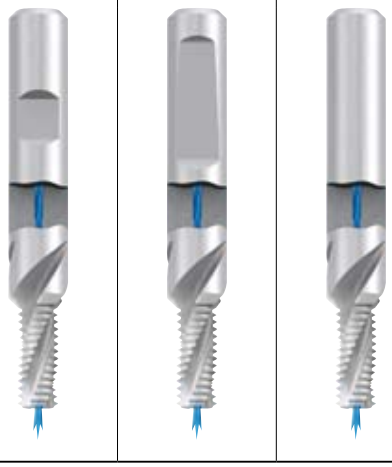
M

DIN 13





VHM | R30 | RH + LH | Z3 - Z4 | DIN 6535 HB HE HA | 90° | D



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-3.1 | K 1.1-4.2 | N 1.1-5 | N 2.1-6 | N 3.1-4.2, 5.2 | S 1.1-2

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident

	D mm	P mm	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	Dimens.-Ident	GF322101 GSF-VHM 1,5xD R30-IKZ-HB	GF322401 GSF-VHM 1,5xD R30-IKZ-HE	GF322701 GSF-VHM 1,5xD R30-IKZ-HA
M	5	0,8	55	7,6	36	4	6	5,3	8,2	3	.0050	●	●	●
	6	1	62	9,5	36	4,8	8	6,3	10,2	3	.0060	●	●	●
	8	1,25	74	13,1	40	6,5	10	8,3	13,9	3	.0080	●	●	●
	10	1,5	80	15,8	45	8,2	12	10,3	16,7	3	.0100	●	●	●
	12	1,75	90	18,4	45	9,9	14	12,3	19,5	4	.0112	●	●	●
	14	2	100	23	48	11,6	16	14,3	24,2	4	.0114	●	●	●
	16	2	102	25	48	13,6	18	16,3	26,2	4	.0116	●	●	●

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

	D mm	P mm	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	Dimens.-Ident	GF332101 GSF-VHM 2xD R30-IKZ-HB	GF332401 GSF-VHM 2xD R30-IKZ-HE	GF332701 GSF-VHM 2xD R30-IKZ-HA
M	5	0,8	55	10,8	36	4	6	5,3	11,4	3	.0050	●	●	●
	6	1	62	12,5	36	4,8	8	6,3	13,2	3	.0060	●	●	●
	8	1,25	74	16,9	40	6,5	10	8,3	17,7	3	.0080	●	●	●
	10	1,5	80	20,3	45	8,2	12	10,3	21,2	3	.0100	●	●	●
	12	1,75	90	25,4	45	9,9	14	12,3	26,5	4	.0112	●	●	●
	14	2	100	29	48	11,6	16	14,3	30,2	4	.0114	●	●	●
	16	2	102	33	48	13,6	18	16,3	34,2	4	.0116	●	●	●

Gewindetiefe
Thread depth

2,5 x D

Werkzeug-Ident · Tool ident

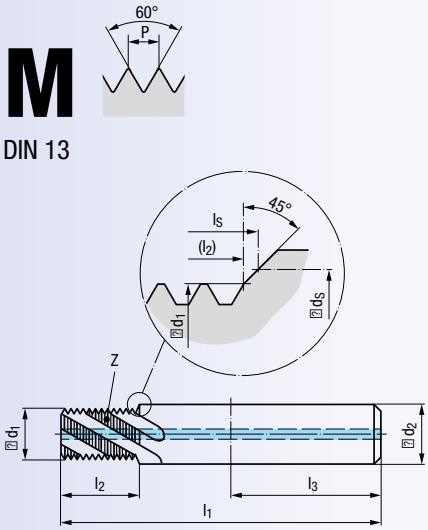
	D mm	P mm	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	Dimens.-Ident	GF342101 GSF-VHM 2,5xD R30-IKZ-HB	GF342401 GSF-VHM 2,5xD R30-IKZ-HE	GF342701 GSF-VHM 2,5xD R30-IKZ-HA
M	5	0,8	58	13,2	36	4	6	5,3	13,8	3	.0050	●	●	●
	6	1	65	15,5	36	4,8	8	6,3	16,2	3	.0060	●	●	●
	8	1,25	78	20,6	40	6,5	10	8,3	21,4	3	.0080	●	●	●
	10	1,5	85	26,3	45	8,2	12	10,3	27,2	3	.0100	●	●	●
	12	1,75	95	30,7	45	9,9	14	12,3	31,7	4	.0112	●	●	●
	14	2	110	37	48	11,6	16	14,3	38,2	4	.0114			
	16	2	110	41	48	13,6	18	16,3	42,2	4	.0116	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

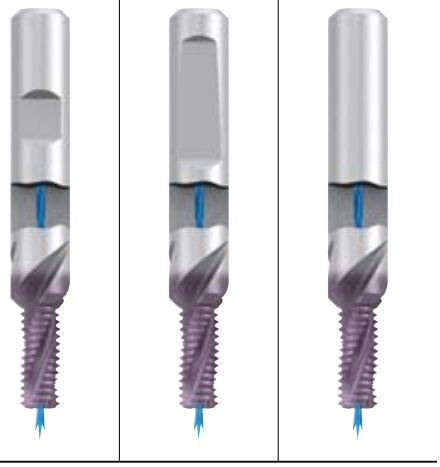
Bestell-Beispiel ´ Ordering example: **GF322101.0100**

M

DIN 13



VHM | TICN | R30 | RH + LH | Z3 - Z4 | DIN 6535 HB HE HA | 90° | D



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-3.1 | M 1.1-2.1 | K 1.1-4.2 | N 1.1-2.7 | N 3.1-5.2 | S 1.1-2, 2.1

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident												GF322106	GF322406	GF322706
	D mm	P mm	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	Dimens.-Ident	GSF-VHM 1,5xD R30-IKZ-HB TICN	GSF-VHM 1,5xD R30-IKZ-HE TICN	GSF-VHM 1,5xD R30-IKZ-HA TICN
M	5	0,8	55	7,6	36	4	6	5,3	8,2	3	.0050	●	●	●
	6	1	62	9,5	36	4,8	8	6,3	10,2	3	.0060	●	●	●
	8	1,25	74	13,1	40	6,5	10	8,3	13,9	3	.0080	●	●	●
	10	1,5	80	15,8	45	8,2	12	10,3	16,7	3	.0100	●	●	●
	12	1,75	90	18,4	45	9,9	14	12,3	19,5	4	.0112	●	●	●
	14	2	100	23	48	11,6	16	14,3	24,2	4	.0114	●	●	●
	16	2	102	25	48	13,6	18	16,3	26,2	4	.0116	●	●	●

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident												GF332106	GF332406	GF332706
	D mm	P mm	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	Dimens.-Ident	GSF-VHM 2xD R30-IKZ-HB TICN	GSF-VHM 2xD R30-IKZ-HE TICN	GSF-VHM 2xD R30-IKZ-HA TICN
M	5	0,8	55	10,8	36	4	6	5,3	11,4	3	.0050	●	●	●
	6	1	62	12,5	36	4,8	8	6,3	13,2	3	.0060	●	●	●
	8	1,25	74	16,9	40	6,5	10	8,3	17,7	3	.0080	●	●	●
	10	1,5	80	20,3	45	8,2	12	10,3	21,2	3	.0100	●	●	●
	12	1,75	90	25,4	45	9,9	14	12,3	26,5	4	.0112	●	●	●
	14	2	100	29	48	11,6	16	14,3	30,2	4	.0114	●	●	●
	16	2	102	33	48	13,6	18	16,3	34,2	4	.0116	●	●	●

Gewindetiefe
Thread depth

2,5 x D

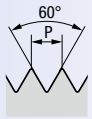
Werkzeug-Ident · Tool ident												GF342106	GF342406	GF342706
	D mm	P mm	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	Dimens.-Ident	GSF-VHM 2,5xD R30-IKZ-HB TICN	GSF-VHM 2,5xD R30-IKZ-HE TICN	GSF-VHM 2,5xD R30-IKZ-HA TICN
M	5	0,8	58	13,2	36	4	6	5,3	13,8	3	.0050	●	●	●
	6	1	65	15,5	36	4,8	8	6,3	16,2	3	.0060	●	●	●
	8	1,25	78	20,6	40	6,5	10	8,3	21,4	3	.0080	●	●	●
	10	1,5	85	26,3	45	8,2	12	10,3	27,2	3	.0100	●	●	●
	12	1,75	95	30,7	45	9,9	14	12,3	31,7	4	.0112	●	●	●
	14	2	110	37	48	11,6	16	14,3	38,2	4	.0114			
	16	2	110	41	48	13,6	18	16,3	42,2	4	.0116	●	●	●

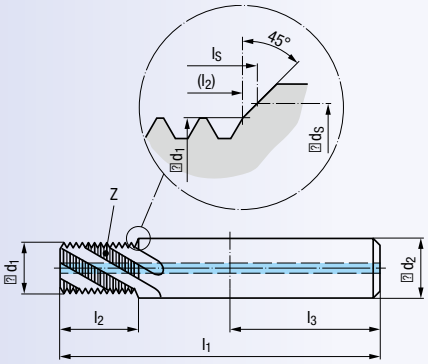
Andere Abmessungen auf Anfrage
Other sizes upon request

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

M

DIN 13





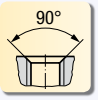
VHM

R15

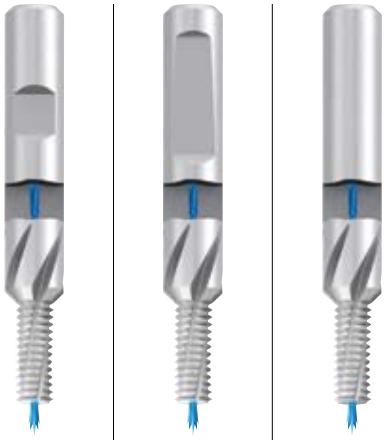
RH + LH

Z4 - Z5

DIN 6535
HB
HE
HA



Mit höherer Nutenzahl
With increased number of flutes



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | K 1.1-4.2 | N 1.1-5, 2.1-6
N 3.1-2 | N 4.1-2, 5.2 | S 1.1-3

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

	⍰D mm	P mm	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_S	l_S	Z	Dimens.-Ident	GF335121 GSF-Z-VHM 2xD R15-IKZ-HB	GF335421 GSF-Z-VHM 2xD R15-IKZ-HE	GF335721 GSF-Z-VHM 2xD R15-IKZ-HA
M	6	1	62	12,5	36	4,8	8	6,3	13,2	4	.0060	●	●	●
	8	1,25	74	16,9	40	6,5	10	8,3	17,7	4	.0080	●	●	●
	10	1,5	80	20,3	45	8,2	12	10,3	21,2	5	.0100	●	●	●
	12	1,75	90	25,4	45	9,9	14	12,3	26,5	5	.0112	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

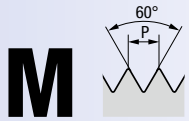
Programmierbeispiel für Gewindefräser mit Senkfase Typ GSF
siehe Seite 409

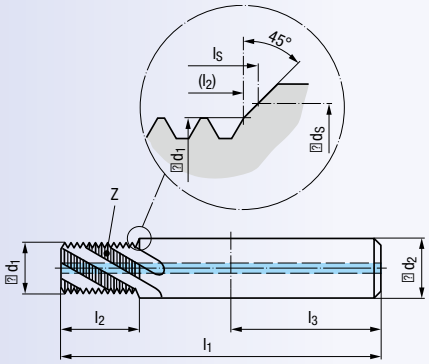
Programming example for thread milling cutters with countersinking step type GSF,
see page 409

Bestell-Beispiel ´ Ordering example: **GF335121.0112**

M

DIN 13





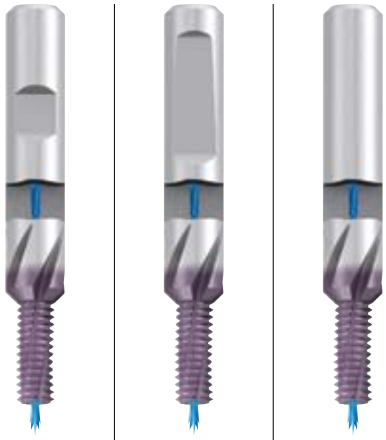
VHM | TICN

R15 | RH + LH

Z4 - Z5 | DIN 6535 HB HE HA

90° | ⍰D

Mit höherer Nutenzahl
With increased number of flutes



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2
N 1.1-5.2 | S 1.1-2.6 | H 1.1-2

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

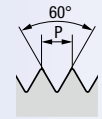
	⍰D mm	P mm	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_S	l_S	Z	Dimens.-Ident	GF335126 GSF-Z-VHM 2xD R15-IKZ-HB TICN	GF335426 GSF-Z-VHM 2xD R15-IKZ-HE TICN	GF335726 GSF-Z-VHM 2xD R15-IKZ-HA TICN
M	6	1	62	12,5	36	4,8	8	6,3	13,2	4	**.0060**	●	●	●
	8	1,25	74	16,9	40	6,5	10	8,3	17,7	4	**.0080**	●	●	●
	10	1,5	80	20,3	45	8,2	12	10,3	21,2	5	**.0100**	●	●	●
	12	1,75	90	25,4	45	9,9	14	12,3	26,5	5	**.0112**	●	●	●

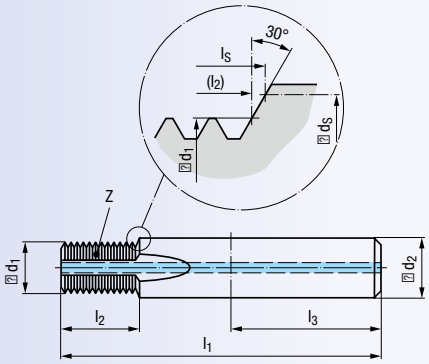
Andere Abmessungen auf Anfrage
Other sizes upon request

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

MF

DIN 13



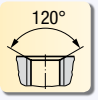


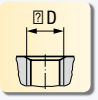
VHM

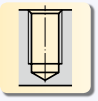
RH + LH

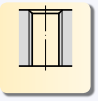
Z3 - Z4

DIN 6535
HB
HE
HA









Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | K 1.1-4.2 | N 1.1-5, 2.1-6
N 3.1-2 | N 4.1-2, 5.2 | S 1.1-3

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident												GF323101	GF323401	GF323701
	⌀D mm		P mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_S	l_S	Z	Dimens.-Ident	GSF-VHM 1,5xD IKZ-HB	GSF-VHM 1,5xD IKZ-HE	GSF-VHM 1,5xD IKZ-HA
M	6	x 0,75		62	9,4	36	5	8	6,3	9,7	3	.0229	●	●	●
	8	x 1		74	12,5	40	6,7	10	8,3	12,9	3	.0251	●	●	●
	10	x 1		80	15,5	45	8,7	12	10,3	15,9	3	.0276	●	●	●
	10	x 1,25		80	15,6	45	8,4	12	10,3	16,1	3	.0277	●	●	●
	12	x 1		90	18,5	45	10,6	14	12,3	19	4	.0301	●	●	●
	12	x 1,25		90	18,1	45	10,4	14	12,3	18,6	4	.0302	●	●	●
	12	x 1,5		90	18,7	45	10,1	14	12,3	19,3	4	.0303	●	●	●
	14	x 1,5		100	21,7	48	12,1	16	14,3	22,3	4	.0331	●	●	●
	16	x 1,5		102	24,7	48	14	18	16,3	25,4	4	.0359	●	●	●

Gewindetiefe
Thread depth

2 x D

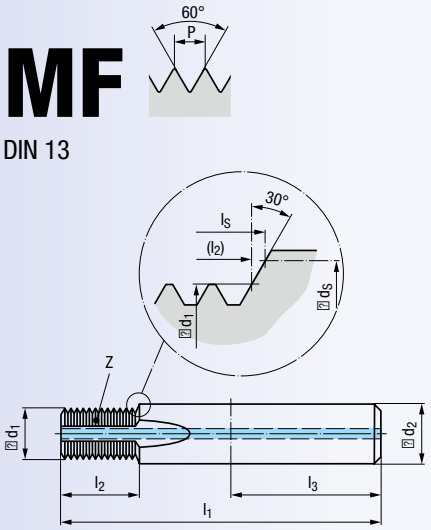
Werkzeug-Ident · Tool ident												GF333101	GF333401	GF333701
	⌀D mm		P mm	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_S	l_S	Z	Dimens.-Ident	GSF-VHM 2xD IKZ-HB	GSF-VHM 2xD IKZ-HE	GSF-VHM 2xD IKZ-HA
M	6	x 0,75		62	12,4	36	5	8	6,3	12,7	3	.0229	●	●	●
	8	x 1		74	16,5	40	6,7	10	8,3	16,9	3	.0251	●	●	●
	10	x 1		80	20,5	45	8,7	12	10,3	20,9	3	.0276	●	●	●
	10	x 1,25		80	20,6	45	8,4	12	10,3	21,1	3	.0277	●	●	●
	12	x 1		90	24,5	45	10,6	14	12,3	25	4	.0301	●	●	●
	12	x 1,25		90	24,3	45	10,4	14	12,3	24,9	4	.0302	●	●	●
	12	x 1,5		90	24,7	45	10,1	14	12,3	25,3	4	.0303	●	●	●
	14	x 1,5		100	29,2	48	12,1	16	14,3	29,8	4	.0331	●	●	●
	16	x 1,5		102	32,2	48	14	18	16,3	32,9	4	.0359	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

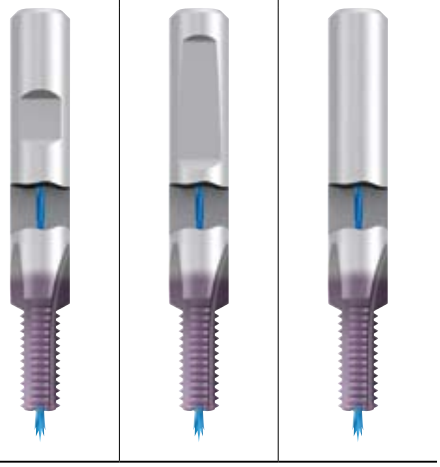
Bestell-Beispiel ´ Ordering example: **GF323101.0229**

MF

DIN 13



VHM | TICN | RH + LH | Z3 - Z4 | DIN 6535 HB HE HA | 120° | D



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2 | N 1.1-5.2 | S 1.1-2.6 | H 1.1-2

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident												GF323106	GF323406	GF323706
D mm		P mm	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	Dimens.-Ident	GSF-VHM 1,5xD IKZ-HB TICN	GSF-VHM 1,5xD IKZ-HE TICN	GSF-VHM 1,5xD IKZ-HA TICN
M 6	x	0,75	62	9,4	36	5	8	6,3	9,7	3	.0229	●	●	●
8	x	1	74	12,5	40	6,7	10	8,3	12,9	3	.0251	●	●	●
10	x	1	80	15,5	45	8,7	12	10,3	15,9	3	.0276	●	●	●
10	x	1,25	80	15,6	45	8,4	12	10,3	16,1	3	.0277	●	●	●
12	x	1	90	18,5	45	10,6	14	12,3	19	4	.0301	●	●	●
12	x	1,25	90	18,1	45	10,4	14	12,3	18,6	4	.0302	●	●	●
12	x	1,5	90	18,7	45	10,1	14	12,3	19,3	4	.0303	●	●	●
14	x	1,5	100	21,7	48	12,1	16	14,3	22,3	4	.0331	●	●	●
16	x	1,5	102	24,7	48	14	18	16,3	25,4	4	.0359	●	●	●

Gewindetiefe
Thread depth

2 x D

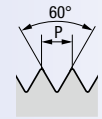
Werkzeug-Ident · Tool ident												GF333106	GF333406	GF333706
D mm		P mm	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	Dimens.-Ident	GSF-VHM 2xD IKZ-HB TICN	GSF-VHM 2xD IKZ-HE TICN	GSF-VHM 2xD IKZ-HA TICN
M 6	x	0,75	62	12,4	36	5	8	6,3	12,7	3	.0229	●	●	●
8	x	1	74	16,5	40	6,7	10	8,3	16,9	3	.0251	●	●	●
10	x	1	80	20,5	45	8,7	12	10,3	20,9	3	.0276	●	●	●
10	x	1,25	80	20,6	45	8,4	12	10,3	21,1	3	.0277	●	●	●
12	x	1	90	24,5	45	10,6	14	12,3	25	4	.0301	●	●	●
12	x	1,25	90	24,3	45	10,4	14	12,3	24,9	4	.0302	●	●	●
12	x	1,5	90	24,7	45	10,1	14	12,3	25,3	4	.0303	●	●	●
14	x	1,5	100	29,2	48	12,1	16	14,3	29,8	4	.0331	●	●	●
16	x	1,5	102	32,2	48	14	18	16,3	32,9	4	.0359	●	●	●

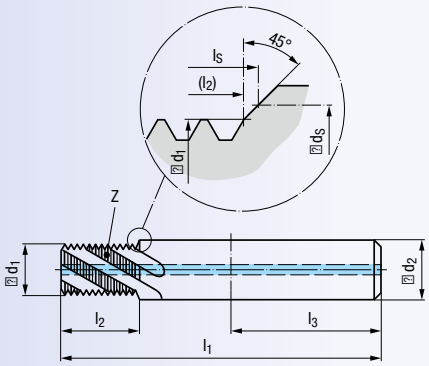
Andere Abmessungen auf Anfrage
Other sizes upon request

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

MF

DIN 13





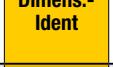
VHM

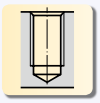
R30

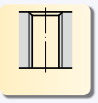
RH + LH

Z3 - Z4

DIN 6535
HB
HE
HA







Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-3.1 | K 1.1-4.2 | N 1.1-5
N 2.1-6 | N 3.1-4.2, 5.2 | S 1.1-2

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident

D mm		P mm	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	Dimens.-Ident	GF322101 GSF-VHM 1,5xD R30-IKZ-HB	GF322401 GSF-VHM 1,5xD R30-IKZ-HE	GF322701 GSF-VHM 1,5xD R30-IKZ-HA
M 6	x	0,75	62	9,4	36	5	8	6,3	10	3	.0229	●	●	●
8	x	1	74	12,5	40	6,7	10	8,3	13,2	3	.0251	●	●	●
10	x	1	80	15,5	45	8,7	12	10,3	16,2	3	.0276	●	●	●
10	x	1,25	80	15,7	45	8,4	12	10,3	16,5	3	.0277	●	●	●
12	x	1	90	18,5	45	10,6	14	12,3	19,3	4	.0301	●	●	●
12	x	1,25	90	18,2	45	10,4	14	12,3	19	4	.0302	●	●	●
12	x	1,5	90	18,8	45	10,1	14	12,3	19,7	4	.0303	●	●	●
14	x	1,5	100	21,8	48	12,1	16	14,3	22,7	4	.0331	●	●	●
16	x	1,5	102	24,8	48	14	18	16,3	25,8	4	.0359	●	●	●

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

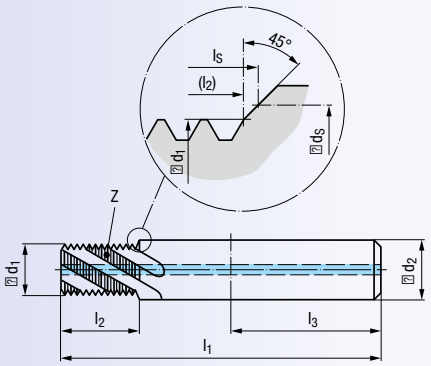
D mm		P mm	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	Dimens.-Ident	GF332101 GSF-VHM 2xD R30-IKZ-HB	GF332401 GSF-VHM 2xD R30-IKZ-HE	GF332701 GSF-VHM 2xD R30-IKZ-HA
M 6	x	0,75	62	12,4	36	5	8	6,3	13	3	.0229	●	●	●
8	x	1	74	16,5	40	6,7	10	8,3	17,2	3	.0251	●	●	●
10	x	1	80	20,5	45	8,7	12	10,3	21,2	3	.0276	●	●	●
10	x	1,25	80	20,7	45	8,4	12	10,3	21,5	3	.0277	●	●	●
12	x	1	90	24,5	45	10,6	14	12,3	25,3	4	.0301	●	●	●
12	x	1,25	90	24,4	45	10,4	14	12,3	25,2	4	.0302	●	●	●
12	x	1,5	90	24,8	45	10,1	14	12,3	25,7	4	.0303	●	●	●
14	x	1,5	100	29,3	48	12,1	16	14,3	30,2	4	.0331	●	●	●
16	x	1,5	102	32,3	48	14	18	16,3	33,3	4	.0359	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

Bestell-Beispiel ´ Ordering example: **GF322101.0303**

MF

DIN 13



VHM | TICN

R30 | RH + LH

Z3 - Z4 | DIN 6535 HB HE HA

90° | D

Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-3.1 | M 1.1-2.1 | K 1.1-4.2
N 1.1-2.7 | N 3.1-5.2 | S 1.1-2, 2.1

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident												GF322106	GF322406	GF322706
	D mm		P mm	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	Dimens.-Ident	GSF-VHM 1,5xD R30-IKZ-HB TICN	GSF-VHM 1,5xD R30-IKZ-HE TICN	GSF-VHM 1,5xD R30-IKZ-HA TICN
M	6	x	0,75	62	9,4	36	5	8	6,3	10	3	.0229	●	●	●
	8	x	1	74	12,5	40	6,7	10	8,3	13,2	3	.0251	●	●	●
	10	x	1	80	15,5	45	8,7	12	10,3	16,2	3	.0276	●	●	●
	10	x	1,25	80	15,7	45	8,4	12	10,3	16,5	3	.0277	●	●	●
	12	x	1	90	18,5	45	10,6	14	12,3	19,3	4	.0301	●	●	●
	12	x	1,25	90	18,2	45	10,4	14	12,3	19	4	.0302	●	●	●
	12	x	1,5	90	18,8	45	10,1	14	12,3	19,7	4	.0303	●	●	●
	14	x	1,5	100	21,8	48	12,1	16	14,3	22,7	4	.0331	●	●	●
	16	x	1,5	102	24,8	48	14	18	16,3	25,8	4	.0359	●	●	●

Gewindetiefe
Thread depth

2 x D

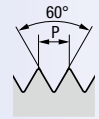
Werkzeug-Ident · Tool ident												GF332106	GF332406	GF332706
	D mm		P mm	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	Dimens.-Ident	GSF-VHM 2xD R30-IKZ-HB TICN	GSF-VHM 2xD R30-IKZ-HE TICN	GSF-VHM 2xD R30-IKZ-HA TICN
M	6	x	0,75	62	12,4	36	5	8	6,3	13	3	.0229	●	●	●
	8	x	1	74	16,5	40	6,7	10	8,3	17,2	3	.0251	●	●	●
	10	x	1	80	20,5	45	8,7	12	10,3	21,2	3	.0276	●	●	●
	10	x	1,25	80	20,7	45	8,4	12	10,3	21,5	3	.0277	●	●	●
	12	x	1	90	24,5	45	10,6	14	12,3	25,3	4	.0301	●	●	●
	12	x	1,25	90	24,4	45	10,4	14	12,3	25,2	4	.0302	●	●	●
	12	x	1,5	90	24,8	45	10,1	14	12,3	25,7	4	.0303	●	●	●
	14	x	1,5	100	29,3	48	12,1	16	14,3	30,2	4	.0331	●	●	●
	16	x	1,5	102	32,3	48	14	18	16,3	33,3	4	.0359	●	●	●

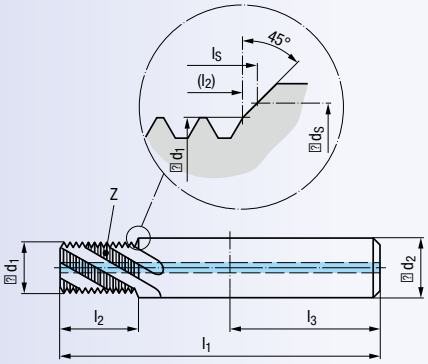
Andere Abmessungen auf Anfrage
Other sizes upon request

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

MF

DIN 13





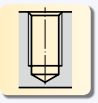
VHM

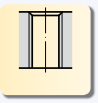
R15

RH + LH

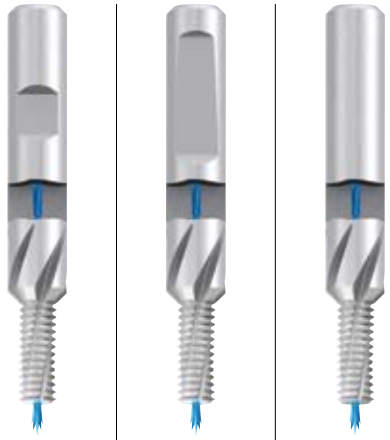
Z4 - Z5

DIN 6535
HB
HE
HA





Mit höherer Nutenzahl
With increased number of flutes



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | K 1.1-4.2 | N 1.1-5, 2.1-6
N 3.1-2 | N 4.1-2, 5.2 | S 1.1-3

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

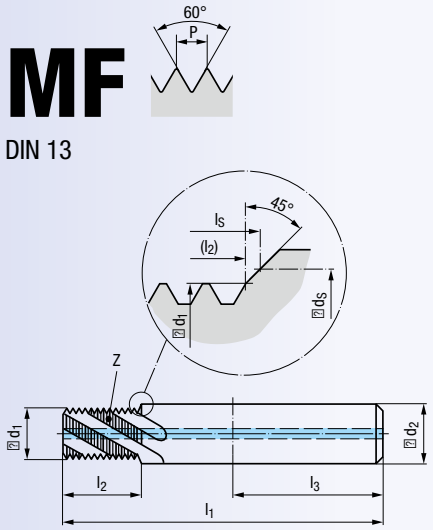
⍰D mm		P mm	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_S	l_S	Z	Dimens.-Ident	GF335121 GSF-Z-VHM 2xD R15-IKZ-HB	GF335421 GSF-Z-VHM 2xD R15-IKZ-HE	GF335721 GSF-Z-VHM 2xD R15-IKZ-HA
M 8	x	1	74	16,5	40	6,7	10	8,3	17,2	4	**.0251**	●	●	●
10	x	1	80	20,5	45	8,7	12	10,3	21,2	5	**.0276**	●	●	●
12	x	1,25	90	24,4	45	10,4	14	12,3	25,2	5	**.0302**	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

Bestell-Beispiel ´ Ordering example: **GF335121.0251**

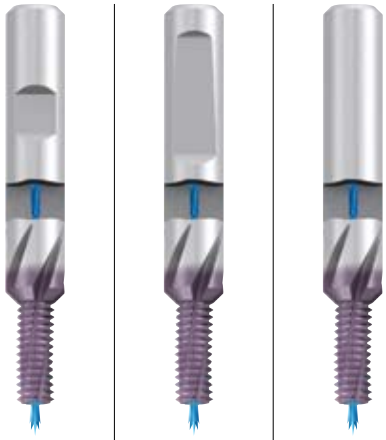
MF

DIN 13



VHM | TICN | R15 | RH + LH | Z4 - Z5 | DIN 6535 HB HE HA | 90° | D

Mit höherer Nutenzahl
With increased number of flutes



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2 | N 1.1-5.2 | S 1.1-2.6 | H 1.1-2

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident											**Dimens.-Ident**	**GF335126** GSF-Z-VHM 2xD R15-IKZ-HB TICN	**GF335426** GSF-Z-VHM 2xD R15-IKZ-HE TICN	**GF335726** GSF-Z-VHM 2xD R15-IKZ-HA TICN
D mm		P mm	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z				
M 8	x	1	74	16,5	40	6,7	10	8,3	17,2	4	**.0251**	●	●	●
10	x	1	80	20,5	45	8,7	12	10,3	21,2	5	**.0276**	●	●	●
12	x	1,25	90	24,4	45	10,4	14	12,3	25,2	5	**.0302**	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

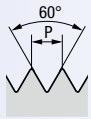
Gewinde-Tiefenlehrdorne
siehe Seite 544

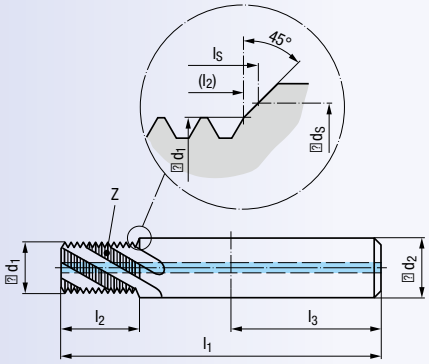
Thread depth plug gauges,
see page 544

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

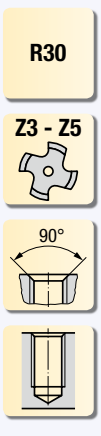
UNC

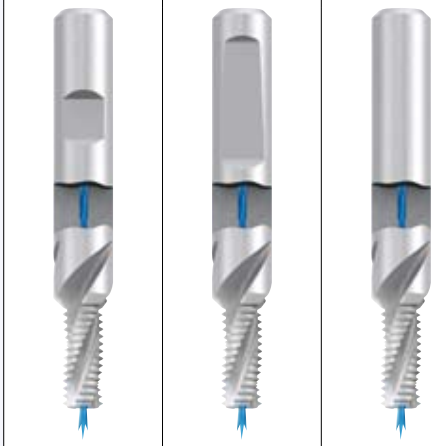
ASME B.1.1





VHM | R30 | RH + LH | Z3 - Z5 | DIN 6535 HB HE HA





Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-3.1 | K 1.1-4.2 | N 1.1-5 | N 2.1-6 | N 3.1-4.2, 5.2 | S 1.1-2

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident

⌀D inch	P Gg/1" (tpi)	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_S	l_S	Z	Dimens.-Ident	GF322101 GSF-VHM 1,5xD R30-IKZ-HB	GF322401 GSF-VHM 1,5xD R30-IKZ-HE	GF322701 GSF-VHM 1,5xD R30-IKZ-HA
Nr. 12	24	62	9	36	4,15	8	5,79	9,7	3	.5008			
1/4	20	62	10,8	36	4,7	8	6,65	11,7	3	.5009	●	●	●
5/16	18	74	13,4	40	6,15	10	8,25	14,4	3	.5010	●	●	●
3/8	16	80	15,1	45	7,65	12	9,83	16,1	3	.5011	●	●	●
7/16	14	80	17,3	45	9	12	11,43	18,3	3	.5012	●	●	●
1/2	13	90	20,6	45	10,35	14	13	21,7	4	.5013	●	●	●
9/16	12	100	22,3	48	11,8	16	14,61	23,5	4	.5014	●	●	●
5/8	11	102	24,3	48	13,1	18	16,18	25,6	4	.5015	●	●	●
3/4	10	110	29,3	50	16	20	19,35	30,7	5	.5016	●	●	●

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

⌀D inch	P Gg/1" (tpi)	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_S	l_S	Z	Dimens.-Ident	GF332101 GSF-VHM 2xD R30-IKZ-HB	GF332401 GSF-VHM 2xD R30-IKZ-HE	GF332701 GSF-VHM 2xD R30-IKZ-HA
Nr. 12	24	62	11,1	36	4,15	8	5,79	11,9	3	.5008			
1/4	20	62	13,3	36	4,7	8	6,65	14,2	3	.5009	●	●	●
5/16	18	74	16,2	40	6,15	10	8,25	17,2	3	.5010	●	●	●
3/8	16	80	19,9	45	7,65	12	9,83	20,8	3	.5011	●	●	●
7/16	14	80	22,7	45	9	12	11,43	23,8	3	.5012	●	●	●
1/2	13	90	26,4	45	10,35	14	13	27,6	4	.5013	●	●	●
9/16	12	100	30,7	48	11,8	16	14,61	32	4	.5014	●	●	●
5/8	11	102	33,5	48	13,1	18	16,18	34,9	4	.5015	●	●	●
3/4	10	110	39,4	50	16	20	19,35	40,9	5	.5016	●	●	●

Gewindetiefe
Thread depth

2,5 x D

Werkzeug-Ident · Tool ident

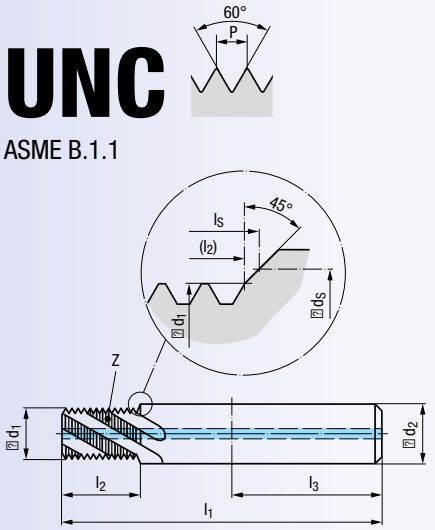
⌀D inch	P Gg/1" (tpi)	l_1	l_2	l_3	⌀d_1	⌀d_2	⌀d_S	l_S	Z	Dimens.-Ident	GF342101 GSF-VHM 2,5xD R30-IKZ-HB	GF342401 GSF-VHM 2,5xD R30-IKZ-HE	GF342701 GSF-VHM 2,5xD R30-IKZ-HA
3/8	16	85	24,6	45	7,65	12	9,83	25,6	3	.5011	●	●	●
7/16	14	85	28,2	45	9	12	11,43	29,2	3	.5012	●	●	●
1/2	13	96	32,3	45	10,35	14	13	33,4	4	.5013	●	●	●
9/16	12	107	37,1	48	11,8	16	14,61	38,3	4	.5014	●	●	●
5/8	11	110	40,5	48	13,1	18	16,18	41,8	4	.5015	●	●	●
3/4	10	125	49,6	50	16	20	19,35	51,1	5	.5016			

Andere Abmessungen auf Anfrage
Other sizes upon request

Bestell-Beispiel ´ Ordering example: **GF322101.5011**

UNC

ASME B.1.1



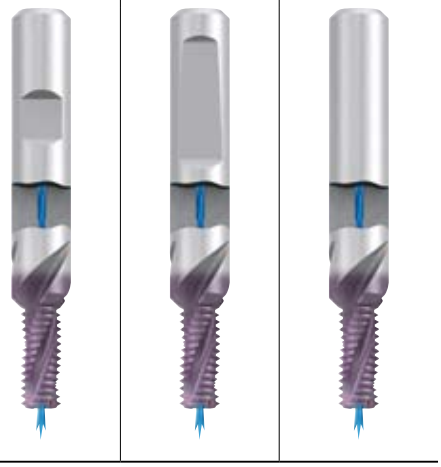
VHM | TICN

R30 | RH + LH

Z3 - Z5

DIN 6535 HB HE HA

90° | D



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-3.1 | M 1.1-2.1 | K 1.1-4.2
N 1.1-2.7 | N 3.1-5.2 | S 1.1-2, 2.1

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident										**GF322106**	**GF322406**	**GF322706**
D inch	P Gg/1" (tpi)	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	**Dimens.-Ident**	GSF-VHM 1,5xD R30-IKZ-HB TICN	GSF-VHM 1,5xD R30-IKZ-HE TICN	GSF-VHM 1,5xD R30-IKZ-HA TICN
Nr. 12	24	62	9	36	4,15	8	5,79	9,7	3	**.5008**			
1/4	20	62	10,8	36	4,7	8	6,65	11,7	3	**.5009**	●	●	●
5/16	18	74	13,4	40	6,15	10	8,25	14,4	3	**.5010**	●	●	●
3/8	16	80	15,1	45	7,65	12	9,83	16,1	3	**.5011**	●	●	●
7/16	14	80	17,3	45	9	12	11,43	18,3	3	**.5012**	●	●	●
1/2	13	90	20,6	45	10,35	14	13	21,7	4	**.5013**	●	●	●
9/16	12	100	22,3	48	11,8	16	14,61	23,5	4	**.5014**	●	●	●
5/8	11	102	24,3	48	13,1	18	16,18	25,6	4	**.5015**	●	●	●
3/4	10	110	29,3	50	16	20	19,35	30,7	5	**.5016**	●	●	●

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident										**GF332106**	**GF332406**	**GF332706**
D inch	P Gg/1" (tpi)	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	**Dimens.-Ident**	GSF-VHM 2xD R30-IKZ-HB TICN	GSF-VHM 2xD R30-IKZ-HE TICN	GSF-VHM 2xD R30-IKZ-HA TICN
Nr. 12	24	62	11,1	36	4,15	8	5,79	11,9	3	**.5008**			
1/4	20	62	13,3	36	4,7	8	6,65	14,2	3	**.5009**	●	●	●
5/16	18	74	16,2	40	6,15	10	8,25	17,2	3	**.5010**	●	●	●
3/8	16	80	19,9	45	7,65	12	9,83	20,8	3	**.5011**	●	●	●
7/16	14	80	22,7	45	9	12	11,43	23,8	3	**.5012**	●	●	●
1/2	13	90	26,4	45	10,35	14	13	27,6	4	**.5013**	●	●	●
9/16	12	100	30,7	48	11,8	16	14,61	32	4	**.5014**	●	●	●
5/8	11	102	33,5	48	13,1	18	16,18	34,9	4	**.5015**	●	●	●
3/4	10	110	39,4	50	16	20	19,35	40,9	5	**.5016**	●	●	●

Gewindetiefe
Thread depth

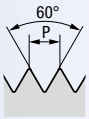
2,5 x D

Werkzeug-Ident · Tool ident										**GF342106**	**GF342406**	**GF342706**
D mm	P Gg/1" (tpi)	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	**Dimens.-Ident**	GSF-VHM 2,5xD R30-IKZ-HB TICN	GSF-VHM 2,5xD R30-IKZ-HE TICN	GSF-VHM 2,5xD R30-IKZ-HA TICN
3/8	16	85	24,6	45	7,65	12	9,83	25,6	3	**.5011**	●	●	●
7/16	14	85	28,2	45	9	12	11,43	29,2	3	**.5012**	●	●	●
1/2	13	96	32,3	45	10,35	14	13	33,4	4	**.5013**	●	●	●
9/16	12	107	37,1	48	11,8	16	14,61	38,3	4	**.5014**	●	●	●
5/8	11	110	40,5	48	13,1	18	16,18	41,8	4	**.5015**	●	●	●
3/4	10	125	49,6	50	16	20	19,35	51,1	5	**.5016**			

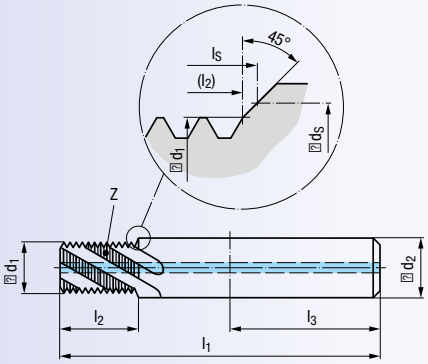
Andere Abmessungen auf Anfrage
Other sizes upon request

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

UNF



ASME B.1.1



VHM

R30

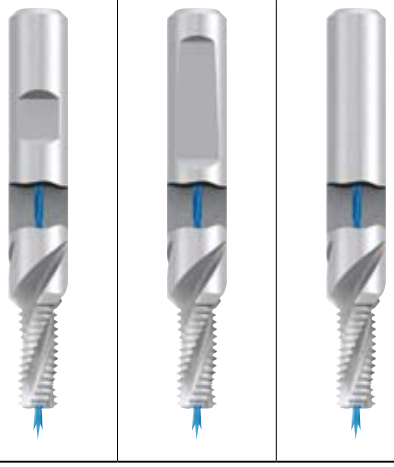
RH + LH

Z3 - Z5

DIN 6535
HB
HE
HA

90°

D



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-3.1 | K 1.1-4.2 | N 1.1-5
N 2.1-6 | N 3.1-4.2, 5.2 | S 1.1-2

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident

D inch	P Gg/1" (tpi)	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	Dimens.-Ident	GF322101 GSF-VHM 1,5xD R30-IKZ-HB	GF322401 GSF-VHM 1,5xD R30-IKZ-HE	GF322701 GSF-VHM 1,5xD R30-IKZ-HA
Nr. 10	32	55	7,6	36	3,8	6	5,13	8,1	3	.5041	●	●	●
Nr. 12	28	62	8,6	36	4,3	8	5,79	9,3	3	.5042			
1/4	28	62	10,5	36	5,15	8	6,65	11,1	3	.5043	●	●	●
5/16	24	74	12,2	40	6,6	10	8,25	12,9	3	.5044	●	●	●
3/8	24	80	14,3	45	8,2	12	9,83	15	3	.5045	●	●	●
7/16	20	80	17,2	45	9,55	12	11,43	18	3	.5046	●	●	●
1/2	20	90	19,7	45	11,1	14	13	20,5	4	.5047	●	●	●
9/16	18	100	21,9	48	12,5	16	14,61	22,8	4	.5048	●	●	●
5/8	18	102	24,8	48	14,1	18	16,18	25,6	4	.5049	●	●	●
3/4	16	110	29,5	50	17	20	19,35	30,4	5	.5050			

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

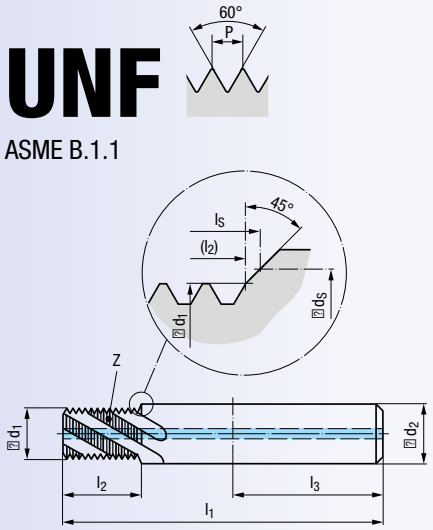
D inch	P Gg/1" (tpi)	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	Dimens.-Ident	GF332101 GSF-VHM 2xD R30-IKZ-HB	GF332401 GSF-VHM 2xD R30-IKZ-HE	GF332701 GSF-VHM 2xD R30-IKZ-HA
Nr. 10	32	55	9,9	36	3,8	6	5,13	10,5	3	.5041	●	●	●
Nr. 12	28	62	11,4	36	4,3	8	5,79	12	3	.5042			
1/4	28	62	13,2	36	5,15	8	6,65	13,8	3	.5043	●	●	●
5/16	24	74	16,4	40	6,6	10	8,25	17,1	3	.5044	●	●	●
3/8	24	80	19,6	45	8,2	12	9,83	20,3	3	.5045	●	●	●
7/16	20	80	22,3	45	9,55	12	11,43	23,1	3	.5046	●	●	●
1/2	20	90	26,1	45	11,1	14	13	26,9	4	.5047	●	●	●
9/16	18	100	29	48	12,5	16	14,61	29,9	4	.5048	●	●	●
5/8	18	102	33,2	48	14,1	18	16,18	34,1	4	.5049	●	●	●
3/4	16	110	39	50	17	20	19,35	40	5	.5050	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

Bestell-Beispiel ´ Ordering example: **GF322101.5044**

UNF

ASME B.1.1

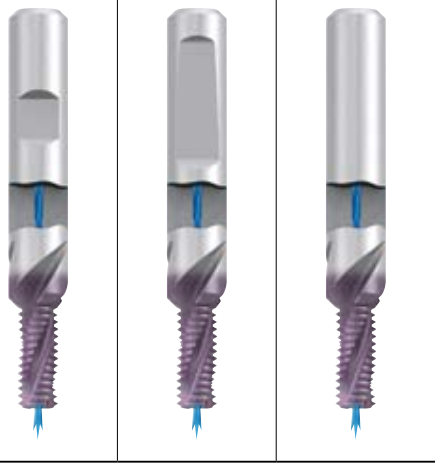


VHM | TICN

R30 | RH + LH

Z3 - Z5 | DIN 6535 HB HE HA

90° | D



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-3.1 | M 1.1-2.1 | K 1.1-4.2
N 1.1-2.7 | N 3.1-5.2 | S 1.1-2, 2.1

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident

D inch	P Gg/1" (tpi)	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	Dimens.-Ident	GF322106 GSF-VHM 1,5xD R30-IKZ-HB TICN	GF322406 GSF-VHM 1,5xD R30-IKZ-HE TICN	GF322706 GSF-VHM 1,5xD R30-IKZ-HA TICN
Nr. 10	32	55	7,6	36	3,8	6	5,13	8,1	3	.5041	●	●	●
Nr. 12	28	62	8,6	36	4,3	8	5,79	9,3	3	.5042			
1/4	28	62	10,5	36	5,15	8	6,65	11,1	3	.5043	●	●	●
5/16	24	74	12,2	40	6,6	10	8,25	12,9	3	.5044	●	●	●
3/8	24	80	14,3	45	8,2	12	9,83	15	3	.5045	●	●	●
7/16	20	80	17,2	45	9,55	12	11,43	18	3	.5046	●	●	●
1/2	20	90	19,7	45	11,1	14	13	20,5	4	.5047	●	●	●
9/16	18	100	21,9	48	12,5	16	14,61	22,8	4	.5048	●	●	●
5/8	18	102	24,8	48	14,1	18	16,18	25,6	4	.5049	●	●	●
3/4	16	110	29,5	50	17	20	19,35	30,4	5	.5050			

Gewindetiefe
Thread depth

2 x D

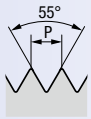
Werkzeug-Ident · Tool ident

D inch	P Gg/1" (tpi)	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	Dimens.-Ident	GF332106 GSF-VHM 2xD R30-IKZ-HB TICN	GF332406 GSF-VHM 2xD R30-IKZ-HE TICN	GF332706 GSF-VHM 2xD R30-IKZ-HA TICN
Nr. 10	32	55	9,9	36	3,8	6	5,13	10,5	3	.5041	●	●	●
Nr. 12	28	62	11,4	36	4,3	8	5,79	12	3	.5042			
1/4	28	62	13,2	36	5,15	8	6,65	13,8	3	.5043	●	●	●
5/16	24	74	16,4	40	6,6	10	8,25	17,1	3	.5044	●	●	●
3/8	24	80	19,6	45	8,2	12	9,83	20,3	3	.5045	●	●	●
7/16	20	80	22,3	45	9,55	12	11,43	23,1	3	.5046	●	●	●
1/2	20	90	26,1	45	11,1	14	13	26,9	4	.5047	●	●	●
9/16	18	100	29	48	12,5	16	14,61	29,9	4	.5048	●	●	●
5/8	18	102	33,2	48	14,1	18	16,18	34,1	4	.5049	●	●	●
3/4	16	110	39	50	17	20	19,35	40	5	.5050	●	●	●

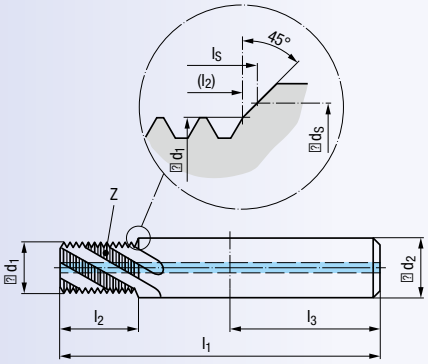
Andere Abmessungen auf Anfrage
Other sizes upon request

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

G



DIN EN ISO 228



VHM

R30

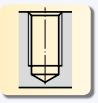
RH + LH

Z3 - Z4

DIN 6535
HB
HE
HA

90°

D



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-3.1 | K 1.1-4.2 | N 1.1-5
N 2.1-6 | N 3.1-4.2, 5.2 | S 1.1-2

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident											Dimens.-Ident	GF322101 GSF-VHM 1,5xD R30-IKZ-HB	GF322401 GSF-VHM 1,5xD R30-IKZ-HE	GF322701 GSF-VHM 1,5xD R30-IKZ-HA
Nenngröße Nom. size		P												
	D	Gg/1" (tpi)	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z				
G	1/8	28	80	15	45	8,2	12	10	15,7	3	.4035	●	●	●
	1/4	19	100	20,7	48	11	16	13,5	21,8	4	.4036	●	●	●
	3/8	19	102	26,1	48	14,5	18	17	27,2	4	.4037	●	●	●

Gewindetiefe
Thread depth

2 x D

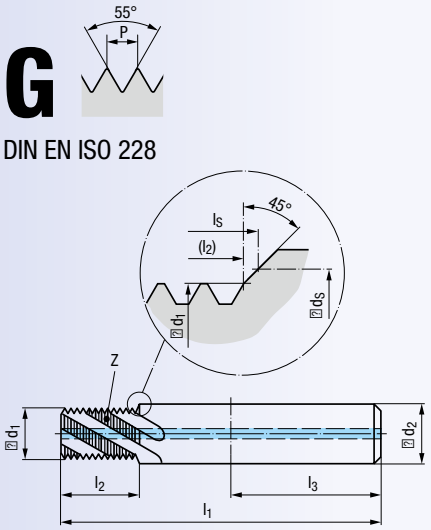
Werkzeug-Ident · Tool ident											Dimens.-Ident	GF332101 GSF-VHM 2xD R30-IKZ-HB	GF332401 GSF-VHM 2xD R30-IKZ-HE	GF332701 GSF-VHM 2xD R30-IKZ-HA
Nenngröße Nom. size		P												
	D	Gg/1" (tpi)	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z				
G	1/8	28	80	20,4	45	8,2	12	10	21,2	3	.4035	●	●	●
	1/4	19	100	27,4	48	11	16	13,5	28,5	4	.4036	●	●	●
	3/8	19	102	34,1	48	14,5	18	17	35,2	4	.4037	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

Bestell-Beispiel ´ Ordering example: **GF322101.4035**

G

DIN EN ISO 228



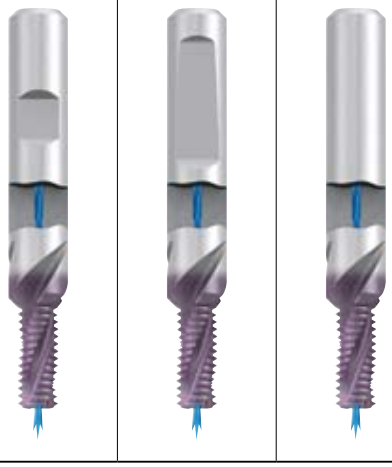
VHM | TICN

R30 | RH + LH

Z3 - Z4

DIN 6535 HB HE HA

90° | ⍰D



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-3.1 | M 1.1-2.1 | K 1.1-4.2
N 1.1-2.7 | N 3.1-5.2 | S 1.1-2, 2.1

Gewindetiefe
Thread depth

1,5 x D

Werkzeug-Ident · Tool ident												GF322106	GF322406	GF322706
Nenngröße Nom. size	⍰D	P Gg/1" (tpi)	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_S	l_S	Z	Dimens.-Ident	GSF-VHM 1,5xD R30-IKZ-HB TICN	GSF-VHM 1,5xD R30-IKZ-HE TICN	GSF-VHM 1,5xD R30-IKZ-HA TICN
G	1/8	28	80	15	45	8,2	12	10	15,7	3	.4035	●	●	●
	1/4	19	100	20,7	48	11	16	13,5	21,8	4	.4036	●	●	●
	3/8	19	102	26,1	48	14,5	18	17	27,2	4	.4037	●	●	●

Gewindetiefe
Thread depth

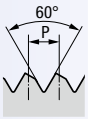
2 x D

Werkzeug-Ident · Tool ident												GF332106	GF332406	GF332706
Nenngröße Nom. size	⍰D	P Gg/1" (tpi)	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_S	l_S	Z	Dimens.-Ident	GSF-VHM 2xD R30-IKZ-HB TICN	GSF-VHM 2xD R30-IKZ-HE TICN	GSF-VHM 2xD R30-IKZ-HA TICN
G	1/8	28	80	20,4	45	8,2	12	10	21,2	3	.4035	●	●	●
	1/4	19	100	27,4	48	11	16	13,5	28,5	4	.4036	●	●	●
	3/8	19	102	34,1	48	14,5	18	17	35,2	4	.4037	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

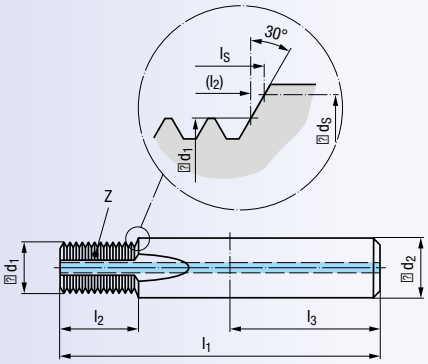
● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

LK-M



BT

EMUGE-Norm ´ EMUGE Standard



VHM

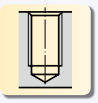
RH + LH

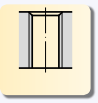
Z3 - Z4

DIN 6535
HB
HE
HA

120°

⍰D





Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | K 1.1-4.2 | N 1.1-5, 2.1-6
N 3.1-2 | N 4.1-2, 5.2 | S 1.1-3

Gewindetiefe
Thread depth

2 x D

Werkzeug-Ident · Tool ident

	⍰D mm	P mm	l_1	l_2	l_3	⍰d_1	⍰d_2	⍰d_S	l_S	Z	Dimens.-Ident	GF333101 GSF-VHM 2xD IKZ-HB	GF333401 GSF-VHM 2xD IKZ-HE	GF333701 GSF-VHM 2xD IKZ-HA
LK-M	5	0,8	55	10,7	36	4	6	5,3	11,1	3	**.1050**	●	●	●
	6	1	62	12,4	36	4,8	8	6,3	12,8	3	**.1052**	●	●	●
	8	1,25	74	16,7	40	6,5	10	8,3	17,3	3	**.1054**	●	●	●
	10	1,5	80	20,1	45	8,2	12	10,3	20,7	3	**.1056**	●	●	●
	12	1,75	90	25,2	45	9,9	14	12,3	25,9	4	**.1058**	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

Gewindebohrer für
Metrisches SELF-LOCK-Gewinde
siehe Seite 191 - 192

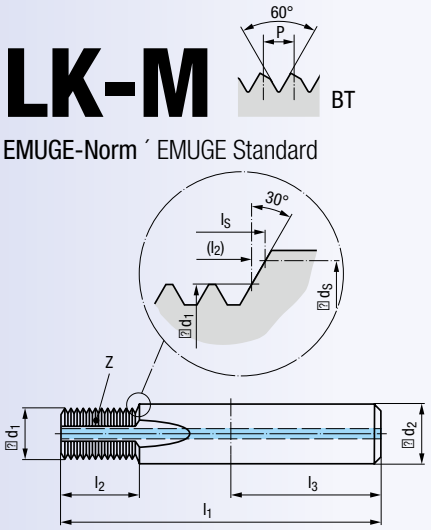
Taps for
Metric SELF-LOCK thread,
see page 191 - 192

Bestell-Beispiel ´ Ordering example: **GF333101.1050**

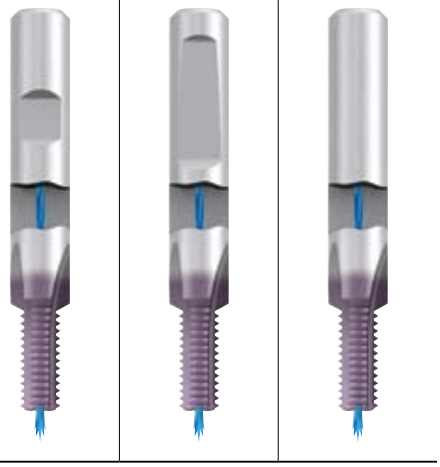
LK-M

BT

EMUGE-Norm ´ EMUGE Standard



VHM | TICN | RH + LH | Z3 - Z4 | DIN 6535 HB HE HA | 120° | D



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2 | N 1.1-5.2 | S 1.1-2.6 | H 1.1-2

Gewindetiefe
Thread depth

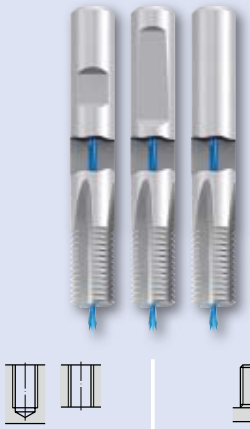
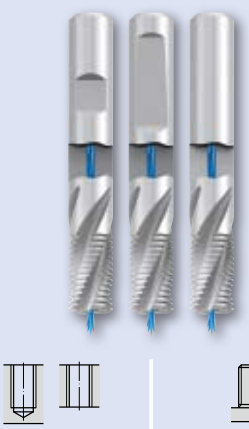
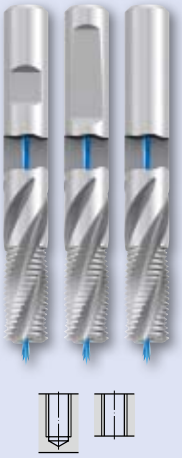
2 x D

Werkzeug-Ident · Tool ident

	D mm	P mm	l_1	l_2	l_3	d_1	d_2	d_S	l_S	Z	Dimens.-Ident	GF333106 GSF-VHM 2xD IKZ-HB TICN	GF333406 GSF-VHM 2xD IKZ-HE TICN	GF333706 GSF-VHM 2xD IKZ-HA TICN
LK-M	5	0,8	55	10,7	36	4	6	5,3	11,1	3	**.1050**	●	●	●
	6	1	62	12,4	36	4,8	8	6,3	12,8	3	**.1052**	●	●	●
	8	1,25	74	16,7	40	6,5	10	8,3	17,3	3	**.1054**	●	●	●
	10	1,5	80	20,1	45	8,2	12	10,3	20,7	3	**.1056**	●	●	●
	12	1,75	90	25,2	45	9,9	14	12,3	25,9	4	**.1058**	●	●	●

Andere Abmessungen auf Anfrage
Other sizes upon request

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

	Gerade Nuten Straight flutes **GF**		Rechtsspiralnuten Right-hand spiral flutes **GF**		Rechtsspiralnuten, Typ lang Right-hand spiral flutes, long design **GF**
					
	Seite · Page				
M, MF	338	341	339		340
LK-M	352				
UN	346				347
G Rp (BSPP), W	348	348	349	349	
Pg	350	350	351	351	

Mögliche Modifikationen · Possible modifications


Stirnfase ohne/mit Stirnschnitt
Face chamfer with/without cutting face


Unvollständigen Gang entfernen
Remove incomplete thread


Halsfreischliff
Recessed neck


AZR/AZ (ausgesetzte Zähne)
AZR/AZ (alternating teeth)

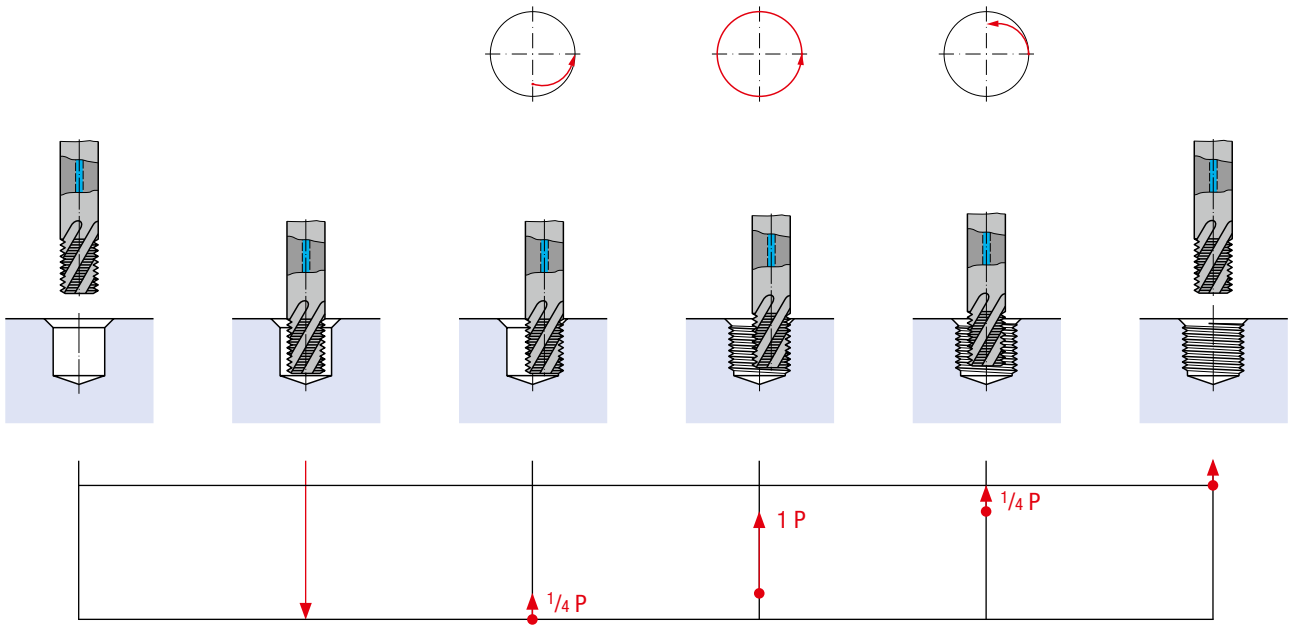

IKZN (innere Kühlschmierstoff-Zufuhr mit Austritt in den Nuten)
IKZN (internal coolant-lubricant supply exiting in the flutes)

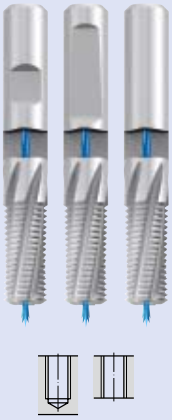
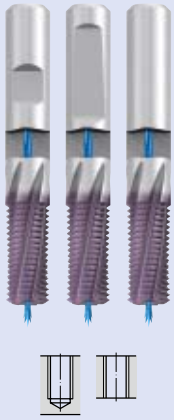

Schaftkühlnuten
Coolant grooves along the shank

Eine Beschreibung dieser Modifikationsmöglichkeiten finden Sie auf Seite 400 - 401
For a description of these modifications, see pages 400 - 401

Gewindefräszyklus · Thread milling cycle

GF, GF-Z



Rechtsspiralnuten Right-hand spiral flutes **GF-Z**	Rechtsspiralnuten Right-hand spiral flutes **GF-Vario-Z**	Für die Hartbearbeitung For hard materials **GF-H**	
			
Seite · Page			
342	343 - 344	345	**M, MF**
			LK-M
			UN
			G Rp (BSPP), W
			Pg

Mögliche Modifikationen · Possible modifications


Stirnfase ohne/mit Stirnschnitt
Face chamfer with/without cutting face


AZR/AZ (ausgesetzte Zähne)
AZR/AZ (alternating teeth)


Unvollständigen Gang entfernen
Remove incomplete thread

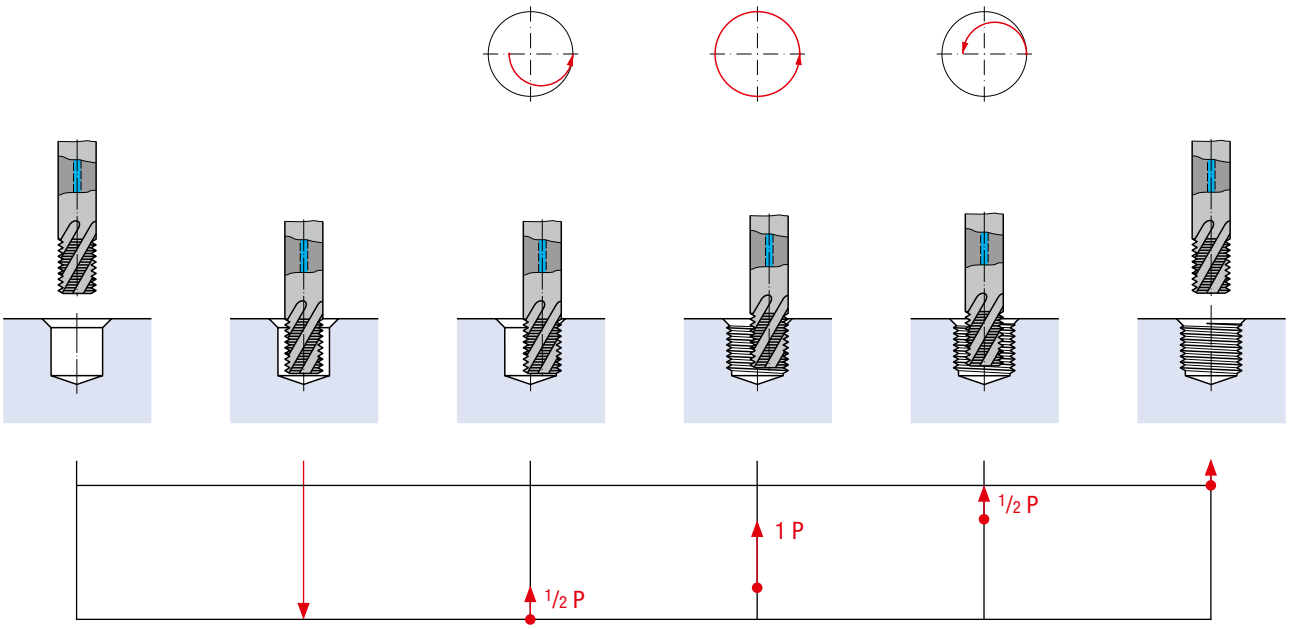

IKZN (innere Kühlschmierstoff-Zufuhr mit Austritt in den Nuten)
IKZN (internal coolant-lubricant supply exiting in the flutes)


Halsfreischliff
Recessed neck

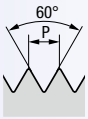

Schaftkühlnuten
Coolant grooves along the shank

Eine Beschreibung dieser Modifikationsmöglichkeiten finden Sie auf Seite 400 - 401
For a description of these modifications, see pages 400 - 401

Gewindefräszyklus · Thread milling cycle **GF-Vario-Z, GF-H**



M, MF



DIN 13

VHM

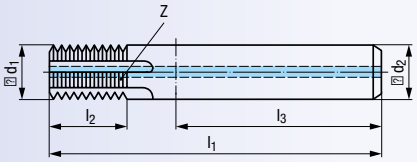
RH + LH

Z3 - Z5

DIN 6535
HB
HE
HA

D

Für Innengewinde
For internal threads





Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | K 1.1-4.2 | N 1.1-5, 2.1-6
N 3.1-2 | N 4.1-2, 5.2 | S 1.1-3

P mm	D min. mm	d1 mm	d2	l1	l2	l3	Z	GF-VHM IKZ-HB		GF-VHM IKZ-HE		GF-VHM IKZ-HA	
0,5	10	7,9	8	63	12,2	36	3	GF163101.9506	●	GF163401.9506	●	GF163701.9506	●
0,5	12	9,9	10	70	16,2	40	4	GF163211.9506	●	GF163511.9506	●	GF163811.9506	●
0,75	11	7,9	8	63	12,3	36	3	GF163101.9509	●	GF163401.9509	●	GF163701.9509	●
0,75	13	9,9	10	70	16,8	40	4	GF163211.9509	●	GF163511.9509	●	GF163811.9509	●
1	14	9,9	10	70	16,4	40	4	GF163211.9512	●	GF163511.9512	●	GF163811.9512	●
1	16	11,9	12	80	20,4	45	4	GF163121.9512	●	GF163421.9512	●	GF163721.9512	●
1	22	15,9	16	90	25,4	48	5	GF163131.9512	●	GF163431.9512	●	GF163731.9512	●
1	27	19,9	20	105	32,4	50	5	GF163151.9512	●	GF163451.9512	●	GF163751.9512	●
1,5	14	9,9	10	70	17,1	40	4	GF163211.9514	●	GF163511.9514	●	GF163811.9514	●
1,5	16	11,9	12	80	21,6	45	4	GF163121.9514	●	GF163421.9514	●	GF163721.9514	●
1,5	22	15,9	16	90	26,1	48	5	GF163131.9514	●	GF163431.9514	●	GF163731.9514	●
1,5	27	19,9	20	105	33,6	50	5	GF163151.9514	●	GF163451.9514	●	GF163751.9514	●
2	18	11,9	12	80	20,9	45	4	GF163121.9516		GF163421.9516		GF163721.9516	
2	22	15,9	16	90	26,9	48	5	GF163131.9516	●	GF163431.9516	●	GF163731.9516	●
2	27	19,9	20	105	32,9	50	5	GF163151.9516	●	GF163451.9516	●	GF163751.9516	●
3	24	15,9	16	90	28,3	48	5	GF163131.9518	●	GF163431.9518	●	GF163731.9518	●
3	30	19,9	20	105	34,3	50	5	GF163151.9518	●	GF163451.9518	●	GF163751.9518	●

TICN



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2
N 1.1-5.2 | S 1.1-2.6 | H 1.1-2

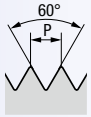
P mm	D min. mm	d1 mm	d2	l1	l2	l3	Z	GF-VHM IKZ-HB TICN		GF-VHM IKZ-HE TICN		GF-VHM IKZ-HA TICN	
0,5	10	7,9	8	63	12,2	36	3	GF163106.9506	●	GF163406.9506	●	GF163706.9506	●
0,5	12	9,9	10	70	16,2	40	4	GF163216.9506	●	GF163516.9506	●	GF163816.9506	●
0,75	11	7,9	8	63	12,3	36	3	GF163106.9509	●	GF163406.9509	●	GF163706.9509	●
0,75	13	9,9	10	70	16,8	40	4	GF163216.9509	●	GF163516.9509	●	GF163816.9509	●
1	14	9,9	10	70	16,4	40	4	GF163216.9512	●	GF163516.9512	●	GF163816.9512	●
1	16	11,9	12	80	20,4	45	4	GF163126.9512	●	GF163426.9512	●	GF163726.9512	●
1	22	15,9	16	90	25,4	48	5	GF163136.9512	●	GF163436.9512	●	GF163736.9512	●
1	27	19,9	20	105	32,4	50	5	GF163156.9512	●	GF163456.9512	●	GF163756.9512	●
1,5	14	9,9	10	70	17,1	40	4	GF163216.9514	●	GF163516.9514	●	GF163816.9514	●
1,5	16	11,9	12	80	21,6	45	4	GF163126.9514	●	GF163426.9514	●	GF163726.9514	●
1,5	22	15,9	16	90	26,1	48	5	GF163136.9514	●	GF163436.9514	●	GF163736.9514	●
1,5	27	19,9	20	105	33,6	50	5	GF163156.9514	●	GF163456.9514	●	GF163756.9514	●
2	18	11,9	12	80	20,9	45	4	GF163126.9516		GF163426.9516		GF163726.9516	
2	22	15,9	16	90	26,9	48	5	GF163136.9516	●	GF163436.9516	●	GF163736.9516	●
2	27	19,9	20	105	32,9	50	5	GF163156.9516	●	GF163456.9516	●	GF163756.9516	●
3	24	15,9	16	90	28,3	48	5	GF163136.9518	●	GF163436.9518	●	GF163736.9518	●
3	30	19,9	20	105	34,3	50	5	GF163156.9518	●	GF163456.9518	●	GF163756.9518	●

Andere Steigungen auf Anfrage
Tools for different thread pitch upon request

Bestell-Beispiel ´ Ordering example: **GF163211.9512**

M, MF

DIN 13



VHM

R30

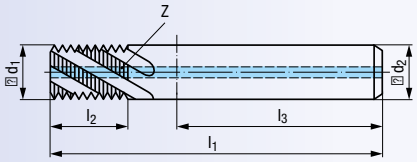
RH + LH

Z3 - Z5

DIN 6535
HB
HE
HA

⍰D

Für Innengewinde
For internal threads





Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-3.1 | K 1.1-4.2 | N 1.1-5
N 2.1-6 | N 3.1-4.2, 5.2 | S 1.1-2

P mm	⍰D$_{min.}$ mm	⍰d$_1$ mm	⍰d$_2$	l$_1$	l$_2$	l$_3$	Z	GF-VHM R30-IKZ-HB		GF-VHM R30-IKZ-HE		GF-VHM R30-IKZ-HA	
0,5	10	7,9	8	63	12,2	36	3	GF162101.9506	●	GF162401.9506	●	GF162701.9506	●
0,75	11	7,9	8	63	12,3	36	3	GF162101.9509	●	GF162401.9509	●	GF162701.9509	●
1	14	9,9	10	70	16,4	40	4	GF162211.9512	●	GF162511.9512	●	GF162811.9512	●
1	16	11,9	12	80	20,4	45	4	GF162121.9512	●	GF162421.9512	●	GF162721.9512	●
1	22	15,9	16	90	25,4	48	5	GF162131.9512	●	GF162431.9512	●	GF162731.9512	●
1	27	19,9	20	105	32,4	50	5	GF162151.9512	●	GF162451.9512	●	GF162751.9512	●
1,5	14	9,9	10	70	17,1	40	4	GF162211.9514	●	GF162511.9514	●	GF162811.9514	●
1,5	16	11,9	12	80	21,6	45	4	GF162121.9514	●	GF162421.9514	●	GF162721.9514	●
1,5	22	15,9	16	90	26,1	48	5	GF162131.9514	●	GF162431.9514	●	GF162731.9514	●
1,5	27	19,9	20	105	33,6	50	5	GF162151.9514	●	GF162451.9514	●	GF162751.9514	●
2	18	11,9	12	80	20,9	45	4	GF162121.9516	●	GF162421.9516	●	GF162721.9516	●
2	22	15,9	16	90	26,9	48	5	GF162131.9516	●	GF162431.9516	●	GF162731.9516	●
2	27	19,9	20	105	32,9	50	5	GF162151.9516	●	GF162451.9516	●	GF162751.9516	●
3	24	15,9	16	90	28,3	48	5	GF162131.9518	●	GF162431.9518	●	GF162731.9518	●
3	30	19,9	20	105	34,9	50	5	GF162151.9518	●	GF162451.9518	●	GF162751.9518	●

TICN



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

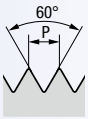
P 1.1-3.1 | M 1.1-2.1 | K 1.1-4.2
N 1.1-2.7 | N 3.1-5.2 | S 1.1-2, 2.1

P mm	⍰D$_{min.}$ mm	⍰d$_1$ mm	⍰d$_2$	l$_1$	l$_2$	l$_3$	Z	GF-VHM R30-IKZ-HB TICN		GF-VHM R30-IKZ-HE TICN		GF-VHM R30-IKZ-HA TICN	
0,5	10	7,9	8	63	12,2	36	3	GF162106.9506	●	GF162406.9506	●	GF162706.9506	●
0,75	11	7,9	8	63	12,3	36	3	GF162106.9509	●	GF162406.9509	●	GF162706.9509	●
1	14	9,9	10	70	16,4	40	4	GF162216.9512	●	GF162516.9512	●	GF162816.9512	●
1	16	11,9	12	80	20,4	45	4	GF162126.9512	●	GF162426.9512	●	GF162726.9512	●
1	22	15,9	16	90	25,4	48	5	GF162136.9512	●	GF162436.9512	●	GF162736.9512	●
1	27	19,9	20	105	32,4	50	5	GF162156.9512	●	GF162456.9512	●	GF162756.9512	●
1,5	14	9,9	10	70	17,1	40	4	GF162216.9514	●	GF162516.9514	●	GF162816.9514	●
1,5	16	11,9	12	80	21,6	45	4	GF162126.9514	●	GF162426.9514	●	GF162726.9514	●
1,5	22	15,9	16	90	26,1	48	5	GF162136.9514	●	GF162436.9514	●	GF162736.9514	●
1,5	27	19,9	20	105	33,6	50	5	GF162156.9514	●	GF162456.9514	●	GF162756.9514	●
2	18	11,9	12	80	20,9	45	4	GF162126.9516	●	GF162426.9516	●	GF162726.9516	●
2	22	15,9	16	90	26,9	48	5	GF162136.9516	●	GF162436.9516	●	GF162736.9516	●
2	27	19,9	20	105	32,9	50	5	GF162156.9516	●	GF162456.9516	●	GF162756.9516	●
3	24	15,9	16	90	28,3	48	5	GF162136.9518	●	GF162436.9518	●	GF162736.9518	●
3	30	19,9	20	105	34,9	50	5	GF162156.9518	●	GF162456.9518	●	GF162756.9518	●

Andere Steigungen auf Anfrage
Tools for different thread pitch upon request

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

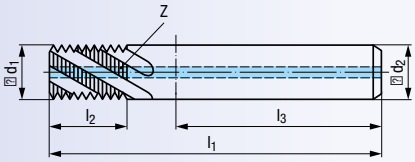
M, MF



DIN 13

VHM | R30 | RH + LH | Z4 - Z5 | DIN 6535 HB HE HA

Für Innengewinde
For internal threads

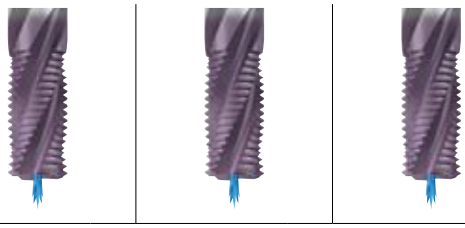


Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-3.1 | K 1.1-4.2 | N 1.1-5 | N 2.1-6 | N 3.1-4.2, 5.2 | S 1.1-2

P mm	D$_{min.}$ mm	d$_1$ mm	d$_2$	l$_1$	l$_2$	l$_3$	Z	GF-VHM R30-lg-IKZ-HB		GF-VHM R30-lg-IKZ-HE		GF-VHM R30-lg-IKZ-HA	
1	14	9,9	10	80	20,4	40	4	GF162311.9512	●	GF162611.9512	●	GF162911.9512	●
1	16	11,9	12	90	25,4	45	4	GF162321.9512	●	GF162621.9512	●	GF162921.9512	●
1	22	15,9	16	100	32,4	48	5	GF162331.9512	●	GF162631.9512	●	GF162931.9512	●
1	27	19,9	20	115	40,4	50	5	GF162351.9512		GF162651.9512		GF162951.9512	
1,5	14	9,9	10	80	21,6	40	4	GF162311.9514	●	GF162611.9514	●	GF162911.9514	●
1,5	16	11,9	12	90	26,1	45	4	GF162321.9514	●	GF162621.9514	●	GF162921.9514	●
1,5	22	15,9	16	100	33,6	48	5	GF162331.9514	●	GF162631.9514	●	GF162931.9514	●
1,5	27	19,9	20	115	41,1	50	5	GF162351.9514	●	GF162651.9514	●	GF162951.9514	●
2	18	11,9	12	90	26,9	45	4	GF162321.9516	●	GF162621.9516	●	GF162921.9516	●
2	22	15,9	16	100	32,9	48	5	GF162331.9516	●	GF162631.9516	●	GF162931.9516	●
2	27	19,9	20	115	40,9	50	5	GF162351.9516	●	GF162651.9516	●	GF162951.9516	●
3	24	15,9	16	100	34,3	48	5	GF162331.9518	●	GF162631.9518	●	GF162931.9518	●
3	30	19,9	20	115	43,3	50	5	GF162351.9518	●	GF162651.9518	●	GF162951.9518	●

TICN



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-3.1 | M 1.1-2.1 | K 1.1-4.2 | N 1.1-2.7 | N 3.1-5.2 | S 1.1-2, 2.1

P mm	D$_{min.}$ mm	d$_1$ mm	d$_2$	l$_1$	l$_2$	l$_3$	Z	GF-VHM R30-lg-IKZ-HB TICN		GF-VHM R30-lg-IKZ-HE TICN		GF-VHM R30-lg-IKZ-HA TICN	
1	14	9,9	10	80	20,4	40	4	GF162316.9512	●	GF162616.9512	●	GF162916.9512	●
1	16	11,9	12	90	25,4	45	4	GF162326.9512	●	GF162626.9512	●	GF162926.9512	●
1	22	15,9	16	100	32,4	48	5	GF162336.9512	●	GF162636.9512	●	GF162936.9512	●
1	27	19,9	20	115	40,4	50	5	GF162356.9512		GF162656.9512		GF162956.9512	
1,5	14	9,9	10	80	21,6	40	4	GF162316.9514	●	GF162616.9514	●	GF162916.9514	●
1,5	16	11,9	12	90	26,1	45	4	GF162326.9514	●	GF162626.9514	●	GF162926.9514	●
1,5	22	15,9	16	100	33,6	48	5	GF162336.9514	●	GF162636.9514	●	GF162936.9514	●
1,5	27	19,9	20	115	41,1	50	5	GF162356.9514	●	GF162656.9514	●	GF162956.9514	●
2	18	11,9	12	90	26,9	45	4	GF162326.9516	●	GF162626.9516	●	GF162926.9516	●
2	22	15,9	16	100	32,9	48	5	GF162336.9516	●	GF162636.9516	●	GF162936.9516	●
2	27	19,9	20	115	40,9	50	5	GF162356.9516	●	GF162656.9516	●	GF162956.9516	●
3	24	15,9	16	100	34,3	48	5	GF162336.9518	●	GF162636.9518	●	GF162936.9518	●
3	30	19,9	20	115	43,3	50	5	GF162356.9518	●	GF162656.9518	●	GF162956.9518	●

Andere Steigungen auf Anfrage
Tools for different thread pitch upon request

Bestell-Beispiel ´ Ordering example: **GF162311.9514**

M, MF

DIN 13

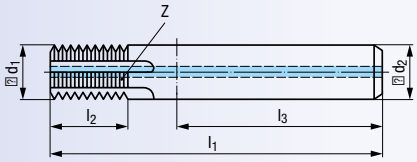
VHM

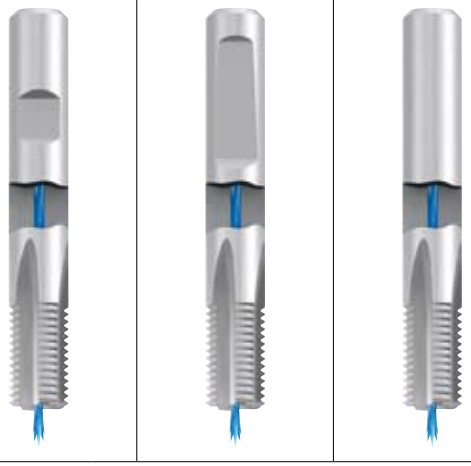
RH + LH

Z4 - Z5

DIN 6535
HB
HE
HA

Für Außengewinde
For external threads



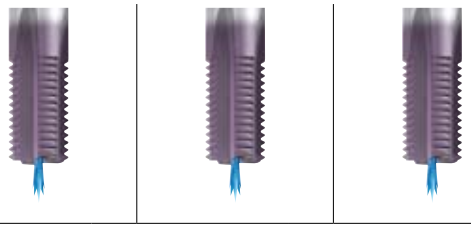


Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | K 1.1-4.2 | N 1.1-5, 2.1-6
N 3.1-2 | N 4.1-2, 5.2 | S 1.1-3

P mm	D min. mm	d1 mm	d2	l1	l2	l3	Z	GF-VHM Ext.-IKZ-HB		GF-VHM Ext.-IKZ-HE		GF-VHM Ext.-IKZ-HA	
1	10	9,9	10	70	16,5	40	4	GF161211.9512	●	GF161511.9512	●	GF161811.9512	●
1	12	11,9	12	80	20,5	45	4	GF161121.9512	●	GF161421.9512	●	GF161721.9512	●
1,5	12	11,9	12	80	21,75	45	4	GF161121.9514	●	GF161421.9514	●	GF161721.9514	●
1,5	16	15,9	16	90	26,25	48	5	GF161131.9514	●	GF161431.9514	●	GF161731.9514	●
1,5	20	19,9	20	105	33,75	50	5	GF161151.9514	●	GF161451.9514	●	GF161751.9514	●
2	16	15,9	16	90	27	48	5	GF161131.9516	●	GF161431.9516	●	GF161731.9516	●
2	20	19,9	20	105	33	50	5	GF161151.9516	●	GF161451.9516	●	GF161751.9516	●
3	20	19,9	20	105	34,5	50	5	GF161151.9518	●	GF161451.9518	●	GF161751.9518	●

TICN



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2
N 1.1-5.2 | S 1.1-2.6 | H 1.1-2

P mm	D min. mm	d1 mm	d2	l1	l2	l3	Z	GF-VHM Ext.-IKZ-HB TICN		GF-VHM Ext.-IKZ-HE TICN		GF-VHM Ext.-IKZ-HA TICN	
1	10	9,9	10	70	16,5	40	4	GF161216.9512	●	GF161516.9512	●	GF161816.9512	●
1	12	11,9	12	80	20,5	45	4	GF161126.9512	●	GF161426.9512	●	GF161726.9512	●
1,5	12	11,9	12	80	21,75	45	4	GF161126.9514	●	GF161426.9514	●	GF161726.9514	●
1,5	16	15,9	16	90	26,25	48	5	GF161136.9514	●	GF161436.9514	●	GF161736.9514	●
1,5	20	19,9	20	105	33,75	50	5	GF161156.9514	●	GF161456.9514	●	GF161756.9514	●
2	16	15,9	16	90	27	48	5	GF161136.9516	●	GF161436.9516	●	GF161736.9516	●
2	20	19,9	20	105	33	50	5	GF161156.9516	●	GF161456.9516	●	GF161756.9516	●
3	20	19,9	20	105	34,5	50	5	GF161156.9518	●	GF161456.9518	●	GF161756.9518	●

Andere Steigungen auf Anfrage
Tools for different thread pitch upon request

Mit Rechtsspiralnuten auf Anfrage
With right-hand spiral flutes upon request

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

M, MF

DIN 13

VHM

R15

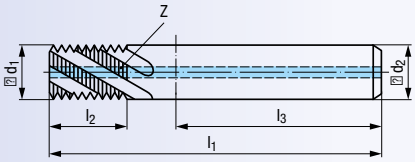
RH + LH

Z6

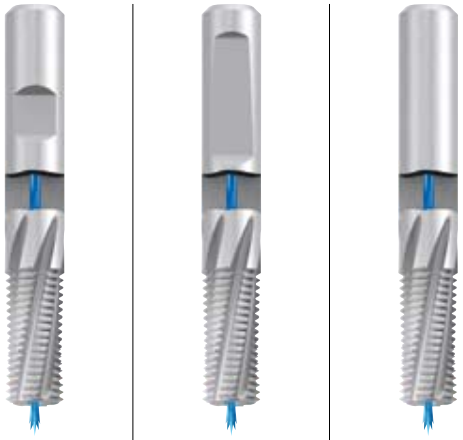
DIN 6535
HB
HE
HA

⍰D

Für Innengewinde
For internal threads



Mit höherer Nutenzahl
With increased number of flutes

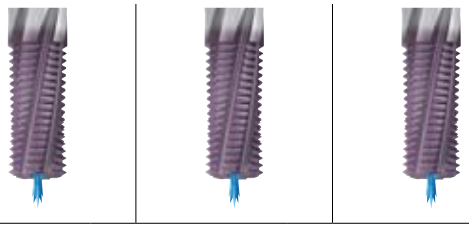


Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | K 1.1-4.2 | N 1.1-5, 2.1-6
N 3.1-2 | N 4.1-2, 5.2 | S 1.1-3

P mm	⍰$D_{min.}$ mm	⍰d_1 mm	⍰d_2	l_1	l_2	l_3	Z	GF-Z-VHM R15-IKZ-HB		GF-Z-VHM R15-IKZ-HE		GF-Z-VHM R15-IKZ-HA	
1	14	9,9	10	70	20,4	40	6	GF165361.9512	●	GF165661.9512	●	GF165961.9512	●
1,5	16	11,9	12	80	26,1	45	6	GF165371.9514	●	GF165671.9514	●	GF165971.9514	●
2	22	15,9	16	90	32,9	48	6	GF165381.9516	●	GF165681.9516	●	GF165981.9516	●
3	30	19,9	20	105	43,3	50	6	GF165391.9518	●	GF165691.9518	●	GF165991.9518	●

TICN



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2
N 1.1-5.2 | S 1.1-2.6 | H 1.1-2

P mm	⍰$D_{min.}$ mm	⍰d_1 mm	⍰d_2	l_1	l_2	l_3	Z	GF-Z-VHM R15-IKZ-HB TICN		GF-Z-VHM R15-IKZ-HE TICN		GF-Z-VHM R15-IKZ-HA TICN	
1	14	9,9	10	70	20,4	40	6	GF165366.9512	●	GF165666.9512	●	GF165966.9512	●
1,5	16	11,9	12	80	26,1	45	6	GF165376.9514	●	GF165676.9514	●	GF165976.9514	●
2	22	15,9	16	90	32,9	48	6	GF165386.9516	●	GF165686.9516	●	GF165986.9516	●
3	30	19,9	20	105	43,3	50	6	GF165396.9518	●	GF165696.9518	●	GF165996.9518	●

Andere Steigungen auf Anfrage
Tools for different thread pitch upon request

Programmierbeispiel für Gewindefräser Typ GF
siehe Seite 410

Programming example for thread milling cutters type GF,
see page 410

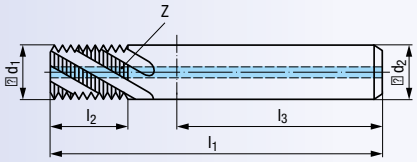
Bestell-Beispiel ´ Ordering example: **GF165391.9518**

M, MF

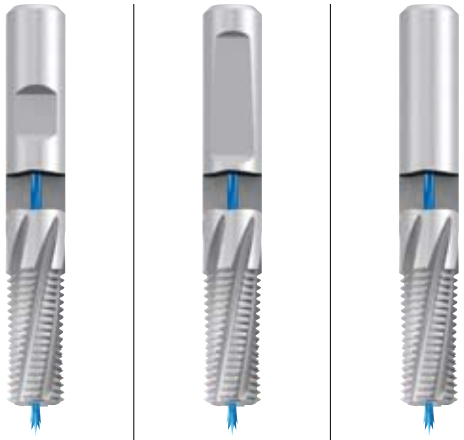
DIN 13

VHM | R15 | RH + LH | Z4 - Z6 | DIN 6535 HB HE HA

Für Innengewinde
For internal threads



Mit höherer Nutzenzahl
With increased number of flutes

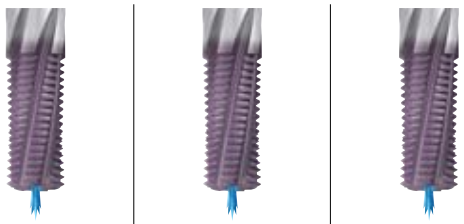


Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | K 1.1-4.2 | N 1.1-5, 2.1-6 | N 3.1-2 | N 4.1-2, 5.2 | S 1.1-3

P mm	D	d_1 mm	d_2	l_1	l_2	l_3	Z	GF-VZ-VHM R15-IKZ-HB		GF-VZ-VHM R15-IKZ-HE		GF-VZ-VHM R15-IKZ-HA	
1	≥ M 6	4,8	6	55	12,4	36	4	GFB35101.0060	●	GFB35401.0060	●	GFB35701.0060	●
1,25	≥ M 8	6,5	8	63	16,8	36	4	GFB35101.0080	●	GFB35401.0080	●	GFB35701.0080	●
1,5	≥ M10	8,2	10	70	21,7	40	5	GFB35101.0100	●	GFB35401.0100	●	GFB35701.0100	●
1,75	≥ M12	9,9	10	74	25,3	40	5	GFB35101.0112	●	GFB35401.0112	●	GFB35701.0112	●
2	≥ M14	11,6	12	85	28,9	45	5	GFB35101.0114	●	GFB35401.0114	●	GFB35701.0114	●
2,5	≥ M18	15	16	100	38,6	48	5	GFB35101.0118	●	GFB35401.0118	●	GFB35701.0118	●
3	≥ M24	19,9	20	115	49,4	50	6	GFB35101.0124	●	GFB35401.0124	●	GFB35701.0124	●

TICN



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

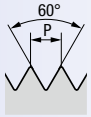
P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2 | N 1.1-5.2 | S 1.1-2.6 | H 1.1-2

P mm	D	d_1 mm	d_2	l_1	l_2	l_3	Z	GF-VZ-VHM R15-IKZ-HB TICN		GF-VZ-VHM R15-IKZ-HE TICN		GF-VZ-VHM R15-IKZ-HA TICN	
1	≥ M 6	4,8	6	55	12,4	36	4	GFB35106.0060	●	GFB35406.0060	●	GFB35706.0060	●
1,25	≥ M 8	6,5	8	63	16,8	36	4	GFB35106.0080	●	GFB35406.0080	●	GFB35706.0080	●
1,5	≥ M10	8,2	10	70	21,7	40	5	GFB35106.0100	●	GFB35406.0100	●	GFB35706.0100	●
1,75	≥ M12	9,9	10	74	25,3	40	5	GFB35106.0112	●	GFB35406.0112	●	GFB35706.0112	●
2	≥ M14	11,6	12	85	28,9	45	5	GFB35106.0114	●	GFB35406.0114	●	GFB35706.0114	●
2,5	≥ M18	15	16	100	38,6	48	5	GFB35106.0118	●	GFB35406.0118	●	GFB35706.0118	●
3	≥ M24	19,9	20	115	49,4	50	6	GFB35106.0124	●	GFB35406.0124	●	GFB35706.0124	●

Andere Steigungen auf Anfrage
Tools for different thread pitch upon request

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

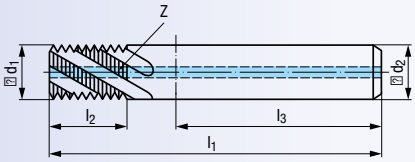
MF



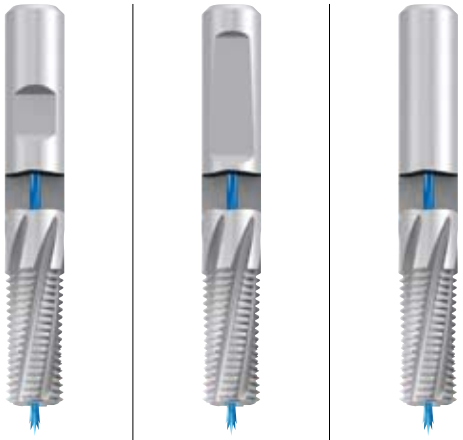
DIN 13

VHM | R15 | RH + LH | Z4 - Z5 | DIN 6535 HB HE HA | ⍰D

Für Innengewinde
For internal threads



Mit höherer Nutenzahl
With increased number of flutes

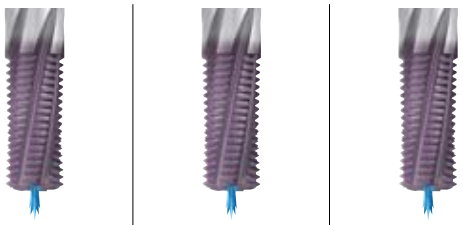


Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | K 1.1-4.2 | N 1.1-5, 2.1-6 | N 3.1-2 | N 4.1-2, 5.2 | S 1.1-3

P mm	⍰D	⍰d_1 mm	⍰d_2	l_1	l_2	l_3	Z	GF-VZ-VHM R15-IKZ-HB		GF-VZ-VHM R15-IKZ-HE		GF-VZ-VHM R15-IKZ-HA	
1	≥ M 8	6,7	8	63	16,4	36	4	**GFB35101.0251**	●	**GFB35401.0251**	●	**GFB35701.0251**	●
1	≥ M10	8,7	10	70	20,4	40	5	**GFB35101.0276**	●	**GFB35401.0276**	●	**GFB35701.0276**	●
1,5	≥ M16	14,1	16	95	33,7	48	5	**GFB35101.0359**	●	**GFB35401.0359**	●	**GFB35701.0359**	●

TICN



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

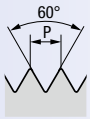
P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2 | N 1.1-5.2 | S 1.1-2.6 | H 1.1-2

P mm	⍰D	⍰d_1 mm	⍰d_2	l_1	l_2	l_3	Z	GF-VZ-VHM R15-IKZ-HB TICN		GF-VZ-VHM R15-IKZ-HE TICN		GF-VZ-VHM R15-IKZ-HA TICN	
1	≥ M 8	6,7	8	63	16,4	36	4	**GFB35106.0251**	●	**GFB35406.0251**	●	**GFB35706.0251**	●
1	≥ M10	8,7	10	70	20,4	40	5	**GFB35106.0276**	●	**GFB35406.0276**	●	**GFB35706.0276**	●
1,5	≥ M16	14,1	16	95	33,7	48	5	**GFB35106.0359**	●	**GFB35406.0359**	●	**GFB35706.0359**	●

Andere Steigungen auf Anfrage
Tools for different thread pitch upon request

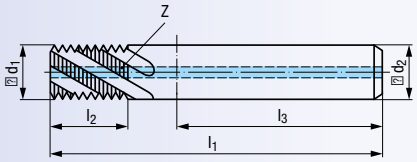
Bestell-Beispiel ´ Ordering example: **GFB35101.0251**

M

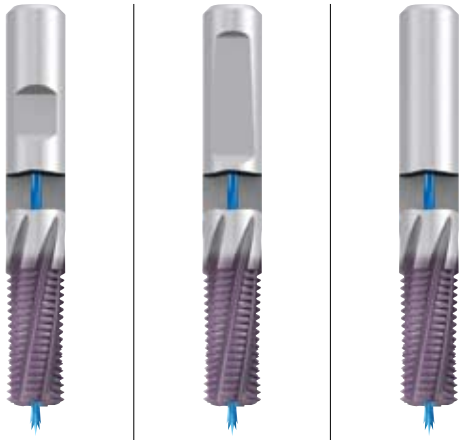


DIN 13

VHM | TICN | R10 | RH + LH | Z4 - Z5 | DIN 6535 HB HE HA



Für Innengewinde
For internal threads



Für die Hartbearbeitung
For hard materials

Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

N 2.7-8 | H 1.3-5

	⌀D mm	P mm	⌀d_1 mm	⌀d_2	l_1	l_2	l_3	Z	GF-H-VHM R10-IKZ-HB TICN		GF-H-VHM R10-IKZ-HE TICN		GF-H-VHM R10-IKZ-HA TICN	
M	6	1	4,6	6	55	9,4	36	4	GF927126.0060	●	GF927426.0060	●	GF927726.0060	●
	8	1,25	6,25	8	63	13,1	36	5	GF927126.0080	●	GF927426.0080	●	GF927726.0080	●
	10	1,5	7,9	8	63	15,7	36	5	GF927126.0100	●	GF927426.0100	●	GF927726.0100	●
	12	1,75	9,55	10	70	18,3	40	5	GF927126.0112	●	GF927426.0112	●	GF927726.0112	●
	16	2	13,2	14	90	24,9	45	5	GF927126.0116	●	GF927426.0116	●	GF927726.0116	●
	20	2,5	15,9	16	100	33,6	48	5	GF927126.0120	●	GF927426.0120	●	GF927726.0120	●

Andere Steigungen auf Anfrage
Tools for different thread pitch upon request

UN

60° P

ASME B1.1

VHM

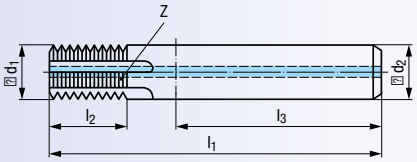
RH + LH

Z4 - Z5

DIN 6535 HB HE HA

⍰D

Für Innengewinde
For internal threads





Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | K 1.1-4.2 | N 1.1-5, 2.1-6 | N 3.1-2 | N 4.1-2, 5.2 | S 1.1-3

P Gg/1" (tpi)	⍰$D_{min.}$ inch	⍰d_1 mm	⍰d_2	l_1	l_2	l_3	Z	GF-VHM IKZ-HB		GF-VHM IKZ-HE		GF-VHM IKZ-HA	
24	1/2	9,9	10	70	16,3	40	4	GF163211.9579	●	GF163511.9579	●	GF163811.9579	●
20	1/2	9,9	10	70	17,1	40	4	GF163211.9580	●	GF163511.9580	●	GF163811.9580	●
20	11/16	11,9	12	80	20,9	45	4	GF163121.9580	●	GF163421.9580	●	GF163721.9580	●
20	7/8	15,9	16	90	25,9	48	5	GF163131.9580	●	GF163431.9580	●	GF163731.9580	●
20	1"	19,9	20	105	32,3	50	5	GF163151.9580	●	GF163451.9580	●	GF163751.9580	●
18	1/2	9,9	10	70	17,5	40	4	GF163211.9581	●	GF163511.9581	●	GF163811.9581	●
16	1/2	9,9	10	70	16,6	40	4	GF163211.9582	●	GF163511.9582	●	GF163811.9582	●
16	11/16	11,9	12	80	21,3	45	4	GF163121.9582	●	GF163421.9582	●	GF163721.9582	●
16	7/8	15,9	16	90	26,2	48	5	GF163131.9582	●	GF163431.9582	●	GF163731.9582	●
16	1"	19,9	20	105	32,4	50	5	GF163151.9582	●	GF163451.9582	●	GF163751.9582	●
14	7/8	15,9	16	90	26,2	48	5	GF163131.9583	●	GF163431.9583	●	GF163731.9583	●
12	11/16	11,9	12	80	22,1	45	4	GF163121.9585	●	GF163421.9585	●	GF163721.9585	●
12	7/8	15,9	16	90	26,3	48	5	GF163131.9585	●	GF163431.9585	●	GF163731.9585	●
12	1"	19,9	20	105	32,7	50	5	GF163151.9585	●	GF163451.9585	●	GF163751.9585	●
10	11/16	11,9	12	80	21,4	45	4	GF163121.9587	●	GF163421.9587	●	GF163721.9587	●
9	11/16	11,9	12	80	21	45	4	GF163121.9588	●	GF163421.9588	●	GF163721.9588	●
8	7/8	15,9	16	90	26,8	48	5	GF163131.9589	●	GF163431.9589	●	GF163731.9589	●
8	1"	19,9	20	105	33,2	50	5	GF163151.9589	●	GF163451.9589	●	GF163751.9589	●
6	1"	19,9	20	105	35,8	50	5	GF163151.9591	●	GF163451.9591	●	GF163751.9591	●

TICN



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2 | N 1.1-5.2 | S 1.1-2.6 | H 1.1-2

P Gg/1" (tpi)	⍰$D_{min.}$ inch	⍰d_1 mm	⍰d_2	l_1	l_2	l_3	Z	GF-VHM IKZ-HB TICN		GF-VHM IKZ-HE TICN		GF-VHM IKZ-HA TICN	
24	1/2	9,9	10	70	16,3	40	4	GF163216.9579	●	GF163516.9579	●	GF163816.9579	●
20	1/2	9,9	10	70	17,1	40	4	GF163216.9580	●	GF163516.9580	●	GF163816.9580	●
20	11/16	11,9	12	80	20,9	45	4	GF163126.9580	●	GF163426.9580	●	GF163726.9580	●
20	7/8	15,9	16	90	25,9	48	5	GF163136.9580	●	GF163436.9580	●	GF163736.9580	●
20	1"	19,9	20	105	32,3	50	5	GF163156.9580	●	GF163456.9580	●	GF163756.9580	●
18	1/2	9,9	10	70	17,5	40	4	GF163216.9581	●	GF163516.9581	●	GF163816.9581	●
16	1/2	9,9	10	70	16,6	40	4	GF163216.9582	●	GF163516.9582	●	GF163816.9582	●
16	11/16	11,9	12	80	21,3	45	4	GF163126.9582	●	GF163426.9582	●	GF163726.9582	●
16	7/8	15,9	16	90	26,2	48	5	GF163136.9582	●	GF163436.9582	●	GF163736.9582	●
16	1"	19,9	20	105	32,4	50	5	GF163156.9582	●	GF163456.9582	●	GF163756.9582	●
14	7/8	15,9	16	90	26,2	48	5	GF163136.9583	●	GF163436.9583	●	GF163736.9583	●
12	11/16	11,9	12	80	22,1	45	4	GF163126.9585	●	GF163426.9585	●	GF163726.9585	●
12	7/8	15,9	16	90	26,3	48	5	GF163136.9585	●	GF163436.9585	●	GF163736.9585	●
12	1"	19,9	20	105	32,7	50	5	GF163156.9585	●	GF163456.9585	●	GF163756.9585	●
10	11/16	11,9	12	80	21,4	45	4	GF163126.9587	●	GF163426.9587	●	GF163726.9587	●
9	11/16	11,9	12	80	21	45	4	GF163126.9588	●	GF163426.9588	●	GF163726.9588	●
8	7/8	15,9	16	90	26,8	48	5	GF163136.9589	●	GF163436.9589	●	GF163736.9589	●
8	1"	19,9	20	105	33,2	50	5	GF163156.9589	●	GF163456.9589	●	GF163756.9589	●
6	1"	19,9	20	105	35,8	50	5	GF163156.9591	●	GF163456.9591	●	GF163756.9591	●

Andere Steigungen auf Anfrage
Tools for different thread pitch upon request

Bestell-Beispiel ´ Ordering example: **GF163211.9580**

UN

ASME B1.1

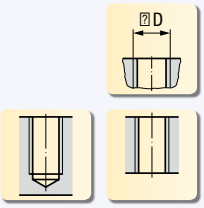
VHM

R30

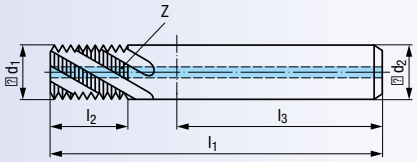
RH + LH

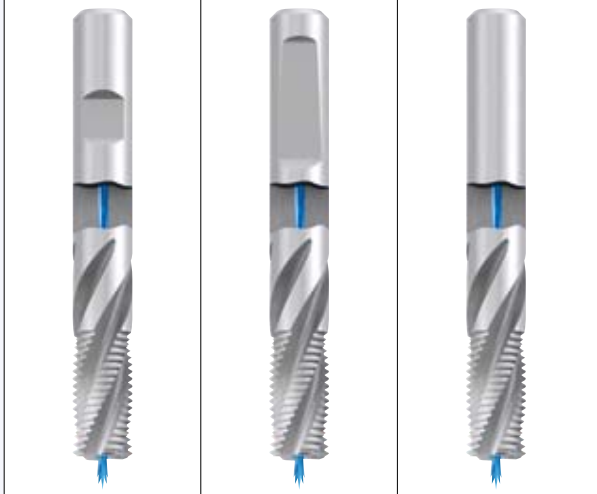
Z4 - Z5

DIN 6535
HB
HE
HA



Für Innengewinde
For internal threads



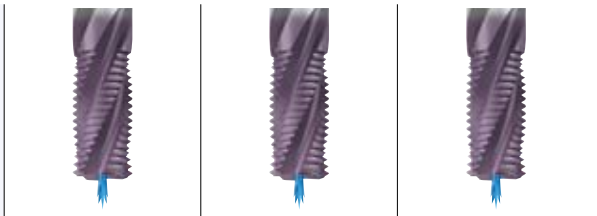


Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-3.1 | K 1.1-4.2 | N 1.1-5
N 2.1-6 | N 3.1-4.2, 5.2 | S 1.1-2

P Gg/1" (tpi)	D min. inch	d1 mm	d2	l1	l2	l3	Z	GF-VHM R30-lg-IKZ-HB		GF-VHM R30-lg-IKZ-HE		GF-VHM R30-lg-IKZ-HA	
24	1/2	9,9	10	80	20,6	40	4	GF162311.9579	●	GF162611.9579	●	GF162911.9579	●
20	1/2	9,9	10	80	20,9	40	4	GF162311.9580	●	GF162611.9580	●	GF162911.9580	●
20	11/16	11,9	12	90	26	45	4	GF162321.9580	●	GF162621.9580	●	GF162921.9580	●
20	7/8	15,9	16	100	32,3	48	5	GF162331.9580	●	GF162631.9580	●	GF162931.9580	●
20	1"	19,9	20	115	41,2	50	5	GF162351.9580	●	GF162651.9580	●	GF162951.9580	●
18	1/2	9,9	10	80	20,4	40	4	GF162311.9581	●	GF162611.9581	●	GF162911.9581	●
16	1/2	9,9	10	80	21,3	40	4	GF162311.9582	●	GF162611.9582	●	GF162911.9582	●
16	11/16	11,9	12	90	26,1	45	4	GF162321.9582	●	GF162621.9582	●	GF162921.9582	●
16	7/8	15,9	16	100	32,4	48	5	GF162331.9582	●	GF162631.9582	●	GF162931.9582	●
16	1"	19,9	20	115	40,4	50	5	GF162351.9582	●	GF162651.9582	●	GF162951.9582	●
14	7/8	15,9	16	100	33,4	48	5	GF162331.9583	●	GF162631.9583	●	GF162931.9583	●
12	11/16	11,9	12	90	26,3	45	4	GF162321.9585	●	GF162621.9585	●	GF162921.9585	●
12	7/8	15,9	16	100	32,7	48	5	GF162331.9585	●	GF162631.9585	●	GF162931.9585	●
12	1"	19,9	20	115	41,1	50	5	GF162351.9585	●	GF162651.9585	●	GF162951.9585	●
10	11/16	11,9	12	90	26,5	45	4	GF162321.9587	●	GF162621.9587	●	GF162921.9587	●
9	11/16	11,9	12	90	25,4	45	4	GF162321.9588	●	GF162621.9588	●	GF162921.9588	●
8	7/8	15,9	16	100	33,1	48	5	GF162331.9589	●	GF162631.9589	●	GF162931.9589	●
8	1"	19,9	20	115	42,7	50	5	GF162351.9589	●	GF162651.9589	●	GF162951.9589	●
6	1"	19,9	20	115	44,3	50	5	GF162351.9591	●	GF162651.9591	●	GF162951.9591	●

TICN



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

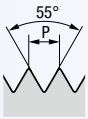
P 1.1-3.1 | M 1.1-2.1 | K 1.1-4.2
N 1.1-2.7 | N 3.1-5.2 | S 1.1-2, 2.1

P Gg/1" (tpi)	D min. inch	d1 mm	d2	l1	l2	l3	Z	GF-VHM R30-lg-IKZ-HB TICN		GF-VHM R30-lg-IKZ-HE TICN		GF-VHM R30-lg-IKZ-HA TICN	
24	1/2	9,9	10	80	20,6	40	4	GF162316.9579	●	GF162616.9579	●	GF162916.9579	●
20	1/2	9,9	10	80	20,9	40	4	GF162316.9580	●	GF162616.9580	●	GF162916.9580	●
20	11/16	11,9	12	90	26	45	4	GF162326.9580	●	GF162626.9580	●	GF162926.9580	●
20	7/8	15,9	16	100	32,3	48	5	GF162336.9580	●	GF162636.9580	●	GF162936.9580	●
20	1"	19,9	20	115	41,2	50	5	GF162356.9580	●	GF162656.9580	●	GF162956.9580	●
18	1/2	9,9	10	80	20,4	40	4	GF162316.9581	●	GF162616.9581	●	GF162916.9581	●
16	1/2	9,9	10	80	21,3	40	4	GF162316.9582	●	GF162616.9582	●	GF162916.9582	●
16	11/16	11,9	12	90	26,1	45	4	GF162326.9582	●	GF162626.9582	●	GF162926.9582	●
16	7/8	15,9	16	100	32,4	48	5	GF162336.9582	●	GF162636.9582	●	GF162936.9582	●
16	1"	19,9	20	115	40,4	50	5	GF162356.9582	●	GF162656.9582	●	GF162956.9582	●
14	7/8	15,9	16	100	33,4	48	5	GF162336.9583	●	GF162636.9583	●	GF162936.9583	●
12	11/16	11,9	12	90	26,3	45	4	GF162326.9585	●	GF162626.9585	●	GF162926.9585	●
12	7/8	15,9	16	100	32,7	48	5	GF162336.9585	●	GF162636.9585	●	GF162936.9585	●
12	1"	19,9	20	115	41,1	50	5	GF162356.9585	●	GF162656.9585	●	GF162956.9585	●
10	11/16	11,9	12	90	26,5	45	4	GF162326.9587	●	GF162626.9587	●	GF162926.9587	●
9	11/16	11,9	12	90	25,4	45	4	GF162326.9588	●	GF162626.9588	●	GF162926.9588	●
8	7/8	15,9	16	100	33,1	48	5	GF162336.9589	●	GF162636.9589	●	GF162936.9589	●
8	1"	19,9	20	115	42,7	50	5	GF162356.9589	●	GF162656.9589	●	GF162956.9589	●
6	1"	19,9	20	115	44,3	50	5	GF162356.9591	●	GF162656.9591	●	GF162956.9591	●

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

Andere Steigungen auf Anfrage
Tools for different thread pitch upon request

G Rp (BSPP), W



DIN EN ISO 228, DIN EN 10226-1, ISO 7/1, BS 84

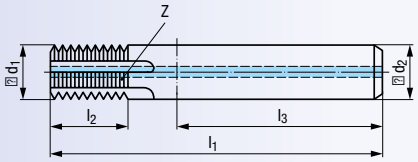
VHM

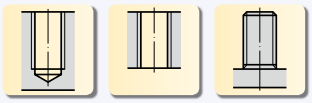
RH + LH

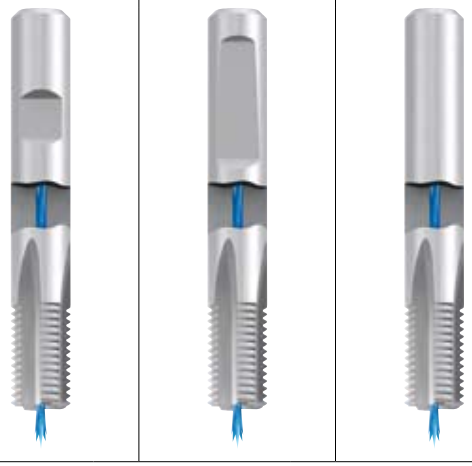
Z4 - Z5

DIN 6535
HB
HE
HA

Für Innen- und Außengewinde
For internal and external threads





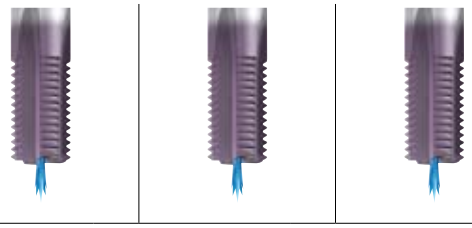


Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | K 1.1-4.2 | N 1.1-5, 2.1-6
N 3.1-2 | N 4.1-2, 5.2 | S 1.1-3

P Gg/1" (tpi)	⌀$D_{min.}$ [1] inch	⌀d_1 mm	⌀d_2	l_1	l_2	l_3	Z	GF-VHM IKZ-HB		GF-VHM IKZ-HE		GF-VHM IKZ-HA	
19	1/4	9,9	10	70	16,7	40	4	**GF163211.9545**	●	**GF163511.9545**	●	**GF163811.9545**	●
14	1/2	15,9	16	90	26,3	48	5	**GF163131.9548**	●	**GF163431.9548**	●	**GF163731.9548**	●
14	3/4	19,9	20	105	33,5	50	5	**GF163151.9548**		**GF163451.9548**		**GF163751.9548**	
11	1"	15,9	16	90	26,5	48	5	**GF163131.9550**	●	**GF163431.9550**	●	**GF163731.9550**	●
11	1"	19,9	20	105	33,5	50	5	**GF163151.9550**	●	**GF163451.9550**	●	**GF163751.9550**	●

TICN



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2
N 1.1-5.2 | S 1.1-2.6 | H 1.1-2

P Gg/1" (tpi)	⌀$D_{min.}$ [1] inch	⌀d_1 mm	⌀d_2	l_1	l_2	l_3	Z	GF-VHM IKZ-HB TICN		GF-VHM IKZ-HE TICN		GF-VHM IKZ-HA TICN	
19	1/4	9,9	10	70	16,7	40	4	**GF163216.9545**	●	**GF163516.9545**	●	**GF163816.9545**	●
14	1/2	15,9	16	90	26,3	48	5	**GF163136.9548**	●	**GF163436.9548**	●	**GF163736.9548**	●
14	3/4	19,9	20	105	33,5	50	5	**GF163156.9548**		**GF163456.9548**		**GF163756.9548**	
11	1"	15,9	16	90	26,5	48	5	**GF163136.9550**	●	**GF163436.9550**	●	**GF163736.9550**	●
11	1"	19,9	20	105	33,5	50	5	**GF163156.9550**	●	**GF163456.9550**	●	**GF163756.9550**	●

[1] Durchmesser bezogen auf Rohr-Innengewinde bzw. Rohr-Außengewinde
Diameter related to internal pipe thread resp. external pipe thread

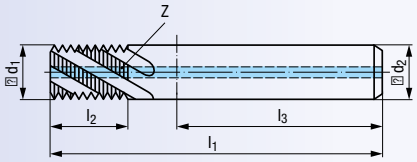
Bestell-Beispiel ´ Ordering example: **GF163151.9550**

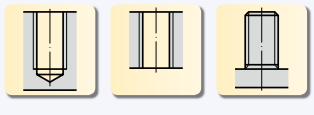
G Rp (BSPP), W

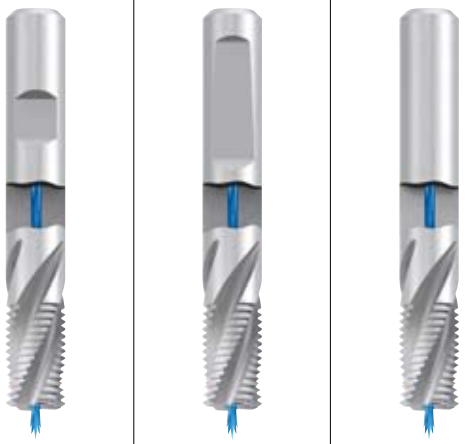
DIN EN ISO 228, DIN EN 10226-1, ISO 7/1, BS 84

VHM | R30 | RH + LH | Z4 - Z5 | DIN 6535 HB HE HA

Für Innen- und Außengewinde
For internal and external threads







Einsatzgebiete ± Material
Range of application ± material
» 282

P 1.1-3.1 | K 1.1-4.2 | N 1.1-5
N 2.1-6 | N 3.1-4.2, 5.2 | S 1.1-2

P Gg/1" (tpi)	⌀$D_{min.}$ [1] inch	⌀d_1 mm	⌀d_2	l_1	l_2	l_3	Z	GF-VHM R30-IKZ-HB		GF-VHM R30-IKZ-HE		GF-VHM R30-IKZ-HA	
19	1/4	9,9	10	70	16,7	40	4	GF162211.9545	●	GF162511.9545	●	GF162811.9545	●
14	1/2	11,9	12	80	20,9	45	4	GF162121.9548	●	GF162421.9548	●	GF162721.9548	●
14	1/2	15,9	16	90	26,3	48	5	GF162131.9548	●	GF162431.9548	●	GF162731.9548	●
14	3/4	19,9	20	105	33,5	50	5	GF162151.9548		GF162451.9548		GF162751.9548	
11	1"	15,9	16	90	26,5	48	5	GF162131.9550	●	GF162431.9550	●	GF162731.9550	●
11	1"	19,9	20	105	33,5	50	5	GF162151.9550	●	GF162451.9550	●	GF162751.9550	●

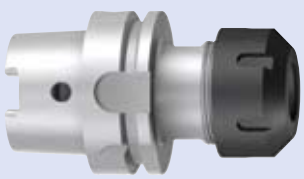
TICN

Einsatzgebiete ± Material
Range of application ± material
» 282

P 1.1-3.1 | M 1.1-2.1 | K 1.1-4.2
N 1.1-2.7 | N 3.1-5.2 | S 1.1-2, 2.1

P Gg/1" (tpi)	⌀$D_{min.}$ [1] inch	⌀d_1 mm	⌀d_2	l_1	l_2	l_3	Z	GF-VHM R30-IKZ-HB TICN		GF-VHM R30-IKZ-HE TICN		GF-VHM R30-IKZ-HA TICN	
19	1/4	9,9	10	70	16,7	40	4	GF162216.9545	●	GF162516.9545	●	GF162816.9545	●
14	1/2	11,9	12	80	20,9	45	4	GF162126.9548	●	GF162426.9548	●	GF162726.9548	●
14	1/2	15,9	16	90	26,3	48	5	GF162136.9548	●	GF162436.9548	●	GF162736.9548	●
14	3/4	19,9	20	105	33,5	50	5	GF162156.9548		GF162456.9548		GF162756.9548	
11	1"	15,9	16	90	26,5	48	5	GF162136.9550	●	GF162436.9550	●	GF162736.9550	●
11	1"	19,9	20	105	33,5	50	5	GF162156.9550	●	GF162456.9550	●	GF162756.9550	●

[1] Durchmesser bezogen auf Rohr-Innengewinde bzw. Rohr-Außengewinde
Diameter related to internal pipe thread resp. external pipe thread



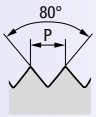
Spannzangen-Aufnahmen Typ KSN/Synchro
siehe Seite 613 - 615

Collet holders type KSN/Synchro,
see page 613 - 615

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

Pg

DIN 40430



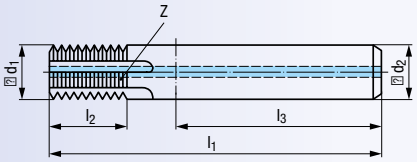
VHM

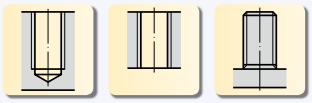
RH + LH

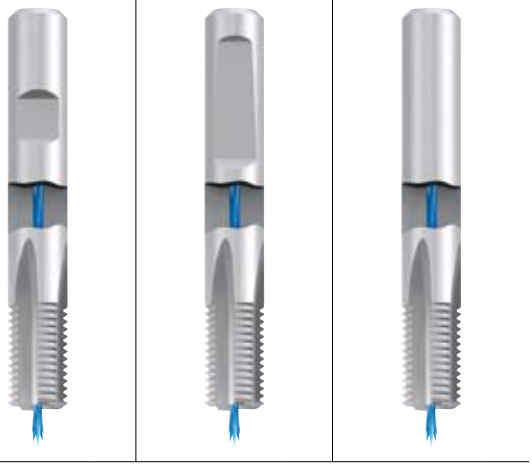
Z4

DIN 6535
HB
HE
HA

Für Innen- und Außengewinde
For internal and external threads





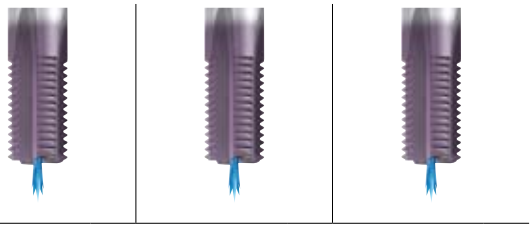


Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | K 1.1-4.2 | N 1.1-5, 2.1-6
N 3.1-2 | N 4.1-2, 5.2 | S 1.1-3

Nenngröße Nom. size D 1)	P Gg/1" (tpi)	d1 mm	d2	l1	l2	l3	Z	GF-VHM IKZ-HB		GF-VHM IKZ-HE		GF-VHM IKZ-HA	
Pg 7	20	9,9	10	70	17,1	40	4	GF163211.9661	●	GF163511.9661	●	GF163811.9661	●
9	18	11,9	12	80	20,5	45	4	GF163121.9662	●	GF163421.9662	●	GF163721.9662	●
21	16	11,9	12	80	21,4	45	4	GF163121.9663	●	GF163421.9663	●	GF163721.9663	●

TICN



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2
N 1.1-5.2 | S 1.1-2.6 | H 1.1-2

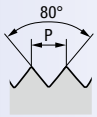
Nenngröße Nom. size D 1)	P Gg/1" (tpi)	d1 mm	d2	l1	l2	l3	Z	GF-VHM IKZ-HB TICN		GF-VHM IKZ-HE TICN		GF-VHM IKZ-HA TICN	
Pg 7	20	9,9	10	70	17,1	40	4	GF163216.9661	●	GF163516.9661	●	GF163816.9661	●
9	18	11,9	12	80	20,5	45	4	GF163126.9662	●	GF163426.9662	●	GF163726.9662	●
21	16	11,9	12	80	21,4	45	4	GF163126.9663	●	GF163426.9663	●	GF163726.9663	●

1) Durchmesser bezogen auf Rohr-Innengewinde bzw. Rohr-Außengewinde
Diameter related to internal pipe thread resp. external pipe thread

Bestell-Beispiel ´ Ordering example: **GF163211.9661**

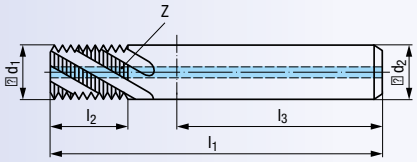
Pg

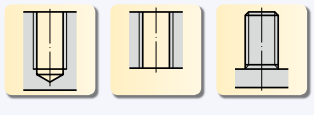
DIN 40430

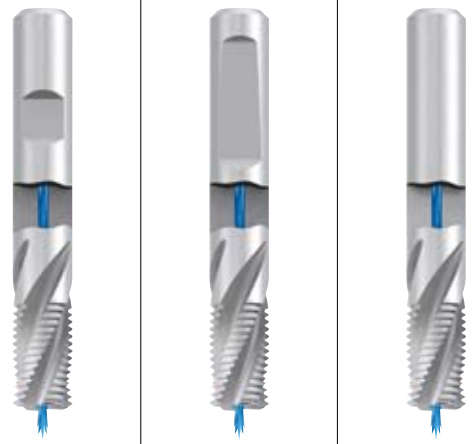


VHM | R30 | RH + LH | Z4 | DIN 6535 HB HE HA

Für Innen- und Außengewinde
For internal and external threads





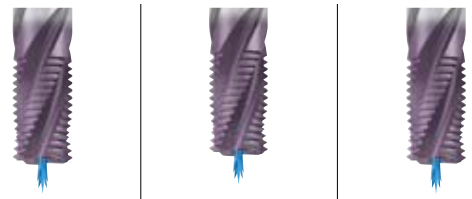


Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-3.1 | K 1.1-4.2 | N 1.1-5 | N 2.1-6 | N 3.1-4.2, 5.2 | S 1.1-2

Nenngröße Nom. size D 1)	P Gg/1" (tpi)	d1 mm	d2	l1	l2	l3	Z	GF-VHM R30-IKZ-HB		GF-VHM R30-IKZ-HE		GF-VHM R30-IKZ-HA	
Pg 7	20	9,9	10	70	17,1	40	4	GF162211.9661	●	GF162511.9661	●	GF162811.9661	●
9	18	11,9	12	80	20,5	45	4	GF162121.9662	●	GF162421.9662	●	GF162721.9662	●
21	16	11,9	12	80	21,4	45	4	GF162121.9663	●	GF162421.9663	●	GF162721.9663	●

TICN



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-3.1 | M 1.1-2.1 | K 1.1-4.2 | N 1.1-2.7 | N 3.1-5.2 | S 1.1-2, 2.1

Nenngröße Nom. size D 1)	P Gg/1" (tpi)	d1 mm	d2	l1	l2	l3	Z	GF-VHM R30-IKZ-HB TICN		GF-VHM R30-IKZ-HE TICN		GF-VHM R30-IKZ-HA TICN	
Pg 7	20	9,9	10	70	17,1	40	4	GF162216.9661	●	GF162516.9661	●	GF162816.9661	●
9	18	11,9	12	80	20,5	45	4	GF162126.9662	●	GF162426.9662	●	GF162726.9662	●
21	16	11,9	12	80	21,4	45	4	GF162126.9663	●	GF162426.9663	●	GF162726.9663	●

1) Durchmesser bezogen auf Rohr-Innengewinde bzw. Rohr-Außengewinde
Diameter related to internal pipe thread resp. external pipe thread

LK-M

BT

EMUGE-Norm ´ EMUGE Standard

VHM

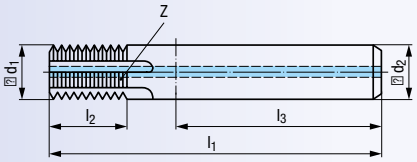
RH + LH

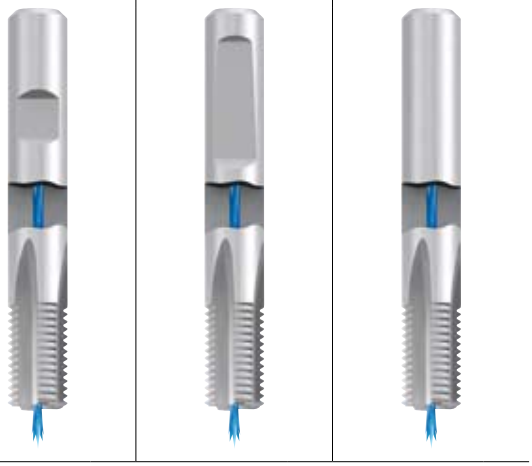
Z4 - Z5

DIN 6535
HB
HE
HA

D

Für Innengewinde
For internal threads



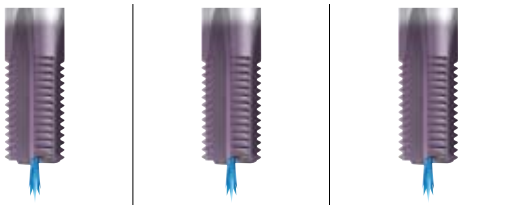


Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | K 1.1-4.2 | N 1.1-5, 2.1-6
N 3.1-2 | N 4.1-2, 5.2 | S 1.1-3

P mm	D$_{min.}$ mm	d$_1$ mm	d$_2$	l$_1$	l$_2$	l$_3$	Z	GF-VHM IKZ-HB		GF-VHM IKZ-HE		GF-VHM IKZ-HA	
1	14	9,9	10	70	16,4	40	4	GF163211.9757	●	GF163511.9757	●	GF163811.9757	●
1	16	11,9	12	80	20,4	45	4	GF163121.9757	●	GF163421.9757	●	GF163721.9757	●
1,5	14	9,9	10	70	17	40	4	GF163211.9664	●	GF163511.9664	●	GF163811.9664	●
1,5	16	11,9	12	80	21,5	45	4	GF163121.9664	●	GF163421.9664	●	GF163721.9664	●
2	22	15,9	16	90	26,7	48	5	GF163131.9705	●	GF163431.9705	●	GF163731.9705	●
3	30	19,9	20	105	34,1	50	5	GF163151.9767	●	GF163451.9767	●	GF163751.9767	●

TICN



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2
N 1.1-5.2 | S 1.1-2.6 | H 1.1-2

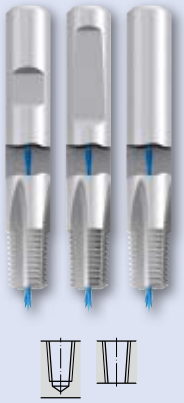
P mm	D$_{min.}$ mm	d$_1$ mm	d$_2$	l$_1$	l$_2$	l$_3$	Z	GF-VHM IKZ-HB TICN		GF-VHM IKZ-HE TICN		GF-VHM IKZ-HA TICN	
1	14	9,9	10	70	16,4	40	4	GF163216.9757	●	GF163516.9757	●	GF163816.9757	●
1	16	11,9	12	80	20,4	45	4	GF163126.9757	●	GF163426.9757	●	GF163726.9757	●
1,5	14	9,9	10	70	17	40	4	GF163216.9664	●	GF163516.9664	●	GF163816.9664	●
1,5	16	11,9	12	80	21,5	45	4	GF163126.9664	●	GF163426.9664	●	GF163726.9664	●
2	22	15,9	16	90	26,7	48	5	GF163136.9705	●	GF163436.9705	●	GF163736.9705	●
3	30	19,9	20	105	34,1	50	5	GF163156.9767	●	GF163456.9767	●	GF163756.9767	●

Andere Steigungen auf Anfrage
Tools for different thread pitch upon request

Bestell-Beispiel ´ Ordering example: **GF163121.9757**

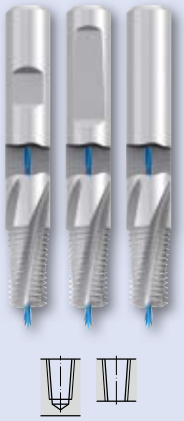
Gerade Nuten
Straight flutes

GF-KEG



Rechtsspiralnuten, Typ lang
Right-hand spiral flutes, long design

GF-KEG



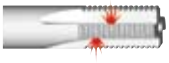
Seite · Page

Mögliche Modifikationen · Possible modifications

Stirnfase ohne/mit Stirnschnitt
Face chamfer with/without cutting face

AZR/AZ (ausgesetzte Zähne)
AZR/AZ (alternating teeth)

Unvollständigen Gang entfernen
Remove incomplete thread



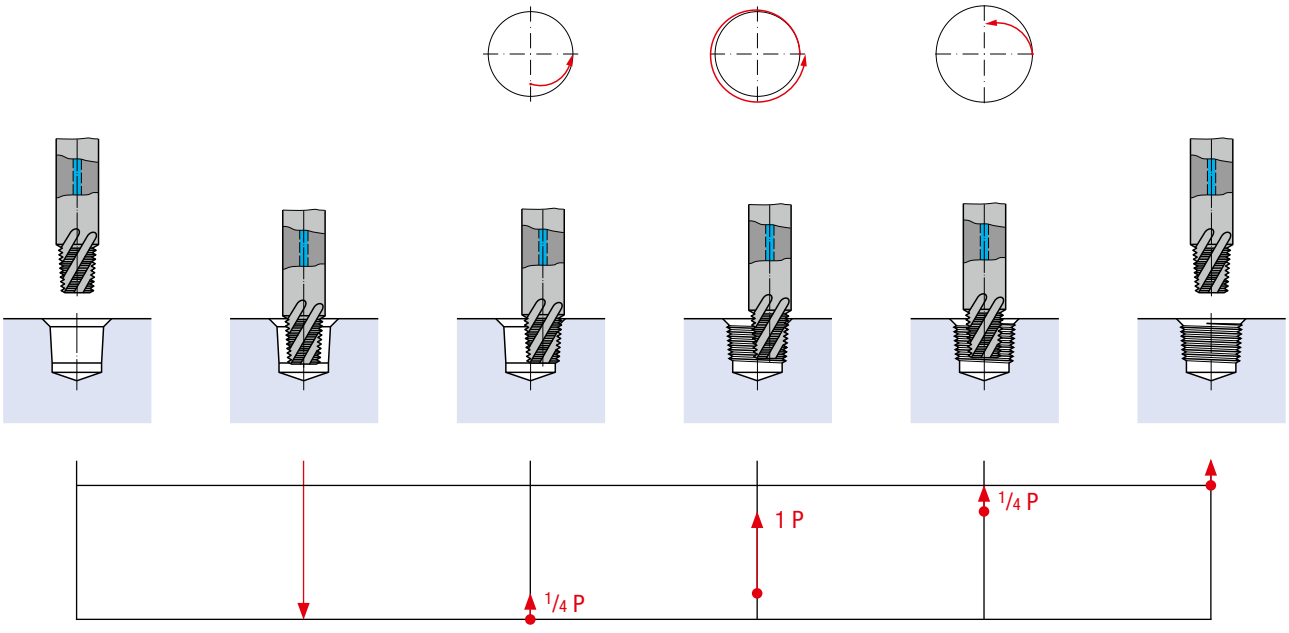
IKZN (innere Kühlschmierstoff-Zufuhr mit Austritt in den Nuten)
IKZN (internal coolant-lubricant supply exiting in the flutes)

Halsfreischliff
Recessed neck

Schaftkühlnuten
Coolant grooves along the shank

Eine Beschreibung dieser Modifikationsmöglichkeiten finden Sie auf Seite 400 - 401
For a description of these modifications, see pages 400 - 401

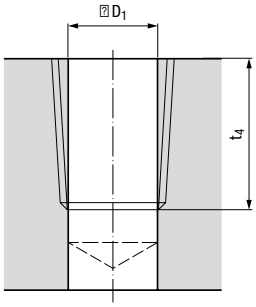
Gewindefräszyklus · Thread milling cycle



EMUGE NPT-Gewindefräser sind für die Lochformen a) und b) geeignet.

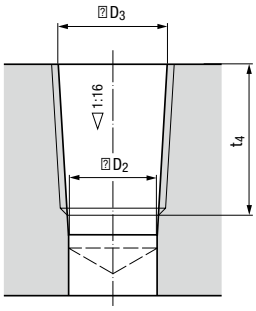
EMUGE NPT thread milling cutters are suited for the hole forms a) and b).

a) Zylindrisch vorbohren ohne Verwendung einer Reibahle
Drill cylindrically without using a reamer



Nenngröße Nom. size D	P Gg/1" (tpi)	⍰D_1	t_4
1/16	27	6,15	8,3
1/8	27	8,5	8,3
1/4	18	11	12,15
3/8	18	14,4	12,45
1/2	14	17,8	16,3
3/4	14	23,15	16,3
1"	11 1/2	29,05	19,55
1 1/4	11 1/2	37,8	20,05
1 1/2	11 1/2	43,85	20,05
2"	11 1/2	55,85	20,45

b) Zylindrisch vorbohren und kegelig aufreiben
Drill cylindrically and prepare tapered hole with reamer



Nenngröße Nom. size D	P Gg/1" (tpi)	⍰D_2	⍰D_3 (+0,05)	t_4
1/16	27	5,95	6,39	8,3
1/8	27	8,3	8,74	8,3
1/4	18	10,75	11,36	12,15
3/8	18	14,15	14,80	12,45
1/2	14	17,45	18,32	16,3
3/4	14	22,8	23,67	16,3
1"	11 1/2	28,65	29,69	19,55
1 1/4	11 1/2	37,35	38,45	20,05
1 1/2	11 1/2	43,45	44,52	20,05
2"	11 1/2	55,45	56,56	20,45

NPT

ANSI/ASME B1.20.1

VHM

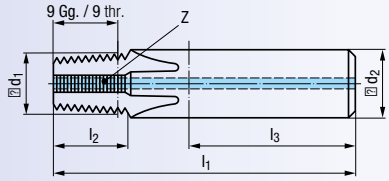
RH + LH

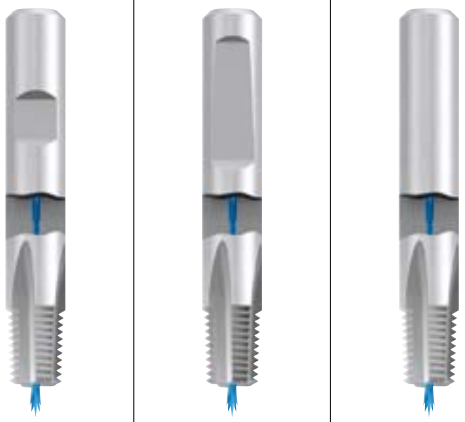
Z3 - Z5

DIN 6535
HB
HE
HA

⍰D

Für kegeliges Innengewinde
For internal tapered threads



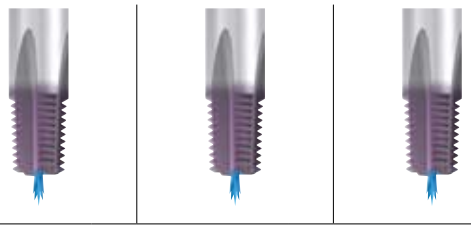


Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | K 1.1-4.2 | N 1.1-5, 2.1-6
N 3.1-2 | N 4.1-2, 5.2 | S 1.1-3

Nenngröße Nom. size D	P Gg/1" (tpi)	l_1	l_2	l_3	⍰d_1	⍰d_2	Z	GF-KEG-VHM IKZ-HB		GF-KEG-VHM IKZ-HE		GF-KEG-VHM IKZ-HA	
1/16	27	55	9,88	36	5,9	8	3	GF173101.5763	●	GF173401.5763	●	GF173701.5763	●
1/8	27	55	9,88	36	7,65	8	3	GF173101.5764	●	GF173401.5764	●	GF173701.5764	●
1/4	18	75	14,79	45	10,15	12	4	GF173111.5765	●	GF173411.5765	●	GF173711.5765	●
3/8	18	75	14,78	45	11,15	12	4	GF173111.5766	●	GF173411.5766	●	GF173711.5766	●
1/2 - 3/4	14	80	19,01	48	14,25	16	4	GF173131.9678	●	GF173431.9678	●	GF173731.9678	●
1" - 2"	11 1/2	90	23,14	50	19,6	20	5	GF173151.9679	●	GF173451.9679	●	GF173751.9679	●

TICN



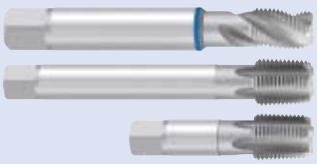
Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2
N 1.1-5.2 | S 1.1-2.6 | H 1.1-2

Nenngröße Nom. size D	P Gg/1" (tpi)	l_1	l_2	l_3	⍰d_1	⍰d_2	Z	GF-KEG-VHM IKZ-HB TICN		GF-KEG-VHM IKZ-HE TICN		GF-KEG-VHM IKZ-HA TICN	
1/16	27	55	9,88	36	5,9	8	3	GF173106.5763	●	GF173406.5763	●	GF173706.5763	●
1/8	27	55	9,88	36	7,65	8	3	GF173106.5764	●	GF173406.5764	●	GF173706.5764	●
1/4	18	75	14,79	45	10,15	12	4	GF173116.5765	●	GF173416.5765	●	GF173716.5765	●
3/8	18	75	14,78	45	11,15	12	4	GF173116.5766	●	GF173416.5766	●	GF173716.5766	●
1/2 - 3/4	14	80	19,01	48	14,25	16	4	GF173136.9678	●	GF173436.9678	●	GF173736.9678	●
1" - 2"	11 1/2	90	23,14	50	19,6	20	5	GF173156.9679	●	GF173456.9679	●	GF173756.9679	●

NPT-Fräser werden mit korrigiertem Profil gefertigt
NPT cutters are manufactured with a corrected profile

Anwendungshinweis: Es wird ein NC-Programm für schneckenförmiges Wendelnutfräsen benötigt, da sonst ein Absatz im gefrästen Gewinde entsteht
Application recommendation: You must have an NC programme for spiral-worm keyway milling, otherwise the finished thread will have a stepped profile



Gewindebohrer für kegelige Innengewinde siehe Seite 158 - 169

Taps for internal tapered threads, see page 158 - 169

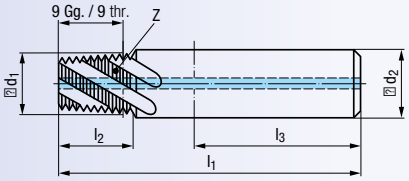
● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

NPT (API-LP)

ANSI/ASME B1.20.1

VHM | R15 | RH + LH | Z3 - Z5 | DIN 6535 HB HE HA

Für kegeliges Innengewinde
For internal tapered threads





Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | K 1.1-4.2 | N 1.1-5, 2.1-6 | N 3.1-2 | N 4.1-2, 5.2 | S 1.1-3

Nenngröße Nom. size D	P Gg/1" (tpi)	l_1	l_2	l_3	⌀d_1	⌀d_2	Z	GF-KEG-VHM R15-lg-IKZ-HB		GF-KEG-VHM R15-lg-IKZ-HE		GF-KEG-VHM R15-lg-IKZ-HA	
1/16	27	60	13,63	36	5,9	8	3	GF175301.5763	●	GF175601.5763	●	GF175901.5763	●
1/8	27	60	13,63	36	7,65	8	3	GF175301.5764	●	GF175601.5764	●	GF175901.5764	●
1/4	18	80	20,44	45	10,15	12	4	GF175311.5765	●	GF175611.5765	●	GF175911.5765	●
3/8	18	80	20,43	45	11,15	12	4	GF175311.5766	●	GF175611.5766	●	GF175911.5766	●
1/2 - 3/4	14	85	26,27	48	14,25	16	4	GF175331.9678	●	GF175631.9678	●	GF175931.9678	●
1" - 2"	11 1/2	95	31,98	50	19,6	20	5	GF175351.9679	●	GF175651.9679	●	GF175951.9679	●

TICN



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2 | N 1.1-5.2 | S 1.1-2.6 | H 1.1-2

Nenngröße Nom. size D	P Gg/1" (tpi)	l_1	l_2	l_3	⌀d_1	⌀d_2	Z	GF-KEG-VHM R15-lg-IKZ-HB TICN		GF-KEG-VHM R15-lg-IKZ-HE TICN		GF-KEG-VHM R15-lg-IKZ-HA TICN	
1/16	27	60	13,63	36	5,9	8	3	GF175306.5763	●	GF175606.5763	●	GF175906.5763	●
1/8	27	60	13,63	36	7,65	8	3	GF175306.5764	●	GF175606.5764	●	GF175906.5764	●
1/4	18	80	20,44	45	10,15	12	4	GF175316.5765	●	GF175616.5765	●	GF175916.5765	●
3/8	18	80	20,43	45	11,15	12	4	GF175316.5766	●	GF175616.5766	●	GF175916.5766	●
1/2 - 3/4	14	85	26,27	48	14,25	16	4	GF175336.9678	●	GF175636.9678	●	GF175936.9678	●
1" - 2"	11 1/2	95	31,98	50	19,6	20	5	GF175356.9679	●	GF175656.9679	●	GF175956.9679	●

NPT/API-LP-Fräser werden mit korrigiertem Profil gefertigt
NPT/API-LP cutters are manufactured with a corrected profile

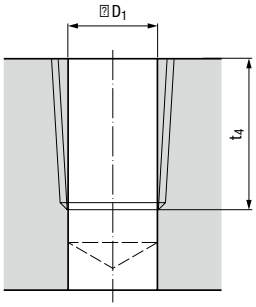
Anwendungshinweis: Es wird ein NC-Programm für schneckenförmiges Wendelnutfräsen benötigt, da sonst ein Absatz im gefrästen Gewinde entsteht
Application recommendation: You must have an NC programme for spiral-worm keyway milling, otherwise the finished thread will have a stepped profile

Bestell-Beispiel ´ Ordering example: **GF175311.5766**

EMUGE NPTF-Gewindefräser sind für die Lochformen a) und b) geeignet.

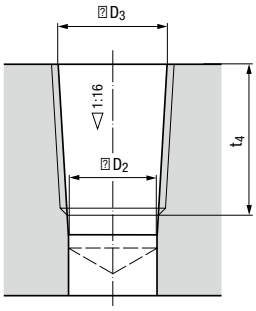
EMUGE NPTF thread milling cutters are suited for the hole forms a) and b).

a) Zylindrisch vorbohren ohne Verwendung einer Reibahle
Drill cylindrically without using a reamer



Nenngröße Nom. size D	P Gg/1" (tpi)	⍰D_1	t_4
1/16	27	6,1	8,3
1/8	27	8,45	8,3
1/4	18	10,9	12,15
3/8	18	14,3	12,45
1/2	14	17,6	16,3
3/4	14	23	16,3
1"	11 1/2	28,75	19,55
1 1/4	11 1/2	37,5	20,05
1 1/2	11 1/2	43,75	20,05
2"	11 1/2	55,75	20,45

b) Zylindrisch vorbohren und kegelig aufreiben
Drill cylindrically and prepare tapered hole with reamer



Nenngröße Nom. size D	P Gg/1" (tpi)	⍰D_2	⍰D_3 (+0,05)	t_4
1/16	27	5,95	6,41	8,3
1/8	27	8,3	8,76	8,3
1/4	18	10,75	11,4	12,15
3/8	18	14,15	14,84	12,45
1/2	14	17,45	18,33	16,3
3/4	14	22,8	23,68	16,3
1"	11 1/2	28,65	29,72	19,55
1 1/4	11 1/2	37,35	38,48	20,05
1 1/2	11 1/2	43,45	44,55	20,05
2"	11 1/2	55,45	56,59	20,45

NPTF

ANSI B1.20.3

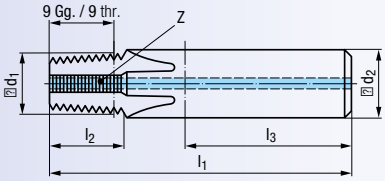
VHM

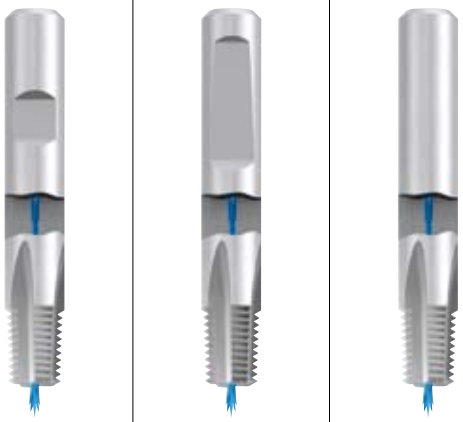
RH + LH

Z3 - Z5

DIN 6535
HB
HE
HA

Für kegeliges Innengewinde
For internal tapered threads



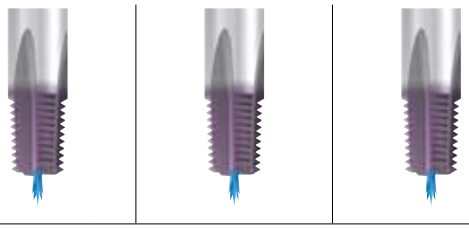


Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | K 1.1-4.2 | N 1.1-5, 2.1-6 | N 3.1-2 | N 4.1-2, 5.2 | S 1.1-3

Nenngröße Nom. size D	P Gg/1" (tpi)	l_1	l_2	l_3	⍰d_1	⍰d_2	Z	GF-KEG-VHM IKZ-HB		GF-KEG-VHM IKZ-HE		GF-KEG-VHM IKZ-HA	
1/16	27	55	9,84	36	5,9	8	3	GF173101.5782	●	GF173401.5782	●	GF173701.5782	●
1/8	27	55	9,83	36	7,65	8	3	GF173101.5783	●	GF173401.5783	●	GF173701.5783	●
1/4	18	75	14,77	45	10,15	12	4	GF173111.5784	●	GF173411.5784	●	GF173711.5784	●
3/8	18	75	14,76	45	11,15	12	4	GF173111.5785	●	GF173411.5785	●	GF173711.5785	●
1/2	14	80	19	48	14,25	16	4	GF173131.5786	●	GF173431.5786	●	GF173731.5786	●
3/4	14	80	19	48	14,25	16	4	GF173131.5787	●	GF173431.5787	●	GF173731.5787	●
1" - 2"	11 1/2	90	23,13	50	19,6	20	5	GF173151.9684	●	GF173451.9684	●	GF173751.9684	●

TICN



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2 | N 1.1-5.2 | S 1.1-2.6 | H 1.1-2

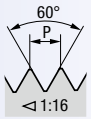
Nenngröße Nom. size D	P Gg/1" (tpi)	l_1	l_2	l_3	⍰d_1	⍰d_2	Z	GF-KEG-VHM IKZ-HB TICN		GF-KEG-VHM IKZ-HE TICN		GF-KEG-VHM IKZ-HA TICN	
1/16	27	55	9,84	36	5,9	8	3	GF173106.5782	●	GF173406.5782	●	GF173706.5782	●
1/8	27	55	9,83	36	7,65	8	3	GF173106.5783	●	GF173406.5783	●	GF173706.5783	●
1/4	18	75	14,77	45	10,15	12	4	GF173116.5784	●	GF173416.5784	●	GF173716.5784	●
3/8	18	75	14,76	45	11,15	12	4	GF173116.5785	●	GF173416.5785	●	GF173716.5785	●
1/2	14	80	19	48	14,25	16	4	GF173136.5786	●	GF173436.5786	●	GF173736.5786	●
3/4	14	80	19	48	14,25	16	4	GF173136.5787	●	GF173436.5787	●	GF173736.5787	●
1" - 2"	11 1/2	90	23,13	50	19,6	20	5	GF173156.9684	●	GF173456.9684	●	GF173756.9684	●

NPTF-Fräser werden mit korrigiertem Profil gefertigt
NPTF cutters are manufactured with a corrected profile

Anwendungshinweis: Es wird ein NC-Programm für schneckenförmiges Wendelnutfräsen benötigt, da sonst ein Absatz im gefrästen Gewinde entsteht
Application recommendation: You must have an NC programme for spiral-worm keyway milling, otherwise the finished thread will have a stepped profile

Bestell-Beispiel ´ Ordering example: **GF173151.9684**

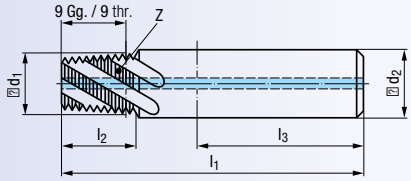
NPTF

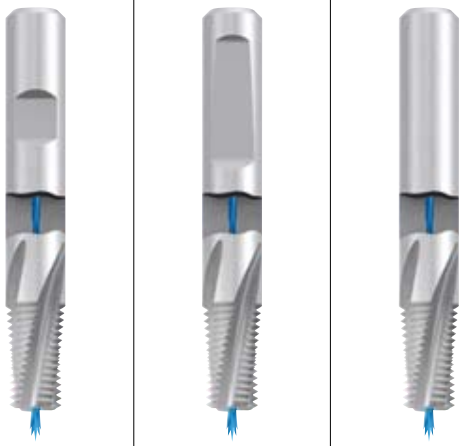


ANSI B1.20.3

VHM | **R15** | **RH + LH** | **Z3 - Z5** | **DIN 6535** HB HE HA

Für kegeliges Innengewinde
For internal tapered threads



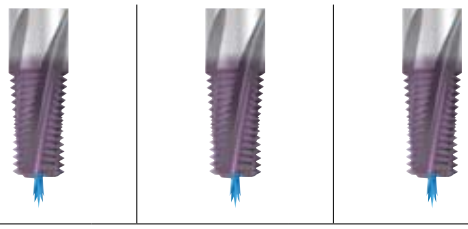


Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | K 1.1-4.2 | N 1.1-5, 2.1-6 | N 3.1-2 | N 4.1-2, 5.2 | S 1.1-3

Nenngröße Nom. size D	P Gg/1" (tpi)	l_1	l_2	l_3	⍰d_1	⍰d_2	Z	GF-KEG-VHM R15-lg-IKZ-HB		GF-KEG-VHM R15-lg-IKZ-HE		GF-KEG-VHM R15-lg-IKZ-HA	
1/16	27	60	13,6	36	5,9	8	3	GF175301.5782	●	GF175601.5782	●	GF175901.5782	●
1/8	27	60	13,6	36	7,65	8	3	GF175301.5783	●	GF175601.5783	●	GF175901.5783	●
1/4	18	80	20,41	45	10,15	12	4	GF175311.5784	●	GF175611.5784	●	GF175911.5784	●
3/8	18	80	20,4	45	11,15	12	4	GF175311.5785	●	GF175611.5785	●	GF175911.5785	●
1/2	14	85	26,25	48	14,25	16	4	GF175331.5786	●	GF175631.5786	●	GF175931.5786	●
3/4	14	85	26,25	48	14,25	16	4	GF175331.5787	●	GF175631.5787	●	GF175931.5787	●
1" - 2"	11 1/2	95	31,96	50	19,6	20	5	GF175351.9684	●	GF175651.9684	●	GF175951.9684	●

TICN



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2 | N 1.1-5.2 | S 1.1-2.6 | H 1.1-2

Nenngröße Nom. size D	P Gg/1" (tpi)	l_1	l_2	l_3	⍰d_1	⍰d_2	Z	GF-KEG-VHM R15-lg-IKZ-HB TICN		GF-KEG-VHM R15-lg-IKZ-HE TICN		GF-KEG-VHM R15-lg-IKZ-HA TICN	
1/16	27	60	13,6	36	5,9	8	3	GF175306.5782	●	GF175606.5782	●	GF175906.5782	●
1/8	27	60	13,6	36	7,65	8	3	GF175306.5783	●	GF175606.5783	●	GF175906.5783	●
1/4	18	80	20,41	45	10,15	12	4	GF175316.5784	●	GF175616.5784	●	GF175916.5784	●
3/8	18	80	20,4	45	11,15	12	4	GF175316.5785	●	GF175616.5785	●	GF175916.5785	●
1/2	14	85	26,25	48	14,25	16	4	GF175336.5786	●	GF175636.5786	●	GF175936.5786	●
3/4	14	85	26,25	48	14,25	16	4	GF175336.5787	●	GF175636.5787	●	GF175936.5787	●
1" - 2"	11 1/2	95	31,96	50	19,6	20	5	GF175356.9684	●	GF175656.9684	●	GF175956.9684	●

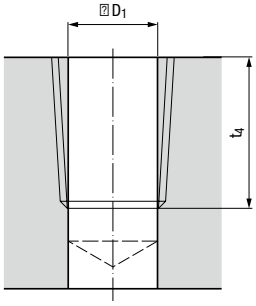
NPTF-Fräser werden mit korrigiertem Profil gefertigt
NPTF cutters are manufactured with a corrected profile

Anwendungshinweis: Es wird ein NC-Programm für schneckenförmiges Wendelnutfräsen benötigt, da sonst ein Absatz im gefrästen Gewinde entsteht
Application recommendation: You must have an NC programme for spiral-worm keyway milling, otherwise the finished thread will have a stepped profile

EMUGE Rc-Gewindefräser sind für die Lochformen a) und b) geeignet.
Die Lochform a) kann angewendet werden, wenn keine Dichtprobleme zu befürchten sind.

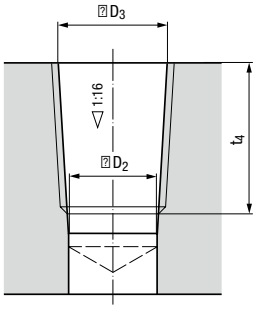
EMUGE Rc thread milling cutters are suited for the hole forms a) and b).
Hole type a) can be used when there is no reason to worry about sealing problems.

a) Zylindrisch vorbohren ohne Verwendung einer Reibahle
Drill cylindrically without using a reamer



Nenngröße Nom. size D		P Gg/1" (tpi)	⌀D_1	t_4
Rc	1/16	28	6,15	7,85
	1/8	28	8,15	7,85
	1/4	19	10,85	11,65
	3/8	19	14,3	12,05
	1/2	14	17,8	15,9
	3/4	14	23,2	16,75
	1"	11	29,2	19,65
	1 1/4	11	37,8	21,95
	1 1/2	11	43,7	21,95
	2"	11	55,2	26,25

b) Zylindrisch vorbohren und kegelig aufreiben
Drill cylindrically and prepare tapered hole with reamer



Nenngröße Nom. size D		P Gg/1" (tpi)	⌀D_2	⌀D_3 (JS11)	t_4
Rc	1/16	28	6,1	6,56	7,85
	1/8	28	8,1	8,57	7,85
	1/4	19	10,75	11,45	11,65
	3/8	19	14,25	14,95	12,05
	1/2	14	17,7	18,63	15,9
	3/4	14	23,1	24,12	16,75
	1"	11	29,1	30,29	19,65
	1 1/4	11	37,6	38,95	21,95
	1 1/2	11	43,5	44,85	21,95
	2"	11	55	56,66	26,25

Rc (BSPT)

DIN EN 10226-2, ISO 7-1

VHM

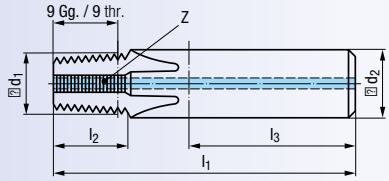
RH + LH

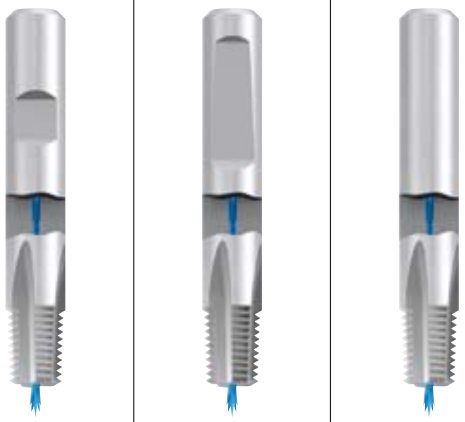
Z3 - Z5

DIN 6535
HB
HE
HA

D

Für kegeliges Innengewinde
For internal tapered threads



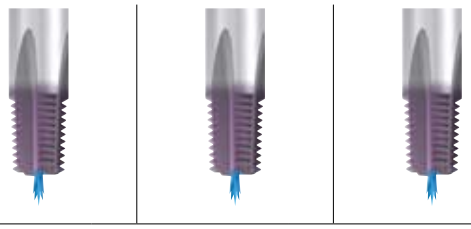


Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | K 1.1-4.2 | N 1.1-5, 2.1-6
N 3.1-2 | N 4.1-2, 5.2 | S 1.1-3

Nenngröße Nom. size D	P Gg/1" (tpi)	l_1	l_2	l_3	d_1	d_2	Z	GF-KEG-VHM IKZ-HB		GF-KEG-VHM IKZ-HE		GF-KEG-VHM IKZ-HA	
Rc 1/16	28	55	8,56	36	5,9	8	3	GF173101.4114		GF173401.4114		GF173701.4114	
1/8	28	55	8,56	36	7,65	8	3	GF173101.4115	●	GF173401.4115	●	GF173701.4115	●
1/4	19	75	13,96	45	10,15	12	4	GF173111.4116	●	GF173411.4116	●	GF173711.4116	●
3/8	19	75	13,95	45	11,15	12	4	GF173111.4117	●	GF173411.4117	●	GF173711.4117	●
1/2 - 3/4	14	80	19,06	48	14,25	16	4	GF173131.9561	●	GF173431.9561	●	GF173731.9561	●
1" - 2"	11	90	24,26	50	19,6	20	5	GF173151.9562	●	GF173451.9562	●	GF173751.9562	●

TICN



Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2
N 1.1-5.2 | S 1.1-2.6 | H 1.1-2

Nenngröße Nom. size D	P Gg/1" (tpi)	l_1	l_2	l_3	d_1	d_2	Z	GF-KEG-VHM IKZ-HB TICN		GF-KEG-VHM IKZ-HE TICN		GF-KEG-VHM IKZ-HA TICN	
Rc 1/16	28	55	8,56	36	5,9	8	3	GF173106.4114		GF173406.4114		GF173706.4114	
1/8	28	55	8,56	36	7,65	8	3	GF173106.4115	●	GF173406.4115	●	GF173706.4115	●
1/4	19	75	13,96	45	10,15	12	4	GF173116.4116	●	GF173416.4116	●	GF173716.4116	●
3/8	19	75	13,95	45	11,15	12	4	GF173116.4117	●	GF173416.4117	●	GF173716.4117	●
1/2 - 3/4	14	80	19,06	48	14,25	16	4	GF173136.9561	●	GF173436.9561	●	GF173736.9561	●
1" - 2"	11	90	24,26	50	19,6	20	5	GF173156.9562	●	GF173456.9562	●	GF173756.9562	●

Rc-Fräser werden mit korrigiertem Profil gefertigt
Rc cutters are manufactured with a corrected profile

Anwendungshinweis: Es wird ein NC-Programm für schneckenförmiges Wendelnutfräsen benötigt, da sonst ein Absatz im gefrästen Gewinde entsteht
Application recommendation: You must have an NC programme for spiral-worm keyway milling, otherwise the finished thread will have a stepped profile

Programmierbeispiel für
kegelige Gewindefräser Typ GF-KEG
siehe Seite 411

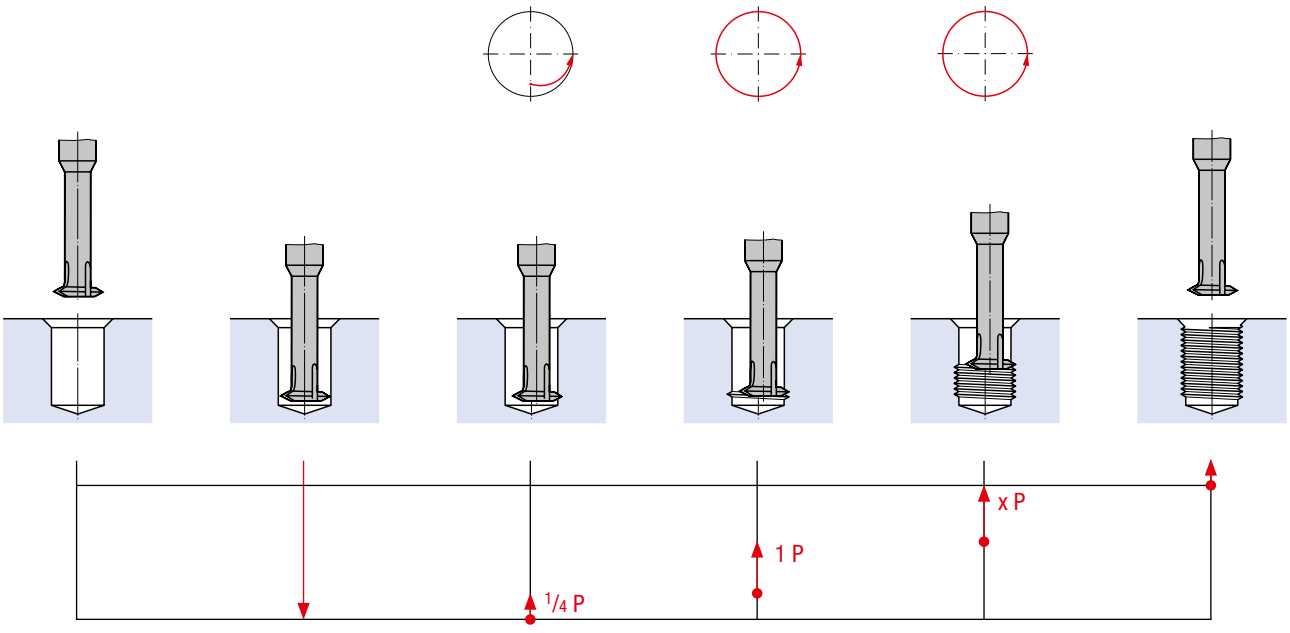
Programming example for
tapered thread milling cutters type GF-KEG,
see page 411

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

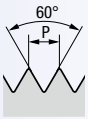
ZGF

Seite · Page
364
M, MF

Gewindefräszyklus · Thread milling cycle



M, MF



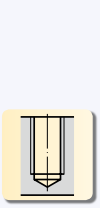
DIN 13

VHM

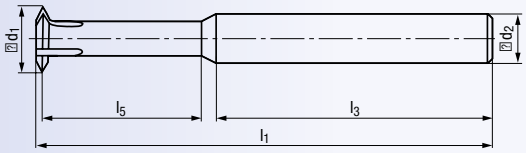
RH + LH

Z1 - Z4

DIN 6535 HA



Für Innengewinde
For internal threads



Gewindetiefe
Thread depth

2 x D

Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | K 1.1-4.2 | N 1.1-5, 2.1-6 | N 3.1-2 | N 4.1-2, 5.2 | S 1.1-3

D	$P_{max.}$ mm	l_1	l_3	l_5	d_1	d_2	Z	ZGF-VHM 2xD HA	
M1 - M1,2	0,25	39	28	3,1	0,7	3	1	**GF243701.0010**	●
M1,4 - M1,8	0,35	39	28	3,5	1,04	3	2	**GF253701.0014**	●
M2 - M2,3	0,45	39	28	4,8	1,52	3	3	**GF253701.0020**	●
M2,5 - M3	0,5	39	28	6	1,95	3	3	**GF253701.0025**	●
M3,5 - M4,5	0,75	42	28	9	2,78	4	3	**GF253701.0035**	●
M5 - M7	1	55	36	14	4	6	4	**GF253701.0050**	●
M8 - M10 [1]	1,5	62	36	19,8	6,5	8	5	**GF253701.0080**	●
M12 - M16 [1]	2	78	40	31,8	9,9	10	5	**GF253701.0112**	●

TICN

Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

P 1.1-5.1 | M 1.1-4.1 | K 1.1-4.2 | N 1.1-5.2 | S 1.1-2.6 | H 1.1-2

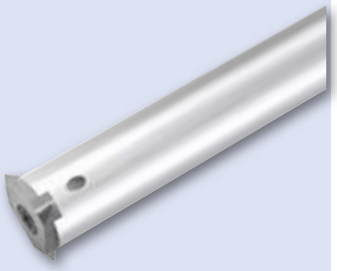
D	$P_{max.}$ mm	l_1	l_3	l_5	d_1	d_2	Z	ZGF-VHM 2xD HA TICN	
M1 - M1,2	0,25	39	28	3,1	0,7	3	1	**GF243706.0010**	●
M1,4 - M1,8	0,35	39	28	3,5	1,04	3	2	**GF253706.0014**	●
M2 - M2,3	0,45	39	28	4,8	1,52	3	3	**GF253706.0020**	●
M2,5 - M3	0,5	39	28	6	1,95	3	3	**GF253706.0025**	●
M3,5 - M4,5	0,75	42	28	9	2,78	4	3	**GF253706.0035**	●
M5 - M7	1	55	36	14	4	6	4	**GF253706.0050**	●
M8 - M10 [1]	1,5	62	36	19,8	6,5	8	5	**GF253706.0080**	●
M12 - M16 [1]	2	78	40	31,8	9,9	10	5	**GF253706.0112**	●

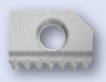
Andere Ausführungen auf Anfrage
Other designs upon request

[1] Ausführung mit innerer Kühlschmierstoff-Zufuhr IKZ
Design with internal coolant-lubricant supply IKZ

Teilweise auch für UN-Gewinde verwendbar
Partly suitable also for UN threads

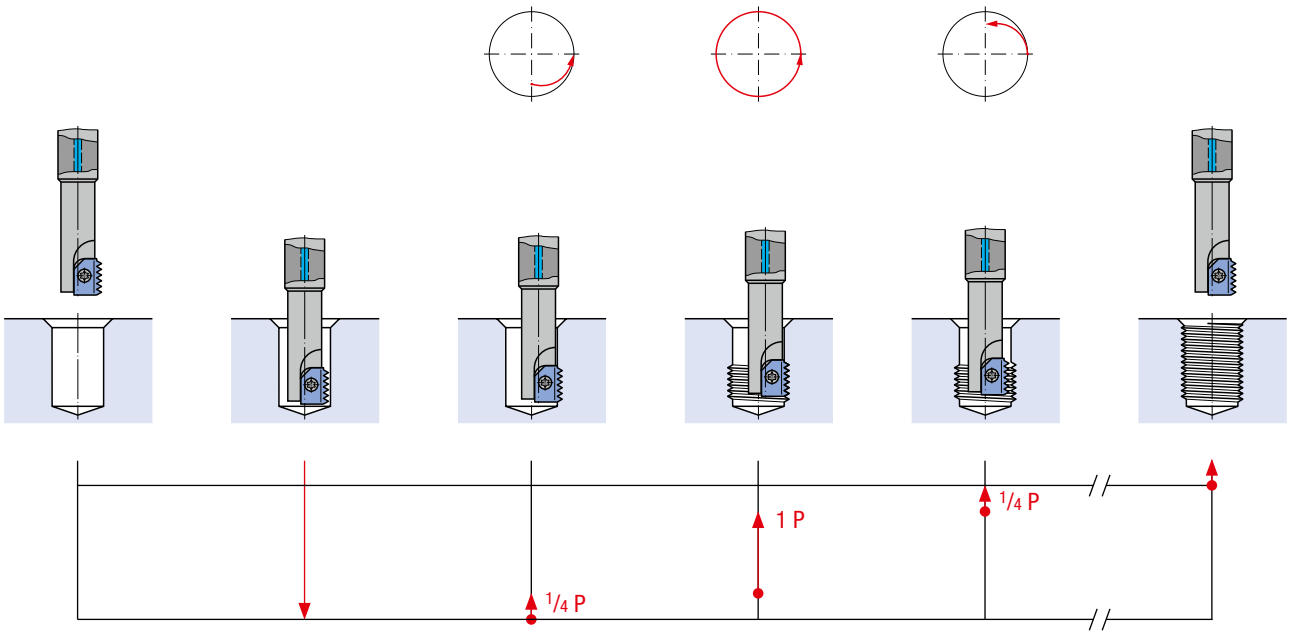
Bestell-Beispiel ´ Ordering example: **GF243701.0010**

Zirkular-Gewindefräskörper mit einer Fräsplatte 15 mm Circular thread milling bodies with 1 insert 15 mm **ZIRK-GF**	Zirkular-Gewindefräskörper mit zwei Fräsplatten 15 mm Circular thread milling bodies with 2 inserts 15 mm **ZIRK-GF**	Zirkular-Gewindefräskörper mit einer Fräsplatte 26 mm Circular thread milling bodies with 1 insert 26 mm **ZIRK-GF**	Zirkular-Gewindefräskörper mit Einstechwendeplatte “3-Zahn” Circular thread milling bodies with indexable infeed insert „3-tooth” **ZIRK-GF** [1]
			
Seite · Page			
366	366	368	369

Standard-Fräsplatten 15 mm Standard inserts 15 mm		Lange Fräsplatten 26 mm Long inserts 26 mm		Einstechwendeplatten „3-Zahn” Indexable infeed inserts, “3-tooth” design		
						
Seite · Page						
367		368		369		**M, MF**
367						**UN**
367	367	368	368	369	369	**G** BSW, BSF, W

[1] Gewindefräszyklus „3-Zahn“ entspricht der Ausführung Gigant, siehe Seite 371
Thread milling cycle corresponding to that of the Gigant design, see page 371

Gewindefräszyklus · Thread milling cycle

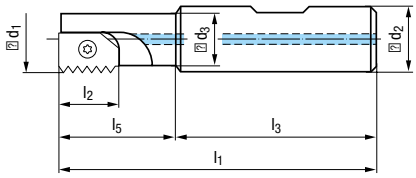


Ausführung für eine Standard-Fräsplatte 15 mm
Design for 1 standard insert 15 mm

DIN 1835
B

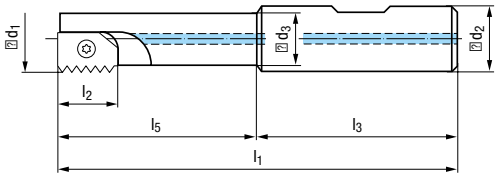
kurze Ausführung
short design

P mm	l_1	l_2	l_3	l_5	⌀d_1	⌀d_2 h6	⌀d_3	ZIRK-GF 15 mm-Z1 IKZN	
0,5 - 2,5	78	15	48	30	16	16	13	**GZ301110**	●



lange Ausführung
long design

P mm	l_1	l_2	l_3	l_5	⌀d_1	⌀d_2 h6	⌀d_3	ZIRK-GF 15 mm-Z1 IKZN	
0,5 - 2,5	98	15	48	50	16	16	13	**GZ301310** [2]	●
0,5 - 2,5	110	15	50	60	20	20	17	**GZ301320**	●
3,0 - 3,5 [1]	110	15	50	60	22	20	17	**GZ301340**	●

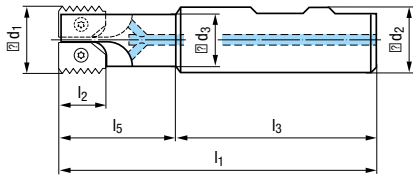


Ausführung für zwei Standard-Fräsplatten 15 mm
Design for 2 standard inserts 15 mm

DIN 1835
B

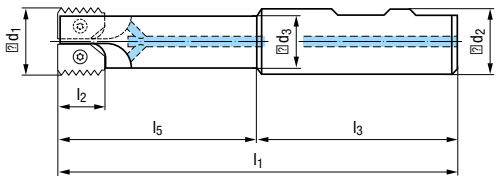
kurze Ausführung
short design

P mm	l_1	l_2	l_3	l_5	⌀d_1	⌀d_2 h6	⌀d_3	ZIRK-GF 15 mm-Z2 IKZN	
0,5 - 2,5	106	15	56	50	25	25	21	**GZ301130**	●
3,0 - 3,5 [1]	106	15	56	50	27	25	21	**GZ301140**	●



lange Ausführung
long design

P mm	l_1	l_2	l_3	l_5	⌀d_1	⌀d_2 h6	⌀d_3	ZIRK-GF 15 mm-Z2 IKZN	
0,5 - 2,5	150	15	56	94	25	25	21	**GZ301330** [2]	●

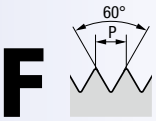


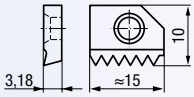
[1] Verstärkte Ausführung
Reinforced design

[2] Aus Schwermetall, schwingungsgedämpft
Of vibration-absorbing heavy metal

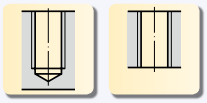
M, MF

DIN 13





HM | RH + LH



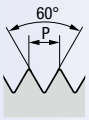
Für Innengewinde
For internal threads

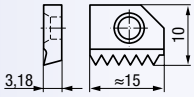
Standard-Fräsplatten 15 mm
Standard inserts 15 mm

Beschichtung ´ Coating			TIALN-T4
Einsatzgebiete ± Material Range of application ± material ▸▸ 282	P 1.1-5.1 · K 1.1-4.2 · N 1.1-5 N 2.1-6 · N 3.1-4.2, 5.2 · S 1.1-3		P 1.1-5.1 · M 1.1-4.1 · K 1.1-4.2 N 1.1-5.2 · S 1.1-2.6 · H 1.1-2
P mm	HM-FP-Z1 15 mm		HM-FP-Z1 15 mm TIALN-T4
0,5	GF603111.9506	●	GF603117.9506 ●
0,75	GF603111.9509	●	GF603117.9509 ●
1	GF603111.9512	●	GF603117.9512 ●
1,25	GF603111.9513	●	GF603117.9513 ●
1,5	GF603111.9514	●	GF603117.9514 ●
1,75	GF603111.9515	●	GF603117.9515 ●
2	GF603111.9516	●	GF603117.9516 ●
2,5	GF603111.9517	●	GF603117.9517 ●
3 [1)]	GF603111.9518	●	GF603117.9518 ●
3,5 [1)]	GF603111.9519	●	GF603117.9519 ●

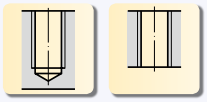
UN

ANSI B1.1





HM | RH + LH



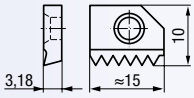
Für Innengewinde
For internal threads

Standard-Fräsplatten 15 mm
Standard inserts 15 mm

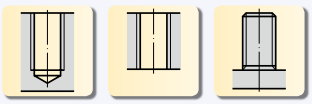
Beschichtung ´ Coating			TIALN-T4
Einsatzgebiete ± Material Range of application ± material ▸▸ 282	P 1.1-5.1 · K 1.1-4.2 · N 1.1-5 N 2.1-6 · N 3.1-4.2, 5.2 · S 1.1-3		P 1.1-5.1 · M 1.1-4.1 · K 1.1-4.2 N 1.1-5.2 · S 1.1-2.6 · H 1.1-2
P Gg/1" (tpi)	HM-FP-Z1 15 mm		HM-FP-Z1 15 mm TIALN-T4
20	GF603111.9580	●	GF603117.9580 ●
16	GF603111.9582	●	GF603117.9582 ●
14	GF603111.9583	●	GF603117.9583 ●
12	GF603111.9585	●	GF603117.9585 ●

G BSW, BSF, W

DIN EN ISO 228, BS 84



HM | RH + LH



Für Innen- und Außengewinde
For internal and external threads

Standard-Fräsplatten 15 mm
Standard inserts 15 mm

Beschichtung ´ Coating			TIALN-T4
Einsatzgebiete ± Material Range of application ± material ▸▸ 282	P 1.1-5.1 · K 1.1-4.2 · N 1.1-5 N 2.1-6 · N 3.1-4.2, 5.2 · S 1.1-3		P 1.1-5.1 · M 1.1-4.1 · K 1.1-4.2 N 1.1-5.2 · S 1.1-2.6 · H 1.1-2
P Gg/1" (tpi)	HM-FP-Z1 15 mm		HM-FP-Z1 15 mm TIALN-T4
14	GF603111.9548	●	GF603117.9548 ●
11	GF603111.9550	●	GF603117.9550 ●

Ersatzschraube M4 x 7; Torx T15
Spare screw M4 x 7; Torx T15
GZ309010

Schraubendreher Torx T15
Screw driver Torx T15
GZ309020

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

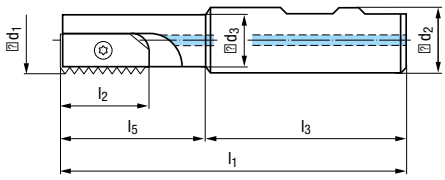
[1)] Verstärkte Ausführung
Reinforced design

Ausführung für eine lange Fräsplatte 26 mm
Design for 1 long insert 26 mm

DIN 1835
B

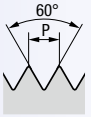
kurze Ausführung
short design

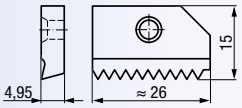
P mm	l_1	l_2	l_3	l_5	⍰d_1	⍰d_2 h6	⍰d_3	ZIRK-GF 26 mm-Z1 IKZN	
1 - 4	107	26	56	48	25	25	20	GZ303010	●



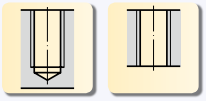
M, MF

DIN 13





HM | RH + LH



Für Innengewinde
For internal threads

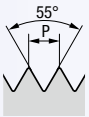
Lange Fräsplatten 26 mm
Long inserts 26 mm

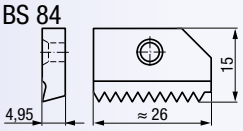
Beschichtung ´ Coating		TIALN-T4
Einsatzgebiete ± Material Range of application ± material ▸▸ 282	P 1.1-5.1 · K 1.1-4.2 · N 1.1-5 · N 2.1-6 · N 3.1-4.2, 5.2 · S 1.1-3	P 1.1-5.1 · M 1.1-4.1 · K 1.1-4.2 · N 1.1-5.2 · S 1.1-2.6 · H 1.1-2

P mm	HM-FP-Z1 26 mm		HM-FP-Z1 26 mm TIALN-T4	
1	GF603142.9512	●		
1,5	GF603142.9514	●	GF603147.9514	●
2	GF603142.9516	●	GF603147.9516	●
2,5	GF603142.9517	●	GF603147.9517	●
3	GF603142.9518	●	GF603147.9518	●
3,5	GF603142.9519	●	GF603147.9519	●
4	GF603142.9520	●	GF603147.9520	●

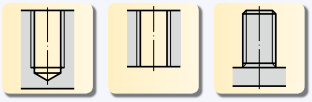
G BSW, BSF, W

DIN EN ISO 228, BS 84





HM | RH + LH



Für Innen- und Außengewinde
For internal and external threads

Lange Fräsplatten 26 mm
Long inserts 26 mm

Beschichtung ´ Coating		TIALN-T4
Einsatzgebiete ± Material Range of application ± material ▸▸ 282	P 1.1-5.1 · K 1.1-4.2 · N 1.1-5 · N 2.1-6 · N 3.1-4.2, 5.2 · S 1.1-3	P 1.1-5.1 · M 1.1-4.1 · K 1.1-4.2 · N 1.1-5.2 · S 1.1-2.6 · H 1.1-2

P Gg/1" (tpi)	HM-FP-Z1 26 mm		HM-FP-Z1 26 mm TIALN-T4	
14	GF603142.9548	●	GF603147.9548	●
11	GF603142.9550	●	GF603147.9550	●

Ersatzschraube M4 x 13; Torx T15
Spare screw M4 x 13; Torx T15
GZ309210

Schraubendreher Torx T15
Screw driver Torx T15
GZ309020

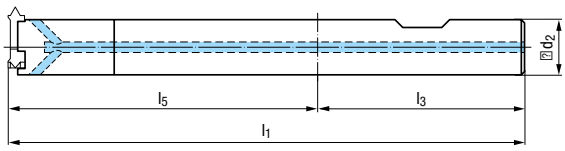
Bestell-Beispiel ´ Ordering example: **GZ303010**

Für Einstechwendeplatten 3-Z ahn
For indexable infeed inserts, "3-tooth" design

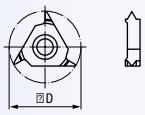
DIN 6535
HB

Hartmetall-Ausführung
Carbide design

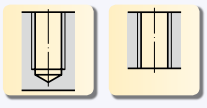
Plattengröße Insert size	l_1	l_3	l_5	⍰d_2 h6	ZIRK-GF Gr. 02 IKZN	
02	112	45	67	12	GZ311330	●



M, MF
DIN 13



HM | RH + LH



Für Innengewinde
For internal threads

Einstechwendeplatten 3-Z ahn
Indexable infeed inserts, "3-tooth" design

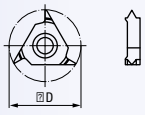
Beschichtung ´ Coating | | TIALN-T4

Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

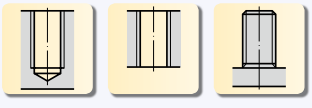
	P 1.1-5.1	K 1.1-4.2	N 1.1-5	P 1.1-5.1	M 1.1-4.1	K 1.1-4.2
	N 2.1-6	N 3.1-4.2, 5.2	S 1.1-3	N 1.1-5.2	S 1.1-2.6	H 1.1-2

Plattengröße Insert size	P mm	⍰D	HM-EP-Z3 Gr. 02		HM-EP-Z3 Gr. 02 TIALN-T4	
02	1 - 3,5	17,5	GF613121.9512	●	GF613127.9512	●
02	3	17,5	GF613121.9518	●	GF613127.9518	●
02	2,5 (M20)	16	GF613121.0120	●	GF613127.0120	●

G BSW, BSF, W
DIN EN ISO 228, BS 84



HM | RH + LH



Für Innen- und Außengewinde
For internal and external threads

Einstechwendeplatten 3-Z ahn
Indexable infeed inserts, "3-tooth" design

Beschichtung ´ Coating | | TIALN-T4

Einsatzgebiete ± Material
Range of application ± material
▸▸ 282

	P 1.1-5.1	K 1.1-4.2	N 1.1-5	P 1.1-5.1	M 1.1-4.1	K 1.1-4.2
	N 2.1-6	N 3.1-4.2, 5.2	S 1.1-3	N 1.1-5.2	S 1.1-2.6	H 1.1-2

Plattengröße Insert size	P Gg/1" (tpi)	⍰D	HM-EP-Z3 Gr. 02		HM-EP-Z3 Gr. 02 TIALN-T4	
02	14	17,5	GF613121.9548	●	GF613127.9548	●
02	11	17,5	GF613121.9550	●	GF613127.9550	●

Ersatzschraube M4 x 11; Torx T15
Spare screw M4 x 11; Torx T15
GZ319020

Schraubendreher Torx T15
Screw driver Torx T15
GZ319060

● = Lagerwerkzeug, siehe Preisliste ´ Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage ´ Available on short notice, price upon inquiry

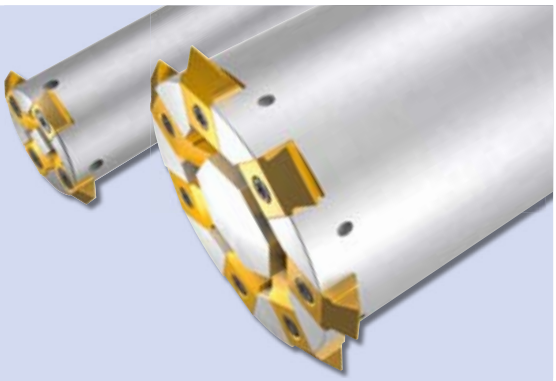
Product Finder
v_c / f_z
M
MF
UNC UN, UNS
UNF UNEF
G, Rp
NPT, NPTF Rc, W
BSW, BSF
Pg
EG M (STI) SELF-LOCK
Tech. Info
BGF
ZBGF
GSF GSF-Z
GF, GF-Z GF-VZ, GF-H
GF-KEG
ZGF
ZIRK-GF
Gigant
AUT-GF
MoSys

Typenübersicht
Overview

Gigant-ic

Vorteile:
- Flexibilität

Advantages:
- Flexibility



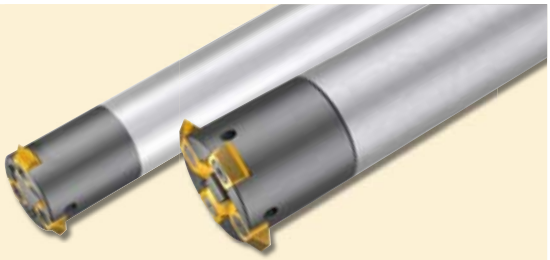
Gigant s oft run

Hartmetall-Träger

Carbide tool body

Vorteile:
- Laufruhe
- Stabilität

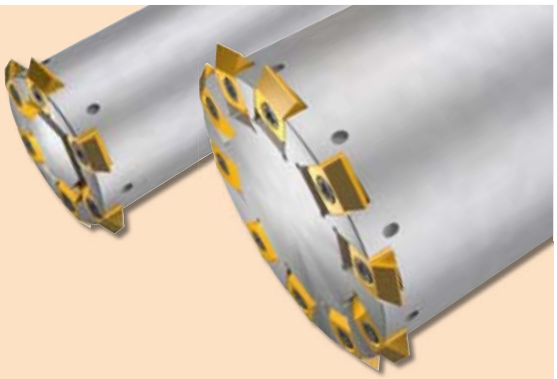
Advantages:
- Smooth operation
- Stability



Gigant s printer

Vorteile:
- Schnelligkeit

Advantages:
- Fast operation



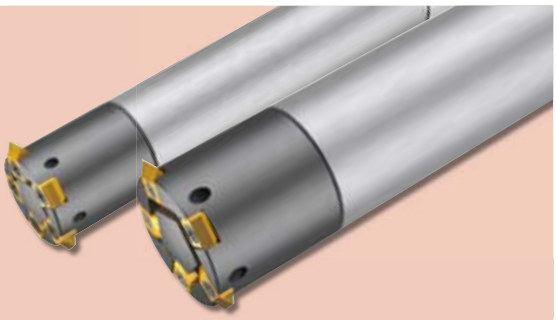
Gigant s oft run sprinter

Hartmetall-Träger

Carbide tool body

Vorteile:
- Schnelligkeit
- Laufruhe
- Stabilität

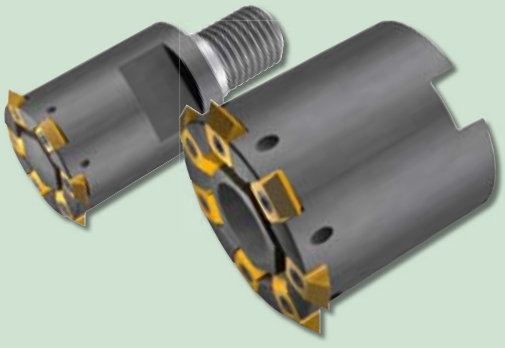
Advantages:
- Fast operation
- Smooth operation
- Stability

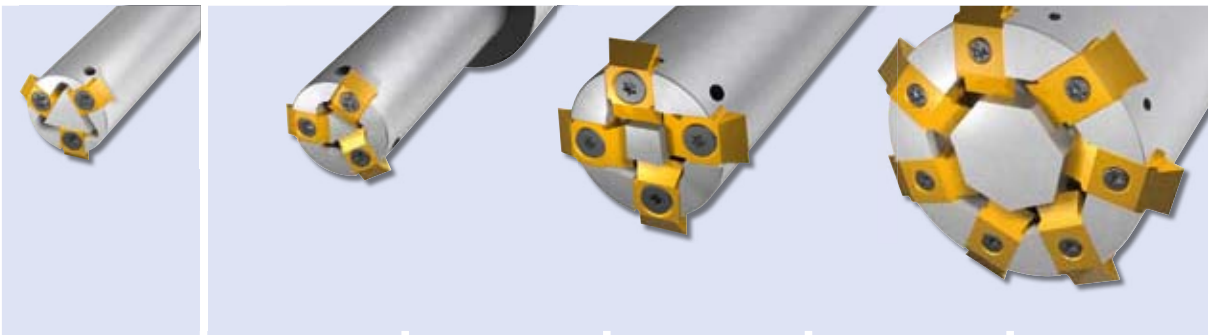


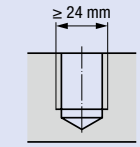
Gigant modul ar

Vorteile:
- Modularer Aufbau

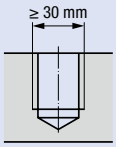
Advantages:
- Modular construction







Größe
Size
10



Größe
Size
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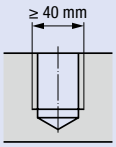
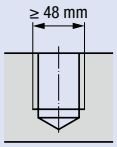
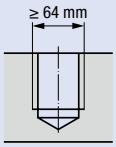


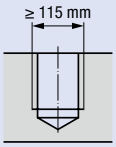
Größe
Size
12



Größe
Size
13



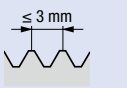
Größe
Size
14



Größe
Size
15

Seite · Page

10	11	12	13	14	15
372	374	376	378	380	382



Größe
Size
10

Größe
Size
11

Größe
Size
12

Größe
Size
13

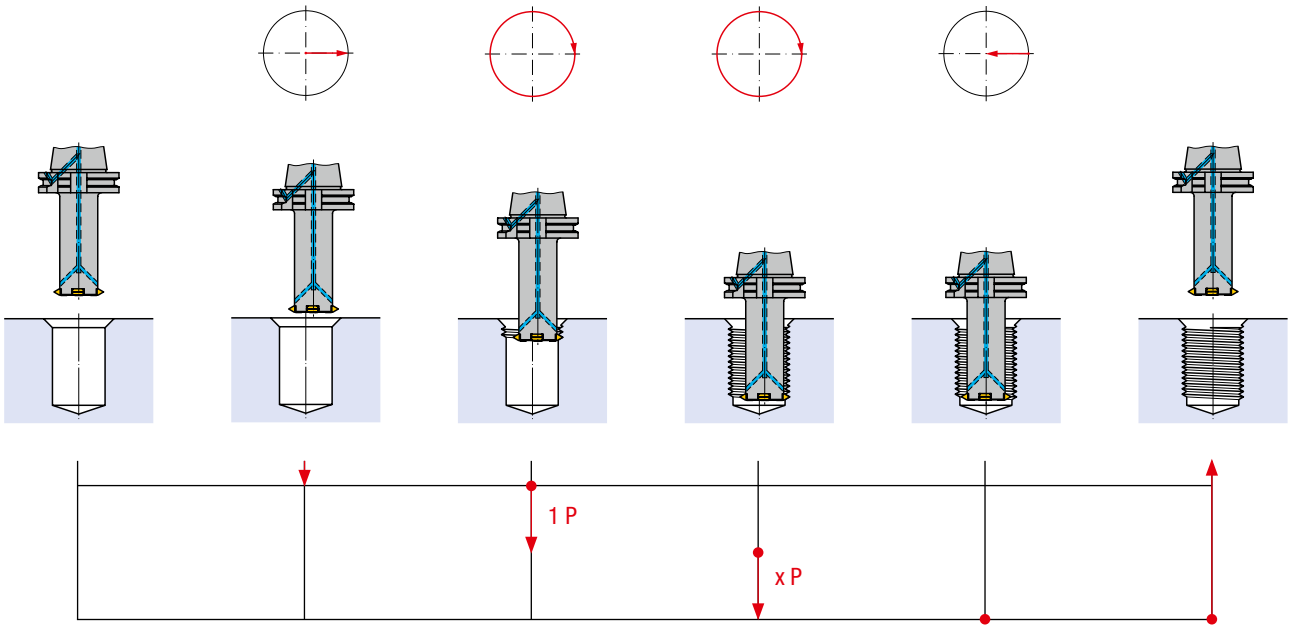
Größe
Size
14

Größe
Size
15

Seite · Page

10		11		12		13		14		15	
373		375		377		379		381		383	**M, MF**
373		375		377		379		381		383	**UN**
373	373	375	375	377	377	379	379	381	381		**G** BSW, BSF, W

Gewindefräszyklus · Thread milling cycle



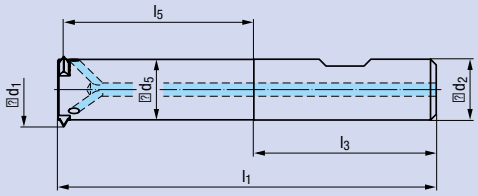
10

Für große Abmessungen ab Gewindedurchmesser 24 mm
For large thread sizes, from thread diameter 24 mm

Gigant-ic

DIN 1835 B | Z3 | ⌀D

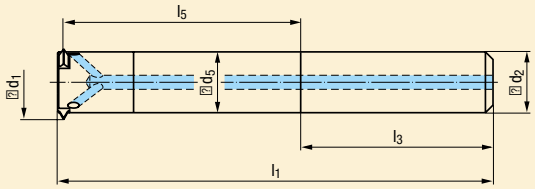
Größe Size	ø $D_{min.}$ mm	l_1	l_3	l_5	ø d_1	ø d_2 h6	ø d_5	Z	Gigant-ic Gr. 10-IKZN	
10	24	100	48	50	20,5	16	15,9	3	GZ341040	●
	24	115	48	65	20,5	16	15,9	3	GZ341050	●



Gigant soft run

DIN 6535 HA | Z3 | ⌀D

Größe Size	ø $D_{min.}$ mm	l_1	l_3	l_5	ø d_1	ø d_2 h6	ø d_5	Z	Gigant soft run Gr. 10-IKZN	
10	24	115	48	65	20,5	16	16	3	GZ34A000	●

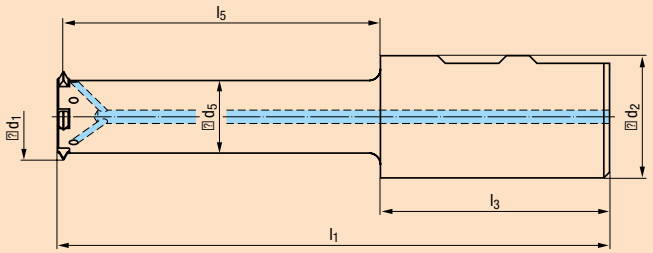


Gigant „soft run“ mit variabler Länge auf Anfrage (siehe Seite 384)
Gigant “soft run” with variable length upon request (see page 384)

Gigant sprinter

DIN 1835 B | Z5 | ⌀D

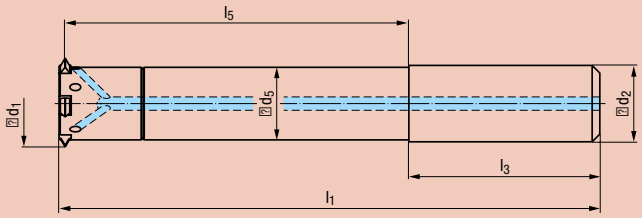
Größe Size	ø $D_{min.}$ mm	l_1	l_3	l_5	ø d_1	ø d_2 h6	ø d_5	Z	Gigant sprinter Gr. 10-IKZN	
10	30	145	60	80	23,85	32	19	5	GZ341200	●



Gigant soft run sprinter

DIN 6535 HA | Z5 - Z8 | ⌀D

Größe Size	ø $D_{min.}$ mm	l_1	l_3	l_5	ø d_1	ø d_2 h6	ø d_5	Z	Gigant soft run sprinter Gr. 10-IKZN	
10	30	142	50	90	23,85	20	19	5	GZ34C000	●
	36	153	56	95	30	25	25	7	GZ34C010	●
	40	178	60	115	32,85	32	27,7	8	GZ34C020	●

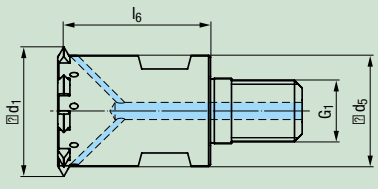


Gigant „soft run sprinter“ mit variabler Länge auf Anfrage (siehe Seite 384)
Gigant “soft run sprinter” with variable length upon request (see page 384)

Gigant modular

Z9 | ⌀D

Größe Size	ø $D_{min.}$ mm	l_6	ø d_1	ø d_5	G_1	Z	Gigant modular Gr. 10-IKZN	
10	40	38	34,25	29	M16	9	GZ351000	●

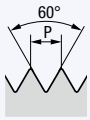


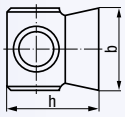
10

2-Zahnwendeplatten für Steigungsbereich bis 3 mm
2-tooth indexable inserts for a pitch range up to 3 mm

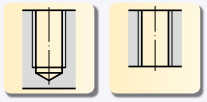
M, MF, UN

DIN 13, ANSI B1.1





HM | RH + LH

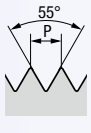


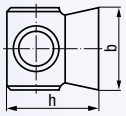
Für Innengewinde
For internal threads

					Beschichtung · Coating	TIN		TIALN-T4	
					Einsatzgebiete – Material Range of application – material ▸▸ 282	P 1.1-5.1 M 1.1-4.1 K 1.1-4.2 N 1.1-4.4 S 1.1-3			
Größe Size	P mm	P Gg/1" (tpi)	b	h		HM-WP-Z2 Gr. 10 TIN		HM-WP-Z2 Gr. 10 TIALN-T4	
10	1,5 - 3	16 - 8	5	7		GF643005.9514	●	GF643007.9514	●

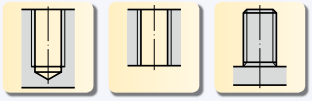
G BSW, BSF, W

DIN EN ISO 228, BS 84





HM | RH + LH



Für Innen- und Außengewinde
For internal and external threads

					Beschichtung · Coating	TIN		TIALN-T4	
					Einsatzgebiete – Material Range of application – material ▸▸ 282	P 1.1-5.1 M 1.1-4.1 K 1.1-4.2 N 1.1-4.4 S 1.1-3			
Größe Size	P Gg/1" (tpi)		b	h		HM-WP-Z2 Gr. 10 TIN		HM-WP-Z2 Gr. 10 TIALN-T4	
10	14		5	7		GF643005.9548	●	GF643007.9548	●

Ersatzschraube M2,5 x 8,5; Torx T7
Spare screw M2,5 x 8,5; Torx T7 **GZ349010**

Schraubendreher Torx T7
Screw driver Torx T7 **GZ349020**

Drehmoment-Schraubendreher Torx T7
Torque screw driver Torx T7 **GZ349040**

Trapez-Gewinde, ACME-Gewinde
Trapezoidal thread, ACME thread

Rundgewinde
Round thread

Sägengewinde
Buttress thread

Andere Gewindesysteme auf Anfrage, z.B.:
Other thread standards upon request, e.g.:

Sonderkonturen auf Anfrage
Special contours upon request

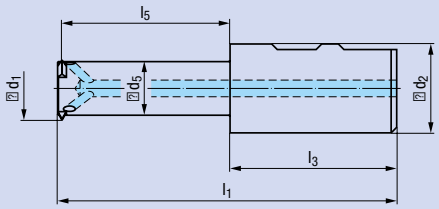
11

Für große Abmessungen ab Gewindedurchmesser 30 mm
For large thread sizes, from thread diameter 30 mm

Gigant-ic

DIN 1835 B | Z3 | ⌀D

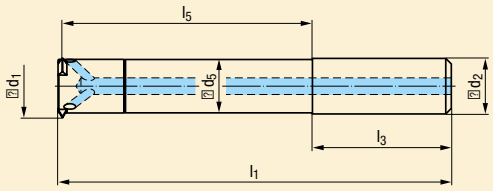
Größe Size	ø $D_{min.}$ mm	l_1	l_3	l_5	ø d_1	ø d_2 h6	ø d_5	Z	Gigant-ic Gr. 11-IKZN	
11	30	122	60	60	23,85	32	19,3	3	GZ341121	●
	30	138	56	80	23,85	25	19,3	3	GZ341021	●
	30	142	60	80	23,85	32	19,3	3	GZ341001	●
	30	152	60	90	23,85	32	19,3	3	GZ341101	●
	36	157	60	95	29,5	32	24,6	3	GZ341131	●



Gigant „soft run"

DIN 6535 HA | Z3 | ⌀D

Größe Size	ø $D_{min.}$ mm	l_1	l_3	l_5	ø d_1	ø d_2 h6	ø d_5	Z	Gigant soft run Gr. 11-IKZN	
11	30	142	50	90	23,85	20	19,3	3	GZ34A001	●

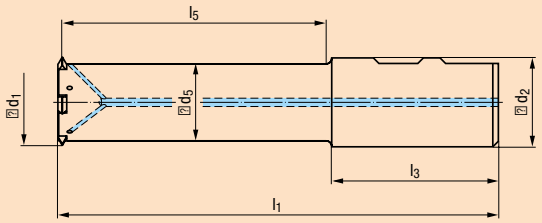


Gigant „soft run" mit variabler Länge auf Anfrage (siehe Seite 384)
Gigant "soft run" with variable length upon request (see page 384)

Gigant „printer"

DIN 1835 B | Z5 | ⌀D

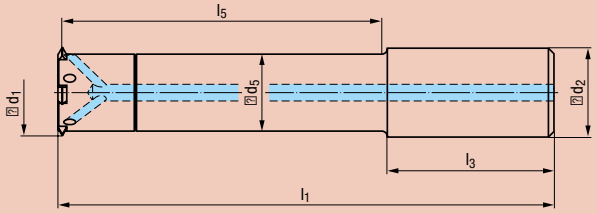
Größe Size	ø $D_{min.}$ mm	l_1	l_3	l_5	ø d_1	ø d_2 h6	ø d_5	Z	Gigant sprinter Gr. 11-IKZN	
11	40	159	60	95	32,85	32	27,7	5	GZ341201	●



Gigant „soft run sprinter"

DIN 6535 HA | Z5 | ⌀D

Größe Size	ø $D_{min.}$ mm	l_1	l_3	l_5	ø d_1	ø d_2 h6	ø d_5	Z	Gigant soft run sprinter Gr. 11-IKZN	
11	40	179	60	115	32,85	32	27,7	5	GZ34C001	●

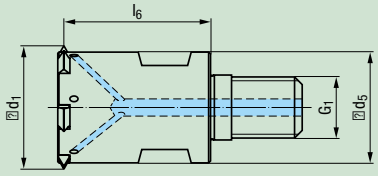


Gigant „soft run sprinter" mit variabler Länge auf Anfrage (siehe Seite 384)
Gigant "soft run sprinter" with variable length upon request (see page 384)

Gigant „modular"

Z6 | ⌀D

Größe Size	ø $D_{min.}$ mm	l_6	ø d_1	ø d_5	G_1	Z	Gigant modular Gr. 11-IKZN	
11	42	38	34,25	29	M16	6	GZ351001	●



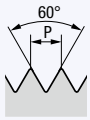
Bestell-Beispiel · Ordering example: **GZ341021**

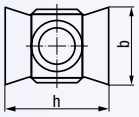
11

4-Zahnwendeplatten für Steigungsbereich bis 4 mm
4-tooth indexable inserts for a pitch range up to 4 mm

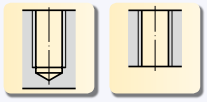
M, MF, UN

DIN 13, ANSI B1.1





HM | RH + LH

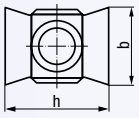


Für Innengewinde
For internal threads

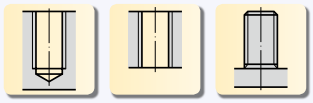
Beschichtung · Coating			TIN		TIALN-T4	
Einsatzgebiete – Material Range of application – material ▸▸ 282			P 1.1-5.1 · M 1.1-4.1 · K 1.1-4.2 · N 1.1-4.4 · S 1.1-3			
Größe Size	P mm	P Gg/1" (tpi)	b	h	HM-WP-Z4 Gr. 11 TIN		HM-WP-Z4 Gr. 11 TIALN-T4	
11	1,5 - 2,5	16 - 10	6,35	9,52	GF643105.9514	●	GF643107.9514	●
	2,5 - 4	10 - 6	6,35	9,52	GF643105.9517	●	GF643107.9517	●

G BSW, BSF, W

DIN EN ISO 228, BS 84



HM | RH + LH



Für Innen- und Außengewinde
For internal and external threads

Beschichtung · Coating			TIN		TIALN-T4	
Einsatzgebiete – Material Range of application – material ▸▸ 282			P 1.1-5.1 · M 1.1-4.1 · K 1.1-4.2 · N 1.1-4.4 · S 1.1-3			
Größe Size	P Gg/1" (tpi)		b	h	HM-WP-Z4 Gr. 11 TIN		HM-WP-Z4 Gr. 11 TIALN-T4	
11	11		6,35	9,52	GF643105.9550	●	GF643107.9550	●

Ersatzschraube M2,5 x 8,5; Torx T7
Spare screw M2,5 x 8,5; Torx T7 **GZ349011**

Schraubendreher Torx T7
Screw driver Torx T7 **GZ349021**

Drehmoment-Schraubendreher Torx T7
Torque screw driver Torx T7 **GZ349041**

Trapez-Gewinde, ACME-Gewinde
Trapezoidal thread, ACME thread

Rundgewinde
Round thread

Sägengewinde
Buttress thread

Andere Gewindesysteme auf Anfrage, z.B.:
Other thread standards upon request, e.g.:

Sonderkonturen auf Anfrage
Special contours upon request

● = Lagerwerkzeug, siehe Preisliste · Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage · Available on short notice, price upon inquiry

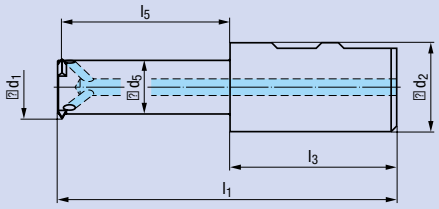
12

Für große Abmessungen ab Gewindedurchmesser 40 mm
For large thread sizes, from thread diameter 40 mm

Gigant-ic

DIN 1835 B | Z3 | ⌀D

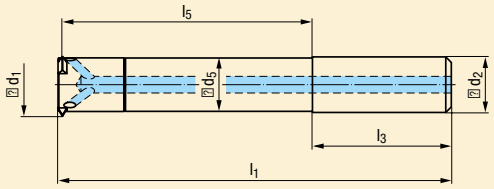
Größe Size	ø $D_{min.}$ mm	l_1	l_3	l_5	ø d_1	ø d_2 h6	ø d_5	Z	Gigant-ic Gr. 12-IKZN	
12	40	153	56	95	32,85	25	24,7	3	GZ341032	●
	40	157	60	95	32,85	32	24,7	3	GZ341012	●
	40	177	60	115	32,85	32	24,7	3	GZ341112	●



Gigant „soft run“

DIN 6535 HA | Z3 | ⌀D

Größe Size	ø $D_{min.}$ mm	l_1	l_3	l_5	ø d_1	ø d_2 h6	ø d_5	Z	Gigant soft run Gr. 12-IKZN	
12	40	173	56	115	32,85	25	24,7	3	GZ34A002	●

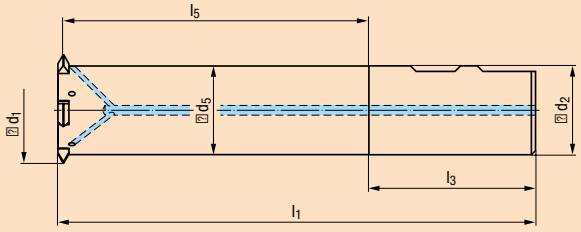


Gigant „soft run“ mit variabler Länge auf Anfrage (siehe Seite 384)
Gigant “soft run” with variable length upon request (see page 384)

Gigant „sprinter“

DIN 1835 B | Z5 | ⌀D

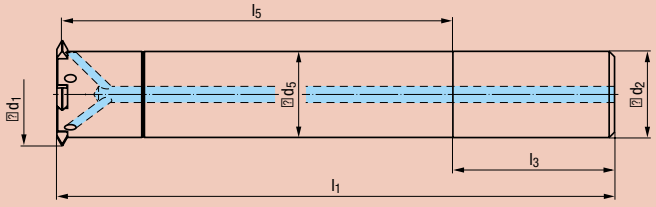
Größe Size	ø $D_{min.}$ mm	l_1	l_3	l_5	ø d_1	ø d_2 h6	ø d_5	Z	Gigant sprinter Gr. 12-IKZN	
12	48	172	60	110	40,25	32	31,9	5	GZ341202	●



Gigant „soft run sprinter“

DIN 6535 HA | Z5 | ⌀D

Größe Size	ø $D_{min.}$ mm	l_1	l_3	l_5	ø d_1	ø d_2 h6	ø d_5	Z	Gigant soft run sprinter Gr. 12-IKZN	
12	48	207	60	145	40,25	32	31,9	5	GZ34C002	●

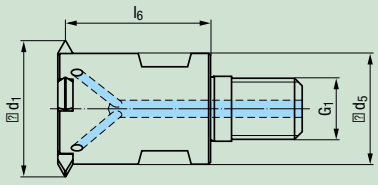


Gigant „soft run sprinter“ mit variabler Länge auf Anfrage (siehe Seite 384)
Gigant “soft run sprinter” with variable length upon request (see page 384)

Gigant „modular“

Z4 | ⌀D

Größe Size	ø $D_{min.}$ mm	l_6	ø d_1	ø d_5	G_1	Z	Gigant modular Gr. 12-IKZN	
12	46	38	37,5	29	M16	4	GZ351002	●



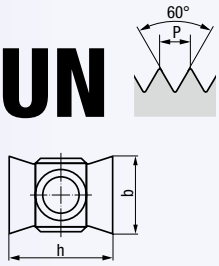
Bestell-Beispiel · Ordering example: **GZ341112**

12

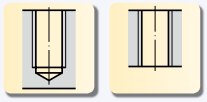
4-Zahnwendeplatten für Steigungsbereich bis 5,5 mm
4-tooth indexable inserts for a pitch range up to 5,5 mm

M, MF, UN

DIN 13, ANSI B1.1



HM | RH + LH

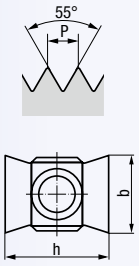


Für Innengewinde
For internal threads

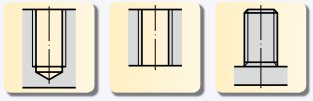
					Beschichtung · Coating	TIN		TIALN-T4	
Einsatzgebiete – Material Range of application – material ▸▸ 282						P 1.1-5.1 M 1.1-4.1 K 1.1-4.2 N 1.1-4.4 S 1.1-3			
Größe Size	P mm	P Gg/1" (tpi)	b	h		HM-WP-Z4 Gr. 12 TIN		HM-WP-Z4 Gr. 12 TIALN-T4	
12	1,5 - 2,5	16 - 10	8,5	13,5		GF643205.9514	●	GF643207.9514	●
	2,5 - 5,5	10 - 4,5	8,5	13,5		GF643205.9517	●	GF643207.9517	●

G BSW, BSF, W

DIN EN ISO 228, BS 84



HM | RH + LH



Für Innen- und Außengewinde
For internal and external threads

					Beschichtung · Coating	TIN		TIALN-T4	
Einsatzgebiete – Material Range of application – material ▸▸ 282						P 1.1-5.1 M 1.1-4.1 K 1.1-4.2 N 1.1-4.4 S 1.1-3			
Größe Size	P Gg/1" (tpi)		b	h		HM-WP-Z4 Gr. 12 TIN		HM-WP-Z4 Gr. 12 TIALN-T4	
12	11		8,5	13,5		GF643205.9550	●	GF643207.9550	●

Ersatzschraube M3 x 11; Torx T9
Spare screw M3 x 11; Torx T9 **GZ349012**

Schraubendreher Torx T9
Screw driver Torx T9 **GZ349022**

Drehmoment-Schraubendreher Torx T9
Torque screw driver Torx T9 **GZ349042**

Trapez-Gewinde, ACME-Gewinde
Trapezoidal thread, ACME thread

Rundgewinde
Round thread

Sägengewinde
Buttress thread

Andere Gewindesysteme auf Anfrage, z.B.:
Other thread standards upon request, e.g.:

Sonderkonturen auf Anfrage
Special contours upon request

● = Lagerwerkzeug, siehe Preisliste · Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage · Available on short notice, price upon inquiry

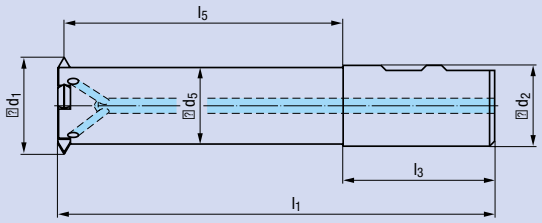
13

Für große Abmessungen ab Gewindedurchmesser 48 mm
For large thread sizes, from thread diameter 48 mm

Gigant-ic

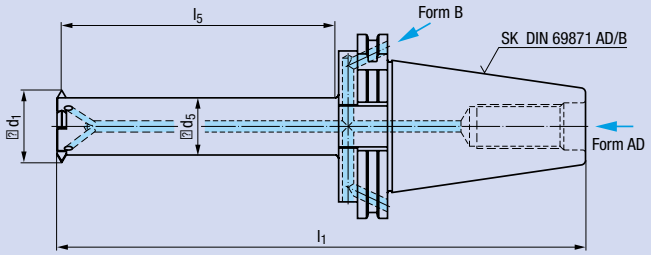
DIN 1835 B | Z4 | ⌀D

Größe Size	ø $D_{min.}$ mm	l_1	l_3	l_5	ø d_1	ø d_2 h6	ø d_5	Z	Gigant-ic Gr. 13-IKZN	
13	48	173	60	110	40,25	32	30,3	4	GZ341153	●
	48	210	60	147	40,25	32	30,3	4	GZ341143	●



DIN 69871 AD/B

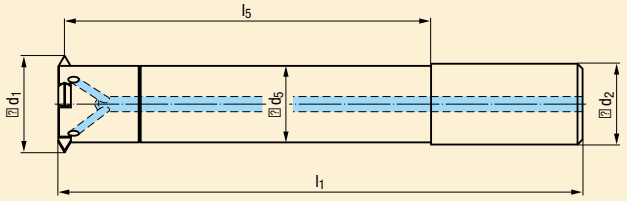
Größe Size	ø $D_{min.}$ mm	l_1	l_5	ø d_1	SK	ø d_5	Z	Gigant-ic Gr. 13-IKZN	
13	48	212	110	40,25	SK 40	30,3	4	GZ343003	●
	48	245	110	40,25	SK 50	30,3	4	GZ344003	●
	48	247	145	40,25	SK 40	30,3	4	GZ343103	●
	48	280	145	40,25	SK 50	30,3	4	GZ344103	●



Gigant „soft run“

DIN 6535 HA | Z4 | ⌀D

Größe Size	ø $D_{min.}$ mm	l_1	l_3	l_5	ø d_1	ø d_2 h6	ø d_5	Z	Gigant soft run Gr. 13-IKZN	
13	48	207	60	145	40,25	32	30,3	4	GZ34A003	●

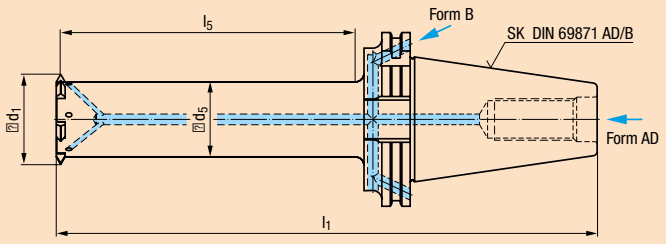


Gigant „soft run“ mit variabler Länge auf Anfrage (siehe Seite 384)
Gigant “soft run” with variable length upon request (see page 384)

Gigant „sprinter“

DIN 69871 AD/B | Z6 | ⌀D

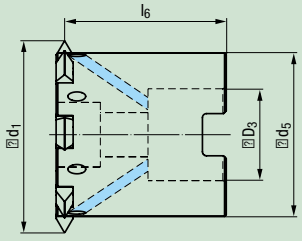
Größe Size	ø $D_{min.}$ mm	l_1	l_5	ø d_1	SK	ø d_5	Z	Gigant sprinter Gr. 13-IKZN	
13	64	333	195	52,55	SK 50	43,7	6	GZ344203	●



Gigant „modular“

DIN 138 | Z7 | ⌀D

Größe Size	ø $D_{min.}$ mm	l_6	ø d_1	ø d_5	ø D_3	Z	Gigant modular Gr. 13-IKZN	
13	66	47,5	57,5	48	27	7	GZ352003	●



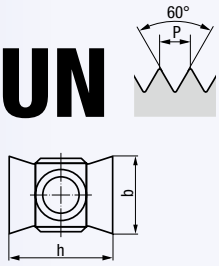
Bestell-Beispiel · Ordering example: **GZ34A003**

13

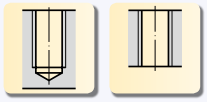
4-Zahnwendeplatten für Steigungsbereich bis 6 mm
4-tooth indexable inserts for a pitch range up to 6 mm

M, MF, UN

DIN 13, ANSI B1.1



HM | RH + LH

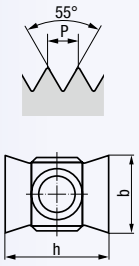


Für Innengewinde
For internal threads

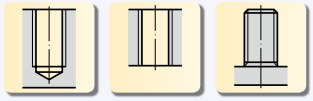
					Beschichtung · Coating	TIN		TIALN-T4	
Einsatzgebiete – Material Range of application – material ▸▸ 282						P 1.1-5.1 M 1.1-4.1 K 1.1-4.2 N 1.1-4.4 S 1.1-3			
Größe Size	P mm	P Gg/1" (tpi)	b	h		HM-WP-Z4 Gr. 13 TIN		HM-WP-Z4 Gr. 13 TIALN-T4	
13	1,5 - 3	16 - 9	9,5	15,5		**GF643305.9514**	●	**GF643307.9514**	●
	3 - 6	9 - 4	9,5	15,5		**GF643305.9518**	●	**GF643307.9518**	●

G BSW, BSF, W

DIN EN ISO 228, BS 84



HM | RH + LH



Für Innen- und Außengewinde
For internal and external threads

					Beschichtung · Coating	TIN		TIALN-T4	
Einsatzgebiete – Material Range of application – material ▸▸ 282						P 1.1-5.1 M 1.1-4.1 K 1.1-4.2 N 1.1-4.4 S 1.1-3			
Größe Size	P Gg/1" (tpi)		b	h		HM-WP-Z4 Gr. 13 TIN		HM-WP-Z4 Gr. 13 TIALN-T4	
13	11		9,5	15,5		**GF643305.9550**	●	**GF643307.9550**	●

Ersatzschraube M4 x 13; Torx T15
Spare screw M4 x 13; Torx T15 **GZ349013**

Schraubendreher Torx T15
Screw driver Torx T15 **GZ349023**

Drehmoment-Schraubendreher Torx T15
Torque screw driver Torx T15 **GZ349043**

Trapez-Gewinde, ACME-Gewinde
Trapezoidal thread, ACME thread

Rundgewinde
Round thread

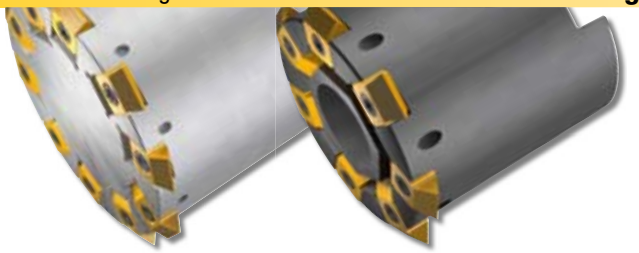
Sägengewinde
Buttress thread

Andere Gewindesysteme auf Anfrage, z.B.:
Other thread standards upon request, e.g.:

Sonderkonturen auf Anfrage
Special contours upon request

● = Lagerwerkzeug, siehe Preisliste · Stock tool, see price list
○ = Kurzfristig lieferbar, Preis auf Anfrage · Available on short notice, price upon inquiry

14

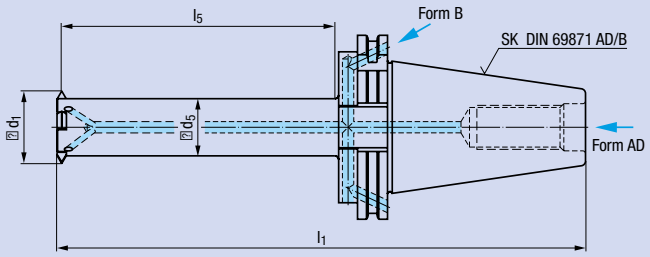


Für große Abmessungen ab Gewindedurchmesser 64 mm
For large thread sizes, from thread diameter 64 mm

Gigant-ic

DIN 69871 AD/B | Z4 - Z7 | ⌀D

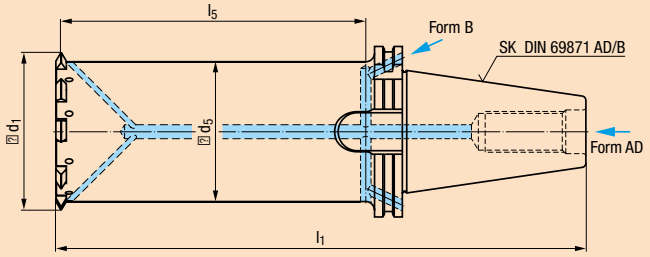
Größe Size	ø $D_{min.}$ mm	l_1	l_5	ø d_1	SK	ø d_5	Z	Gigant-ic Gr. 14-IKZN	
14	64	253	150	52,55	SK 40	41,3	4	**GZ343014**	●
	64	286	150	52,55	SK 50	41,3	4	**GZ344014**	●
	64	298	195	52,55	SK 40	41,3	4	**GZ343114**	●
	64	331	195	52,55	SK 50	41,3	4	**GZ344114**	●
	80	308	170	66,55	SK 50	55,3	7	**GZ344024**	●
	80	398	260	66,55	SK 50	55,3	7	**GZ344124**	●



Gigant sprinter

DIN 69871 AD/B | Z10 | ⌀D

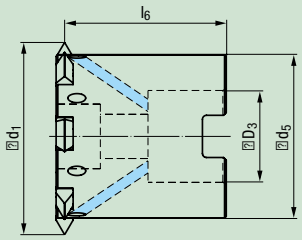
Größe Size	ø $D_{min.}$ mm	l_1	l_5	ø d_1	SK	ø d_5	Z	Gigant sprinter Gr. 14-IKZN	
14	115	489	360	92	SK 50	80	10	**GZ344204**	●



Gigant modular

DIN 138 | Z7 | ⌀D

Größe Size	ø $D_{min.}$ mm	l_6	ø d_1	ø d_5	ø D_3	Z	Gigant modular Gr. 14-IKZN	
14	80	47	71,5	60	27	7	**GZ352004**	●

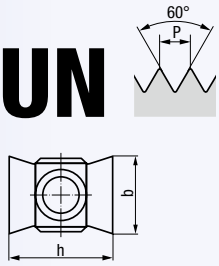


14

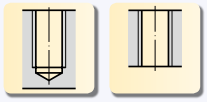
4-Zahnwendeplatten für Steigungsbereich bis 6 mm
4-tooth indexable inserts for a pitch range up to 6 mm

M, MF, UN

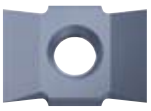
DIN 13, ANSI B1.1



HM | RH + LH



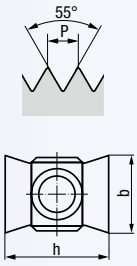
Für Innengewinde
For internal threads



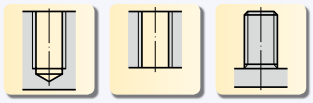
					Beschichtung · Coating	TIN		TIALN-T4	
Einsatzgebiete – Material Range of application – material ▸▸ 282						P 1.1-5.1 M 1.1-4.1 K 1.1-4.2 N 1.1-4.4 S 1.1-3			
Größe Size	P mm	P Gg/1" (tpi)	b	h		HM-WP-Z4 Gr. 14 TIN		HM-WP-Z4 Gr. 14 TIALN-T4	
14	1,5 - 3	16 - 9	12,5	19		GF643405.9514	●	GF643407.9514	●
	3 - 6	9 - 4	12,5	19		GF643405.9518	●	GF643407.9518	●

G BSW, BSF, W

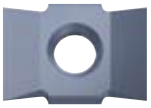
DIN EN ISO 228, BS 84



HM | RH + LH



Für Innen- und Außengewinde
For internal and external threads



					Beschichtung · Coating	TIN		TIALN-T4	
Einsatzgebiete – Material Range of application – material ▸▸ 282						P 1.1-5.1 M 1.1-4.1 K 1.1-4.2 N 1.1-4.4 S 1.1-3			
Größe Size	P Gg/1" (tpi)		b	h		HM-WP-Z4 Gr. 14 TIN		HM-WP-Z4 Gr. 14 TIALN-T4	
14	11		12,5	19		GF643405.9550	●	GF643407.9550	●

Ersatzschraube M5 x 15; Torx T20
Spare screw M5 x 15; Torx T20 **GZ349014**

Schraubendreher Torx T20
Screw driver Torx T20 **GZ349024**

Drehmoment-Schraubendreher Torx T20
Torque screw driver Torx T20 **GZ349044**

Andere Gewindesysteme auf Anfrage, z.B.:
Other thread standards upon request, e.g.:

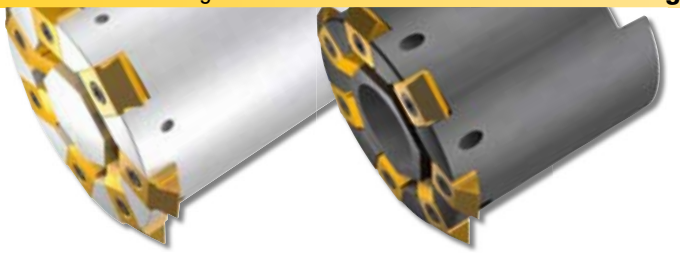
Trapez-Gewinde, ACME-Gewinde
Trapezoidal thread, ACME thread

Rundgewinde
Round thread

Sägengewinde
Buttress thread

Sonderkonturen auf Anfrage
Special contours upon request

15

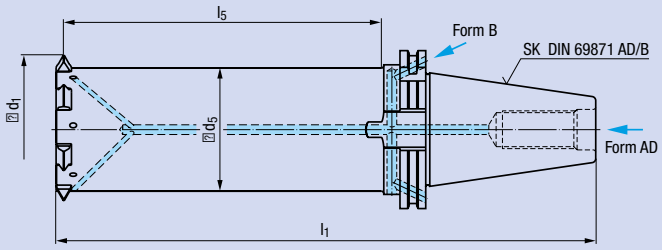


Für große Abmessungen ab Gewindedurchmesser 115 mm
For large thread sizes, from thread diameter 115 mm

Gigant-ic

DIN 69871 AD/B | Z7 | ⌀D

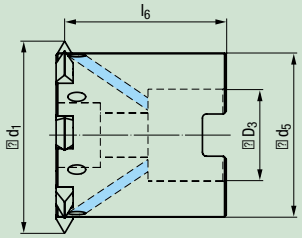
Größe Size	ø $D_{min.}$ mm	l_1	l_5	ø d_1	SK	ø d_5	Z	Gigant-ic Gr. 15-IKZN	
15	115	341	204	92	SK 50	76	7	GZ344035	●
	115	497	360	92	SK 50	76	7	GZ344045	●



Gigant modular

DIN 138 | Z7 | ⌀D

Größe Size	ø $D_{min.}$ mm	l_6	ø d_1	ø d_5	ø D_3	Z	Gigant modular Gr. 15-IKZN	
15	115	55	94	78	32	7	GZ352005	●



Programmierbeispiel für Gewindefräser Typ Gigant
siehe Seite 414

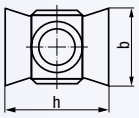
Programming example for thread milling cutters type Gigant,
see page 414

15

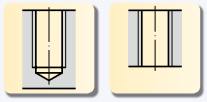
4-Zahnwendeplatten für Steigungsbereich bis 8 mm
4-tooth indexable inserts for a pitch range up to 8 mm

M, MF, UN

DIN 13, ANSI B1.1



HM | RH + LH



Für Innengewinde
For internal threads

					Beschichtung · Coating	TIN		TIALN-T4	
					Einsatzgebiete – Material Range of application – material ▸▸ 282	P 1.1-5.1 M 1.1-4.1 K 1.1-4.2 N 1.1-4.4 S 1.1-3			
Größe Size	P mm	P Gg/1" (tpi)	b	h		HM-WP-Z4 Gr. 15 TIN		HM-WP-Z4 Gr. 15 TIALN-T4	
15	1,5 - 6	16 - 4	14,3	28,58		**GF643505.9514**	●	**GF643507.9514**	●
	6 - 8	4	14,3	28,58		**GF643505.9523**	●	**GF643507.9523**	●

Ersatzschraube M5 x 18; Torx T20
Spare screw M5 x 18; Torx T20 **GZ349015**

Schraubendreher Torx T20
Screw driver Torx T20 **GZ349025**

Drehmoment-Schraubendreher Torx T20
Torque screw driver Torx T20 **GZ349045**

Andere Gewindesysteme auf Anfrage, z.B.:
Other thread standards upon request, e.g.:

Trapez-Gewinde, ACME-Gewinde
Trapezoidal thread, ACME thread

Rundgewinde
Round thread

Sägengewinde
Buttress thread

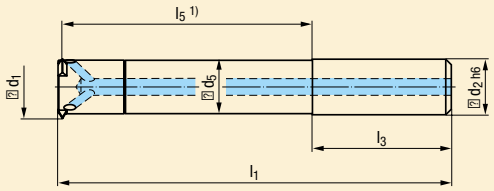
Sonderkonturen auf Anfrage
Special contours upon request

Hartmetall-Ausführung Gigant soft run variabel
Carbide design Gigant "soft run variable"

Gigant soft run variabel

DIN 6535 HA | Z3 - Z4 | ⌀D

Mögliche Größen Available sizes	ø $D_{min.}$ mm	ø d_1	ø d_5	Z
10	24	20,5	16	3
11	30	23,85	19,3	3
12	40	32,85	24,7	3
13	48	40,25	30,3	4



Werkzeuge auf Anfrage mit kurzer Lieferzeit
Tools with short delivery upon request

1) Die Ausführung des Gigant „soft run variabel" erfolgt entsprechend ihrem Einsatzfall im technisch machbaren Bereich.

Gewindefräsplatten und Zubehör siehe entsprechende Gigant-Größe.

Vorteile:

- variable Länge entsprechend Einsatzfall
- schwingungsgedämpft, da Hartmetall-Träger
- ruhiger Lauf
- Schaftvariante frei wählbar (DIN 6535 HA, HB oder HE)
- Einschrumpfen möglich
- vibrationsarme Bearbeitung

1) The design of your Gigant "soft run variable" is made in accordance with your application case within the technically feasible range.

Thread milling inserts and accessories, see appropriate Gigant size.

Advantages:

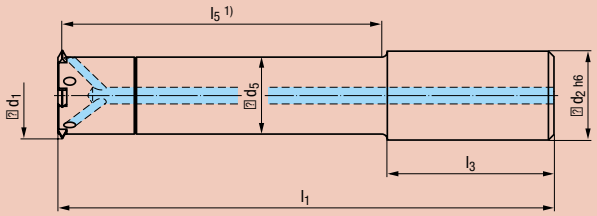
- variable length in accordance with application case
- vibration absorption thanks to carbide body
- smooth operation
- free choice of shank type (DIN 6535 HA, HB or HE)
- suitable for shrink-fit clamping
- low-vibration machining

Hartmetall-Ausführung Gigant soft run sprinter variabel
Carbide design Gigant "soft run sprinter variable"

Gigant soft run sprinter variabel

DIN 6535 HA | Z5 - Z8 | ⌀D

Mögliche Größen Available sizes	ø $D_{min.}$ mm	ø d_1	ø d_5	Z
10	30	23,85	19	5
10	36	30	25	7
10	40	32,85	27,7	8
11	40	32,85	27,7	5
12	48	40,25	31,9	5



Werkzeuge auf Anfrage mit kurzer Lieferzeit
Tools with short delivery upon request

1) Die Ausführung des Gigant „soft run sprinter variabel" erfolgt entsprechend ihrem Einsatzfall im technisch machbaren Bereich.

Gewindefräsplatten und Zubehör siehe entsprechende Gigant-Größe.

Vorteile:

- variable Länge entsprechend Einsatzfall
- schwingungsgedämpft, da Hartmetall-Träger
- ruhiger Lauf
- Schaftvariante frei wählbar (DIN 6535 HA, HB oder HE)
- Einschrumpfen möglich
- vibrationsarme Bearbeitung
- kürzere Bearbeitungszeit

1) The design of your Gigant "soft run sprinter variable" is made in accordance with your application case within the technically feasible range.

Thread milling inserts and accessories, see appropriate Gigant size.

Advantages:

- variable length in accordance with application case
- vibration absorption thanks to carbide body
- smooth operation
- free choice of shank type (DIN 6535 HA, HB or HE)
- suitable for shrink-fit clamping
- low-vibration machining
- reduced machining times

Für INDEX-Automaten
For automatic lathes INDEX

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Für Traub-Automaten
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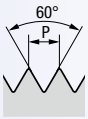
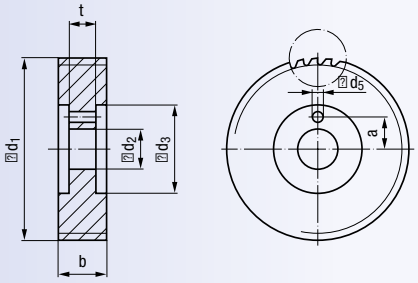
M, MF



DIN 13

HSSE

Spiralverzahnt und hinterschliffen
Spiral-toothed, relief-ground



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DG 12 – DG 20 – DO 12

⌀d_1	b	⌀d_2 H6	⌀d_3	⌀d_5 P7	a	t	Werkzeug-Ident Tool ident	P mm 0,5	0,6	0,7	0,75	0,8	1	1,25	1,5
56	6	16	44	4	11	5	GF010104	●	●	●	●	●	●	●	●
	8	16	44	4	11	5	GF010105	●	●	●	●	●	●	●	●
	10	16	44	4	11	5	GF010106	●	●	●	●	●	●	●	●
Dimens.-Ident								.9506	.9507	.9508	.9509	.9510	.9512	.9513	.9514

A 12 – A 18 – A 25 – C 19 – C 29 – KR 30 – ER

⌀d_1	b	⌀d_2 H6	⌀d_3	⌀d_5 P7	a	t	Werkzeug-Ident Tool ident	P mm 0,5	0,6	0,7	0,75	0,8	1	1,25	1,5
63	8	16	35	5	14	7	GF010115	●	●	●	●	●	●	●	●
	10	16	35	5	14	7	GF010116	●	●	●	●	●	●	●	●
	12	16	35	5	14	7	GF010117	●	●	●	●	●	●	●	●
	15	16	35	5	14	7	GF010118	●	●	●	●	●	●	●	●
Dimens.-Ident								.9506	.9507	.9508	.9509	.9510	.9512	.9513	.9514

B 30 – B 42 – B 60 – MS 25

⌀d_1	b	⌀d_2 H6	⌀d_3	⌀d_5 P7	a	t	Werkzeug-Ident Tool ident	P mm 0,5	0,6	0,7	0,75	0,8	1	1,25	1,5
73,5	8	16	35	5	14	7	GF010121	●	●	●	●	●	●	●	●
	10	16	35	5	14	7	GF010122	●	●	●	●	●	●	●	●
	12	16	35	5	14	7	GF010123	●	●	●	●	●	●	●	●
	15	16	35	5	14	7	GF010124	●	●	●	●	●	●	●	●
Dimens.-Ident								.9506	.9507	.9508	.9509	.9510	.9512	.9513	.9514

Andere Ausführungen und Gewindesysteme auf Anfrage
Other designs and thread systems upon request

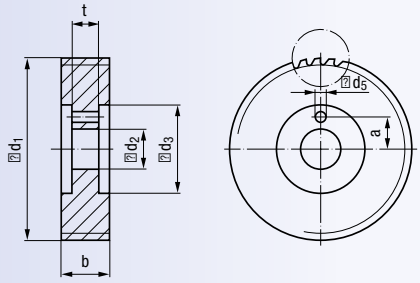
Bestell-Beispiel ´ Ordering example: **GF010104.9506**

G Rp (BSPP), W

HSSE

DIN EN ISO 228, DIN EN 10226-1, ISO 7/1, BS 84

Spiralverzahnt und hinterschliffen
Spiral-toothed, relief-ground



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DG 12 – DG 20 – DO 12

⌀d1	b	⌀d2 H6	⌀d3	⌀d5 P7	a	t	Werkzeug-Ident Tool ident	P Gg/1" (tpi) 28	19	14
56	6	16	44	4	11	5	GF010104	●	●	●
	8	16	44	4	11	5	GF010105	●	●	●
	10	16	44	4	11	5	GF010106	●	●	●
Dimens.-Ident								.9540	.9545	.9548

A 12 – A 18 – A 25 – C 19 – C 29 – KR 30 – ER

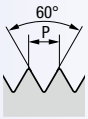
⌀d1	b	⌀d2 H6	⌀d3	⌀d5 P7	a	t	Werkzeug-Ident Tool ident	P Gg/1" (tpi) 28	19	14
63	8	16	35	5	14	7	GF010115	●	●	●
	10	16	35	5	14	7	GF010116	●	●	●
	12	16	35	5	14	7	GF010117	●	●	●
	15	16	35	5	14	7	GF010118	●	●	●
Dimens.-Ident								.9540	.9545	.9548

B 30 – B 42 – B 60 – MS 25

⌀d1	b	⌀d2 H6	⌀d3	⌀d5 P7	a	t	Werkzeug-Ident Tool ident	P Gg/1" (tpi) 28	19	14
73,5	8	16	35	5	14	7	GF010121	●	●	●
	10	16	35	5	14	7	GF010122	●	●	●
	12	16	35	5	14	7	GF010123	●	●	●
	15	16	35	5	14	7	GF010124	●	●	●
Dimens.-Ident								.9540	.9545	.9548

Andere Ausführungen und Gewindesysteme auf Anfrage
Other designs and thread systems upon request

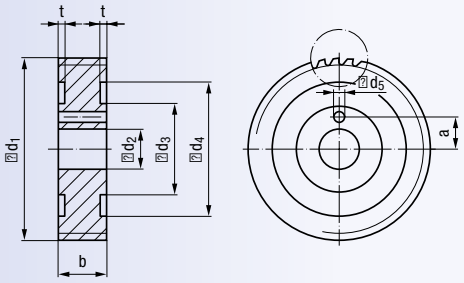
M, MF



DIN 13

HSSE

Spiralverzahnt und hinterschliffen
Spiral-toothed, relief-ground



Traub

A 15 – A 20 – A 25

⍰d_1	b	⍰d_2 H6	⍰d_3	⍰d_4	⍰d_5	a	t	Werkzeug-Ident Tool ident	P mm 0,5	0,6	0,7	0,75	0,8	1	1,25	1,5
52	6	12	30	40	5,1	9	0,5	GF010201	●	●	●	●	●	●	●	●
	8	12	30	40	5,1	9	0,5	GF010202	●	●	●	●	●	●	●	●
	10	12	30	40	5,1	9	0,5	GF010203	●	●	●	●	●	●	●	●
	12	12	30	40	5,1	9	0,5	GF010204	●	●	●	●	●	●	●	●
	14	12	30	40	5,1	9	0,5	GF010205	●	●	●	●	●	●	●	●
	16	12	30	40	5,1	9	0,5	GF010206	●	●	●	●	●	●	●	●
Dimens.-Ident									.9506	.9507	.9508	.9509	.9510	.9512	.9513	.9514

A 26 – A 42 – A 60 – TB 42 – TB 60 – TNM 28

Gildemeister: **TDA 26/36 CNC – TBA 42/60 CNC**

⍰d_1	b	⍰d_2 H6	⍰d_3	⍰d_4	⍰d_5	a	t	Werkzeug-Ident Tool ident	P mm 0,5	0,6	0,7	0,75	0,8	1	1,25	1,5
64	6	12	30	45	5,1	9	0,5	GF010211	●	●	●	●	●	●	●	●
	8	12	30	45	5,1	9	0,5	GF010212	●	●	●	●	●	●	●	●
	10	12	30	45	5,1	9	0,5	GF010213	●	●	●	●	●	●	●	●
	12	12	30	45	5,1	9	0,5	GF010214	●	●	●	●	●	●	●	●
	14	12	30	45	5,1	9	0,5	GF010215	●	●	●	●	●	●	●	●
	16	12	30	45	5,1	9	0,5	GF010216	●	●	●	●	●	●	●	●
Dimens.-Ident									.9506	.9507	.9508	.9509	.9510	.9512	.9513	.9514

Andere Ausführungen und Gewindesysteme auf Anfrage
Other designs and thread systems upon request

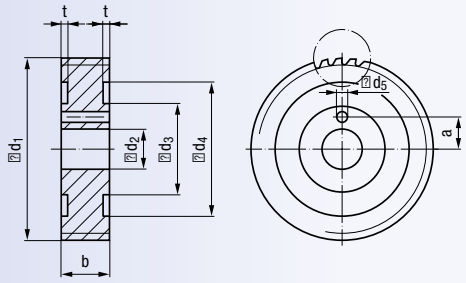
Bestell-Beispiel ´ Ordering example: **GF010202.9507**

G Rp (BSPP), W

HSSE

DIN EN ISO 228, DIN EN 10226-1, ISO 7/1, BS 84

Spiralverzahnt und hinterschliffen
Spiral-toothed, relief-ground



Traub

A 15 – A 20 – A 25

⌀d1	b	⌀d2 H6	⌀d3	⌀d4	⌀d5	a	t	Werkzeug-Ident Tool ident	P Gg/1" (tpi) 28	19	14
52	6	12	30	40	5,1	9	0,5	GF010201	●	●	●
	8	12	30	40	5,1	9	0,5	GF010202	●	●	●
	10	12	30	40	5,1	9	0,5	GF010203	●	●	●
	12	12	30	40	5,1	9	0,5	GF010204	●	●	●
	14	12	30	40	5,1	9	0,5	GF010205	●	●	●
	16	12	30	40	5,1	9	0,5	GF010206	●	●	●
Dimens.-Ident									**.9540**	**.9545**	**.9548**

A 26 – A 42 – A 60 – TB 42 – TB 60 – TNM 28

Gildemeister: **TDA 26/36 CNC – TBA 42/60 CNC**

⌀d1	b	⌀d2 H6	⌀d3	⌀d4	⌀d5	a	t	Werkzeug-Ident Tool ident	P Gg/1" (tpi) 28	19	14
64	6	12	30	45	5,1	9	0,5	GF010211	●	●	●
	8	12	30	45	5,1	9	0,5	GF010212	●	●	●
	10	12	30	45	5,1	9	0,5	GF010213	●	●	●
	12	12	30	45	5,1	9	0,5	GF010214	●	●	●
	14	12	30	45	5,1	9	0,5	GF010215	●	●	●
	16	12	30	45	5,1	9	0,5	GF010216	●	●	●
Dimens.-Ident									**.9540**	**.9545**	**.9548**

Andere Ausführungen und Gewindesysteme auf Anfrage
Other designs and thread systems upon request

M oSys gestattet vielseitige Plan- und Stufensenkoperationen!

In einer Aufspannung erzielen Sie folgende Vorteile:
- geringe Anzahl an Werkzeugen
- wenig Lagerplätze und Lagerkosten
- kurze Bearbeitungszeiten

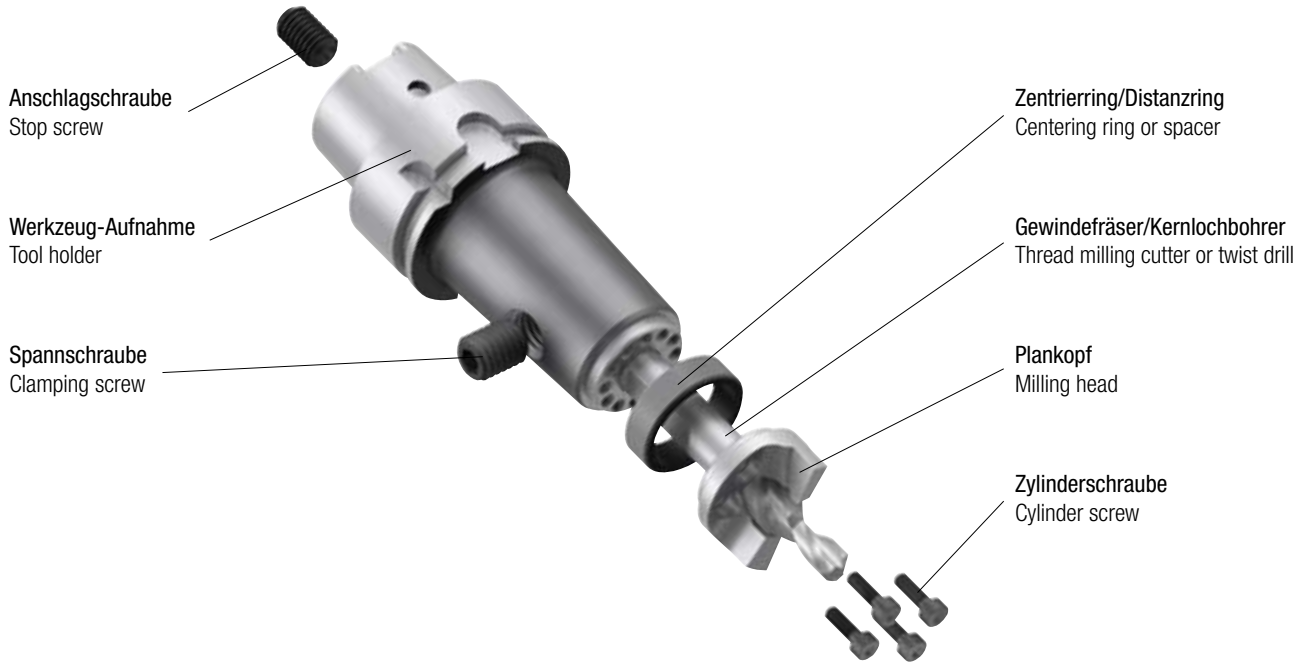
M oSys erfüllt folgende Voraussetzungen:
- einfache Montage
- hohe Steifigkeit
- hohe Maßgenauigkeit
- modular aufgebaut und einsetzbar

"MoSys" makes a large number of counterbore and stepped bore operations possible!

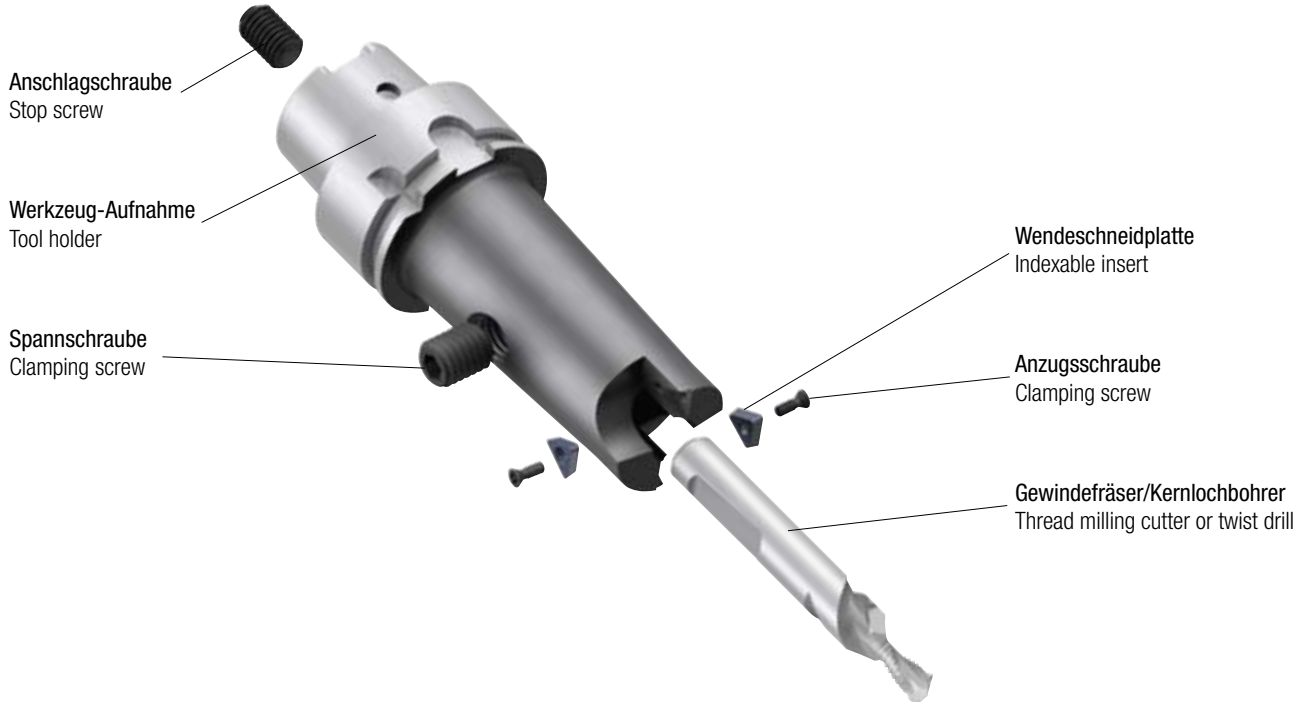
With just one clamping operation, you enjoy a number of advantages:
- smaller tool quantities
- fewer magazine places and reduced stocking costs
- shorter machining times

"MoSys" answers to the following requirements:
- easy assembly
- high degree of rigidity
- high dimensional precision
- modular construction for universal application

MoSys mit Vollhartmetall-Kopf
MoSys with solid carbide head



MoSys mit Wendeschneidplatten
MoSys with indexable inserts

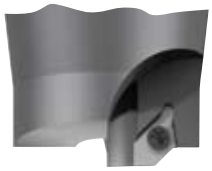


Steilkegelschäfte
ISO taper shanks

Kegel-Hohlschäfte
Hollow taper shanks

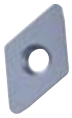
Anschluss für Plankopf
Connection for milling head

Anschluss für Wendeschneidplatten
Connection for indexable inserts



Zentrierring
Centering ring

Wendeschneidplatten
zum Planen und Fasen
Indexable inserts
for plane milling and chamfering



Wendeschneidplatten
zum Planen
Indexable inserts
for plane milling

Vollhartmetall-Planköpfe
Solid carbide milling heads

Gewindefräser oder Spiralbohrer
Thread milling cutters or twist drills

Zur Angebotsausarbeitung werden folgende Daten benötigt:

- Werkstückzeichnung mit evtl. Störkontur
- Maschinenseitige Aufnahme mit Kühlschmierstoff-Übergabe
- Detaillierte Senkkontur
- Herzustellende Gewindeabmessung einschließlich Gewindetiefe
- Bohrungsform (Durchgangsloch, Grundloch)
- Kernlochdurchmesser (falls vorhanden)
- Zu bearbeitender Werkstoff

For submitting an offer, we need the following information:

- Workpiece drawing with possible obstruction contours
- Shank connection on the machine side, with coolant-lubricant supply
- Detailed countersink contour
- Size of the thread to be produced, including thread depth
- Type of hole (through hole or blind hole)
- Drilled hole diameter (if known)
- Workpiece material

Beispiel für Bearbeitung mit Vollhartmetall-Kopf
Example for machining with solid carbide head

Beispiel für Bearbeitung mit Wendeschneidplatten
Example for machining with indexable inserts

Technische Informationen
Technical information

3.1 Charakteristik und Vorteile des Gewindefräsens

Gewindefräsen – eine Technologie, die Ihre Fertigungskosten spürbar senken kann!

Durch den verstärkten Einsatz der CNC-Technologie sind die Voraussetzungen für ein zukunftsorientiertes Verfahren zur Herstellung von Innen- und Außengewinden geschaffen worden.

Das Gewindefräsen lässt sich problemlos und prozesssicher praktizieren, wenn die CNC-Maschine über eine Steuerung mit 3D-Interpolation verfügt. Des Weiteren wird eine stabile und vibrationsfreie Werkzeug- und Werkstückspannung sowie innere Kühlschmierstoff-Zufuhr (IKZ) benötigt.

Das Gewindefräsen ist in einer Vielzahl von Anwendungsfällen eine sinnvolle Alternative zum Gewindeschneiden oder Gewindeformen mit folgenden Vorteilen:

- kurze Fertigungszeiten
- hohe Prozesssicherheit
- sehr gute Oberflächenqualität
- verschiedene Bearbeitungsfunktionen mit einem Werkzeug
- nutzbare Gewindetiefe bis zum Bohrungsgrund
- keine hochwertigen Schmierstoffe notwendig
- keine Spanprobleme, da nur kurze Frässpäne erzeugt werden
- kein axiales Verschneiden (Vorweite) der Gewinde
- universeller Einsatz in den verschiedensten Werkstoffen bis ca. 60 HRC
- Grund- und Durchgangslochgewinde mit einem Werkzeug
- unabhängige Gewindeherstellung bezüglich Abmessung und Toleranz
- ein Werkzeug für Rechts- und Linksgewinde
- geringe Schnittkräfte
- auch für dünnwandige Werkstücke geeignet

Sollten Sie keine oder nur wenig Erfahrung bei der Programmierung der Steuerung haben, stehen Ihnen unsere Techniker gerne mit Rat und Tat zur Seite. Wir sind auch gerne bereit, Sie hausintern oder vor Ort an konkreten Bearbeitungsbeispielen zu schulen.

Bitte sprechen Sie unsere Vertriebsmitarbeiter an.

3.1 Characteristics and advantages of thread milling

Thread milling – A technology which can reduce your production costs considerably!

With the more and more widespread use of CNC technology, the basic conditions for a future-oriented technique of producing internal and external threads have been created.

Thread milling can be practiced without any trouble and with a high degree of process safety if your CNC machine is provided with a control for 3D-interpolation. In addition to that, you need stable and vibration-free tool and workpiece clamping, and internal coolant supply.

Thread milling is, in a multitude of application cases, a highly recommendable alternative to tapping or cold-forming of threads, with the following advantages:

- short production times
- high degree of process safety
- very good surface quality
- combination of different machining jobs with one tool
- usable thread depth down to the very bottom of the hole
- no expensive lubricants are needed
- no chip problems, since only short milling chips are created
- no axial miscutting (overcut) of the thread
- universal use in the most different materials up to approx. 60 HRC
- blind hole and through hole threads produced with one tool
- thread production independent of thread size and tolerance
- one tool only for right-hand and left-hand threads
- low cutting forces
- suitable also for thin-walled components

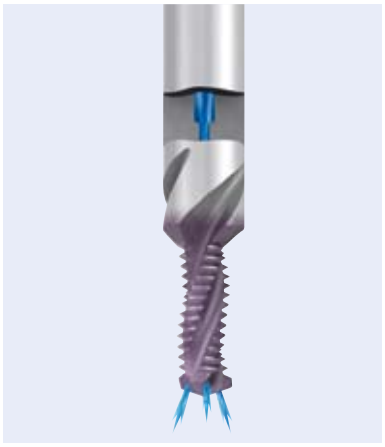
In case you should have little or no experience with the programming of the control, our technicians will be happy to help you by word and deed. We are also ready, at any time, to provide in-house or on-location training for you with practical machining examples.

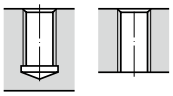
Please contact our sales personnel.

3.2 EMUGE Gewindefräser-Typen

3.2 Our EMUGE thread milling cutter types

BGF





Vollhartmetall-Bohrgewindefräser

- zur Herstellung von Innengewinden
- für die Komplettbearbeitung von Kernloch, Senkfase und Gewinde in einem Arbeitsgang
- abmessungsbezogenes Werkzeug mit korrigiertem Gewindeprofil

Ausführungen:

2-nutig: Bearbeitung ins volle Material
3-nutig: Bearbeitung in vorgegossene Kernlöcher und ins volle Material
4-nutig: Kürzere Bearbeitungszeiten (nur Gusseisen und Aluminium-Guss, kurzspanend)

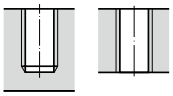
Solid carbide drill thread mills

- for the production of internal threads
- for the complete machining of thread hole, chamfer and thread in one work process
- tool for one single thread size with corrected thread profile

Designs:

2-fluted: for work in solid material
3-fluted: for work in pre-cast thread holes and in solid material
4-fluted: for shorter machining times (only for cast iron and cast aluminium, short-chipping)

ZBGF



Vollhartmetall-Zirkular-Bohrgewindefräser

- zur Herstellung von Innengewinden
- für die Bearbeitung von Kernloch und Gewinde in einem Arbeitsgang
- abmessungsübergreifendes und steigungsgebundenes Werkzeug mit korrigiertem Gewindeprofil

Ausführungen:

ZBGF-T: für Gewindetiefen bis 3 x D in Aluminium und Grauguss
ZBGF-H: für die Hartbearbeitung ab 44 HRC
ZBGF-W: für die verschiedensten Werkstoffe bis 44 HRC

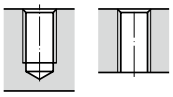
Solid carbide circular drill thread mills

- for the production of internal threads
- for the machining of thread hole and thread in one work process
- tool for different thread sizes but for one pitch only, with corrected thread profile

Designs:

ZBGF-T: for thread depths up to 3 x D in aluminium and cast iron
ZBGF-H: for hard machining from 44 HRC
ZBGF-W: for the most different materials up to 44 HRC

GSF



Vollhartmetall-Gewindefräser mit Senkfase

- zur Herstellung von Innengewinden
- für die Bearbeitung von Senkfase und Gewinde in einem Arbeitsgang
- abmessungsbezogenes Werkzeug mit korrigiertem Gewindeprofil
- Voraussetzung ist ein vorgearbeitetes Kernloch

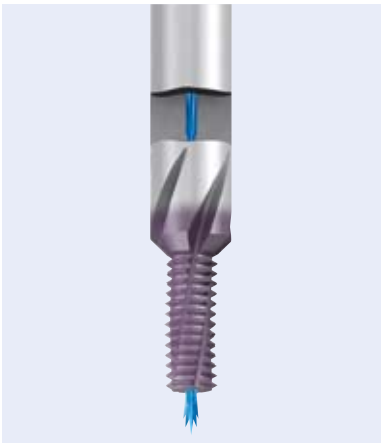
Solid carbide thread milling cutters with countersinking step

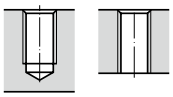
- for the production of internal threads
- for the machining of chamfer and thread in one work process
- tool for one single thread size, with corrected thread profile
- a ready prepared thread hole is necessary

3.2 EMUGE Gewindefräser-Typen

3.2 Our EMUGE thread milling cutter types

GSF-Z





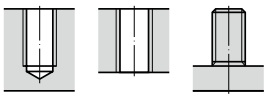
Vollhartmetall-Gewindefräser mit Senkfase

- zur Herstellung von Innengewinden
- für die Bearbeitung von Senkfase und Gewinde in einem Arbeitsgang
- abmessungsbezogenes Werkzeug mit korrigiertem Gewindeprofil
- höhere Nutenzahl im Vergleich zum Typ GSF
- optimierte Schneidengeometrie
- Voraussetzung ist ein vorgearbeitetes Kernloch

Solid carbide thread milling cutters with countersinking step

- for the production of internal threads
- for the machining of chamfer and thread in one work process
- tool for one single thread size, with corrected thread profile
- increased number of flutes compared with type GSF
- optimised cutting geometry
- a ready prepared thread hole is necessary

GF



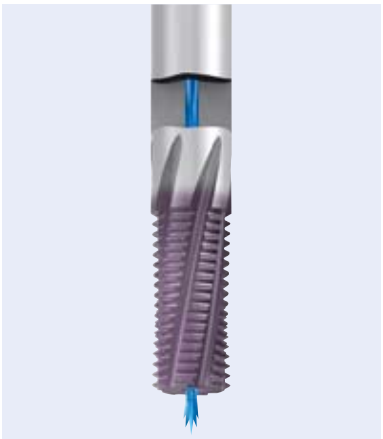
Vollhartmetall-Gewindefräser

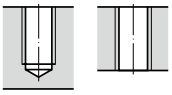
- zur Herstellung von Innen- und Außengewinden
- abmessungsübergreifendes Werkzeug mit Standard-Gewindeprofil (steigungsgebunden)
- Voraussetzung ist ein vorgearbeitetes Kernloch ggf. mit einer Ansenkung
- um größere Profilüberfräsungen bei Innengewinden zu vermeiden, sollte der Fräserdurchmesser nicht größer als $^2/_3$ (bei Feingewinden $^3/_4$) des herzustellenden Gewindes sein
- bei Außengewinden sollte der Fräserdurchmesser den herzustellenden Gewindedurchmesser nicht überschreiten

Solid carbide thread milling cutters

- for the production of internal and external threads
- tool for different thread sizes with standard thread profile (but for one pitch only)
- a ready prepared thread hole is necessary, including chamfer if needed
- in order to avoid serious profile deviation in internal threads, the cutter diameter should not exceed $^2/_3$ (with fine threads, $^3/_4$) of the thread to be produced
- with external threads, the cutter diameter should not exceed the diameter of the thread to be produced

GF-Z





Vollhartmetall-Gewindefräser

- zur Herstellung von Innengewinden
- abmessungsübergreifendes Werkzeug mit Standard-Gewindeprofil (steigungsgebunden)
- höhere Nutenzahl im Vergleich zum Typ GF
- optimierte Schneidengeometrie
- Voraussetzung ist ein vorgearbeitetes Kernloch ggf. mit einer Ansenkung
- um größere Profilüberfräsungen bei Innengewinden zu vermeiden, sollte der Fräserdurchmesser nicht größer als $^2/_3$ (bei Feingewinden $^3/_4$) des herzustellenden Gewindes sein

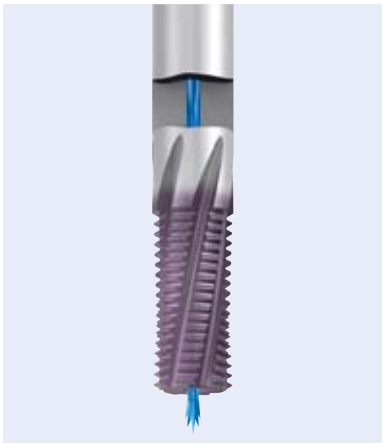
Solid carbide thread milling cutters

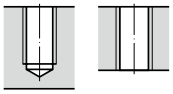
- for the production of internal threads
- tool for different thread sizes with standard thread profile (but for one pitch only)
- increased number of flutes compared with type GF
- optimised cutting geometry
- a ready prepared thread hole is necessary, including chamfer if needed
- in order to avoid serious profile deviation in internal threads, the cutter diameter should not exceed $^2/_3$ (with fine threads, $^3/_4$) of the thread to be produced

3.2 EMUGE Gewindefräser-Typen

3.2 Our EMUGE thread milling cutter types

GF-Vario-Z





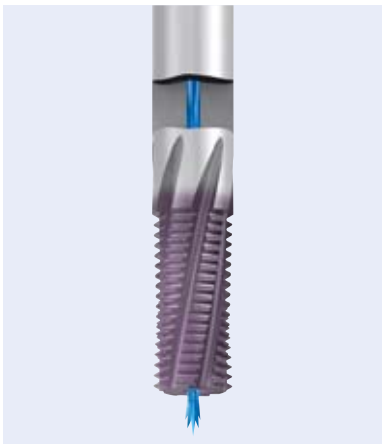
Vollhartmetall-Gewindefräser variabel

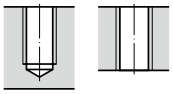
- zur Herstellung von Innengewinden
- abmessungsübergreifendes und steigungsgebundenes Werkzeug mit korrigiertem Gewindeprofil
- hohe Nutenzahl
- optimierte Schneidengeometrie
- Voraussetzung ist ein vorgearbeitetes Kernloch ggf. mit einer Ansenkung

Solid carbide thread milling cutters, variable

- for the production of internal threads
- tool for different thread sizes, but for one pitch only, with corrected thread profile
- large number of flutes
- optimised cutting geometry
- a ready prepared thread hole is necessary, including chamfer if needed

GF-H





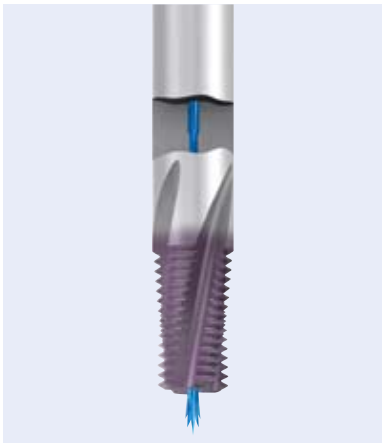
Vollhartmetall-Gewindefräser für die Hartbearbeitung

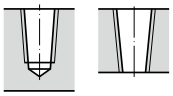
- zur Herstellung von Innengewinden
- abmessungsbezogenes Werkzeug mit korrigiertem Gewindeprofil
- Voraussetzung ist ein vorgearbeitetes Kernloch ggf. mit einer Ansenkung

Solid carbide thread milling cutters for hard machining

- for the production of internal threads
- tool for one single thread size, with corrected thread profile
- a ready prepared thread hole is necessary, including chamfer if needed

GF-KEG





Vollhartmetall-Gewindefräser für kegelige Gewinde

- zur Herstellung von kegeligen Innengewinden
- abmessungs- bzw. steigungsgebundenes Werkzeug mit korrigiertem Gewindeprofil
- Voraussetzung ist ein zylindrisch oder besser ein kegelig vorgebohrtes Kernloch ggf. mit einer Ansenkung

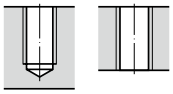
Solid carbide thread milling cutters for tapered threads

- for the production of tapered internal threads
- tool for one single thread size, resp. for one pitch only, with corrected thread profile
- a ready prepared cylindrical, or even better, tapered, thread hole is necessary, including chamfer if needed

3.2 EMUGE Gewindefräser-Typen

3.2 Our EMUGE thread milling cutter types

ZGF



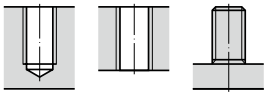
Vollhartmetall-Zirkulargewindefräser

- zur Herstellung von Innengewinden ab M1
- abmessungs- und steigungsübergreifendes Werkzeug mit korrigiertem Gewindeprofil
- Voraussetzung ist ein vorgearbeitetes Kernloch ggf. mit einer Ansenkung

Solid carbide circular thread milling cutters

- for the production of internal threads from M1
- tool for different thread sizes and pitches, with corrected thread profile
- a ready prepared thread hole is necessary, including chamfer if needed

ZIRK-GF



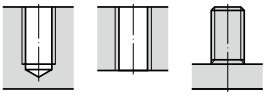
Zirkular-Gewindefräskörper

- zur Herstellung von Innen- und Außengewinden
- mit einer oder zwei Mehrzahnplatten
- abmessungsübergreifendes und steigungsgebundenes Werkzeug
- Voraussetzung ist ein vorgearbeitetes Kernloch ggf. mit einer Ansenkung
- um größere Profilüberfräsungen bei Innengewinden zu vermeiden, sollte der Fräserdurchmesser nicht größer als $^2/_3$ (bei Feingewinden $^3/_4$) des herzustellenden Gewindes sein

Circular thread milling bodies

- for the production of internal and external threads
- with one or two multi-tooth inserts
- tool for different thread sizes, but for one pitch only
- a ready prepared thread hole is necessary, including chamfer if needed
- in order to avoid serious profile deviation in internal threads, the cutter diameter should not exceed $^2/_3$ (with fine threads, $^3/_4$) of the thread to be produced

ZIRK-GF



Zirkular-Gewindefräskörper

- zur Herstellung von Innen- und Außengewinden
- mit einer Einstechwendeplatte „3-Zahn“
- abmessungs- und steigungsübergreifendes Werkzeug
- Voraussetzung ist ein vorgearbeitetes Kernloch ggf. mit einer Ansenkung
- um größere Profilüberfräsungen bei Innengewinden zu vermeiden, sollte der Fräserdurchmesser nicht größer als $^2/_3$ (bei Feingewinden $^3/_4$) des herzustellenden Gewindes sein

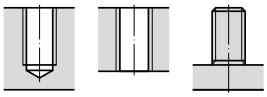
Circular thread milling bodies

- for the production of internal and external threads
- with one infeed indexable insert, “3-tooth” design
- tool for different thread sizes and pitches
- a ready prepared thread hole is necessary, including chamfer if needed
- in order to avoid serious profile deviation in internal threads, the cutter diameter should not exceed $^2/_3$ (with fine threads, $^3/_4$) of the thread to be produced

3.2 EMUGE Gewindefräser-Typen

3.2 Our EMUGE thread milling cutter types

Gigant



Zirkular-Gewindefräskörper

- zur Herstellung von großen Innen- und Außengewinden
- mit bis zu zehn 4-Zahn-Wendeplatten (steigungsübergreifend)
- abmessungs- und steigungsübergreifendes Werkzeug
- Voraussetzung ist ein vorgearbeitetes Kernloch ggf. mit einer Ansenkung

Circular thread milling bodies

- for the production of large internal and external threads
- with up to ten 4-tooth indexable inserts (independent of pitch)
- tool for different thread sizes and pitches
- a ready prepared thread hole is necessary, including chamfer if needed

AUT-GF

Automaten-Gewindefräser

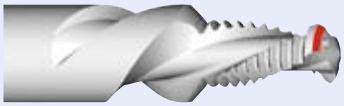
- zur Herstellung von Außengewinden
- für INDEX- und Traub-Automaten
- Schneidstoff HSSE

Thread milling cutters for automatic lathes

- for the production of external threads
- for automatic lathes INDEX and Traub
- cutting material HSSE

3.3 Mögliche Modifikationen an Gewindefräsern

Stirnfase (ohne oder mit Stirnschnitt)



geeignet für:

- alle Typen GF und GSF
- alle Typen BGF (Stirnfase am Bohrteil)

Bemerkung:

- Stirnfase für zirkulares Anfasen des Kernloches
- zusätzlicher Stirnschnitt für zirkulares Planfräsen

Unvollständigen Gang entfernen

geeignet für:

- alle Typen GF, GSF und BGF

Bemerkung:

- am schaftseitigen Ende des Frästeils wird eine Stufe mit einer Länge von min. 1 x P hinterschliffen
- bei entsprechender Eintauchtiefe wird beim Gewindefräsen der unvollständige, gratbehaftete Gewindeauslauf abgefräst (entfernt)

Halsfreischliff

geeignet für:

- alle Typen GF und GSF (Senkfase entfällt)

Bemerkung:

- für größere Gewindetiefen (gesamte Gewindetiefe setzt sich aus zwei Fräsdurchläufen zusammen)
- für einen konstanten Schnittdruck wird die Frästeillänge und die Halslänge im Verhältnis 1:1 aufgeteilt!
- die Frästeillänge und der Versatz für einen zweiten Fräsdurchlauf sind immer ein ganzzahliges Vielfaches der Profilteilung

3.3 Possible modifications on thread milling cutters

Face chamfer (with or without cutting face)

suitable for:

- all types GF and GSF
- all types BGF (face chamfer on the drilling part)

Note:

- face chamfer for circular chamfering of the thread hole
- additional cutting face for circular face milling

Removal of incomplete thread

suitable for:

- all types GF, GSF and BGF

Note:

- at the rear end of the thread part, a step with a length of min. 1 x P is relief-ground
- if the tool plunges to a correct depth during the thread milling process, the incomplete thread run-out with its burr is milled off (removed)

Recessed neck

suitable for:

- all types GF and GSF (no countersinking step)

Note:

- for larger thread depths (total thread depth is achieved by a double milling process)
- for constant cutting pressure, the thread part length and the neck length are arranged in a ratio of 1:1!
- the thread part length and the offset for a second milling process are always a whole-number multiple of the thread pitch

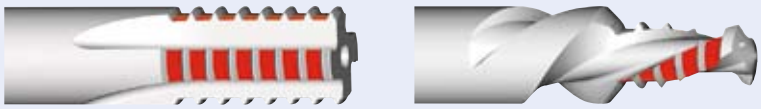
3.3 Mögliche Modifikationen an Gewindefräsern

3.3 Possible modifications on thread milling cutters

AZR

Radial ausgesetzte Zahnreihen

Radially alternating tooth rows



geeignet für:

- alle Typen GF, GSF und BGF

Bemerkung:

- durch **AZR** werden die Seitenkräfte beim Gewindefräsen reduziert; die zyklisch fehlenden Gewindelücken werden durch zusätzliche zirkulare Fräsumläufe gefräst

Eine nicht gezeigte Variante wäre auch **AZ**
(abwechselnd ausgesetzte Zähne)

Vorteil:

- zusätzliche zirkulkare Fräsumläufe entfallen; dadurch ergibt sich eine normale Einstichbreite am Bohrungsgrund bei BGF

suitable for:

- all types GF, GSF and BGF

Note:

- AZR helps to reduce lateral forces in thread milling; the alternating missing gaps in the thread are produced by additional circular milling orbits.

There is another variant, not shown here, called AZ
(alternating teeth in a staggered sequence)

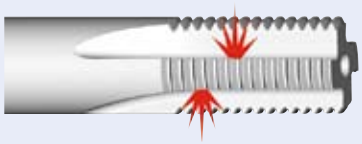
Advantage:

- no additional circular orbits are necessary; due to this, there is a perfectly normal recess depth at the hole bottom, if BGF type tools are used

IKZN

Innere Kühlschmierstoff-Zufuhr mit Austritt in den Nuten

Internal coolant-lubricant supply exiting in the flutes



geeignet für:

- alle Typen GF und GSF

Bemerkung:

- stirnseitig verschlossene Axialbohrung für die Bearbeitung von Durchgangslöchern
- für maximale Stabilität des Frästeils sind die seitlichen Austrittsbohrungen axial versetzt angeordnet

suitable for:

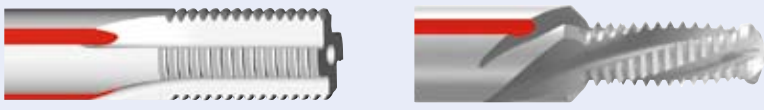
- all types GF and GSF

Note:

- axial coolant bore closed up at the tool face for the production of through hole threads
- for maximum stability of the cutting part, the lateral coolant holes are axially staggered

Schaftkühlnuten

Coolant grooves along the shank



geeignet für:

- alle Typen GF, GSF und BGF

Bemerkung:

- für die Bearbeitung von Durchgangslöchern
- zusätzlich oder ersatzweise zu IKZ oder IKZN
- ggf. unterstützend zur Kühlung der Senkfase bei GSF und BGF oder des Plansenkers bei MoSys-Anwendungen

suitable for:

- all types GF, GSF and BGF

Note:

- for the production of through hole threads
- in addition or as an alternative to IKZ or IKZN
- possible support in the cooling of the countersinking step of GSF and BGF type tools, or of the plane milling head in MoSys applications

3.4 Berechnung der Schnittdaten

3.4 Calculation of cutting data

$$v_c = \frac{d_1 \cdot \pi \cdot n}{1000} \quad [m/min]$$

Schnittgeschwindigkeit v_c in m/min

d_1 = Frästeildurchmesser in mm
n = Drehzahl in min^{-1}

Cutting speed v_c in m/min

d_1 = Milling part diameter in mm
n = Speed in min^{-1} (rpm)

$$n = \frac{v_c \cdot 1000}{d_1 \times \pi} \quad [min^{-1}]$$

Drehzahl n in min^{-1}

d_1 = Frästeildurchmesser in mm
v_c = Schnittgeschwindigkeit in m/min

Speed n in min^{-1} (rpm)

d_1 = Milling part diameter in mm
v_c = Cutting speed in m/min

$$v_f = f_z \cdot Z \cdot n \quad [mm/min]$$

Vorschubgeschwindigkeit Kontur v_f in mm/min

f_z = Vorschub pro Zahn in mm
Z = Anzahl der Nuten

Feed speed contour v_f in mm/min

f_z = Feed per tooth in mm
Z = No. of flutes

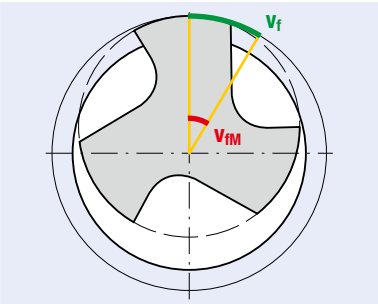
$$v_{fM} = \frac{v_f \cdot (D \pm d_1)}{D} \quad [mm/min]$$

Vorschubgeschwindigkeit Mittelpunktsbahn (bei Innengewinde) v_{fM} in mm/min

v_f = Vorschubgeschwindigkeit in mm/min
D = Gewindenenndurchmesser in mm
d_1 = Frästeildurchmesser in mm

Feed speed centre orbit (with internal threads) v_{fM} in mm/min

v_f = Feed speed in mm/min
D = Nominal thread diameter in mm
d_1 = Milling part diameter in mm



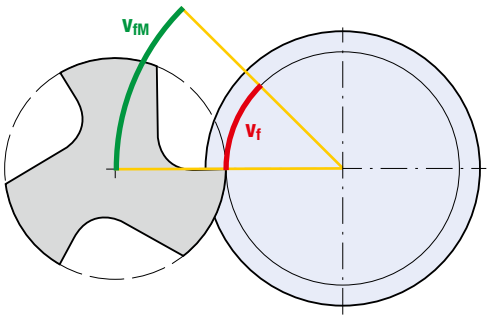
$$v_{fM} = \frac{v_f \cdot (D + d_1)}{D} \quad [mm/min]$$

Vorschubgeschwindigkeit Mittelpunktsbahn (bei Außengewinde) v_{fM} in mm/min

v_f = Vorschubgeschwindigkeit in mm/min
D = Gewindenenndurchmesser in mm
d_1 = Frästeildurchmesser in mm

Feed speed centre orbit (with external threads) v_{fM} in mm/min

v_f = Feed speed in mm/min
D = Nominal thread diameter in mm
d_1 = Milling part diameter in mm

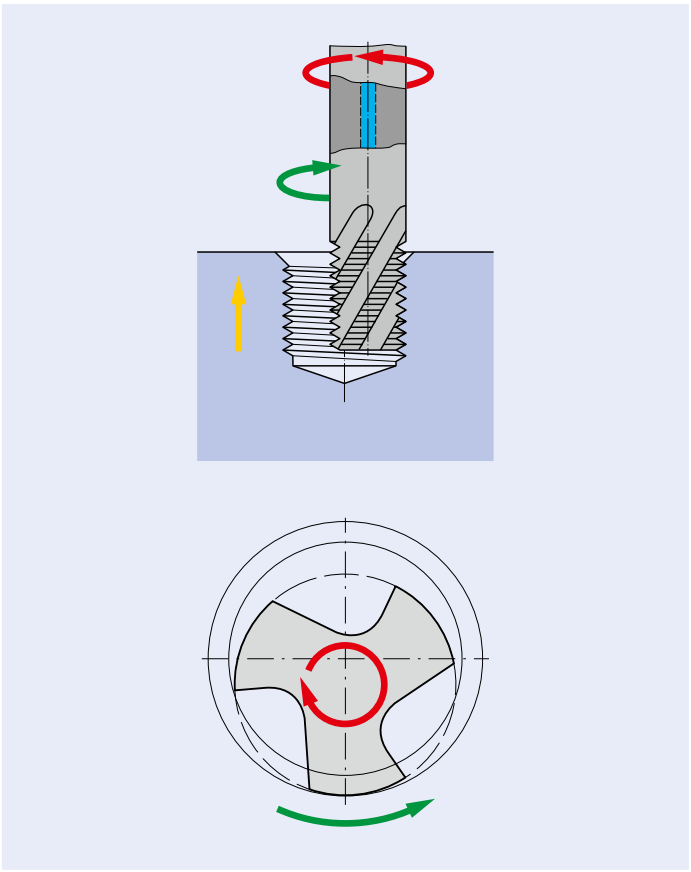
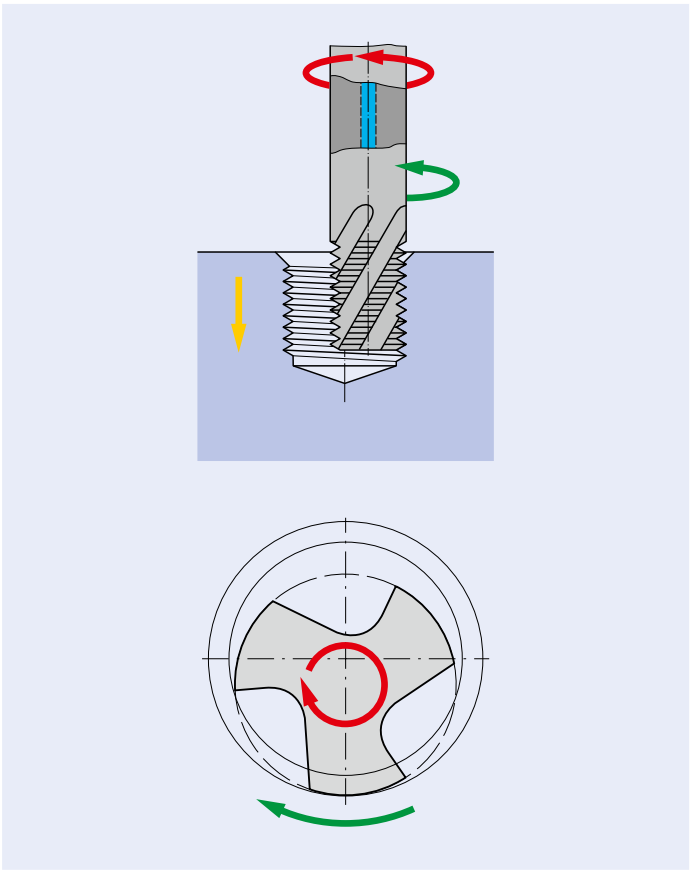


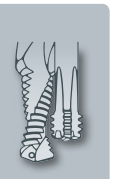
Der eingegenbene Konturvorschub wird von der Maschine auf die Mittelpunktsbahn umgerechnet! Sollte dies nicht der Fall sein (erkennbar an einer wesentlich schnelleren Bearbeitungszeit bzw. Werkzeugbruch) muss der Mittelpunktsbahn-vorschub eingegeben werden.

The contour feed entered is recalculated to the centre orbit by the machine! If this should not happen (to be recognized by the noticeably increased machining speed or by tool breakage), then the centre orbit feed must be entered manually.

3.5 Gewindefräsverfahren (Rechtsgewinde)

3.5 Thread milling processes (right-hand thread)

Gleichlauffräsen Climb milling	**Gegenlauffräsen** Conventional milling
	
Werkzeugdrehrichtung „rechts“ Sense of rotation of tool “right-hand”	Werkzeugdrehrichtung „rechts“ Sense of rotation of tool “right-hand”
Vorschubbewegung gegen den Uhrzeigersinn Feed movement in counter-clock-wise direction	Vorschubbewegung im Uhrzeigersinn Feed movement in clock-wise direction
Steigung „aufwärts“ Pitch “upwards”	Steigung „abwärts“ Pitch “downwards”



3.6 Probleme, mögliche Ursachen und Abhilfen beim Gewindefräsen

3.6 Problems, possible causes and solutions in thread milling

~ überprüfen
check

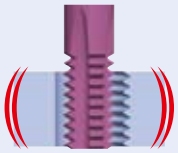
⇧ steigern, erhöhen
increase

⇩ vermindern
decrease

GL Gleichlauffräsen
climb milling

GG Gegenlauffräsen
conventional milling

Gewindefräsen allgemein
Thread milling in general



Rattern, Vibrationen
Chattering, vibrations

Schlechte Werkstückoberfläche
Bad surface quality on workpiece

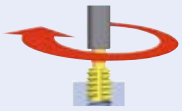
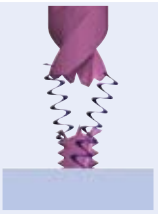
übermäßiger Verschleiß
Excessive wear

Schneidkanten-ausbrüche
Chipped cutting edges

Mögliche Ursachen Possible causes	**Abhilfen** · Solutions			
Schnittgeschwindigkeit Cutting speed	~	~	⇩	
Vorschub pro Zahn Feed per tooth	~	~	⇧	⇩
Stabilität (Werkstück/Werkstückspannung) Stability (workpiece/workpiece clamping)	⇧	⇧	⇧	⇧
Stabilität (Werkzeug/Maschine) Stability (tool/machine)	⇧	⇧	⇧	⇧
Auskraglänge Protruding length (of tool)	⇩	⇩	⇩	~
Werkzeugspirale (Drallnut) Tool helix (spiral flutes)	⇧	⇧	~	~
Rundlaufgenauigkeit Concentricity	~	~	~	
Beschichtung Coating			⇧	⇧
Fräsverfahren/Programm/programmierter Radius Milling process/programme/programmed radius			GL	GL
Einsatzbereich (Durchmesser-Verhältnis) Work case (relation of tool/thread diameters)				
Werkzeugwechsel Tool change				
NC-Achsen/Bahngeschwindigkeit (Rechner) NC axis/path speed (computer)	~	~	~	~
Bohrvorschub (Entspanen) Drilling speed (remove chips)				
Kühlschmierstoff-Druck/Austrittsbohrung Coolant-lubricant pressure (exit bore)			~	~

3.6 Probleme, mögliche Ursachen und Abhilfen beim Gewindefräsen

3.6 Problems, possible causes and solutions in thread milling

Gewindefräsen allgemein Thread milling in general			**Bohrgewindefräsen** Drill thread milling	
				
Gewinde wird konisch (Lehre klemmt auf Tiefe) Tapered thread shape (gauge jams after reaching a certain depth)	Geringe Toleranz von Gut- zu Ausschuss-Lehrung Small difference between go and no-go gauging	Markierung im Einfahrbereich Marks in the run-in area	Zahnausbrüche am Bohrgewindefräser Tooth chipping on the drill thread mill	Werkzeugbruch beim Bohren Tool breakage during the drilling process
Abhilfen · Solutions				
			~	
⇩			~	
⇧		~		
⇧		~		
⇩				
~				
	~		~	~
GG		~	~	
	~			
	~			
~		~	~	
			~	⇩ ~
			~	~

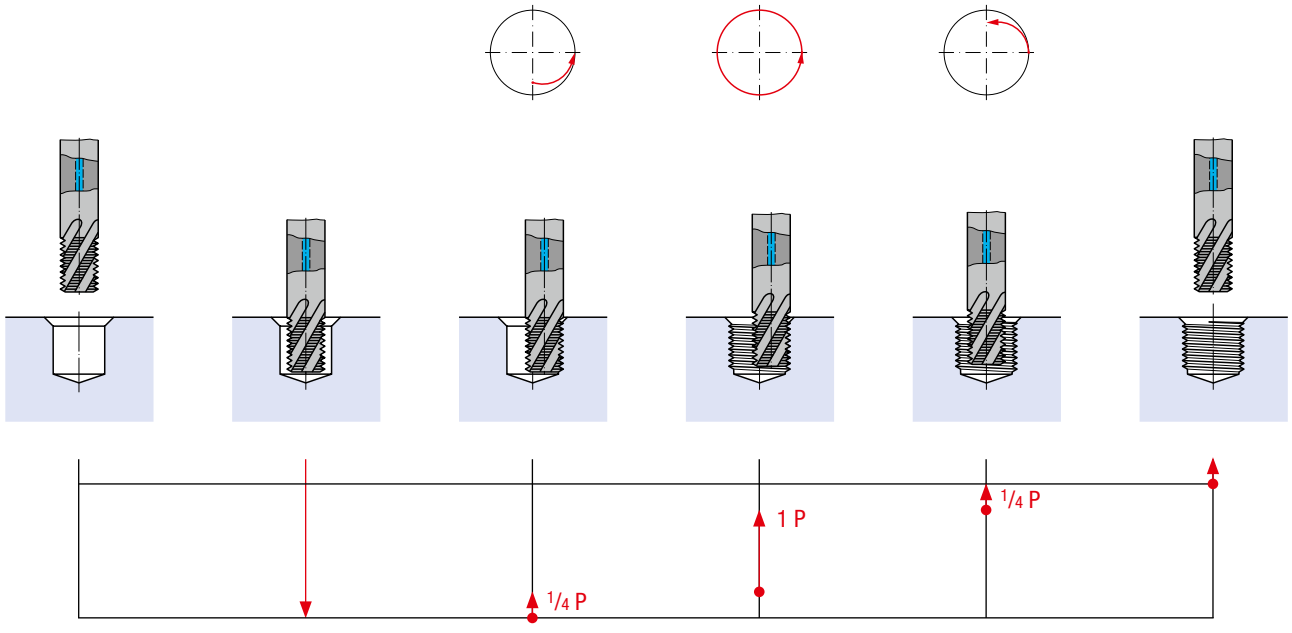
3.7 Programmierung Ein- und Ausfahren im Viertelkreis

- Wird verwendet, wenn der Abstand zwischen Gewindefräser und Kernlochwand mindestens 1 x Steigung beträgt
- Programmierung nach DIN 66025
- Gleichlauffräsen
- Inkrementaler Aufbau an der Gewindekontur
- Unterprogramm zur Abarbeitung des Gewindes

Gewinde: M20 x 1,5 – Gewindetiefe 16 mm
Werkzeug: GF-VHM-R30-IKZ-HB (Z4)
Artikel-Nr.: GF162121.9514

N 10	G 54	G 90	G 00	X…	Y…	Z 2	S 2500	T 01	M 03	Startpunkt · Start point ■ = Sicherheitsabstand 2 mm · Safety distance 2 mm
N 20	G 91	G 00				Z –18				Gewindetiefe abfahren · Run down to thread depth ■ = Sicherheitsabstand + Gewindetiefe · Safety distance + thread depth
N 30	G 01	Y 0,75		F 200						■ = 1/2 Steigung verfahren · Relocate by 1/2 pitch
N 40	G 41	G 01		X 9,25						■ = (Nenndurchm. ± Steigung) / 2 · (Nominal dia. ± pitch) / 2
N 50	G 03			X –9,25	Y 9,25	Z 0,375	I –9,25	J 0		■ = (Nenndurchm. ± Steigung) / 2 · (Nominal dia. ± pitch) / 2 ■ = Steigung / 4 · Pitch / 4
N 60	G 03			X 0	Y 0	Z 1,5	I 0	J –10		■ = Steigung · Pitch ■ = Nenndurchm. / 2 · Nominal dia. / 2
N 70	G03			X –9,25	Y –9,25	Z 0,375	I 0	J –9,25		■ = (Nenndurchm. ± Steigung) / 2 · (Nominal dia. ± pitch) / 2 ■ = Steigung / 4 · Pitch / 4
N 80	G 00	G 40		X 9,25	Y –0,75					■ = (Nenndurchm. ± Steigung) / 2 · (Nominal dia. ± pitch) / 2 ■ = 1/2 Steigung verfahren · Relocate by 1/2 pitch
N 90	G 90					Z 2				■ = Endpunkt bzw. Ausgangspunkt · Finish point resp. point of origin

Programmablauf



Programmierhilfen zum Gewindefräsen für DIN- und Heidenhain-Steuerungen sind auf www.emuge.de als Download verfügbar.

3.7 Programming of run-in and run-out in a quarter circle

- To be used if the distance between thread milling cutter and thread hole wall is 1 x pitch as a minimum
- Programming acc. DIN 66025
- Climb milling
- Incremental construction along the thread contour
- Sub-programme for processing the thread

Thread: M20 x 1,5 – Thead depth 16 mm
Tool: GF-VHM-R30-IKZ-HB (Z4)
Article no.: GF162121.9514

Programme sequence

Programming support for thread milling with DIN and Heidenhain controls is available for download on www.emuge.de.

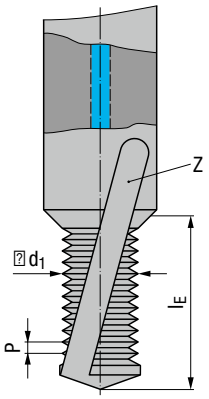
3.8 Programmierbeispiele (DIN)

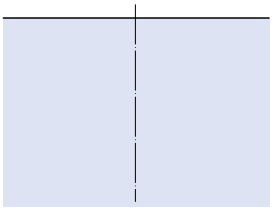
Werkzeug: BGF-Z2 – 1,5 x D

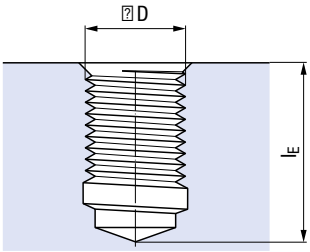
3.8 Programming examples (DIN)

Tool: BGF-Z2 – 1.5 x D

Gewinde-Abmessung: Thread dimension:	M10 - 6H	
Gewinde-Nenndurchmesser D: Nominal thread diameter D:	10,000 mm	
Gewindesteigung P: Thread pitch P:	1,500 mm	
Kernlochdurchmesser D_1: Drilled hole diameter D_1:	8,500 mm	
Bohr-/ Senktiefe l_E: Drilling/Countersinking depth l_E:	19,100 mm	
Werkstoff: Material:	GAlSi9	
Werkzeug-Abmessungen: Tool dimensions:	ø 8,2 x 19,1 x 79 mm	
Schneidstoff: Cutting material:	VHM	
Beschichtung: Coating:	TICN	
Artikel-Nr.: Article no.:	GF422206.0100	
Zähnezahl Z: No. of teeth Z:	2	
Fräserdurchmesser d_1: Cutter diameter d_1:	8,200 mm	(gemessen am Frästeil) (measured on the cutting part)
Fräserradiuskorrektur k [1]: Cutter radius compensation k [1]:	0,100 mm	(0,01 · D)
zu programmierender Fräserradius [2]: Cutter radius to be programmed [2]:	4,000 mm	$(0,5 \cdot d_1 \pm k)$
Schnittgeschwindigkeit v_c: Cutting speed v_c:	250 m/min	
Vorschub pro Umdrehung (Bohren/Senken) f_b: Feed per revolution (Drilling/countersinking) f_b:	0,250 mm	
Vorschub pro Zahn (Fräsen) f_z: Feed per tooth (milling) f_z:	0,100 mm	
Drehzahl n: Speed n:	S = 9709 min^{-1}	$n = \pm \frac{v_c \cdot 1000}{d_1 \cdot \pi}$
Vorschubgeschwindigkeit (Bohren/Senken) v_b: Feed speed (Drilling/countersinking) v_b:	F = 2427 mm/min	$v_b = f_b \cdot n$
Vorschubgeschwindigkeit (Kontur) v_f: Feed speed (contour) v_f:	F = 1942 mm/min	$v_f = f_z \cdot Z \cdot n$
Vorschubgeschwindigkeit (Mittelpunktsbahn) v_{fM}: Feed speed (centre point) v_{fM}:	F = 350 mm/min	$v_{fM} = \pm \frac{v_f \cdot (D \pm d_1)}{D}$







CNC-Innengewindefräsen (im Gleichlauf, an der Kontur, inkremental, nach DIN 66025)
CNC internal thread milling (climb milling, on the contour, incremental, acc. DIN 66025)

N 10	G 54	G 90	G 00	X…	Y…	Z 2	S 9709	T 01 [2]	M03
N 20	G 91	G 01	Z 21, 100	F 2427 (Bohren/Senken · Drilling/countersinking)					
N 30	G 01	Z 0,500							
N 40	G 41	Y 4, 250		F 1942 (Fräsen, Kontur · Milling, contour)			[F 350] [3] (Mittelpunkt · Centre point)		
N 50	G 03	X 0	Y 9,250	Z 0,750	I 0	J 4,625			
N 60	G 03	X 0	Y 0	Z 1,500	I 0	J 5, 000			
N 70	G 03	X 0	Y 9, 250	Z 0,750	I 0	J 4, 625			
N 80	G 00	G 40	X 0	Y 4,250					
N 90	G 90	Z 2							

Zerspanzeit t_h: Machining time t_h:	**2,3 sec.**

[1] Der über die Zahnspitze des Gewindeteils gemessene Fräserradius ist um den Betrag der Fräserradiuskorrektur zu reduzieren. Hiermit wird eine Zustellung auf Mitte der „6H/ISO2-Muttertoleranz“ erreicht. Die Fräserradiuskorrektur hängt aber auch von der radialen Verdrängung des Werkzeuges ab (Festigkeit des zu frasenden Materials und Auskraglänge).

[2] Der zu programmierende Fräserradius ist üblicherweise im Werkzeugspeicher enthalten.

[3] Bei Steuerungen, welche die Berechnung des Mittelpunktsvorschubs nicht selbstständig durchführen, müssen die Vorschubwerte in Klammern verwendet werden.

[1] The cutter radius measured over the tooth crests of the threaded part must be reduced by the amount of the cutter radius compensation. This is necessary to achieve a depth of cut to the middle of the 6H/ISO2 nut tolerance. Please note, however, that this also depends on the radial deflection of the tool (tensile strength of the material, projection length of the tool).

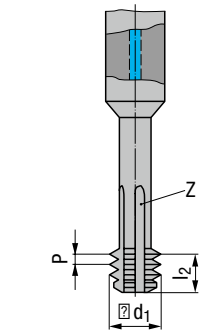
[2] The cutter radius to be programmed is normally included in the tool memory.

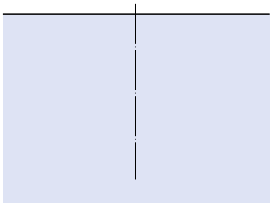
[3] If your control does not calculate the centre point feed automatically please use the feed values printed in brackets.

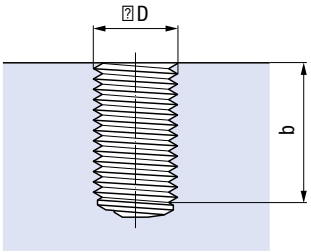
3.8 Programmierbeispiele (DIN)
Werkzeug: ZBGF-W

3.8 Programming examples (DIN)
Tool: ZBGF-W

Gewinde-Abmessung: Thread dimension:	M12 x 1,5 - 6H	
Gewinde-Nenndurchmesser D: Nominal thread diameter D:	12,000 mm	
Gewindesteigung P: Thread pitch P:	1,500 mm	
Kernlochdurchmesser D_1: Drilled hole diameter D_1:	10,500 mm	
Gewindetiefe b [3]: Thread depth b [3]:	15,000 mm	
Länge l_2: Length l_2:	6,000 mm	
Werkstoff: Material:	GAlSi9	
Werkzeug-Abmessungen: Tool dimensions:	ø 7,75 x 6,9 x 76 mm	
Schneidstoff: Cutting material:	VHM	
Beschichtung: Coating:	TIALN-T4	
Artikel-Nr.: Article no.:	GF732257.0100	
Zähnezahl Z: No. of teeth Z:	4	
Fräserdurchmesser d_1: Cutter diameter d_1:	7,750 mm	(gemessen am Frästeil) (measured on the cutting part)
Fräserradiuskorrektur k [1]: Cutter radius compensation k [1]:	0,120 mm	(je nach Einsatzfall) (acc. work case)
zu programmierender Fräserradius [1]: Cutter radius to be programmed [1]:	3,755 mm	$(0,5 \cdot d_1 \pm k)$
Schnittgeschwindigkeit v_c: Cutting speed v_c:	250 m/min	
Vorschub pro Zahn (Fräsen) f_z: Feed per tooth (milling) f_z:	0,100 mm	
Drehzahl n: Speed n:	S = 10273 min^{-1}	$n = \pm \frac{v_c \cdot 1000}{d_1 \cdot \pi}$
Vorschubgeschwindigkeit (Kontur) v_f: Feed speed (contour) v_f:	F = 4109 mm/min	$v_f = f_z \cdot Z \cdot n$
Vorschubgeschwindigkeit (Mittelpunktsbahn) v_{fM}: Feed speed (centre point) v_{fM}:	F = 1455 mm/min	$v_{fM} = \pm \frac{v_f \cdot (D \pm d_1)}{D}$







CNC-Innengewindefräsen (im Gegenlauf, an der Kontur, inkremental, nach DIN 66025)
CNC internal thread milling (conventional milling, on the contour, incremental, acc. DIN 66025)

N 10	G 54	G 90	G 00	X…	Y…	Z 1,500	S 10273	T 01 [2]	M 03
N 20	G 91								
N 30	G 42	G 01	X 0	Y 6	F 4109 (Kontur · contour)		[F 1455] [4] (Mittelpunkt · Centre point)		
N 40	G 02	G 01	X 0	Y 0	Z 1,500	I 0	J 6,000		
… [5]									
N 50	G 40	G 01	X 0	Y 6					
N 70	G 90	G 00	Z 1,5						

Zerspanzeit t_h: Machining time t_h:	**8,3 sec.**
Anzahl der Gewindegänge [5]: Number of threads [5]:	**14**

[1] Der zu programmierende Fräserradius ist je nach Einsatzfall zu korrigieren, bis das Gewinde die gewünschte Muttertoleranz, z.B. 6H/ISO2 erreicht. Die Fräserradiuskorrektur hängt aber auch von der radialen Verdrängung des Werkzeugs ab (Festigkeit des zu fräsenden Materials und Auskraglänge).

[2] Der zu programmierende Fräserradius ist üblicherweise im Werkzeugspeicher enthalten.

[3] Die eingegebene Gewindetiefe b muss durch die Steigung P teilbar sein.

[4] Bei Steuerungen, welche die Berechnung des Mittelpunktsvorschubs nicht selbstständig durchführen, müssen die Vorschubwerte in Klammern verwendet werden.

[5] Satz N 40 muss mit Anzahl der Gewindegänge wiederholt werden.

[1] The cutter radius to be programmed must be corrected, depending on the work case, until the thread achieves the required nut tolerance, e.g. 6H/ISO2. Please note, however, that this also depends on the radial deflection of the tool (tensile strength of the material, projection length of the tool).

[2] The cutter radius to be programmed is normally included in the tool memory.

[3] The thread depth b as entered must be divisible by the pitch P.

[4] If your control does not calculate the centre point feed automatically please use the feed values printed in brackets.

[5] Block N 40 must be repeated with the number of threads.

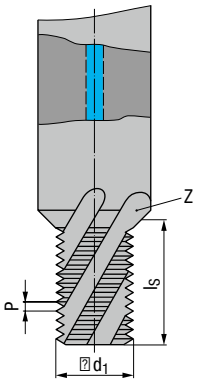
3.8 Programmierbeispiele (DIN)

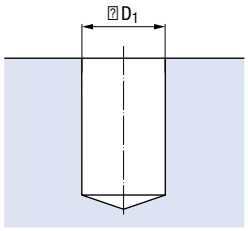
Werkzeug: GSF – 2 x D

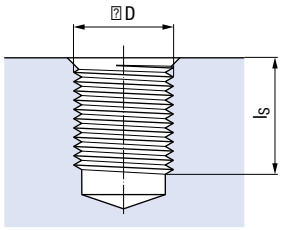
3.8 Programming examples (DIN)

Tool: GSF – 2 x D

Gewinde-Abmessung: Thread dimension:	M10 - 6H	
Gewinde-Nenndurchmesser D: Nominal thread diameter D:	10,000 mm	
Gewindesteigung P: Thread pitch P:	1,500 mm	
Kernlochdurchmesser D_1: Drilled hole diameter D_1:	8,500 mm	
Senktiefe l_S: Countersinking depth l_S:	21,200 mm	
Werkstoff: Material:	GAlSi9	
Werkzeug-Abmessungen: Tool dimensions:	ø 8,2 x 21,2 x 80 mm	
Schneidstoff: Cutting material:	VHM	
Beschichtung: Coating:	TICN	
Artikel-Nr.: Article no.:	GF332106.0100	
Zähnezahl Z: No. of teeth Z:	3	
Fräserdurchmesser d_1: Cutter diameter d_1:	8,200 mm	(gemessen am Frästeil) (measured on the cutting part)
Fräserradiuskorrektur k [1]: Cutter radius compensation k [1]:	0,100 mm	(0,01 · D)
zu programmierender Fräserradius [2]: Cutter radius to be programmed [2]:	4,000 mm	$(0{,}5 \cdot d_1 \pm k)$
Schnittgeschwindigkeit v_c: Cutting speed v_c:	250 m/min	
Vorschub pro Umdrehung (Senken) f_s: Feed per revolution (countersinking) f_s:	0,200 mm	
Vorschub pro Zahn (Fräsen) f_z: Feed per tooth (milling) f_z:	0,100 mm	
Drehzahl n: Speed n:	S = 9709 min^{-1}	$n = \pm \frac{v_c \cdot 1000}{d_1 \cdot \pi}$
Vorschubgeschwindigkeit (Senken) v_s: Feed speed (countersinking) v_s:	F = 1942 mm/min	$v_s = f_s \cdot n$
Vorschubgeschwindigkeit (Kontur) v_f: Feed speed (contour) v_f:	F = 2913 mm/min	$v_f = f_z \cdot Z \cdot n$
Vorschubgeschwindigkeit (Mittelpunktsbahn) v_{fM}: Feed speed (centre point) v_{fM}:	F = 524 mm/min	$v_{fM} = \pm \frac{v_f \cdot (D \pm d_1)}{D}$







CNC-Innengewindefräsen (im Gleichlauf, an der Kontur, inkremental, nach DIN 66025)
CNC internal thread milling (climb milling, on the contour, incremental, acc. DIN 66025)

N 10	G 54	G 90	G 00	X…	Y…	Z 2	S 9709	T 01 [2]	M 03
N 20	G 91	Z -21,200							
N 30	G 01	Z -2		F 1942 (Senken · countersinking)					
N 40	G 01	Z 0,500							
N 50	G 41	Y -4,250		F 2913 (Fräsen, Kontur · Milling, contour)			[F 524] [3] (Mittelpunkt · Centre point)		
N 60	G 03	X 0	Y 9,250	Z 0,750	I 0	J 4,625			
N 70	G 03	X 0	Y 0	Z 1,500	I 0	J -5,000			
N 80	G 03	X 0	Y -9,250	Z 0,750	I 0	J -4,625			
N 90	G 00	G 40	X 0	Y 4,250					
N 100	G 90	Z 2							

Zerspanzeit t_h: Machining time t_h:	**1,3 sec.**

[1] Der über die Zahnspitze des Gewindeteils gemessene Fräserradius ist um den Betrag der Fräserradiuskorrektur zu reduzieren. Hiermit wird eine Zustellung auf Mitte der „6H/ISO2-Muttertoleranz" erreicht. Die Fräserradiuskorrektur hängt aber auch von der radialen Verdrängung des Werkzeuges ab (Festigkeit des zu fräsenden Materials und Auskraglänge).

[2] Der zu programmierende Fräserradius ist üblicherweise im Werkzeugspeicher enthalten.

[3] Bei Steuerungen, welche die Berechnung des Mittelpunktsvorschubs nicht selbstständig durchführen, müssen die Vorschubwerte in Klammern verwendet werden.

[1] The cutter radius measured over the tooth crests of the threaded part must be reduced by the amount of the cutter radius compensation. This is necessary to achieve a depth of cut to the middle of the 6H/ISO2 nut tolerance. Please note, however, that this also depends on the radial deflection of the tool (tensile strength of the material, projection length of the tool).

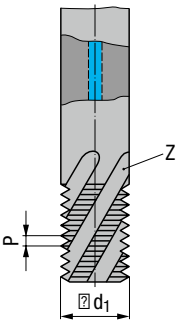
[2] The cutter radius to be programmed is normally included in the tool memory.

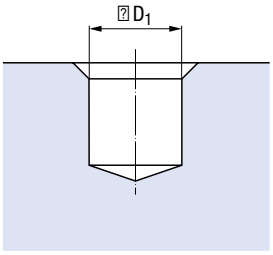
[3] If your control does not calculate the centre point feed automatically please use the feed values printed in brackets.

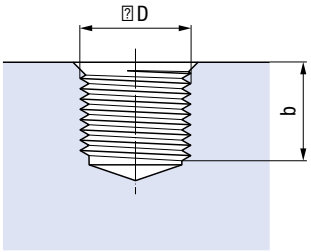
3.8 Programmierbeispiele (DIN)
Werkzeug: GF

3.8 Programming examples (DIN)
Tool: GF

Gewinde-Abmessung: Thread dimension:	M30 x 1,5 - 6H	
Gewinde-Nenndurchmesser D: Nominal thread diameter D:	30,000 mm	
Gewindesteigung P: Thread pitch P:	1,500 mm	
Kernlochdurchmesser D_1: Drilled hole diameter D_1:	28,500 mm	
Gewindetiefe b: Thread depth b:	25,000 mm	
Werkstoff: Material:	GAlSi9	
Werkzeug-Abmessungen: Tool dimensions:	ø 20 x 32 x 105 mm	
Schneidstoff: Cutting material:	VHM	
Beschichtung: Coating:	TICN	
Artikel-Nr.: Article no.:	GF163156.9514	
Zähnezahl Z: No. of teeth Z:	5	
Fräserdurchmesser d_1: Cutter diameter d_1:	20,000 mm	(gemessen am Frästeil) (measured on the cutting part)
Fräserradiuskorrektur k [1]: Cutter radius compensation k [1]:	0,075 mm	(0,05 · P)
zu programmierender Fräserradius [2]: Cutter radius to be programmed [2]:	9,925 mm	($0,5 \cdot d_1 \pm k$)
Schnittgeschwindigkeit v_c: Cutting speed v_c:	250 m/min	
Vorschub pro Zahn (Fräsen) f_z: Feed per tooth (milling) f_z:	0,100 mm	
Drehzahl n: Speed n:	S = 3981 min^{-1}	$n = \pm \frac{v_c \cdot 1000}{d_1 \cdot \pi}$
Vorschubgeschwindigkeit (Kontur) v_f: Feed speed (contour) v_f:	F = 1990 mm/min	$v_f = f_z \cdot Z \cdot n$
Vorschubgeschwindigkeit (Mittelpunktsbahn) v_{fM}: Feed speed (centre point) v_{fM}:	F = 663 mm/min	$v_{fM} = \pm \frac{v_f \cdot (D \pm d_1)}{D}$







CNC-Innengewindefräsen (im Gleichlauf, an der Kontur, inkremental, nach DIN 66025)
CNC internal thread milling (climb milling, on the contour, incremental, acc. DIN 66025)

N 10	G 54	G 90	G 00	X…	Y…	Z 2	S 3981	T 01 [2]	M 03
N 20	G 91	G 00	Z 27						
N 30	G 01	Y 0,750		F 1990 (Kontur · Contour)			[F 663] [3] (Mittelpunkt · Centre point)		
N 40	G 41	G 01	X 14,25						
N 50	G 03	X –14,250	Y 14,25	Z 0,375	I 14, 250	J 0			
N 60	G 03	X 0	Y 0	Z 1,5	I 0	J 15, 000			
N 70	G 03	X –14,250	Y 14, 25	Z 0,375	I 0	J 14, 250			
N 80	G 00	G 40	X 14,25	Y 0, 75					
N 90	G 90	Z 2							

Zerspanzeit t_h: Machining time t_h:	**4,2 sec.**

[1] Der über die Zahnspitze des Gewindeteils gemessene Fräserradius ist um den Betrag der Fräserradiuskorrektur zu reduzieren. Hiermit wird eine Zustellung auf Mitte der „6H/ISO2-Muttertoleranz“ erreicht. Die Fräserradiuskorrektur hängt aber auch von der radialen Verdrängung des Werkzeuges ab (Festigkeit des zu fräsenden Materials und Auskraglänge).

[2] Der zu programmierende Fräserradius ist üblicherweise im Werkzeugspeicher enthalten.

[3] Bei Steuerungen, welche die Berechnung des Mittelpunktsvorschubs nicht selbstständig durchführen, müssen die Vorschubwerte in Klammern verwendet werden.

[1] The cutter radius measured over the tooth crests of the threaded part must be reduced by the amount of the cutter radius compensation. This is necessary to achieve a depth of cut to the middle of the 6H/ISO2 nut tolerance. Please note, however, that this also depends on the radial deflection of the tool (tensile strength of the material, projection length of the tool).

[2] The cutter radius to be programmed is normally included in the tool memory.

[3] If your control does not calculate the centre point feed automatically please use the feed values printed in brackets.

3.8 Programmierbeispiele (DIN)
Werkzeug: GF-KEG

3.8 Programming examples (DIN)
Tool: GF-KEG

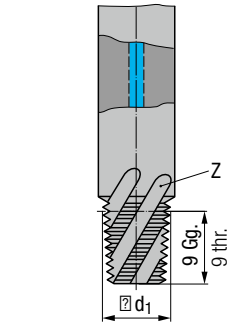
Gewinde-Abmessung: Thread dimension:	NPT 1/2 - 14
Gewinde-Außendurchmesser D: Thread major diameter D:	21,092 mm
Kegelverhältnis: Taper ratio:	1 : 16
Steigung: Pitch:	1,814 mm
Kernlochdurchmesser D_3: Drilled hole diameter D_3:	17,850 mm
Nutzbare Tiefe t_4: Usable depth t_4:	15,384 mm
Werkstoff: Material:	GAlSi9
Werkzeug-Abmessungen: Tool dimensions:	ø 14,25 x 19,01 x 80 mm
Schneidstoff: Cutting material:	VHM
Beschichtung: Coating:	TICN
Artikel-Nr.: Article no.:	GF173136.9678
Zähnezahl Z: No. of teeth Z:	4
Fräserdurchmesser d_1: Cutter diameter d_1:	14,250 mm
zu programmierender Fräserradius: Cutter radius to be programmed:	7,080 mm
Schnittgeschwindigkeit v_c: Cutting speed v_c:	250 m/min
Vorschub pro Zahn (Fräsen) f_z: Feed per tooth (milling) f_z:	0,120 mm
Drehzahl n: Speed n:	S = 5584 min^{-1}
Vorschubgeschwindigkeit (Kontur) v_f: Feed speed (contour) v_f:	F = 2681 mm/min
Vorschubgeschwindigkeit (Mittelpunktsbahn) v_{fM}: Feed speed (centre point) v_{fM}:	F = 870 mm/min

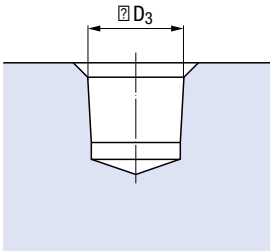
(gemessen am Frästeil)
(measured on the cutting part)

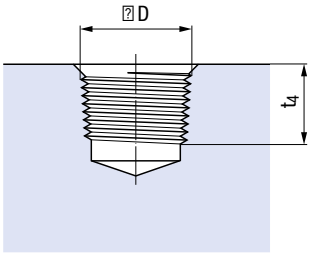
$$n = \frac{v_c \cdot 1000}{d_1 \cdot \pi}$$

$$v_f = f_z \cdot Z \cdot n$$

$$v_{fM} = \frac{v_f \cdot (D \pm d_1)}{D}$$







CNC-Innengewindefräsen (im Gleichlauf, an der Kontur, inkremental, nach DIN 66025)
CNC internal thread milling (climb milling, on the contour, incremental, acc. DIN 66025)

N 10	G 54	G 90	G 00	X…	Y…	Z 2	S 5584	T 01	M 03
N 20	G 91	G 00	Z ±7, 384						
N 30	G 01	G 41	Y ±8, 925	F 2681 (Kontur · Contour)			[F 870] 1) (Mittelpunkt · Centre point)		
N 40	G 03	X 0,000	Y 19,471	Z 0,907	I 0,000	J 9,736			
N 50	G 03	X –10,560	Y ±10, 546	Z 0,454	I ±0, 007	J ±10, 553			
N 60	G 03	X 10,560	Y ±10, 574	Z 0,454	I 10,567	J ±0, 007			
N 70	G 03	X 10,589	Y 10,574	Z 0,454	I 0,007	J 10,581			
N 80	G 03	X –10,589	Y 10,603	Z 0,454	I ±10, 596	J 0,007			
N 90	G 03	X 0,000	Y ±19, 528	Z 0,907	I 0,000	J ±9, 764			
N 100	G 01	G 40	Y 8,925						
N 110	G 90								
N 120	Z 2								

Zerspanzeit t_h: Machining time t_h:	**2,9 sec.**

Das erste gefräste Gewinde ist unbedingt zu lehren, um eine eventuell erforderliche Werkzeugradius- oder Tiefenkorrektur vorzunehmen, welche sich aus dem planseitigen Abstand der Lehrdorn-Messstufen zum Werkstück ergibt.

Variable Werte zur Beeinflussung des gefrästen Gewindedurchmessers sind:
1. Der zu programmierende Fräserradius im Werkzeugspeicher
2. Die Eintauchtiefe (Gewindetiefe) Z– im Satz N 20

Radiuskorrektur = fehlende Einschraubtiefe x Kegelverhältnis (1 : 16) : 2

Merke: Ein kleinerer Werkzeugradius bewirkt ein tieferes Einschrauben!

1) Bei Steuerungen, welche die Berechnung des Mittelpunktsvorschubs nicht selbstständig durchführen, müssen die Vorschubwerte in Klammern verwendet werden.

Please note that it is essential to gauge the first finished thread! This will make it possible to introduce a tool radius or depth compensation which may be necessary. Compensation is made by adjusting the distance of the measuring steps on the plane side of the plug gauge from the workpiece.

Variables for influencing the thread diameter on the workpiece:
1. The cutter radius to be programmed in the tool memory:
2. The plunge depth (thread depth Z- in block N 20)

Radius compensation = lacking screw-in depth x taper ratio (1 : 16) : 2

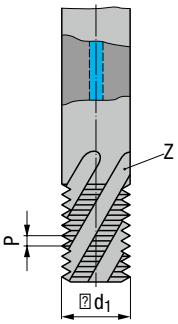
Please note: A smaller tool radius will create an increased screw-in depth!

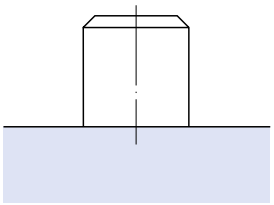
1) If your control does not calculate the centre point feed automatically please use the feed values printed in brackets.

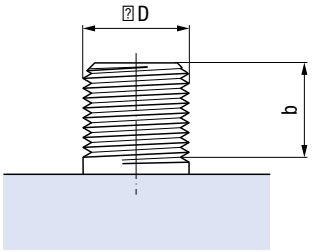
3.8 Programmierbeispiele (DIN)
Werkzeug: GF (Außengewinde)

3.8 Programming examples (DIN)
Tool: GF (external thread)

Gewinde-Abmessung: Thread dimension:	M20 x 1,5 - 6g	
Gewinde-Nenndurchmesser D: Nominal thread diameter D:	20,000 mm	
Gewindesteigung P: Thread pitch P:	1,500 mm	
Gewindelänge b: Thread length b:	20,000 mm	
Werkstoff: Material:	GAlSi9	
Werkzeug-Abmessungen: Tool dimensions:	ø 20 x 32 x 105 mm	
Schneidstoff: Cutting material:	VHM	
Beschichtung: Coating:	TICN	
Artikel-Nr.: Article no.:	GF161156.9514	
Zähnezahl Z: No. of teeth Z:	5	
Fräserdurchmesser d_1: Cutter diameter d_1:	20,000 mm	(gemessen am Frästeil) (measured on the cutting part)
Fräserradiuskorrektur k [1]: Cutter radius compensation k [1]:	0,075 mm	(0,05 · P)
zu programmierender Fräserradius [2]: Cutter radius to be programmed [2]:	9,925 mm	$(0{,}5 \cdot d_1 \pm k)$
Schnittgeschwindigkeit v_c: Cutting speed v_c:	250 m/min	
Vorschub pro Zahn (Fräsen) f_z: Feed per tooth (milling) f_z:	0,150 mm	
Drehzahl n: Speed n:	S = 3981 min^{-1}	$n = \pm \frac{v_c \cdot 1000}{d_1 \cdot \pi}$
Vorschubgeschwindigkeit (Kontur) v_f: Feed speed (contour) v_f:	F = 2986 mm/min	$v_f = f_z \cdot Z \cdot n$
Vorschubgeschwindigkeit (Mittelpunktsbahn) v_{fM}: Feed speed (centre point) v_{fM}:	F = 5971 mm/min	$v_{fM} = \pm \frac{v_f \cdot (D + d_1)}{D}$







CNC-Außengewindefräsen (im Gleichlauf, an der Kontur, inkremental, nach DIN 66025)
CNC external thread milling (climb milling, on the contour, incremental, acc. DIN 66025)

N 10	G 54	G 90	G 00	X …	Y …	Z 2	S 3981	T 01 [2]	M,03
N 20	G 91	G 00	X –10,000	Y 20,000					
N 30	G 00	Z ±9, 750							
N 40	G 41	G 01	Y ±0, 975		F 2986 (Kontur · Contour)		[F 5971] [3] (Mittelpunkt · Centre point)		
N 50			X 10,000	Z 0, 300					
N 60	G 02	X 0	Y 0	Z ±, 500	I 0	J 9, 025			
N 70	G 01	X 10,000	Y 0	Z 0, 300					
N 80	G 40	G 00	Y 10,975						
N 90	G 90	Z 2							

Zerspanzeit t_h: Machining time t_h:	**1,5 sec.**

[1] Der über die Zahnspitze des Gewindeteils gemessene Fräserradius ist um den Betrag der Fräserradiuskorrektur zu reduzieren. Hiermit wird eine Zustellung auf Mitte der „6g/ISO2-Bolzentoleranz“ erreicht. Die Fräserradiuskorrektur hängt aber auch von der radialen Verdrängung des Werkzeuges ab (Festigkeit des zu fräsenden Materials und Auskraglänge).

[2] Der zu programmierende Fräserradius ist üblicherweise im Werkzeugspeicher enthalten.

[3] Bei Steuerungen, welche die Berechnung des Mittelpunktsvorschubs nicht selbstständig durchführen, müssen die Vorschubwerte in Klammern verwendet werden.

[1] The cutter radius measured over the tooth crests of the threaded part must be reduced by the amount of the cutter radius compensation. This is necessary to achieve a depth of cut to the middle of the 6g/ISO2 bolt tolerance. Please note, however, that this also depends on the radial deflection of the tool (tensile strength of the material, projection length of the tool).

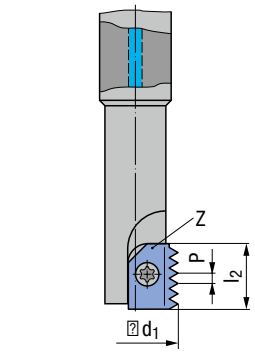
[2] The cutter radius to be programmed is normally included in the tool memory.

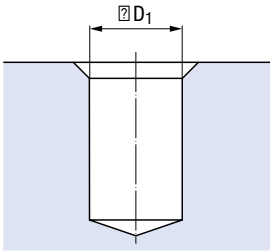
[3] If your control does not calculate the centre point feed automatically please use the feed values printed in brackets.

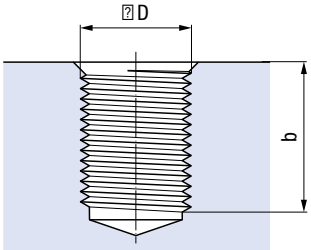
3.8 Programmierbeispiele (DIN)
Werkzeug: ZIRK-GF

3.8 Programming examples (DIN)
Tool: ZIRK-GF

Gewinde-Abmessung: Thread dimension:	M30 x 1,5 - 6H	
Gewinde-Nenndurchmesser D: Nominal thread diameter D:	30,000 mm	
Gewindesteigung P: Thread pitch P:	1,500 mm	
Kernlochdurchmesser D_1: Drilled hole diameter D_1:	28,500 mm	
Gewindetiefe b: Thread depth b:	25,000 mm	
Werkstoff: Material:	GAlSi9	
Werkzeug-Abmessungen: Tool dimensions:	ø 16 x 125 mm	
Schneidstoff: Cutting material:	HM	
Beschichtung: Coating:	TIN	
Artikel-Nr.: Article no.:	GZ301310 GF603115.9514	
Zähnezahl Z: No. of teeth Z:	1	
Fräserdurchmesser d_1: Cutter diameter d_1:	16,000 mm	(gemessen am Frästeil) (measured on the cutting part)
Schneidenlänge l_2: Cutting length l_2:	15,000 mm	
Fräserradiuskorrektur k [1]: Cutter radius compensation k [1]:	0,075 mm	(0,05 · P)
zu programmierender Fräserradius [2]: Cutter radius to be programmed [2]:	7,925 mm	$(0,5 \cdot d_1 \pm k)$
Schnittgeschwindigkeit v_c: Cutting speed v_c:	250 m/min	
Vorschub pro Zahn (Fräsen) f_z: Feed per tooth (milling) f_z:	0,150 mm	
Drehzahl n: Speed n:	S = 4976 min^{-1}	$n = \frac{v_c \cdot 1000}{d_1 \cdot \pi}$
Vorschubgeschwindigkeit (Kontur) v_f: Feed speed (contour) v_f:	F = 746 mm/min	$v_f = f_z \cdot Z \cdot n$
Vorschubgeschwindigkeit (Mittelpunktsbahn) v_{fM}: Feed speed (centre point) v_{fM}:	F = 348 mm/min	$v_{fM} = \frac{v_f \cdot (D \pm d_1)}{D}$







CNC-Innengewindefräsen (im Gleichlauf, an der Kontur, inkremental, nach DIN 66025)
CNC internal thread milling (climb milling, on the contour, incremental, acc. DIN 66025)

N 10	G 54	G 90	G 00	X …	Y …	Z 2	S 4976	T01 [2]	M03
N 20	G 91	G 00	Z-27,000						
N 30	G 01	Y 0,750		F 746 (Kontur · Contour)			[F 348] [3] (Mittelpunkt · Centre point)		
N 40	G 41	G 01	X 14,250						
N 50	G 03	X –14,250	Y 14,250	Z 0,375	I ±4, 250	J 0			
N 60	G 03	X 0	Y 0	Z 1,500	I 0	J ±5, 000			
N 70	G 03	X –14,250	Y-14,250	Z 0,375	I 0	J ±4, 250			
N 80	G 00	G 40	X 14,250	Y 0, 750					
N 90	G 00	Z 11,250							
… [4]									
N 170	G90								

Zerspanzeit t_h: Machining time t_h:	**22,3 sec.**

[1] Der über die Zahnspitze des Gewindeteils gemessene Fräserradius ist um den Betrag der Fräserradiuskorrektur zu reduzieren. Hiermit wird eine Zustellung auf Mitte der „6H/ISO2-Muttertoleranz" erreicht. Die Fräserradiuskorrektur hängt aber auch von der radialen Verdrängung des Werkzeuges ab (Festigkeit des zu fräsenden Materials und Auskraglänge).

[2] Der zu programmierende Fräserradius ist üblicherweise im Werkzeugspeicher enthalten.

[3] Bei Steuerungen, welche die Berechnung des Mittelpunktsvorschubs nicht selbstständig durchführen, müssen die Vorschubwerte in Klammern verwendet werden.

[4] **Die Satznummern N 30 bis N 90 müssen entsprechend der Anzahl der Wiederholungen erneut aufgerufen werden.**

[1] The cutter radius measured over the tooth crests of the threaded part must be reduced by the amount of the cutter radius compensation. This is necessary to achieve a depth of cut to the middle of the 6H/ISO2 nut tolerance. Please note, however, that this also depends on the radial deflection of the tool (tensile strength of the material, projection length of the tool).

[2] The cutter radius to be programmed is normally included in the tool memory.

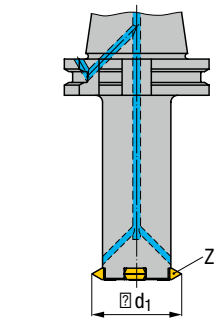
[3] If your control does not calculate the centre point feed automatically please use the feed values printed in brackets.

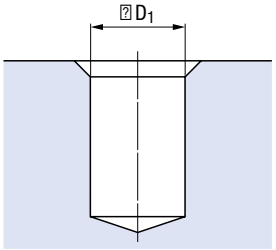
[4] The block numbers N 30 to N 90 must be called up anew according to the number of repetitions.

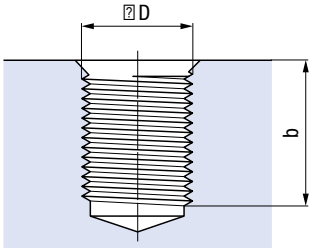
3.8 Programmierbeispiele (DIN)
Werkzeug: Gigant-ic, Gr.12

3.8 Programming examples (DIN)
Tool: Gigant-ic, Size 12

Gewinde-Abmessung: Thread dimension:	M42 - 6H	
Gewinde-Nenndurchmesser D: Nominal thread diameter D:	42,000 mm	
Gewindesteigung P: Thread pitch P:	4,500 mm	
Kernlochdurchmesser D_1: Drilled hole diameter D_1:	37,500 mm	
Gewindetiefe b [3]: Thread depth b [3]:	63,000 mm	
Werkstoff: Material:	1.1730	
Werkzeug-Abmessungen: Tool dimensions:	ø 32,85 x 153 mm	
Schneidstoff: Cutting material:	VHM	
Beschichtung: Coating:	TIN	
Artikel-Nr.: Article no.:	GZ341032 GF643205.9517	
Zähnezahl Z: No. of teeth Z:	3	
Fräserdurchmesser d_1: Cutter diameter d_1:	32,850 mm	(gemessen am Frästeil) (measured on the cutting part)
Fräserradiuskorrektur k [1]: Cutter radius compensation k [1]:	0,174 mm	(je nach Einsatzfall) (acc. work case)
zu programmierender Fräserradius [1]: Cutter radius to be programmed [1]:	16,251 mm	$(0,5 \cdot d_1 \pm k)$
Schnittgeschwindigkeit v_c: Cutting speed v_c:	250 m/min	
Vorschub pro Zahn (Fräsen) f_z: Feed per tooth (milling) f_z:	0,200 mm	
Drehzahl n: Speed n:	S = 2424 min^{-1}	$n = \pm \frac{v_c \cdot 1000}{d_1 \cdot \pi}$
Vorschubgeschwindigkeit (Kontur) v_f: Feed speed (contour) v_f:	F = 1454 mm/min	$v_f = f_z \cdot Z \cdot n$
Vorschubgeschwindigkeit (Mittelpunktsbahn) v_{fM}: Feed speed (centre point) v_{fM}:	F = 317 mm/min	$v_{fM} = \pm \frac{v_f \cdot (D \pm d_1)}{D}$







CNC-Innengewindefräsen (im Gegenlauf, an der Kontur, inkremental, nach DIN 66025)
CNC internal thread milling (conventional milling, on the contour, incremental, acc. DIN 66025)

N 10	G 54	G 90	G 00	X…	Y…	Z 0,000	S 2424	T01 [2]	M03
N 20	G 91								
N 30	G 42	G 01		X 0	Y 21	F 1454 (Kontur · Contour)		[F 317] [4] (Mittelpunkt · Centre point)	
N 40	G 02			X 0	Y 0	Z -4,500	I 0	J 21,000	
… [5]									
N 50	G 40	G 01		X 0	Y 21				
N 70	G 90	G 00		Z 4,5					

Zerspanzeit t_h: Machining time t_h:	**72,6 sec. (1,2 min.)**
Anzahl der Gewindegänge [5]: Number of threads [5]:	**13**

[1] Der zu programmierende Fräserradius ist je nach Einsatzfall zu korrigieren, bis das Gewinde die gewünschte Muttertoleranz, z.B. 6H/ISO2 erreicht. Die Fräserradiuskorrektur hängt aber auch von der radialen Verdrängung des Werkzeugs ab (Festigkeit des zu fräsenden Materials und Auskraglänge).

[2] Der zu programmierende Fräserradius ist üblicherweise im Werkzeugspeicher enthalten.

[3] Die eingegebene Gewindetiefe b muss durch die Steigung P teilbar sein.

[4] Bei Steuerungen, welche die Berechnung des Mittelpunktsvorschubs nicht selbstständig durchführen, müssen die Vorschubwerte in Klammern verwendet werden.

[5] **Satz N 40 muss mit Anzahl der Gewindegänge wiederholt werden.**

[1] The cutter radius to be programmed must be corrected, depending on the work case, until the thread achieves the required nut tolerance, e.g. 6H/ISO2. Please note, however, that this also depends on the radial deflection of the tool (tensile strength of the material, projection length of the tool).

[2] The cutter radius to be programmed is normally included in the tool memory.

[3] The thread depth b as entered must be divisible by the pitch P.

[4] If your control does not calculate the centre point feed automatically please use the feed values printed in brackets.

[5] Block N 40 must be repeated with the number of threads.

3.9 Technischer Fragebogen: Gewindefräsen

Firma: .....
Ansprechpartner: .....
Telefon: .....
Fax: .....
E-Mail: .....

Abmessung: .....
Ausführung: .....
Artikel-Nr.: .....
Projekt: .....

Werkstückbezeichnung: .....
Werkstückwerkstoff: .....

Ident-Nr.: .....
Festigkeit/Härte: .....

Einsatzbedingungen:

Maschinentyp: .....
Steuerung: .....
☐ horizontal ☐ vertikal
Werkzeugaufnahme: .....
Schnittgeschwindigkeit v_c: ..... m/min
Drehzahl n: ..... min^{-1}
Standwert: ..... (Anzahl der Gewinde)

Spindelaufnahme: .....
Kernlochform/Bolzenform: .....
Kühlschmierstoff: .....
Druck: ..... ☐ IKZ
Vorschubwerte: f_z: ..... mm
f_s: ..... mm
f_b: ..... mm

Kunde fräst bereits Gewinde:
Abmessung: .....
Hersteller: .....

Ergebnis/besondere Hinweise: .....

Zu erledigen: .....

Skizze:

aufgenommen von: .....

Datum/Unterschrift: .....

3.9 Technical questionnaire: Thread milling

Company: ..... Size: .....

Contact: ..... Design: .....

Phone: ..... Article no.: .....

Fax: ..... Project: .....

E-mail: .....

Workpiece description: ..... Ident no.: .....

Workpiece material: ..... Tensile strength/hardness: .....

Work conditions:

Machine type: ..... Spindle adaptation: .....

Control: ..... Hole type / bolt type: .....

☐ horizontal ☐ vertical Coolant-lubricant: .....

Tool holder: ..... Pressure: ..... ☐ Internal coolant-lubricant supply

Cutting speed v_c: ..... m/min Feed values: f_z: ..... mm

Speed n: ..... min^{-1} f_s: ..... mm

Tool life: ..... (no. of threads) f_b: ..... mm

Customer is already milling threads: Result / special information: .....

Size: .....

Manufacturer: .....

Agenda: .....

.....

Sketch:

Filled in by: ..... Date / signature: .....