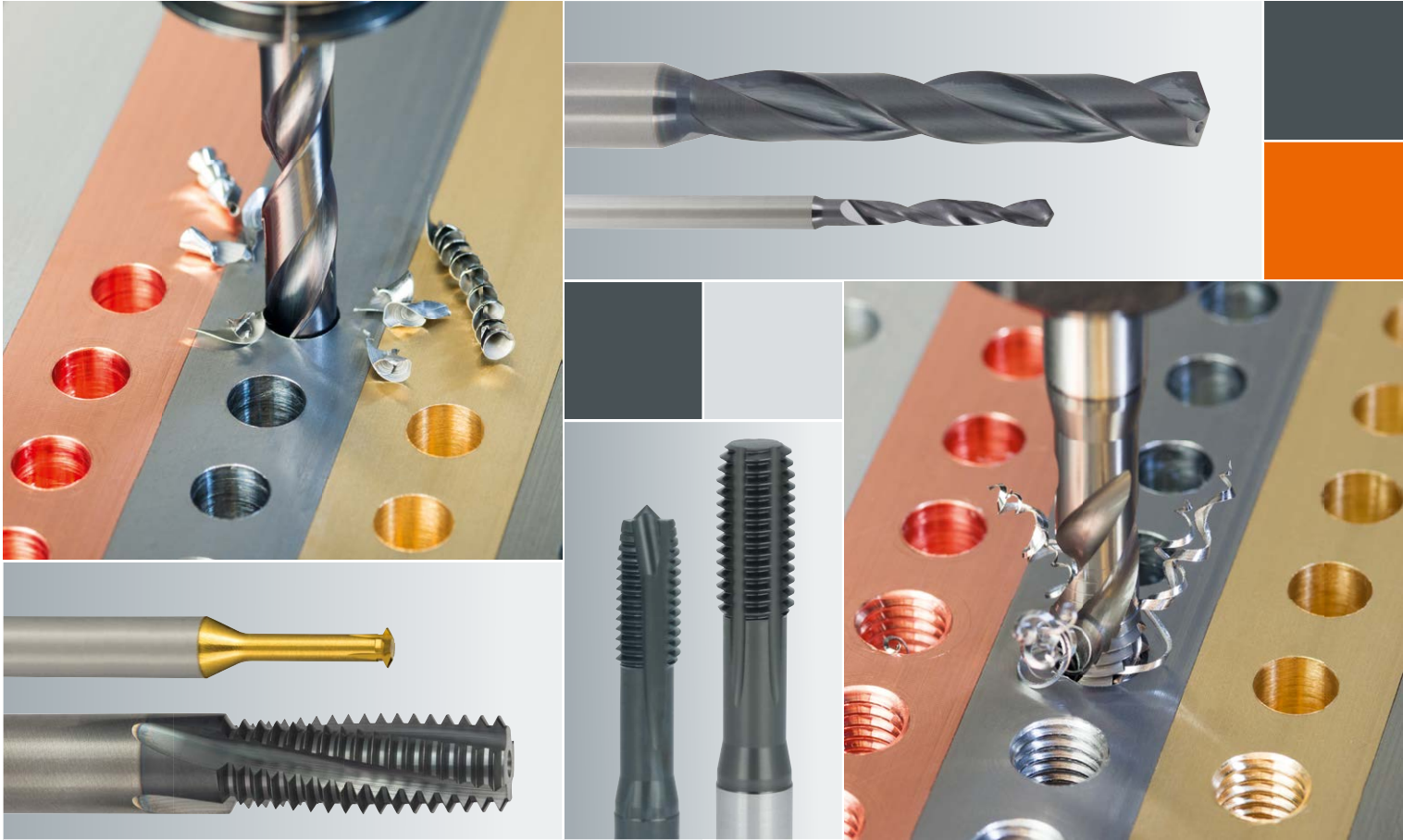




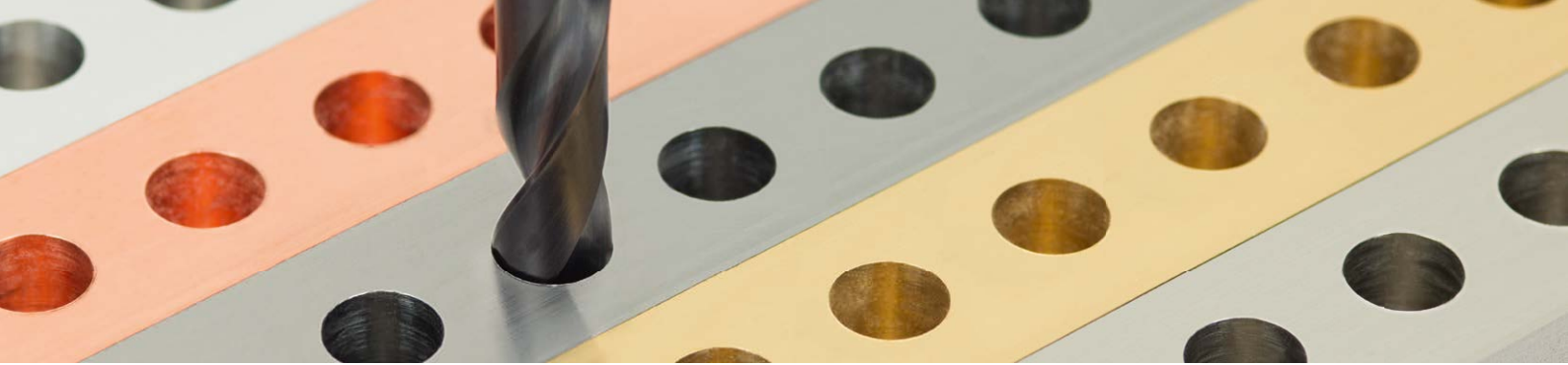
■ Made
■ in
■ Germany



MULTI Promotion 2019 valid until 29.02.2020

EMUGE

Versatility and Economy without Compromise



EMUGE

Threading Tools and High Precision Solid Carbide Drills for a Wide Range of Applications

- Do you machine different materials?
- Do you machine small and medium-sized production batches?
- You do not want to procure special tools for each material to be machined?
- You want to keep your tool inventory compact and well organised?

We have the solution!

MULTI taps and MULTI cold-forming taps with matching MULTI twist drills for tap hole machining and MULTI thread milling cutters.

MULTI tools can be used in a versatile range of applications in the most common materials.

Their special technology is suitable both for various materials and highly different alloy elements, changing conditions of applications and coolant-lubricants.

Your advantages:

- Only one manufacturer for threading tools and drills
- High degree of process safety
- Improved quality of drilled holes and threads
- Reduced risk of unsuitable tool selection and use
- Reduced tool consumption
- Low level of scrap and rejects
- Less order transactions
- Reduced warehousing
- Short-term availability
- Attractive price-performance ratio





Excellent tool life and an attractive cost-benefit ratio for highest productivity



Available in the most common dimensions of thread systems

MULTI taps/cold-forming taps	MULTI thread milling cutters	ISO Metric coarse thread DIN 13	M	M2 up to M24
		ISO Metric fine thread DIN 13	MF	M5 x 0.5 up to M24 x 1.5
		Unified coarse thread ASME B1.1	UNC	No. 4-40 UNC up to 1"-8 UNC
		Unified fine thread ASME B1.1	UNF	No. 10-32 UNF up to 3/4-16 UNF
		Whitworth pipe thread DIN EN ISO 228	G	G 1/8 up to G 1"
		American tapered pipe thread ANSI/ASME B1.20.1	NPT	NPT 1/16 up to NPT 2"

Suitable for use in the material groups

MULTI taps/cold-forming taps	MULTI thread milling cutters	Steel materials	P	e.g. cold-extrusion steels, construction steels, cold work steels, etc.
		Stainless steel materials	M	e.g. ferritic, martensitic, austenitic, austenitic-ferritic, etc.
		Cast materials	K	e.g. cast iron with lamellar graphite, malleable cast iron, etc.
		Non ferrous materials	N	e.g. aluminium alloys, copper alloys, magnesium alloys, etc.
		Special materials	S	e.g. titanium alloys, nickel alloys, cobalt alloys and iron alloys, etc.
		Hard materials	H	e.g. high strength steels, hardened steels, hard castings, etc.

Product finder and cutting data

Please note:

The cutting speeds (v_c in m/min) 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:

- Tap/Cold-forming tap is very suitable
- Tap/Cold-forming is suitable

= Suitable coolant-lubricant

E = Emulsion

O = Thread cutting oil

P = Thread cutting paste
















= DIN form / threads (chamfer length)

= DIN form / threads (lead taper length)

Applications – material		Material examples	Material numbers	
P	Steel materials			
	1.1 Cold-extrusion steels, Construction steels, Free-cutting steels, etc.	≤ 600 N/mm ²	Cq15 S235JR (St37-2) 10SPb20	1.1132 1.0037 1.0722
	2.1 Construction steels, Cementation steels, Steel castings, etc.	≤ 800 N/mm ²	E360 (St70-2) 16MnCr5 GS-25CrMo4	1.0070 1.7131 1.7218
	3.1 Cementation steels, Heat-treatable steels, Cold work steels, etc.	≤ 1000 N/mm ²	20MoCr3 42CrMo4 102Cr6	1.7320 1.7225 1.2067
	4.1 Heat-treatable steels, Cold work steels, Nitriding steels, etc.	≤ 1200 N/mm ²	50CrMo4 X45NiCrMo4 31CrMo12	1.7228 1.2767 1.8515
	5.1 High-alloyed steels, Cold work steels, Hot work steels, etc.	≤ 1400 N/mm ²	X38CrMoV5-3 X100CrMoV8-1-1 X40CrMoV5-1	1.2367 1.2990 1.2344
	Stainless steel materials			
	1.1 Ferritic, martensitic	≤ 950 N/mm ²	X2CrTi12	1.4512
	2.1 Austenitic	≤ 950 N/mm ²	X6CrNiMoTi17-12-2	1.4571
	3.1 Austenitic-ferritic (Duplex)	≤ 1100 N/mm ²	X2CrNiMoN22-5-3	1.4462
	4.1 Austenitic-ferritic heat-resistant (Super Duplex)	≤ 1250 N/mm ²	X2CrNiMoN25-7-4	1.4410
	K	Cast materials		
1.1 Cast iron with lamellar graphite (GJL)		100-250 N/mm ²	EN-GJL-200 (GG20)	EN-JL-1030
1.2 Cast iron with lamellar graphite (GJL)		250-450 N/mm ²	EN-GJL-300 (GG30)	EN-JL-1050
2.1 Cast iron with nodular graphite (GJS)		350-500 N/mm ²	EN-GJS-400-15 (GGG40)	EN-JS-1030
2.2 Cast iron with nodular graphite (GJS)		500-900 N/mm ²	EN-GJS-700-2 (GGG70)	EN-JS-1070
3.1 Cast iron with vermicular graphite (GJV)		300-400 N/mm ²	GJV 300	
3.2 Cast iron with vermicular graphite (GJV)		400-500 N/mm ²	GJV 450	
4.1 Malleable cast iron (GTMW, GTMB)		250-500 N/mm ²	EN-GJMW-350-4 (GTW-35)	EN-JM-1010
4.2 Malleable cast iron (GTMW, GTMB)	500-800 N/mm ²	EN-GJMB-450-6 (GTS-45)	EN-JM-1140	
N	Non ferrous materials			
	Aluminium alloys			
	1.1 Aluminium wrought alloys	≤ 200 N/mm ²	EN AW-AlMn1	EN AW-3103
	1.2 Aluminium wrought alloys	≤ 350 N/mm ²	EN AW-AlMgSi	EN AW-6060
	1.3 Aluminium wrought alloys	≤ 550 N/mm ²	EN AW-AlZn5Mg3Cu	EN AW-7022
	1.4 Aluminium wrought alloys	Si ≤ 7%	EN AC-AlMg5	EN AC-51300
	1.5 Aluminium cast alloys	7% < Si ≤ 12%	EN AC-AISi9Cu3	EN AC-46500
	1.6 Aluminium cast alloys	12% < Si ≤ 17%	GD-AISi17Cu4FeMg	
	Copper alloys			
	2.1 Pure copper, low-alloyed copper	≤ 400 N/mm ²	E-Cu 57	EN CW 004 A
	2.2 Copper-zinc alloys (brass, long-chipping)	≤ 550 N/mm ²	CuZn37 (Ms63)	EN CW 508 L
	2.3 Copper-zinc alloys (brass, short-chipping)	≤ 550 N/mm ²	CuZn36Pb3 (Ms58)	EN CW 603 N
	2.4 Copper-aluminium alloys (alu bronze, long-chipping)	≤ 800 N/mm ²	CuAl10Ni5Fe4	EN CW 307 G
	2.5 Copper-tin alloys (tin bronze, long-chipping)	≤ 700 N/mm ²	CuSn8P	EN CW 459 K
	2.6 Copper-tin alloys (tin bronze, short-chipping)	≤ 400 N/mm ²	CuSn7 ZnPb (Rg7)	2.1090
	2.7 Special copper alloys	≤ 600 N/mm ²	(AMPCO® 8)	
	2.8 Special copper alloys	≤ 1400 N/mm ²	(AMPCO® 45)	
	Magnesium alloys			
	3.1 Magnesium wrought alloys	≤ 500 N/mm ²	MgAl6Zn	3.5612
	3.2 Magnesium cast alloys	≤ 500 N/mm ²	EN-MCMgAl9Zn1	EN-MC21120
	Synthetics			
	4.1 Duroplastics (short-chipping)		Bakelit, Pertinax	
	4.2 Thermoplastics (long-chipping)		PMMA, POM, PVC	
	4.3 Fibre-reinforced synthetics (fibre content ≤ 30%)		GFK, CFK, AFK	
	4.4 Fibre-reinforced synthetics (fibre content > 30%)		GFK, CFK, AFK	
	Special materials			
	5.1 Graphite		C 8000	
	5.2 Tungsten-copper alloys		W-Cu 80/20	
5.3 Composite materials		Hyllite, Alucobond		
S	Special materials			
	Titanium alloys			
	1.1 Pure titanium	≤ 450 N/mm ²	Ti1	3.7025
	1.2 Titanium alloys	≤ 900 N/mm ²	TiAl6V4	3.7165
	1.3 Titanium alloys	≤ 1250 N/mm ²	TiAl4Mo4Sn2	3.7185
	Nickel alloys, cobalt alloys and iron alloys			
	2.1 Pure nickel	≤ 600 N/mm ²	Ni 99.6	2.4060
	2.2 Nickel-base alloys	≤ 1000 N/mm ²	Monel 400	2.4360
	2.3 Nickel-base alloys	≤ 1600 N/mm ²	Inconel 718	2.4668
	2.4 Cobalt-base alloys	≤ 1000 N/mm ²	Udimet 605	
	2.5 Cobalt-base alloys	≤ 1600 N/mm ²	Haynes 25	2.4964
	2.6 Iron-base alloys	≤ 1500 N/mm ²	Incoloy 800	1.4958
H	Hard materials			
	1.1 High strength steels, hardened steels, hard castings	44 - 50 HRC	Weldox 1100	
	1.2 High strength steels, hardened steels, hard castings	50 - 55 HRC	Hardox 550	
	1.3 High strength steels, hardened steels, hard castings	55 - 60 HRC	ArmoX 600T	
	1.4 High strength steels, hardened steels, hard castings	60 - 63 HRC	Ferro-Titanit	
	1.5 High strength steels, hardened steels, hard castings	63 - 66 HRC	HSSE	

MULTI Taps

MULTI Cold-Forming Taps

									
	Rekord A-MULTI NT2	Rekord A-MULTI GLT-1	Rekord B-MULTI NT2	Rekord B-MULTI GLT-1	Enorm MULTI NE2	Enorm MULTI GLT-1	InnoForm MULTI-SN NT2	InnoForm MULTI-SN GLT-1	
	C / 2-3	C / 2-3	B / 4-5	B / 4-5	C / 2-3	C / 2-3	C / 2 - 3	C / 2 - 3	
	E / 0 / P	E / 0 / P	E / 0 / P	E / 0 / P	E / 0 / P	E / 0 / P	E / 0 / P	E / 0 / P	
Thread depth and hole type	max. 2 x d ₁ 		max. 3 x d ₁ 		max. 2.5 x d ₁ 		max. 3 x d ₁ 		Thread depth and hole type
M	10	10	10	10	12	12	14	14	M
MF	16	16	16	16	18	18	20	20	MF
UNC	-	-	22	22	22	22	-	-	UNC
UNF	-	-	24	24	24	24	-	-	UNF
G	26	26	26	26	28	28	-	-	G
	5 - 25	15 - 45	5 - 25	15 - 45	5 - 25	15 - 45		20 - 80	1.1
	5 - 20	10 - 40	5 - 20	10 - 40	5 - 20	10 - 40	10 - 40	20 - 60	2.1
	2 - 15	5 - 25	2 - 15	5 - 25	2 - 15	5 - 25	5 - 25	10 - 40	3.1
	2 - 10	5 - 20		5 - 20		5 - 20		10 - 30	4.1
									5.1
			2 - 10	5 - 20	2 - 10	5 - 20	5 - 20 ¹⁾	10 - 25 ¹⁾	1.1
			2 - 10	5 - 20	2 - 10	5 - 20	5 - 20 ¹⁾	10 - 25 ¹⁾	2.1
				5 - 15		5 - 15		5 - 20 ¹⁾	3.1
									4.1
	10 - 25	15 - 45	10 - 25	15 - 45	10 - 25	15 - 45			1.1
	10 - 20	10 - 40	10 - 20	10 - 40	10 - 20	10 - 40			1.2
	5 - 20	10 - 30	5 - 20	10 - 30	5 - 20	10 - 30	10 - 30	20 - 60	2.1
	5 - 15	10 - 25	5 - 15	10 - 25	5 - 15	10 - 25			2.2
	5 - 15	10 - 25	5 - 15	10 - 25	5 - 15	10 - 25			3.1
	5 - 10	10 - 20	5 - 10	10 - 20	5 - 10	10 - 20			3.2
	10 - 25	15 - 45	10 - 25	15 - 45	10 - 25	15 - 45			4.1
	10 - 20	10 - 40	10 - 20	10 - 40	10 - 20	10 - 40			4.2
									1.1
									1.2
									1.3
	10 - 20	15 - 40	10 - 20	15 - 40	10 - 20	15 - 40	15 - 40	20 - 60	1.4
	10 - 20	15 - 40	10 - 20	15 - 40	10 - 20	15 - 40	15 - 40	20 - 60	1.5
		10 - 30		10 - 30		10 - 30			1.6
									2.1
				20 - 60		20 - 60		20 - 40	2.2
								40 - 80	2.3
	2 - 10	5 - 25	2 - 10	5 - 25	2 - 10	5 - 25			2.4
	2 - 10	5 - 25	2 - 10	5 - 25	2 - 10	5 - 25			2.5
	5 - 20	10 - 30							2.6
	1 - 5	2 - 10							2.7
									2.8
									3.1
									3.2
	5 - 25	10 - 40							4.1
									4.2
									4.3
									4.4
	10 - 20	10 - 20							5.1
									5.2
									5.3
									1.1
									1.2
									1.3
									2.1
									2.2
									2.3
									2.4
									2.5
									2.6
									1.1
									1.2
									1.3
									1.4
									1.5

1) Restricted application possibilities with emulsion

Product finder

Please note:

The suitability is marked as follows:

- = Twist drill is very suitable
- = Twist drill is suitable

Please note that these data are standard values only.

Coolant-lubricant recommendation



EF-Drill
Micro-MULTI
AK-2FF
5 x D

EF-Drill
MULTI
AK-2FF
3 x D

EF-Drill
MULTI
IK-2FF
5 x D

Applications – material			Material examples	Material numbers	Emulsion	Oil	Minimum quantity lubrication (MQL)	Dry / Pressurised air	EF-Drill Micro-MULTI AK-2FF 5 x D	EF-Drill MULTI AK-2FF 3 x D	EF-Drill MULTI IK-2FF 5 x D
P	Steel materials										
	1.1	Cold-extrusion steels, Construction steels, Free-cutting steels, etc.	≤ 600 N/mm ²	Cq15	1.1132	■	■	□	■	■	■
				S235JR (St37-2)	1.0037						
				10SPb20	1.0722						
	2.1	Construction steels, Cementation steels, Steel castings, etc.	≤ 800 N/mm ²	E360 (St70-2)	1.0070	■	■	□	■	■	■
				16MnCr5	1.7131						
				GS-25CrMo4	1.7218						
	3.1	Cementation steels, Heat-treatable steels, Cold work steels, etc.	≤ 1000 N/mm ²	20MoCr3	1.7320	■	■	□	■	■	■
				42CrMo4	1.7225						
				102Cr6	1.2067						
	4.1	Heat-treatable steels, Cold work steels, Nitriding steels, etc.	≤ 1200 N/mm ²	50CrMo4	1.7228	■	■	□	■	□	■
				X45NiCrMo4	1.2767						
				31CrMo12	1.8515						
	5.1	High-alloyed steels, Cold work steels, Hot work steels, etc.	≤ 1400 N/mm ²	X38CrMoV5-3	1.2367	■	■	□	■	□	■
				X100CrMoV8-1-1	1.2990						
X40CrMoV5-1				1.2344							
M	Stainless steel materials										
	1.1	Ferritic, martensitic	≤ 950 N/mm ²	X2CrTi12	1.4512	■	□	■	□	■	
	2.1	Austenitic	≤ 950 N/mm ²	X6CrNiMoTi17-12-2	1.4571	■	□	■	■	■	
	3.1	Austenitic-ferritic (Duplex)	≤ 1100 N/mm ²	X2CrNiMoN22-5-3	1.4462	■	□	■	■	■	
	4.1	Austenitic-ferritic heat-resistant (Super Duplex)	≤ 1250 N/mm ²	X2CrNiMoN25-7-4	1.4410	■	□	■	■	■	
K	Cast materials										
	1.1	Cast iron with lamellar graphite (GJL)	100-250 N/mm ²	EN-GJL-200 (GG20)	EN-JL-1030	■	□	□	■	■	■
				EN-GJL-300 (GG30)	EN-JL-1050	■	□	□	■	■	■
	2.1	Cast iron with nodular graphite (GJS)	350-500 N/mm ²	EN-GJS-400-15 (GGG40)	EN-JS-1030	■	□	□	■	■	■
				EN-GJS-700-2 (GGG70)	EN-JS-1070	■	□	□	■	■	■
	3.1	Cast iron with vermicular graphite (GJV)	300-400 N/mm ²	GJV 300		■	□	□	□	□	□
				GJV 450		■	□	□	□	□	□
	4.1	Malleable cast iron (GTMW, GTMB)	250-500 N/mm ²	EN-GJMW-350-4 (GTW-35)	EN-JM-1010	■	□	□	□	□	□
				EN-GJMB-450-6 (GTS-45)	EN-JM-1140	■	□	□	□	□	□
	N	Non ferrous materials									
Aluminium alloys											
1.1		Aluminium wrought alloys	≤ 200 N/mm ²	EN AW-AlMn1	EN AW-3103	■	□	□	■	□	■
				EN AW-AlMgSi	EN AW-6060	■	□	□	■	□	■
1.2			≤ 350 N/mm ²	EN AW-AlZn5Mg3Cu	EN AW-7022	■	□	□	■	□	■
				EN AC-AlMg5	EN AC-51300	■	□	□	■	□	■
1.3			≤ 550 N/mm ²	EN AC-AlSi9Cu3	EN AC-46500	■	□	□	□	□	□
				GD-AISi17Cu4FeMg		■	□	□	□	□	□
1.4		Aluminium cast alloys	7% < Si ≤ 12%			■	□	□	□	□	□
				12% < Si ≤ 17%		■	□	□	□	□	□
2.1		Copper alloys	≤ 400 N/mm ²	E-Cu 57	EN CW 004 A	■	□	□	■	□	■
				CuZn37 (Ms63)	EN CW 508 L	■	□	□	■	□	■
				CuZn36Pb3 (Ms58)	EN CW 603 N	■	□	□	■	□	■
				CuAl10Ni5Fe4	EN CW 307 G	■	□	□	■	□	■
				CuSn8P	EN CW 459 K	■	□	□	■	□	■
				CuSn7 ZnPb (Rg7)	2.1090	■	□	□	■	□	■
	(AMPCO® 8)				■	□	□	■	□	■	
	(AMPCO® 45)				■	□	□	■	□	■	
3.1	Magnesium wrought alloys	≤ 500 N/mm ²	MgAl6Zn	3.5612							
			EN-MCMgAl9Zn1	EN-MC21120							
4.1	Synthetics		Bakelit, Pertinax		■	□		■	□	■	
			PMMA, POM, PVC								
			GFK, CFK, AFK								
			GFK, CFK, AFK								
5.1	Special materials		C 8000				■	□		□	
			W-Cu 80/20								
			Hyllite, Alucobond								
S	Special materials										
	Titanium alloys										
	1.1	Pure titanium	≤ 450 N/mm ²	Ti1	3.7025						
				TiAl6V4	3.7165						
				TiAl4Mo4Sn2	3.7185						
	2.1	Nickel alloys, cobalt alloys and iron alloys	≤ 600 N/mm ²	Ni 99.6	2.4060						
				Monel 400	2.4360						
				Inconel 718	2.4668						
				Udimet 605							
				Haynes 25	2.4964						
Incoloy 800				1.4958							
H	Hard materials										
	High strength steels, hardened steels, hard castings		44 - 50 HRC	Weldox 1100							
			50 - 55 HRC	Hardox 550							
			55 - 60 HRC	ArmoX 600T							
			60 - 63 HRC	Ferro-Titanit							
63 - 66 HRC			HSSE								

MULTI Twist Drills



Cutting speed v_c [m/min]		Feed per revolution f [mm/rev.]									
3 x D	Micro + 5 x D	D = 3 mm	D = 5 mm	D = 8 mm	D = 10 mm	D = 12 mm	D = 16 mm	D = 20 mm	D = 25 mm		
75 - 105	75 - 105	0.05 - 0.08	0.07 - 0.12	0.09 - 0.16	0.13 - 0.19	0.14 - 0.21	0.16 - 0.25	0.19 - 0.27	0.22 - 0.31	1.1	P
65 - 85	65 - 85	0.05 - 0.08	0.06 - 0.09	0.10 - 0.14	0.11 - 0.16	0.13 - 0.18	0.16 - 0.21	0.18 - 0.23	0.21 - 0.27	2.1	
55 - 75	55 - 75	0.05 - 0.08	0.06 - 0.09	0.10 - 0.14	0.11 - 0.16	0.13 - 0.18	0.16 - 0.21	0.18 - 0.23	0.21 - 0.27	3.1	
45 - 60	45 - 60	0.04 - 0.07	0.05 - 0.09	0.08 - 0.12	0.10 - 0.14	0.10 - 0.16	0.12 - 0.20	0.14 - 0.22	0.18 - 0.25	4.1	
35 - 50	35 - 50	0.02 - 0.05	0.04 - 0.07	0.07 - 0.10	0.07 - 0.11	0.09 - 0.12	0.11 - 0.15	0.14 - 0.18	0.17 - 0.21	5.1	
30 - 50	45 - 75	0.03 - 0.05	0.04 - 0.07	0.05 - 0.10	0.08 - 0.13	0.09 - 0.15	0.12 - 0.18	0.14 - 0.20	0.18 - 0.23	1.1	M
	30 - 45	0.02 - 0.05	0.03 - 0.06	0.05 - 0.08	0.07 - 0.09	0.08 - 0.10	0.09 - 0.13	0.12 - 0.16	0.15 - 0.19	2.1	
	25 - 35	0.02 - 0.05	0.03 - 0.06	0.05 - 0.08	0.07 - 0.09	0.08 - 0.10	0.09 - 0.13	0.12 - 0.16	0.15 - 0.19	3.1	
	25 - 30	0.02 - 0.05	0.03 - 0.06	0.05 - 0.08	0.07 - 0.09	0.08 - 0.10	0.09 - 0.13	0.12 - 0.16	0.15 - 0.19	4.1	
85 - 130	90 - 135	0.08 - 0.13	0.11 - 0.17	0.16 - 0.22	0.18 - 0.25	0.20 - 0.30	0.23 - 0.34	0.25 - 0.36	0.29 - 0.40	1.1	K
70 - 110	75 - 115	0.07 - 0.10	0.10 - 0.15	0.13 - 0.21	0.15 - 0.23	0.17 - 0.27	0.21 - 0.33	0.23 - 0.35	0.27 - 0.38	1.2	
70 - 115	75 - 120	0.07 - 0.11	0.10 - 0.16	0.14 - 0.21	0.16 - 0.23	0.18 - 0.28	0.21 - 0.33	0.24 - 0.36	0.27 - 0.39	2.1	
65 - 90	75 - 105	0.06 - 0.10	0.08 - 0.14	0.10 - 0.18	0.12 - 0.19	0.13 - 0.21	0.16 - 0.24	0.18 - 0.27	0.21 - 0.30	2.2	
55 - 65	55 - 70	0.07 - 0.09	0.08 - 0.12	0.11 - 0.17	0.14 - 0.20	0.18 - 0.24	0.21 - 0.27	0.23 - 0.29	0.27 - 0.33	3.1	
55 - 65	55 - 70	0.07 - 0.09	0.08 - 0.12	0.11 - 0.17	0.14 - 0.20	0.18 - 0.24	0.21 - 0.27	0.23 - 0.29	0.27 - 0.33	3.2	
80 - 110	85 - 115	0.07 - 0.10	0.09 - 0.14	0.12 - 0.20	0.14 - 0.22	0.16 - 0.26	0.18 - 0.30	0.21 - 0.33	0.24 - 0.36	4.1	
65 - 95	70 - 100	0.06 - 0.10	0.08 - 0.13	0.10 - 0.18	0.13 - 0.20	0.14 - 0.23	0.18 - 0.27	0.20 - 0.30	0.23 - 0.33	4.2	
155 - 200	160 - 205	0.08 - 0.11	0.12 - 0.16	0.16 - 0.21	0.20 - 0.26	0.25 - 0.31	0.29 - 0.39	0.32 - 0.42	0.35 - 0.45	1.1	N
155 - 200	160 - 205	0.08 - 0.11	0.12 - 0.16	0.16 - 0.21	0.20 - 0.26	0.25 - 0.31	0.29 - 0.39	0.32 - 0.42	0.35 - 0.45	1.2	
120 - 140	135 - 165	0.08 - 0.11	0.12 - 0.16	0.16 - 0.21	0.20 - 0.26	0.25 - 0.31	0.29 - 0.39	0.32 - 0.42	0.35 - 0.45	1.3	
120 - 140	135 - 165	0.08 - 0.11	0.12 - 0.16	0.16 - 0.21	0.20 - 0.26	0.25 - 0.31	0.29 - 0.39	0.32 - 0.42	0.35 - 0.45	1.4	
105 - 120	115 - 135	0.08 - 0.10	0.10 - 0.14	0.14 - 0.20	0.19 - 0.25	0.23 - 0.29	0.26 - 0.33	0.29 - 0.35	0.32 - 0.38	1.5	
	60 - 90	0.08 - 0.10	0.10 - 0.14	0.14 - 0.20	0.20 - 0.25	0.23 - 0.29	0.26 - 0.33	0.29 - 0.35	0.32 - 0.38	1.6	
80 - 115	85 - 120	0.05 - 0.09	0.06 - 0.10	0.08 - 0.12	0.10 - 0.15	0.12 - 0.18	0.14 - 0.20	0.16 - 0.22	0.20 - 0.25	2.1	
110 - 115	115 - 130	0.04 - 0.07	0.08 - 0.10	0.10 - 0.16	0.13 - 0.18	0.16 - 0.21	0.18 - 0.24	0.21 - 0.27	0.24 - 0.30	2.2	
130 - 175	135 - 180	0.08 - 0.10	0.09 - 0.13	0.13 - 0.20	0.16 - 0.25	0.18 - 0.27	0.21 - 0.29	0.23 - 0.32	0.27 - 0.35	2.3	
40 - 55	45 - 70	0.03 - 0.05	0.05 - 0.07	0.08 - 0.10	0.09 - 0.13	0.10 - 0.14	0.12 - 0.16	0.14 - 0.19	0.18 - 0.22	2.4	
55 - 80	70 - 105	0.05 - 0.07	0.06 - 0.08	0.10 - 0.13	0.12 - 0.15	0.14 - 0.18	0.16 - 0.21	0.17 - 0.22	0.20 - 0.25	2.5	
65 - 70	70 - 85	0.05 - 0.07	0.06 - 0.08	0.10 - 0.13	0.12 - 0.15	0.14 - 0.18	0.16 - 0.21	0.18 - 0.23	0.21 - 0.27	2.6	
30 - 40	38 - 45	0.02 - 0.03	0.03 - 0.05	0.05 - 0.07	0.06 - 0.08	0.07 - 0.09	0.08 - 0.10	0.10 - 0.13	0.14 - 0.16	2.7	
30 - 35	38 - 45	0.02 - 0.03	0.03 - 0.05	0.05 - 0.07	0.06 - 0.08	0.07 - 0.09	0.08 - 0.10	0.10 - 0.13	0.14 - 0.16	2.8	
										3.1	
										3.2	
30 - 40	40 - 60	0.02 - 0.04	0.03 - 0.06	0.05 - 0.08	0.07 - 0.09	0.09 - 0.11	0.11 - 0.14	0.13 - 0.15	0.15 - 0.17	4.1	
										4.2	
										4.3	
										4.4	
	55 - 90	0.07 - 0.09	0.08 - 0.10	0.09 - 0.12	0.10 - 0.14	0.12 - 0.16	0.13 - 0.18	0.16 - 0.21	0.19 - 0.24	5.1	
										5.2	
										5.3	
										1.1	S
										1.2	
										1.3	
										2.1	
										2.2	
										2.3	
										2.4	
										2.5	
										2.6	
										1.1	H
										1.2	
										1.3	
										1.4	
										1.5	

Please note that these data are standard values only.

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]

Applications – material		Material examples	Material numbers		
P	Steel materials				
	1.1 Cold-extrusion steels, Construction steels, Free-cutting steels, etc.	≤ 600 N/mm ²	Cq15 S235JR (St37-2) 10SPb20 E360 (St70-2)	1.1132 1.0037 1.0722 1.0070	
	2.1 Construction steels, Cementation steels, Steel castings, etc.	≤ 800 N/mm ²	16MnCr5 GS-25CrMo4 20MoCr3	1.7131 1.7218 1.7320	
	3.1 Cementation steels, Heat-treatable steels, Cold work steels, etc.	≤ 1000 N/mm ²	42CrMo4 102Cr6 50CrMo4	1.7225 1.2067 1.7228	
	4.1 Heat-treatable steels, Cold work steels, Nitriding steels, etc.	≤ 1200 N/mm ²	X45NiCrMo4 31CrMo12	1.2767 1.8515	
	5.1 High-alloyed steels, Cold work steels, Hot work steels, etc.	≤ 1400 N/mm ²	X38CrMoV5-3 X100CrMoV8-1-1 X40CrMoV5-1	1.2367 1.2990 1.2344	
	M	Stainless steel materials			
		1.1 Ferritic, martensitic	≤ 950 N/mm ²	X2CrTi12	1.4512
		2.1 Austenitic	≤ 950 N/mm ²	X6CrNiMoTi17-12-2	1.4571
		3.1 Austenitic-ferritic (Duplex)	≤ 1100 N/mm ²	X2CrNiMoN22-5-3	1.4462
		4.1 Austenitic-ferritic heat-resistant (Super Duplex)	≤ 1250 N/mm ²	X2CrNiMoN25-7-4	1.4410
	K	Cast materials			
		1.1 Cast iron with lamellar graphite (GJL)	100-250 N/mm ²	EN-GJL-200 (GG20)	EN-JL-1030
		1.2 Cast iron with lamellar graphite (GJL)	250-450 N/mm ²	EN-GJL-300 (GG30)	EN-JL-1050
		2.1 Cast iron with nodular graphite (GJS)	350-500 N/mm ²	EN-GJS-400-15 (GGG40)	EN-JS-1030
2.2 Cast iron with nodular graphite (GJS)		500-900 N/mm ²	EN-GJS-700-2 (GGG70)	EN-JS-1070	
3.1 Cast iron with vermicular graphite (GJV)		300-400 N/mm ²	GJV 300		
3.2 Cast iron with vermicular graphite (GJV)		400-500 N/mm ²	GJV 450		
4.1 Malleable cast iron (GTMW, GTMB)		250-500 N/mm ²	EN-GJMW-350-4 (GTW-35)	EN-JM-1010	
4.2 Malleable cast iron (GTMW, GTMB)		500-800 N/mm ²	EN-GJMB-450-6 (GTS-45)	EN-JM-1140	
N	Non ferrous materials				
	Aluminium alloys				
	1.1 Aluminium wrought alloys	≤ 200 N/mm ²	EN AW-AlMn1	EN AW-3103	
	1.2 Aluminium wrought alloys	≤ 350 N/mm ²	EN AW-AlMgSi	EN AW-6060	
	1.3 Aluminium wrought alloys	≤ 550 N/mm ²	EN AW-AlZn5Mg3Cu	EN AW-7022	
	1.4 Aluminium wrought alloys	Si ≤ 7%	EN AC-AlMg5	EN AC-51300	
	1.5 Aluminium cast alloys	7% < Si ≤ 12%	EN AC-AISi9Cu3	EN AC-46500	
	1.6 Aluminium cast alloys	12% < Si ≤ 17%	GD-AISi17Cu4FeMg		
	Copper alloys				
	2.1 Pure copper, low-alloyed copper	≤ 400 N/mm ²	E-Cu 57	EN CW 004 A	
	2.2 Copper-zinc alloys (brass, long-chipping)	≤ 550 N/mm ²	CuZn37 (Ms63)	EN CW 508 L	
	2.3 Copper-zinc alloys (brass, short-chipping)	≤ 550 N/mm ²	CuZn36Pb3 (Ms58)	EN CW 603 N	
	2.4 Copper-aluminium alloys (alu bronze, long-chipping)	≤ 800 N/mm ²	CuAl10Ni5Fe4	EN CW 307 G	
	2.5 Copper-tin alloys (tin bronze, long-chipping)	≤ 700 N/mm ²	CuSn8P	EN CW 459 K	
	2.6 Copper-tin alloys (tin bronze, short-chipping)	≤ 400 N/mm ²	CuSn7 ZnPb (Rg7)	2.1090	
	2.7 Special copper alloys	≤ 600 N/mm ²	(AMPCO® 8)		
	2.8 Special copper alloys	≤ 1400 N/mm ²	(AMPCO® 45)		
	Magnesium alloys				
	3.1 Magnesium wrought alloys	≤ 500 N/mm ²	MgAl6Zn	3.5612	
	3.2 Magnesium cast alloys	≤ 500 N/mm ²	EN-MCMgAl9Zn1	EN-MC21120	
	Synthetics				
	4.1 Duroplastics (short-chipping)		Bakelit, Pertinax		
	4.2 Thermoplastics (long-chipping)		PMMA, POM, PVC		
	4.3 Fibre-reinforced synthetics (fibre content ≤ 30%)		GFK, CFK, AFK		
	4.4 Fibre-reinforced synthetics (fibre content > 30%)		GFK, CFK, AFK		
	Special materials				
	5.1 Graphite		C 8000		
	5.2 Tungsten-copper alloys		W-Cu 80/20		
5.3 Composite materials		Hyllite, Alucobond			
S	Special materials				
	Titanium alloys				
	1.1 Pure titanium	≤ 450 N/mm ²	Ti1	3.7025	
	1.2 Titanium alloys	≤ 900 N/mm ²	TiAl6V4	3.7165	
	1.3 Titanium alloys	≤ 1250 N/mm ²	TiAl4Mo4Sn2	3.7185	
	Nickel alloys, cobalt alloys and iron alloys				
	2.1 Pure nickel	≤ 600 N/mm ²	Ni 99.6	2.4060	
	2.2 Nickel-base alloys	≤ 1000 N/mm ²	Monel 400	2.4360	
	2.3 Nickel-base alloys	≤ 1600 N/mm ²	Inconel 718	2.4668	
	2.4 Cobalt-base alloys	≤ 1000 N/mm ²	Udimet 605		
	2.5 Cobalt-base alloys	≤ 1600 N/mm ²	Haynes 25	2.4964	
2.6 Iron-base alloys	≤ 1500 N/mm ²	Incoloy 800	1.4958		
H	Hard materials				
	1.1 High strength steels, hardened steels, hard castings	44 - 50 HRC	Weldox 1100		
	1.2 High strength steels, hardened steels, hard castings	50 - 55 HRC	Hardox 550		
	1.3 High strength steels, hardened steels, hard castings	55 - 60 HRC	Armox 600T		
	1.4 High strength steels, hardened steels, hard castings	60 - 63 HRC	Ferro-Titanit		
	1.5 High strength steels, hardened steels, hard castings	63 - 66 HRC	HSS-E		

MULTI Thread Milling Cutters



GSF-MULTI

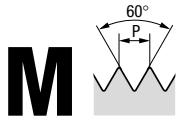
GF-MULTI

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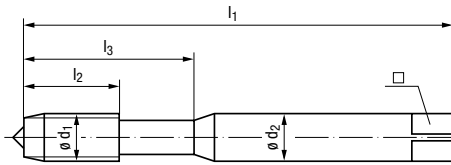
ZGF-MULTI

	V _C			f _Z					
	TIALN	ø d ₁ ≤ 4 mm	ø d ₁ ≤ 8 mm	ø d ₁ > 8 mm	TIN	ø d ₁ ≤ 4 mm			ø d ₁ ≤ 8 mm
80 - 250		0.005 - 0.04	0.04 - 0.07	0.05 - 0.15	80 - 250	0.005 - 0.04	0.04 - 0.07	0.05 - 0.15	1.1
60 - 150		0.005 - 0.04	0.04 - 0.07	0.05 - 0.15	60 - 150	0.005 - 0.04	0.04 - 0.07	0.05 - 0.15	2.1
40 - 120		0.005 - 0.03	0.03 - 0.05	0.04 - 0.12	40 - 120	0.005 - 0.03	0.03 - 0.05	0.04 - 0.12	3.1
40 - 120		0.003 - 0.02	0.02 - 0.05	0.04 - 0.12	40 - 120	0.003 - 0.02	0.02 - 0.05	0.04 - 0.12	4.1
40 - 120		0.003 - 0.02	0.02 - 0.05	0.04 - 0.12	40 - 120	0.003 - 0.02	0.02 - 0.05	0.04 - 0.12	5.1
40 - 120		0.003 - 0.03	0.03 - 0.05	0.04 - 0.12	40 - 120	0.003 - 0.03	0.03 - 0.05	0.04 - 0.12	1.1
40 - 120		0.003 - 0.03	0.03 - 0.05	0.04 - 0.12	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	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	30 - 60	0.003 - 0.02	0.02 - 0.04	0.03 - 0.08	4.1
100 - 200			0.04 - 0.07	0.05 - 0.15	100 - 200		0.04 - 0.07	0.05 - 0.15	1.1
100 - 200			0.04 - 0.07	0.05 - 0.15	100 - 200		0.04 - 0.07	0.05 - 0.15	1.2
80 - 200			0.04 - 0.07	0.05 - 0.15	80 - 200		0.04 - 0.07	0.05 - 0.15	2.1
80 - 200			0.04 - 0.07	0.05 - 0.15	80 - 200		0.04 - 0.07	0.05 - 0.15	2.2
80 - 200			0.04 - 0.07	0.05 - 0.15	80 - 200		0.04 - 0.07	0.05 - 0.15	3.1
80 - 200			0.04 - 0.07	0.05 - 0.15	80 - 200		0.04 - 0.07	0.05 - 0.15	3.2
80 - 200			0.04 - 0.07	0.05 - 0.15	80 - 200		0.04 - 0.07	0.05 - 0.15	4.1
80 - 200			0.04 - 0.07	0.05 - 0.15	80 - 200		0.04 - 0.07	0.05 - 0.15	4.2
150 - 400		0.01 - 0.05	0.05 - 0.08	0.07 - 0.20	150 - 400	0.01 - 0.05	0.05 - 0.08	0.07 - 0.20	1.1
150 - 400		0.01 - 0.05	0.05 - 0.08	0.07 - 0.20	150 - 400	0.01 - 0.05	0.05 - 0.08	0.07 - 0.20	1.2
150 - 400		0.01 - 0.05	0.05 - 0.08	0.07 - 0.20	150 - 400	0.01 - 0.05	0.05 - 0.08	0.07 - 0.20	1.3
150 - 400		0.01 - 0.05	0.05 - 0.08	0.07 - 0.20	150 - 400	0.01 - 0.05	0.05 - 0.08	0.07 - 0.20	1.4
150 - 400		0.01 - 0.05	0.05 - 0.08	0.07 - 0.20	150 - 400	0.01 - 0.05	0.05 - 0.08	0.07 - 0.20	1.5
100 - 200		0.01 - 0.05	0.05 - 0.08	0.07 - 0.20	100 - 200	0.01 - 0.05	0.05 - 0.08	0.07 - 0.20	1.6
150 - 400		0.008 - 0.05	0.05 - 0.08	0.07 - 0.20	150 - 400	0.008 - 0.05	0.05 - 0.08	0.07 - 0.20	2.1
150 - 400		0.008 - 0.05	0.05 - 0.08	0.07 - 0.20	150 - 400	0.008 - 0.05	0.05 - 0.08	0.07 - 0.20	2.2
150 - 400		0.008 - 0.05	0.05 - 0.08	0.07 - 0.20	150 - 400	0.008 - 0.05	0.05 - 0.08	0.07 - 0.20	2.3
100 - 250		0.008 - 0.04	0.04 - 0.07	0.05 - 0.15	100 - 250	0.008 - 0.04	0.04 - 0.07	0.05 - 0.15	2.4
100 - 250		0.008 - 0.04	0.04 - 0.07	0.05 - 0.15	100 - 250	0.008 - 0.04	0.04 - 0.07	0.05 - 0.15	2.5
100 - 250		0.008 - 0.04	0.04 - 0.07	0.05 - 0.15	100 - 250	0.008 - 0.04	0.04 - 0.07	0.05 - 0.15	2.6
40 - 80		0.003 - 0.02	0.02 - 0.05	0.04 - 0.15	40 - 80	0.003 - 0.02	0.02 - 0.05	0.04 - 0.15	2.7
30 - 60		0.003 - 0.02	0.02 - 0.05	0.04 - 0.15	30 - 60	0.003 - 0.02	0.02 - 0.05	0.04 - 0.15	2.8
150 - 400		0.01 - 0.05	0.05 - 0.08	0.07 - 0.20	150 - 400	0.01 - 0.05	0.05 - 0.08	0.07 - 0.20	3.1
150 - 400		0.01 - 0.05	0.05 - 0.08	0.07 - 0.20	150 - 400	0.01 - 0.05	0.05 - 0.08	0.07 - 0.20	3.2
100 - 400		0.01 - 0.05	0.05 - 0.10	0.08 - 0.25	100 - 400	0.01 - 0.05	0.05 - 0.10	0.08 - 0.25	4.1
100 - 400		0.01 - 0.05	0.05 - 0.10	0.08 - 0.25	100 - 400	0.01 - 0.05	0.05 - 0.10	0.08 - 0.25	4.2
80 - 120		0.01 - 0.05	0.05 - 0.10	0.08 - 0.25	80 - 120	0.01 - 0.05	0.05 - 0.10	0.08 - 0.25	4.3
80 - 120		0.01 - 0.05	0.05 - 0.10	0.08 - 0.25	80 - 120	0.01 - 0.05	0.05 - 0.10	0.08 - 0.25	4.4
100 - 200			0.04 - 0.07	0.08 - 0.25	100 - 200		0.04 - 0.07	0.08 - 0.25	5.1
30 - 60			0.02 - 0.04	0.03 - 0.08	30 - 60		0.02 - 0.04	0.03 - 0.08	5.2
									5.3
30 - 80		0.003 - 0.03	0.03 - 0.05	0.04 - 0.10	30 - 80	0.003 - 0.03	0.03 - 0.05	0.04 - 0.10	1.1
30 - 80		0.003 - 0.03	0.03 - 0.05	0.04 - 0.10	30 - 80	0.003 - 0.03	0.03 - 0.05	0.04 - 0.10	1.2
30 - 60		0.003 - 0.02	0.02 - 0.04	0.03 - 0.08	30 - 60	0.003 - 0.02	0.02 - 0.04	0.03 - 0.08	1.3
30 - 60		0.003 - 0.02	0.02 - 0.04	0.03 - 0.08	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	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	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	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	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	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	30 - 60		0.015 - 0.04	0.03 - 0.08	1.1
30 - 60			0.015 - 0.04	0.03 - 0.08	30 - 60		0.015 - 0.04	0.03 - 0.08	1.2
									1.3
									1.4
									1.5

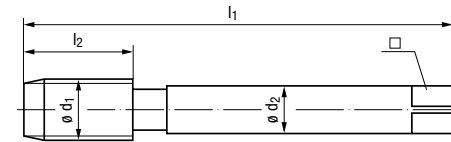
Thread milling cutter is very suitable
Thread milling cutter is suitable



ISO Metric coarse thread DIN 13



DIN 371



DIN 376

DIN 371/376
HSSE



Technical information	Tolerance	6HX	6HX	ISO 2/6H	ISO 2/6H
	Coating	NT2	GLT-1	NT2	GLT-1
		C / 2-3 E / 0 / P	C / 2-3 E / 0 / P	B / 4-5 E / 0 / P	B / 4-5 E / 0 / P

Thread depth and hole type	max. 2 x d ₁	max. 3 x d ₁

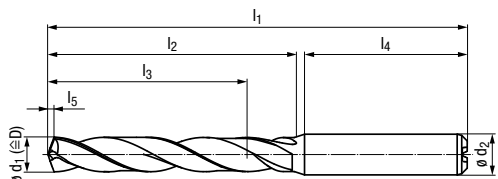
Applications – material	P 1.1-4.1	P 1.1-4.1	P 1.1-3.1	P 1.1-4.1
	K 1.1-4.2	K 1.1-4.2	M 1.1-2.1	M 1.1-3.1
	N 1.4-5, 2.4-7	N 1.4-6, 2.4-7	K 1.1-4.2	K 1.1-4.2
	N 4.1, 5.1	N 4.1, 5.1	N 1.4-5, 2.4-5	N 1.4-6
				N 2.2, 2.4-5

DIN 371		Tool ident						B510D601				B510C101		B5207300		B520C300	
∅ d ₁ mm	P mm	l ₁	l ₂	l ₃	∅ d ₂	□	Dimens. Ident	Rekord 1A-MULTI NT2	Rekord 1A-MULTI GLT-1	Rekord 1B-MULTI NT2	Rekord 1B-MULTI GLT-1	£	£	£	£	£	£
M 2	0.4	45	7	12	2.8	2.1	1.6	.0020	£ 16.49	£ 20.26	£ 17.20	£ 20.87					
2.5	0.45	50	9	14	2.8	2.1	2.05	.0025	£ 15.27	£ 19.04	£ 16.70	£ 20.56					
3	0.5	56	11	18	3.5	2.7	2.5	.0030	£ 11.50	£ 15.17	£ 12.73	£ 16.29					
4	0.7	63	13	21	4.5	3.4	3.3	.0040	£ 11.91	£ 16.70	£ 12.93	£ 17.61					
5	0.8	70	15	25	6	4.9	4.2	.0050	£ 12.52	£ 17.41	£ 13.13	£ 17.92					
6	1	80	17	30	6	4.9	5	.0060	£ 12.62	£ 23.21	£ 13.23	£ 24.23					
8	1.25	90	20	35	8	6.2	6.8	.0080	£ 13.95	£ 24.94	£ 14.86	£ 25.86					
10	1.5	100	22	39	10	8	8.5	.0100	£ 17.10	£ 31.56	£ 18.02	£ 32.37					

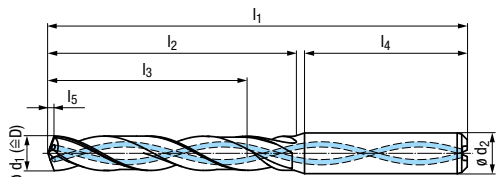
DIN 376		Tool ident						C510D601		C510C101		C5207300		C520C300	
∅ d ₁ mm	P mm	l ₁	l ₂	∅ d ₂	□	Dimens. Ident	Rekord 2A-MULTI NT2	Rekord 2A-MULTI GLT-1	Rekord 2B-MULTI NT2	Rekord 2B-MULTI GLT-1	£	£	£	£	
M 12	1.75	110	24	9	7	10.2	.0112	£ 21.79	£ 37.06	£ 22.91	£ 38.07				
14	2	110	26	11	9	12	.0114	£ 32.58	£ 51.10	£ 35.12	£ 53.45				
16	2	110	27	12	9	14	.0116	£ 31.76	£ 50.39	£ 33.70	£ 52.73				
18	2.5	125	30	14	11	15.5	.0118	£ 50.09	£ 78.08	£ 56.80	£ 84.09				
20	2.5	140	32	16	12	17.5	.0120	£ 49.47	£ 91.42	£ 51.41	£ 93.45				
22	2.5	140	32	18	14.5	19.5	.0122	£ 78.79	£ 120.12	£ 85.41	£ 128.17				
24	3	160	34	18	14.5	21	.0124	£ 66.78	£ 109.44	£ 70.75	£ 112.18				

Ordering example: B510D601.0020

DIN 6537 K+L
Carbide



EF-Drill Micro-MULTI
EF-Drill MULTI 3 x D



EF-Drill MULTI 5 x D



TIALN T21 R30 Z2 2FF IT9-IT10 DIN 6535 HA

118° 140° 140°

Drill depth	Micro	3 x D	5 x D
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Applications – material	P	1.1-5.1	P	1.1-5.1	P	1.1-5.1
	M	1.1-4.1	M	1.1	M	1.1-4.1
	K	1.1-4.2	K	1.1-4.2	K	1.1-4.2
	N	1.1-2.8	N	1.1-1.5	N	1.1-2.8
	N	4.1, 5.1	N	2.1-2.8, 4.1	N	4.1, 5.1
	» 6					

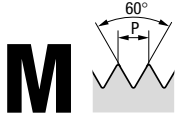
Tool ident												TE109924	TA109924	TA219924	
ø d ₁	Tol.	Micro + 3 x D			5 x D				ø d ₂	Dimens. Ident	EF-Drill Micro-MULTI HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21		
		l ₁	l ₂	l ₃	l ₁	l ₂	l ₃	l ₄			l ₅				
M 2	1.6	h6	38	12	9.90	–	–	–	26	0.5	2	.0160	£ 15.88		
M 2,5	2.05	h6	38	12	9.35	–	–	–	26	0.6	3	.0205	£ 19.65		
M 3	2.5	h6	38	12	8.75	–	–	–	26	0.8	3	.0250	£ 19.65		
M 4	3.3	m7	62	20	14	66	28	23	36	0.6	6	.0330		£ 29.01	£ 45.81
M 5	4.2	m7	66	24	17	74	36	29	36	0.8	6	.0420		£ 29.01	£ 45.81
M 6	5	m7	66	28	20	82	44	35	36	0.9	6	.0500		£ 29.01	£ 45.81
M 8	6.8	m7	79	34	24	91	53	43	36	1.2	8	.0680		£ 34.10	£ 53.75
M10	8.5	m7	89	47	35	103	61	49	40	1.5	10	.0850		£ 40.41	£ 64.95

Tool ident												TA109924	TA219924	
ø d ₁	Tol.	3 x D			5 x D				ø d ₂	Dimens. Ident	EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21		
		l ₁	l ₂	l ₃	l ₁	l ₂	l ₃	l ₄			l ₅			
M12	10.2	m7	102	55	40	118	71	56	45	1.9	12	.1020	£ 54.26	£ 85.51
M14	12	m7	102	55	40	118	71	56	45	2.2	12	.1200	£ 54.26	£ 85.51
M16	14	m7	107	60	43	124	77	60	45	2.5	14	.1400	£ 78.08	£ 124.30
M18	15.5	m7	115	65	45	133	83	63	48	2.8	16	.1550	£ 96.30	£ 152.29
M20	17.5	m7	123	73	51	143	93	71	48	3.2	18	.1750	£ 114.02	£ 205.53
M22	19.5	m7	131	79	55	153	101	77	50	3.5	20	.1950	£ 175.20	£ 261.63
M24	21	m7	146	85	59	170	109	83	56	3.8	25	.2100	£ 232.61	£ 331.66

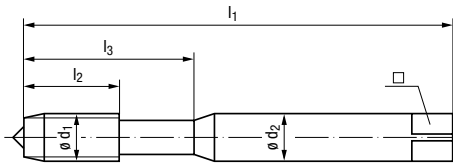
Further twist drill dimensions, see page 30

Ordering example: TE109924.0160

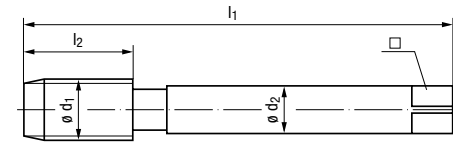
From shank dia. 6 mm with side-lock clamping (Form HB) or with inclined clamping flat (Form HE) upon request



ISO Metric coarse thread DIN 13



DIN 371



DIN 376

DIN 371/376
HSSE



Technical information	Tolerance	ISO 2/6H	ISO 2/6H
	Coating	NE2	GLT-1
		R35	R35
		C / 2-3	C / 2-3
		E / O / P	E / O / P

Thread depth and hole type	max. 2.5 x d ₁	

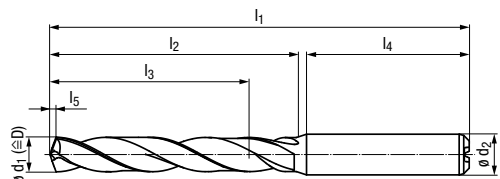
Applications – material	<ul style="list-style-type: none"> P 1.1-3.1 M 1.1-2.1 K 1.1-4.2 N 1.4-5, 2.4-5 	<ul style="list-style-type: none"> P 1.1-4.1 M 1.1-3.1 K 1.1-4.2 N 1.4-6 N 2.2, 2.4-5
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DIN 371		Tool ident							B5503200		B550C300	
Ø d ₁ mm	P mm	l ₁	l ₂	l ₃	Ø d ₂	□		Dimens. Ident	Enorm 1-MULTI NE2	Enorm 1-MULTI GLT-1		
M 2	0.4	45	4	12	2.8	2.1	1.6	.0020	£ 17.20	£ 20.77		
2.5	0.45	50	5	14	2.8	2.1	2.05	.0025	£ 17.61	£ 21.28		
3	0.5	56	6	18	3.5	2.7	2.5	.0030	£ 13.23	£ 16.90		
4	0.7	63	7	21	4.5	3.4	3.3	.0040	£ 13.74	£ 18.53		
5	0.8	70	8	25	6	4.9	4.2	.0050	£ 13.95	£ 18.93		
6	1	80	10	30	6	4.9	5	.0060	£ 14.35	£ 25.45		
8	1.25	90	14	35	8	6.2	6.8	.0080	£ 16.90	£ 27.79		
10	1.5	100	16	39	10	8	8.5	.0100	£ 20.36	£ 35.12		

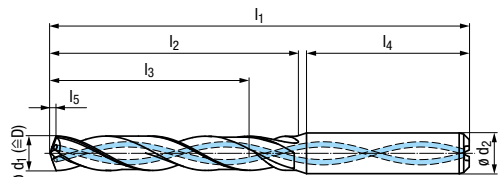
DIN 376		Tool ident							C5503200		C550C300	
Ø d ₁ mm	P mm	l ₁	l ₂	Ø d ₂	□		Dimens. Ident	Enorm 2-MULTI NE2	Enorm 2-MULTI GLT-1			
M 12	1.75	110	18	9	7	10.2	.0112	£ 25.04	£ 39.70			
14	2	110	20	11	9	12	.0114	£ 38.07	£ 56.80			
16	2	110	22	12	9	14	.0116	£ 35.73	£ 54.46			
18	2.5	125	25	14	11	15.5	.0118	£ 61.79	£ 88.77			
20	2.5	140	25	16	12	17.5	.0120	£ 54.77	£ 97.42			
22	2.5	140	27	18	14.5	19.5	.0122	£ 85.41	£ 128.17			
24	3	160	30	18	14.5	21	.0124	£ 73.40	£ 114.83			

Ordering example: B5503200.0020

DIN 6537 K+L
Carbide



EF-Drill Micro-MULTI
EF-Drill MULTI 3 x D



EF-Drill MULTI 5 x D



TIALN T21 R30 Z2 2FF IT9-IT10 DIN 6535 HA

118° 140° 140°

Drill depth

Micro 3 x D 5 x D

Applications – material 6

P	1.1-5.1	P	1.1-5.1	P	1.1-5.1
M	1.1-4.1	M	1.1	M	1.1-4.1
K	1.1-4.2	K	1.1-4.2	K	1.1-4.2
N	1.1-2.8	N	1.1-1.5	N	1.1-2.8
N	4.1, 5.1	N	2.1-2.8, 4.1	N	4.1, 5.1

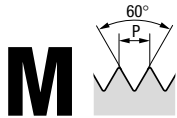
Tool ident												TE109924	TA109924	TA219924	
	ø d ₁	Tol.	Micro + 3 x D			5 x D				Dimens. Ident	EF-Drill Micro-MULTI HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21		
			l ₁	l ₂	l ₃	l ₁	l ₂	l ₃	l ₄		l ₅	ø d ₂			
M 2	1.6	h6	38	12	9.90	–	–	–	26	0.5	2	.0160	£ 15.88		
M 2.5	2.05	h6	38	12	9.35	–	–	–	26	0.6	3	.0205	£ 19.65		
M 3	2.5	h6	38	12	8.75	–	–	–	26	0.8	3	.0250	£ 19.65		
M 4	3.3	m7	62	20	14	66	28	23	36	0.6	6	.0330		£ 29.01	£ 45.81
M 5	4.2	m7	66	24	17	74	36	29	36	0.8	6	.0420		£ 29.01	£ 45.81
M 6	5	m7	66	28	20	82	44	35	36	0.9	6	.0500		£ 29.01	£ 45.81
M 8	6.8	m7	79	34	24	91	53	43	36	1.2	8	.0680		£ 34.10	£ 53.75
M10	8.5	m7	89	47	35	103	61	49	40	1.5	10	.0850		£ 40.41	£ 64.95

Tool ident												TA109924	TA219924	
	ø d ₁	Tol.	3 x D			5 x D				Dimens. Ident	EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21		
			l ₁	l ₂	l ₃	l ₁	l ₂	l ₃	l ₄		l ₅	ø d ₂		
M12	10.2	m7	102	55	40	118	71	56	45	1.9	12	.1020	£ 54.26	£ 85.51
M14	12	m7	102	55	40	118	71	56	45	2.2	12	.1200	£ 54.26	£ 85.51
M16	14	m7	107	60	43	124	77	60	45	2.5	14	.1400	£ 78.08	£ 124.30
M18	15.5	m7	115	65	45	133	83	63	48	2.8	16	.1550	£ 96.30	£ 152.29
M20	17.5	m7	123	73	51	143	93	71	48	3.2	18	.1750	£ 114.02	£ 205.53
M22	19.5	m7	131	79	55	153	101	77	50	3.5	20	.1950	£ 175.20	£ 261.63
M24	21	m7	146	85	59	170	109	83	56	3.8	25	.2100	£ 232.61	£ 331.66

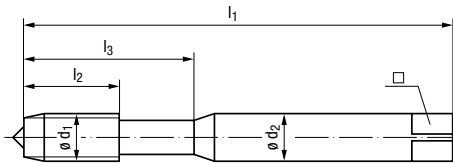
Further twist drill dimensions, see page 30

Ordering example: TE109924.0160

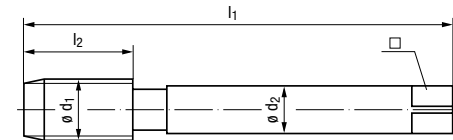
From shank dia. 6 mm with side-lock clamping (Form HB) or with inclined clamping flat (Form HE) upon request



ISO Metric coarse thread DIN 13



DIN 2174



DIN 2174

DIN 2174
HSSE



Technical information	Tolerance	6HX	6HX
	Coating	NT2	GLT-1
		C / 2-3	C / 2-3
		E / 0 / P	E / 0 / P

Thread depth and hole type	
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Applications – material	▶▶ 4	<table border="1"> <tr><td>P</td><td>2.1-3.1</td></tr> <tr><td>M</td><td>1.1-2.1¹⁾</td></tr> <tr><td>K</td><td>2.1</td></tr> <tr><td>N</td><td>1.4-5</td></tr> </table>	P	2.1-3.1	M	1.1-2.1 ¹⁾	K	2.1	N	1.4-5	<table border="1"> <tr><td>P</td><td>1.1-4.1</td></tr> <tr><td>M</td><td>1.1-3.1¹⁾</td></tr> <tr><td>K</td><td>2.1</td></tr> <tr><td>N</td><td>1.4-5, 2.1-2</td></tr> </table>	P	1.1-4.1	M	1.1-3.1 ¹⁾	K	2.1	N	1.4-5, 2.1-2
P	2.1-3.1																		
M	1.1-2.1 ¹⁾																		
K	2.1																		
N	1.4-5																		
P	1.1-4.1																		
M	1.1-3.1 ¹⁾																		
K	2.1																		
N	1.4-5, 2.1-2																		

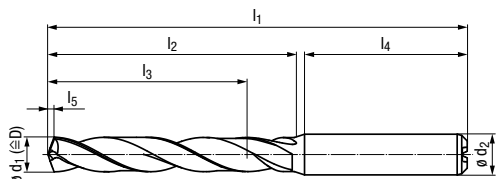
DIN 2174		Tool ident							B5564900		B556C000	
$\varnothing d_1$ mm	P mm	l_1	l_2	l_3	$\varnothing d_2$	\square		Dimens. Ident	InnoForm 1-MULTI-SN NT2	InnoForm 1-MULTI-SN GLT-1		
M 2	0.4	45	7	12	2.8	2.1		1.85	.0020	£ 26.06	£ 29.73	
2.5	0.45	50	9	14	2.8	2.1		2.33	.0025	£ 22.91	£ 26.57	
3	0.5	56	11	18	3.5	2.7		2.8	.0030	£ 16.49	£ 20.26	
4	0.7	63	13	21	4.5	3.4		3.7	.0040	£ 16.49	£ 21.07	
5	0.8	70	15	25	6	4.9		4.65	.0050	£ 17.61	£ 22.09	
6	1	80	17	30	6	4.9		5.6	.0060	£ 17.61	£ 28.10	
8	1.25	90	20	35	8	6.2		7.45	.0080	£ 20.56	£ 31.56	
10	1.5	100	22	39	10	8		9.35	.0100	£ 26.37	£ 40.72	

DIN 2174		Tool ident							C5564900		C556C000	
$\varnothing d_1$ mm	P mm	l_1	l_2	$\varnothing d_2$	\square		Dimens. Ident	InnoForm 2-MULTI-SN NT2	InnoForm 2-MULTI-SN GLT-1			
M 12	1.75	110	24	9	7		11.25	.0112	£ 32.27	£ 47.13		
14	2	110	26	11	9		13.1	.0114	£ 84.80	£ 104.14		
16	2	110	27	12	9		15.1	.0116	£ 64.44	£ 82.76		

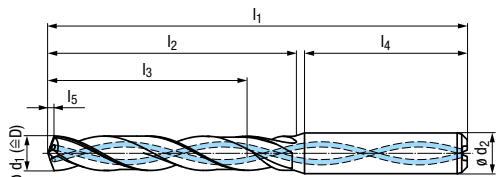
¹⁾ Restricted application possibilities with emulsion

Ordering example: B5564900.0020

DIN 6537 K+L
Carbide



EF-Drill Micro-MULTI
EF-Drill MULTI 3 x D



EF-Drill MULTI 5 x D



TIALN T21 R30 Z2 2FF IT9-IT10 DIN 6535 HA

118° 140° 140°

Drill depth	Micro	3 x D	5 x D
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Applications – material 6

P	1.1-5.1	P	1.1-5.1	P	1.1-5.1
M	1.1-4.1	M	1.1	M	1.1-4.1
K	1.1-4.2	K	1.1-4.2	K	1.1-4.2
N	1.1-2.8	N	1.1-1.5	N	1.1-2.8
N	4.1, 5.1	N	2.1-2.8, 4.1	N	4.1, 5.1

Tool ident												TE109924	TA109924	TA219924	
	ø d ₁	Tol.	Micro + 3 x D			5 x D				Dimens. Ident	EF-Drill Micro-MULTI HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21		
			l ₁	l ₂	l ₃	l ₁	l ₂	l ₃	l ₄		l ₅	ø d ₂			
M 2	1.85	h6	38	12	9.60	—	—	—	26	0.6	2	.0185	£ 17.10		
M 2.5	2.33	h6	38	12	8.95	—	—	—	26	0.7	3	.0233	£ 19.65		
M 3	2.8	m7	57	16	11	61	22	17	36	0.5	6	.0280		£ 29.01	£ 45.81
M 4	3.7	m7	62	20	14	66	28	23	36	0.7	6	.0370		£ 29.01	£ 45.81
M 5	4.65	m7	66	24	17	74	36	29	36	0.8	6	.0465		£ 29.01	£ 45.81
M 6	5.6	m7	66	28	20	82	44	35	36	1	6	.0560		£ 29.01	£ 45.81
M 8	7.45	m7	79	41	29	91	53	43	36	1.4	8	.0745		£ 34.10	£ 53.75
M 10	9.35	m7	89	47	35	103	61	49	40	1.7	10	.0935		£ 40.41	£ 64.95

Tool ident												TA109924	TA219924		
	ø d ₁	Tol.	3 x D			5 x D				Dimens. Ident	EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21			
			l ₁	l ₂	l ₃	l ₁	l ₂	l ₃	l ₄		l ₅	ø d ₂			
M 12	11.25	m7	102	55	40	118	71	56	45	2	12	.1125		£ 54.26	£ 85.51
M 14	13.1	m7	107	60	43	124	77	60	45	2.4	14	.1310		£ 78.08	£ 124.30
M 16	15.1	m7	115	65	45	133	83	63	48	2.7	16	.1510		£ 96.30	£ 152.29

Further twist drill dimensions, see page 30

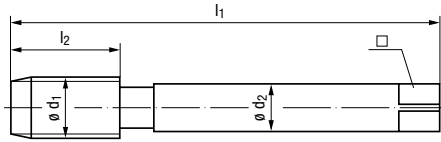
Ordering example: TE109924.0185

From shank dia. 6 mm with side-lock clamping (Form HB) or with inclined clamping flat (Form HE) upon request



ISO Metric fine thread DIN 13

DIN 374
HSSE



DIN 374

Technical information	Tolerance	6HX	6HX	ISO 2/6H	ISO 2/6H
	Coating	NT2	GLT-1	NT2	GLT-1
		C/2-3 E/O/P	C/2-3 E/O/P	B/4-5 E/O/P	B/4-5 E/O/P

Thread depth and hole type	 max. 2 x d ₁	 max. 3 x d ₁
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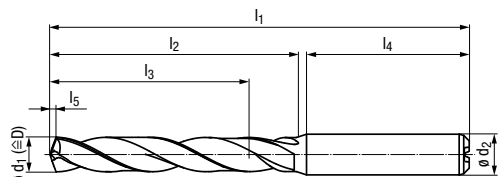
Applications – material	<p>▶▶ 4</p> <table border="0"> <tr> <td>P 1.1-4.1</td> <td>P 1.1-4.1</td> <td>P 1.1-3.1</td> <td>P 1.1-4.1</td> </tr> <tr> <td>K 1.1-4.2</td> <td>K 1.1-4.2</td> <td>M 1.1-2.1</td> <td>M 1.1-3.1</td> </tr> <tr> <td>N 1.4-5, 2.4-7</td> <td>N 1.4-6, 2.4-7</td> <td>K 1.1-4.2</td> <td>K 1.1-4.2</td> </tr> <tr> <td>N 4.1, 5.1</td> <td>N 4.1, 5.1</td> <td>N 1.4-5, 2.4-5</td> <td>N 1.4-6</td> </tr> <tr> <td></td> <td></td> <td></td> <td>N 2.2, 2.4-5</td> </tr> </table>	P 1.1-4.1	P 1.1-4.1	P 1.1-3.1	P 1.1-4.1	K 1.1-4.2	K 1.1-4.2	M 1.1-2.1	M 1.1-3.1	N 1.4-5, 2.4-7	N 1.4-6, 2.4-7	K 1.1-4.2	K 1.1-4.2	N 4.1, 5.1	N 4.1, 5.1	N 1.4-5, 2.4-5	N 1.4-6				N 2.2, 2.4-5
P 1.1-4.1	P 1.1-4.1	P 1.1-3.1	P 1.1-4.1																		
K 1.1-4.2	K 1.1-4.2	M 1.1-2.1	M 1.1-3.1																		
N 1.4-5, 2.4-7	N 1.4-6, 2.4-7	K 1.1-4.2	K 1.1-4.2																		
N 4.1, 5.1	N 4.1, 5.1	N 1.4-5, 2.4-5	N 1.4-6																		
			N 2.2, 2.4-5																		

DIN 374		Tool ident							C510D601	C510C101	C5207300	C520C300
∅ d ₁ mm	P mm	l ₁	l ₂	∅ d ₂	□		Dimens. Ident	Rekord 2A-MULTI NT2	Rekord 2A-MULTI GLT-1	Rekord 2B-MULTI NT2	Rekord 2B-MULTI GLT-1	
M 6	x 0.75	80	13	4.5	3.4		5.2	.0229	£ 21.89	£ 32.88	£ 22.91	£ 33.70
8	x 1	90	17	6	4.9		7	.0251	£ 21.89	£ 32.88	£ 22.91	£ 33.70
10	x 1	90	18	7	5.5		9	.0276	£ 22.19	£ 36.75	£ 23.21	£ 37.77
12	x 1	100	18	9	7		11	.0301	£ 27.89	£ 41.43	£ 30.44	£ 42.45
12	x 1.5	100	22	9	7		10.5	.0303	£ 24.74	£ 40.11	£ 26.06	£ 41.13
14	x 1.5	100	22	11	9		12.5	.0331	£ 31.76	£ 50.39	£ 33.70	£ 52.73
16	x 1.5	100	22	12	9		14.5	.0359	£ 38.07	£ 56.40	£ 41.13	£ 60.06
18	x 1.5	110	25	14	11		16.5	.0390	£ 45.10	£ 73.40	£ 46.42	£ 74.82
20	x 1.5	125	25	16	12		18.5	.0422	£ 51.71	£ 93.45	£ 54.46	£ 97.42
22	x 1.5	125	25	18	14.5		20.5	.0438	£ 53.75	£ 96.10	£ 58.74	£ 101.49
24	x 1.5	140	27	18	14.5		22.5	.0452	£ 65.15	£107.50	£ 67.39	£ 109.44

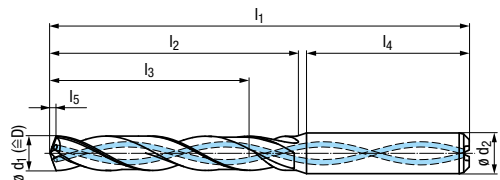
Ordering example: C510D601.0229

DIN
6537
K+L

Carbide



EF-Drill MULTI 3 x D



EF-Drill MULTI 5 x D



TIALN
T21

R30



Drill depth

3 x D

5 x D

Applications – material 6

- P 1.1-5.1
- M 1.1
- K 1.1-4.2
- N 1.1-1.5
- N 2.1-2.8, 4.1

- P 1.1-5.1
- M 1.1-4.1
- K 1.1-4.2
- N 1.1-2.8
- N 4.1, 5.1

Tool ident													TA109924	TA219924
	ø d ₁	Tol.	3 x D			5 x D						Dimens. Ident	EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21
			l ₁	l ₂	l ₃	l ₁	l ₂	l ₃	l ₄	l ₅	ø d ₂		£	£
M 6 x 0.75	5.2	m7	66	28	20	82	44	35	36	0.9	6	.0520	£ 29.01	£ 45.81
M 8 x 1	7	m7	79	34	24	91	53	43	36	1.3	8	.0700	£ 34.10	£ 53.75
M10 x 1	9	m7	89	47	35	103	61	49	40	1.6	10	.0900	£ 40.41	£ 64.95
M12 x 1	11	m7	102	55	40	118	71	56	45	2	12	.1100	£ 54.26	£ 85.51
M12 x 1.5	10.5	m7	102	55	40	118	71	56	45	1.9	12	.1050	£ 54.26	£ 85.51
M14 x 1.5	12.5	m7	107	60	43	124	77	60	45	2.3	14	.1250	£ 78.08	£ 124.30
M16 x 1.5	14.5	m7	115	65	45	133	83	63	48	2.6	16	.1450	£ 96.30	£ 152.29
M18 x 1.5	16.5	m7	123	73	51	143	93	71	48	3	18	.1650	£ 114.02	£ 205.53
M20 x 1.5	18.5	m7	131	79	55	153	101	77	50	3.4	20	.1850	£ 175.20	£ 261.63
M22 x 1.5	20.5	m7	146	85	59	170	109	83	56	3.7	25	.2050	£ 232.61	£ 331.66
M24 x 1.5	22.5	m7	150	91	63	170	109	83	56	4	25	.2250	£ 232.61	£ 331.66

Further twist drill dimensions, see page 30

Ordering example: TA219924.0520

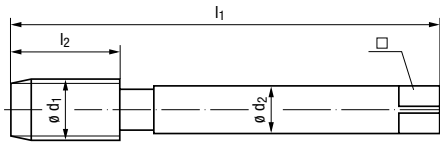
With side-lock clamping (Form HB) or with inclined clamping flat (Form HE) upon request



ISO Metric fine thread DIN 13

DIN 374

HSSE



DIN 374

Technical information	Tolerance	ISO 2/6H	ISO 2/6H
	Coating	NE2	GLT-1
		R35	R35
		C / 2-3	C / 2-3
		E / O / P	E / O / P

Thread depth and hole type	max. 2.5 x d ₁	

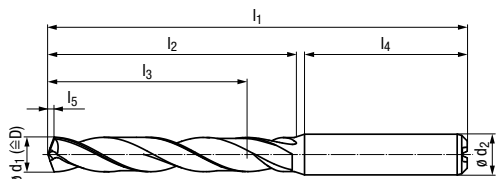
Applications – material	<p>P 1.1-3.1</p> <p>M 1.1-2.1</p> <p>K 1.1-4.2</p> <p>N 1.4-5, 2.4-5</p>	<p>P 1.1-4.1</p> <p>M 1.1-3.1</p> <p>K 1.1-4.2</p> <p>N 1.4-6</p> <p>N 2.2, 2.4-5</p>
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DIN 374		Tool ident							C5503200	C550C300
∅ d ₁ mm	P mm	l ₁	l ₂	∅ d ₂	□		Dimens. Ident	Enorm 2-MULTI NE2	Enorm 2-MULTI GLT-1	
M 6	x 0.75	80	8	4.5	3.4	5.2	.0229	£ 24.02	£ 35.12	
8	x 1	90	10	6	4.9	7	.0251	£ 24.02	£ 35.12	
10	x 1	90	10	7	5.5	9	.0276	£ 25.45	£ 39.70	
12	x 1	100	11	9	7	11	.0301	£ 31.05	£ 46.12	
12	x 1.5	100	15	9	7	10.5	.0303	£ 28.71	£ 43.47	
14	x 1.5	100	15	11	9	12.5	.0331	£ 37.77	£ 56.09	
16	x 1.5	100	15	12	9	14.5	.0359	£ 46.12	£ 64.74	
18	x 1.5	110	17	14	11	16.5	.0390	£ 50.39	£ 78.08	
20	x 1.5	125	17	16	12	18.5	.0422	£ 58.74	£ 101.49	
22	x 1.5	125	17	18	14.5	20.5	.0438	£ 69.43	£ 110.15	
24	x 1.5	140	20	18	14.5	22.5	.0452	£ 75.43	£ 118.19	

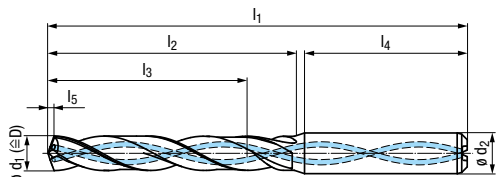
Ordering example: C5503200.0229

DIN
6537
K+L

Carbide



EF-Drill MULTI 3 x D



EF-Drill MULTI 5 x D



TIALN
T21

R30



DIN 6535
HA



Drill depth

3 x D

5 x D

Applications – material 6

- P 1.1-5.1
- M 1.1
- K 1.1-4.2
- N 1.1-1.5
- N 2.1-2.8, 4.1

- P 1.1-5.1
- M 1.1-4.1
- K 1.1-4.2
- N 1.1-2.8
- N 4.1, 5.1

Tool ident													TA109924	TA219924
	ø d ₁	Tol.	3 x D			5 x D						Dimens. Ident	EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21
			l ₁	l ₂	l ₃	l ₁	l ₂	l ₃	l ₄	l ₅	ø d ₂		£	£
M 6 x 0.75	5.2	m7	66	28	20	82	44	35	36	0.9	6	.0520	£ 29.01	£ 45.81
M 8 x 1	7	m7	79	34	24	91	53	43	36	1.3	8	.0700	£ 34.10	£ 53.75
M10 x 1	9	m7	89	47	35	103	61	49	40	1.6	10	.0900	£ 40.41	£ 64.95
M12 x 1	11	m7	102	55	40	118	71	56	45	2	12	.1100	£ 54.26	£ 85.51
M12 x 1.5	10.5	m7	102	55	40	118	71	56	45	1.9	12	.1050	£ 54.26	£ 85.51
M14 x 1.5	12.5	m7	107	60	43	124	77	60	45	2.3	14	.1250	£ 78.08	£ 124.30
M16 x 1.5	14.5	m7	115	65	45	133	83	63	48	2.6	16	.1450	£ 96.30	£ 152.29
M18 x 1.5	16.5	m7	123	73	51	143	93	71	48	3	18	.1650	£ 114.02	£ 205.53
M20 x 1.5	18.5	m7	131	79	55	153	101	77	50	3.4	20	.1850	£ 175.20	£ 261.63
M22 x 1.5	20.5	m7	146	85	59	170	109	83	56	3.7	25	.2050	£ 232.61	£ 331.66
M24 x 1.5	22.5	m7	150	91	63	170	109	83	56	4	25	.2250	£ 232.61	£ 331.66

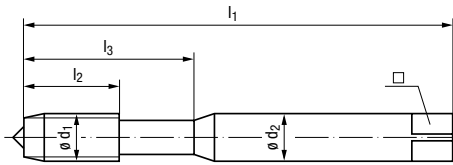
Further twist drill dimensions, see page 30

Ordering example: TA219924.0520

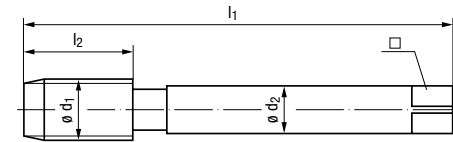
With side-lock clamping (Form HB) or with inclined clamping flat (Form HE) upon request



ISO Metric fine thread DIN 13



DIN 2174



DIN 2174

DIN 2174

HSSE



Technical information

Tolerance
Coating

6HX

6HX

NT2

GLT-1



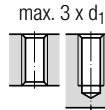
C/2-3

C/2-3

E/O/P

E/O/P

Thread depth and hole type



Applications – material

» 4

P	2.1-3.1	P	1.1-4.1
M	1.1-2.1 ¹⁾	M	1.1-3.1 ¹⁾
K	2.1	K	2.1
N	1.4-5	N	1.4-5, 2.1-2

DIN 2174		Tool ident								B5564900		B556C000	
$\varnothing d_1$ mm	P mm	l_1	l_2	l_3	$\varnothing d_2$	\square		Dimens. Ident	InnoForm 1-MULTI-SN NT2	InnoForm 1-MULTI-SN GLT-1			
M 6	x 0.75	80	13	30	6	4.9	5.7	.0229	£ 35.43	£ 46.42			
8	x 1	90	17	35	8	6.2	7.6	.0251	£ 34.71	£ 45.71			
10	x 1	90	18	35	10	8	9.6	.0276	£ 36.04	£ 50.80			

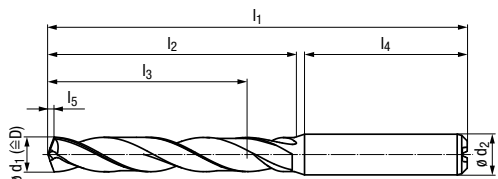
DIN 2174		Tool ident								C5564900		C556C000	
$\varnothing d_1$ mm	P mm	l_1	l_2	$\varnothing d_2$	\square		Dimens. Ident	InnoForm 2-MULTI-SN NT2	InnoForm 2-MULTI-SN GLT-1				
M 12	x 1	100	18	9	7	11.6	.0301	£ 44.08	£ 59.45				
12	x 1.5	100	22	9	7	11.35	.0303	£ 44.38	£ 59.76				
14	x 1.5	100	22	11	9	13.35	.0331	£ 55.07	£ 74.82				
16	x 1.5	100	22	12	9	15.35	.0359	£ 66.07	£ 84.80				

¹⁾ Restricted application possibilities with emulsion

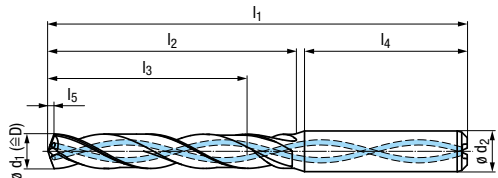
Ordering example: **B5564900.0229**

DIN
6537
K+L

Carbide



EF-Drill MULTI 3 x D



EF-Drill MULTI 5 x D



TIALN
T21

R30



DIN 6535
HA



Drill depth

3 x D

5 x D

Applications – material 6

- P 1.1-5.1
- M 1.1
- K 1.1-4.2
- N 1.1-1.5
- N 2.1-2.8, 4.1

- P 1.1-5.1
- M 1.1-4.1
- K 1.1-4.2
- N 1.1-2.8
- N 4.1, 5.1

Tool ident													TA109924	TA219924
	ø d ₁	Tol.	3 x D			5 x D			l ₄	l ₅	ø d ₂	Dimens. Ident	EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21
			l ₁	l ₂	l ₃	l ₁	l ₂	l ₃					EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21
M 6 x 0.75	5.7	m7	66	28	20	82	44	35	36	1	6	.0570	£ 29.01	£ 45.81
M 8 x 1	7.6	m7	79	41	29	91	53	43	36	1.4	8	.0760	£ 34.10	£ 53.75
M10 x 1	9.6	m7	89	47	35	103	61	49	40	1.7	10	.0960	£ 40.41	£ 64.95

Tool ident													TA109924	TA219924
	ø d ₁	Tol.	3 x D			5 x D			l ₄	l ₅	ø d ₂	Dimens. Ident	EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21
			l ₁	l ₂	l ₃	l ₁	l ₂	l ₃					EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21
M12 x 1	11.6	m7	102	55	40	118	71	56	45	2.1	12	.1160	£ 53.30	£ 85.51
M12 x 1,5	11.35	m7	102	55	40	118	71	56	45	2.1	12	.1135	£ 53.30	£ 85.51
M14 x 1,5	13.35	m7	107	60	43	124	77	60	45	2.4	14	.1335	£ 76.70	£ 124.30
M16 x 1,5	15.35	m7	115	65	45	133	83	63	48	2.8	16	.1535	£ 94.60	£ 152.29

Further twist drill dimensions, see page 30

Ordering example: TA219924.0570

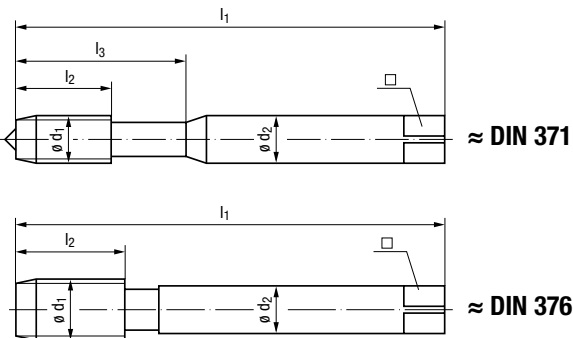
With side-lock clamping (Form HB) or with inclined clamping flat (Form HE) upon request



UNC

Unified coarse thread ASME B1.1

≈ DIN 371/376
HSSE



Technical information	Tolerance	2B	2B	2B	2B
	Coating	NT2	GLT-1	NE2	GLT-1
		B / 4-5	B / 4-5	C / 2-3	C / 2-3
		E / O / P	E / O / P	E / O / P	E / O / P

Thread depth and hole type	max. 3 x d ₁	
	max. 2.5 x d ₁	

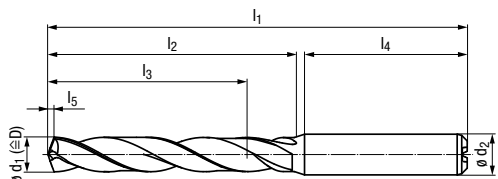
Applications – material	P	1.1-3.1	P	1.1-4.1	P	1.1-3.1	P	1.1-4.1
	M	1.1-2.1	M	1.1-3.1	M	1.1-2.1	M	1.1-3.1
	K	1.1-4.2	K	1.1-4.2	K	1.1-4.2	K	1.1-4.2
	N	1.4-5, 2.4-5	N	1.4-6	N	1.4-5, 2.4-5	N	1.4-6
			N	2.2, 2.4-5			N	2.2, 2.4-5

≈ DIN 371		Tool ident								B5207300		B520C300		B5503200		B550C300	
∅ d ₁	P	l ₁	l ₂	l ₃	∅ d ₂	□		Dimens. Ident	Rekord 1B-MULTI NT2	Rekord 1B-MULTI GLT-1	Enorm 1-MULTI NE2	Enorm 1-MULTI GLT-1					
No. 4	0.1120 40	56	11	18	3,5	2,7		2.35 .5003	£ 18.43	£ 22.09	£ 19.55	£ 23.21					
No. 6	0.1380 32	56	12	20	4	3		2.85 .5005	£ 16.19	£ 19.85	£ 17.41	£ 20.87					
No. 8	0.1640 32	63	13	21	4,5	3,4		3.5 .5006	£ 16.19	£ 20.87	£ 18.53	£ 23.21					
No. 10	0.1900 24	70	15	25	6	4,9		3.9 .5007	£ 17.61	£ 22.19	£ 19.24	£ 24.02					
1/4	0.2500 20	80	17	30	7	5,5		5.1 .5009	£ 18.93	£ 29.73	£ 20.87	£ 31.86					
5/16	0.3125 18	90	20	35	8	6,2		6.6 .5010	£ 21.58	£ 32.58	£ 22.19	£ 33.09					
3/8	0.3750 16	100	22	39	10	8		8 .5011	£ 24.02	£ 38.38	£ 25.04	£ 39.40					

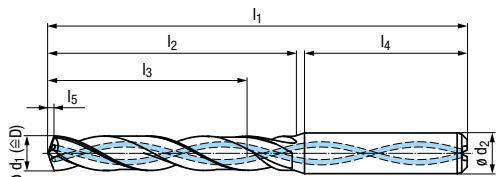
≈ DIN 376		Tool ident								C5207300		C520C300		C5503200		C550C300	
∅ d ₁	P	l ₁	l ₂	∅ d ₂	□		Dimens. Ident	Rekord 2B-MULTI NT2	Rekord 2B-MULTI GLT-1	Enorm 2-MULTI NE2	Enorm 2-MULTI GLT-1						
7/16	0.4375 14	100	22	8	6,2		9.4 .5012	£ 30.03	£ 45.40	£ 33.39	£ 48.76						
1/2	0.5000 13	110	25	9	7		10.8 .5013	£ 31.56	£ 50.39	£ 33.29	£ 52.12						
9/16	0.5625 12	110	26	11	9		12.2 .5014	£ 46.42	£ 65.15	£ 48.05	£ 65.46						
5/8	0.6250 11	110	27	12	9		13.5 .5015	£ 43.47	£ 62.40	£ 47.13	£ 65.76						
3/4	0.7500 10	125	30	14	11		16.5 .5016	£ 53.75	£ 96.81	£ 57.11	£ 99.46						
1"	1.0000 8	160	36	18	14,5		22.25 .5018	£ 88.16	£ 130.20	£ 94.78	£ 136.82						

Ordering example: B5207300.5003

DIN 6537 K+L
Carbide



EF-Drill Micro-MULTI
EF-Drill MULTI 3 x D



EF-Drill MULTI 5 x D



TIALN T21 R30 Z2 2FF IT9-IT10 DIN 6535 HA

118° 140° 140°

Drill depth

Micro 3 x D 5 x D

Applications – material ➔ 6

P	1.1-5.1	P	1.1-5.1	P	1.1-5.1
M	1.1-4.1	M	1.1	M	1.1-4.1
K	1.1-4.2	K	1.1-4.2	K	1.1-4.2
N	1.1-2.8	N	1.1-1.5	N	1.1-2.8
N	4.1, 5.1	N	2.1-2.8, 4.1	N	4.1, 5.1

Tool ident												TE109924	TA109924	TA219924	
	ø d ₁	Tol.	Micro + 3 x D			5 x D			ø d ₂	Dimens. Ident	EF-Drill Micro-MULTI HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21		
			l ₁	l ₂	l ₃	l ₁	l ₂	l ₃							
No. 4	2.35	h6	38	12	8.95				26	0.7	3	.0235	£ 19.65		
No. 6	2.85	m7	57	16	11	61	22	17	36	0.5	6	.0285		£ 29.01	£ 45.81
No. 8	3.5	m7	62	20	14	66	28	23	36	0.6	6	.0350		£ 29.01	£ 45.81
No. 10	3.9	m7	66	24	17	74	36	29	36	0.7	6	.0390		£ 29.01	£ 45.81
1/4	5.1	m7	66	28	20	82	44	35	36	0.9	6	.0510		£ 29.01	£ 45.81
5/16	6.6	m7	79	34	24	91	53	43	36	1.2	8	.0660		£ 34.10	£ 53.75
3/8	8	m7	79	41	29	91	53	43	36	1.5	8	.0800		£ 34.10	£ 53.75

Tool ident													TA109924	TA219924	
	ø d ₁	Tol.	3 x D			5 x D			ø d ₂	Dimens. Ident		EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21		
			l ₁	l ₂	l ₃	l ₁	l ₂	l ₃							
7/16	9.4	m7	89	47	35	103	61	49	40	1.7	10	.0940		£ 40.41	£ 64.95
1/2	10.8	m7	102	55	40	118	71	56	45	2	12	.1080		£ 54.26	£ 85.51
9/16	12.2	m7	107	60	43	124	77	60	45	2.2	14	.1220		£ 78.08	£ 124.30
5/8	13.5	m7	107	60	43	124	77	60	45	2.5	14	.1350		£ 78.08	£ 124.30
3/4	16.5	m7	123	73	51	143	93	71	48	3	18	.1650		£ 114.02	£ 205.53
1"	22.25	m7	150	91	63	170	109	83	56	4	25	.2225		£ 232.61	£ 331.66

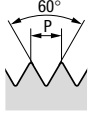
Further twist drill dimensions, see page 30

Ordering example: TE109924.0235

From shank dia. 6 mm with side-lock clamping (Form HB) or with inclined clamping flat (Form HE) upon request

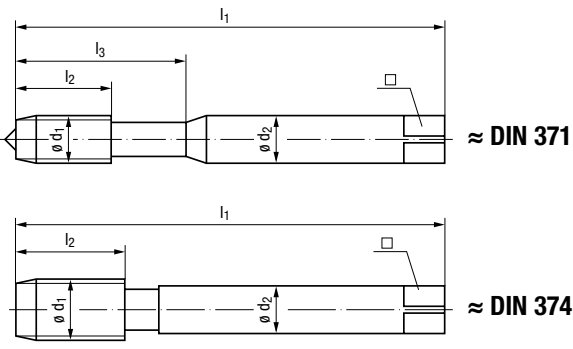
UNF

Unified fine thread ASME B1.1



≈ DIN 371/374

HSSE



Technical information	Tolerance	2B	2B	2B	2B
	Coating	NT2	GLT-1	NE2	GLT-1
		B / 4-5	B / 4-5	C / 2-3	C / 2-3
		E / O / P	E / O / P	E / O / P	E / O / P

Thread depth and hole type	max. 3 x d ₁		max. 2.5 x d ₁	
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Applications – material	P	1.1-3.1	P	1.1-4.1	P	1.1-3.1	P	1.1-4.1
	M	1.1-2.1	M	1.1-3.1	M	1.1-2.1	M	1.1-3.1
	K	1.1-4.2	K	1.1-4.2	K	1.1-4.2	K	1.1-4.2
	N	1.4-5, 2.4-5	N	1.4-6	N	1.4-5, 2.4-5	N	1.4-6
			N	2.2, 2.4-5			N	2.2, 2.4-5

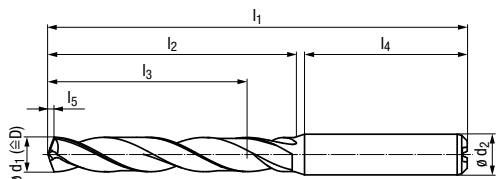
≈ DIN 371		Tool ident								B5207300		B520C300		B5503200		B550C300	
∅ d ₁	P	l ₁	l ₂	l ₃	∅ d ₂	□		Dimens. Ident	Rekord 1B-MULTI NT2	Rekord 1B-MULTI GLT-1	Enorm 1-MULTI NE2	Enorm 1-MULTI GLT-1					
No. 10	0.1900	32	70	15	25	6	4.9	4.1	.5041	£ 20.26	£ 25.04	£ 21.79	£ 26.57				
1/4	0.2500	28	80	17	30	7	5.5	5.5	.5043	£ 22.40	£ 33.29	£ 24.02	£ 35.12				
5/16	0.3125	24	90	17	35	8	6.2	6.9	.5044	£ 25.25	£ 36.44	£ 25.45	£ 36.44				
3/8	0.3750	24	90	18	35	10	8	8.5	.5045	£ 25.76	£ 40.11	£ 27.08	£ 41.43				

≈ DIN 374		Tool ident								C5207300		C520C300		C5503200		C550C300	
∅ d ₁	P	l ₁	l ₂	∅ d ₂	□		Dimens. Ident	Rekord 2B-MULTI NT2	Rekord 2B-MULTI GLT-1	Enorm 2-MULTI NE2	Enorm 2-MULTI GLT-1						
7/16	0.4375	20	100	22	8	6.2	9.9	.5046	£ 32.37	£ 47.44	£ 33.39	£ 48.76					
1/2	0.5000	20	100	22	9	7	11.5	.5047	£ 31.56	£ 50.39	£ 33.70	£ 52.73					
9/16	0.5625	18	100	22	11	9	12.9	.5048	£ 48.46	£ 66.78	£ 50.39	£ 69.43					
5/8	0.6250	18	100	22	12	9	14.5	.5049	£ 44.08	£ 74.11	£ 47.13	£ 65.76					
3/4	0.7500	16	110	25	14	11	17.5	.5050	£ 54.77	£ 97.42	£ 59.76	£ 102.11					

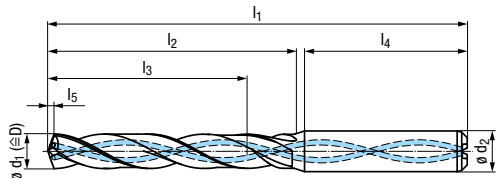
Ordering example: B5207300.5041

DIN
6537
K+L

Carbide



EF-Drill MULTI 3 x D



EF-Drill MULTI 5 x D



TIALN
T21

R30



DIN 6535
HA



Drill depth

3 x D

5 x D

Applications – material 6

- P 1.1-5.1
- M 1.1
- K 1.1-4.2
- N 1.1-1.5
- N 2.1-2.8, 4.1

- P 1.1-5.1
- M 1.1-4.1
- K 1.1-4.2
- N 1.1-2.8
- N 4.1, 5.1

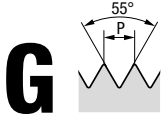
Tool ident												TA109924	TA219924	
			3 x D			5 x D						Dimens. Ident	EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21
	ø d ₁	Tol.	l ₁	l ₂	l ₃	l ₁	l ₂	l ₃	l ₄	l ₅	ø d ₂		£	£
No. 10	4.1	m7	66	24	17	74	36	29	36	0.7	6	.0410	£ 29.01	£ 45.81
1/4	5.5	m7	66	28	20	82	44	35	36	1	6	.0550	£ 29.01	£ 45.81
5/16	6.9	m7	79	34	24	91	53	43	36	1.3	8	.0690	£ 34.10	£ 53.75
3/8	8.5	m7	89	47	35	103	61	49	40	1.5	10	.0850	£ 40.41	£ 64.95

Tool ident												TA109924	TA219924	
			3 x D			5 x D						Dimens. Ident	EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21
	ø d ₁	Tol.	l ₁	l ₂	l ₃	l ₁	l ₂	l ₃	l ₄	l ₅	ø d ₂		£	£
7/16	9.9	m7	89	47	35	103	61	49	40	1.8	10	.0990	£ 40.41	£ 64.95
1/2	11.5	m7	102	55	40	118	71	56	45	2.1	12	.1150	£ 54.26	£ 85.51
9/16	12.9	m7	107	60	43	124	77	60	45	2.3	14	.1290	£ 78.08	£ 124.30
5/8	14.5	m7	115	65	45	133	83	63	48	2.6	16	.1450	£ 96.30	£ 152.29
3/4	17.5	m7	123	73	51	143	93	71	48	3.2	18	.1750	£ 114.02	£ 205.53

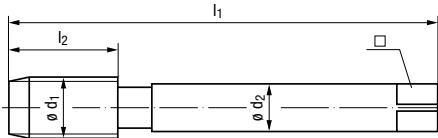
Further twist drill dimensions, see page 30

Ordering example: TA219924.0410

With side-lock clamping (Form HB) or with inclined clamping flat (Form HE) upon request



Whitworth pipe thread DIN EN ISO 228



DIN 5156

DIN 5156

HSSE

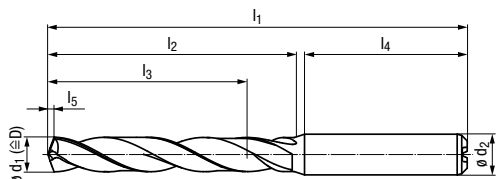


Technical information	Tolerance	"X"	"X"										
	Coating	NT2	GLT-1	NT2	GLT-1								
Thread depth and hole type		C/2-3	C/2-3	B/4-5	B/4-5								
		E/O/P	E/O/P	E/O/P	E/O/P								
Applications – material													
		P 1.1-4.1 K 1.1-4.2 N 1.4-5, 2.4-7 N 4.1, 5.1	P 1.1-4.1 K 1.1-4.2 N 1.4-6, 2.4-7 N 4.1, 5.1	P 1.1-3.1 M 1.1-2.1 K 1.1-4.2 N 1.4-5, 2.4-5	P 1.1-4.1 M 1.1-3.1 K 1.1-4.2 N 1.4-6 N 2.2, 2.4-5								
DIN 5156		Tool ident		C510D601	C510C101	C5207300	C520C300						
Nominal size	$\varnothing d_1$	$\varnothing d_1$ mm	P tpi	l_1	l_2	$\varnothing d_2$	\square		Dimens. Ident	Rekord 2A-MULTI NT2	Rekord 2A-MULTI GLT-1	Rekord 2B-MULTI NT2	Rekord 2B-MULTI GLT-1
G	1/8	9.73	28	90	18	7	5.5	8.8	.4035	£ 24.53	£ 39.09	£ 27.38	£ 41.74
	1/4	13.16	19	100	22	11	9	11.8	.4036	£ 32.27	£ 50.80	£ 37.06	£ 55.48
	3/8	16.66	19	100	22	12	9	15.25	.4037	£ 40.11	£ 65.76	£ 46.12	£ 74.11
	1/2	20.96	14	125	25	16	12	19	.4038	£ 55.48	£ 98.14	£ 60.06	£ 102.11
	3/4	26.44	14	140	28	20	16	24.5	.4040	£ 88.77	£ 131.53	£ 94.78	£ 136.82

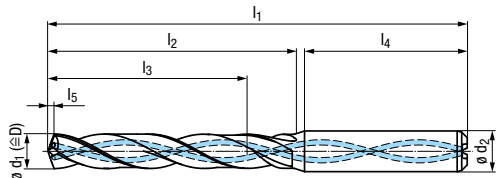
Ordering example: C510D601.4035

DIN
6537
K+L

Carbide



EF-Drill MULTI 3 x D



EF-Drill MULTI 5 x D



TIALN
T21

R30



DIN 6535
HA



Drill depth

3 x D

5 x D

Applications – material [» 6](#)

- P 1.1-5.1
- M 1.1
- K 1.1-4.2
- N 1.1-1.5
- N 2.1-2.8, 4.1

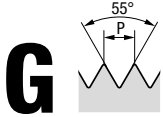
- P 1.1-5.1
- M 1.1-4.1
- K 1.1-4.2
- N 1.1-2.8
- N 4.1, 5.1

Tool ident												TA109924	TA219924	
	ø d ₁	Tol.	3 x D			5 x D						Dimens. Ident	EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21
			l ₁	l ₂	l ₃	l ₁	l ₂	l ₃	l ₄	l ₅	ø d ₂		£	£
G 1/8	8.8	m7	89	47	35	103	61	49	40	1.6	10	.0880	£ 40.41	£ 64.95
G 1/4	11.8	m7	102	55	40	118	71	56	45	2.1	12	.1180	£ 54.26	£ 85.51
G 3/8	15.25	m7	115	65	45	133	83	63	48	2.8	16	.1525	£ 96.30	£ 152.29
G 1/2	19	m7	131	79	55	153	101	77	50	3.5	20	.1900	£ 175.20	£ 261.63
G 3/4	24.5	m7	150	91	63	176	117	89	56	4.5	25	.2450	£ 232.61	£ 331.66

Further twist drill dimensions, see page 30

Ordering example: TA219924.0880

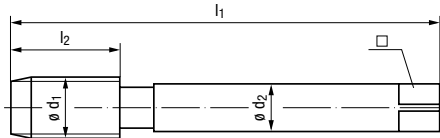
With side-lock clamping (Form HB) or with inclined clamping flat (Form HE) upon request



Whitworth pipe thread DIN EN ISO 228

DIN 5156

HSSE



DIN 5156

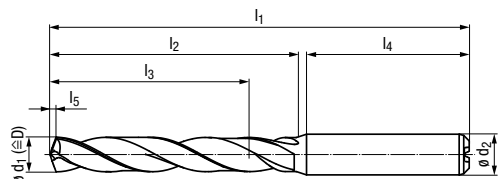
Technical information	Tolerance		
	Coating	NE2	GLT-1
		R35	R35
		C/2-3	C/2-3
Thread depth and hole type		E/O/P	E/O/P
		max. 2.5 x d ₁	
Applications – material			
		P 1.1-3.1 M 1.1-2.1 K 1.1-4.2 N 1.4-5, 2.4-5	P 1.1-4.1 M 1.1-3.1 K 1.1-4.2 N 1.4-6 N 2.2, 2.4-5

DIN 5156		Tool ident				C5503200		C550C300		
Nominal size	Ø d ₁	Ø d ₁ mm	P tpi	l ₁	l ₂	Ø d ₂	□	Enorm 2-MULTI NE2	Enorm 2-MULTI GLT-1	
G 1/8	9.73	28	90	10	7	5.5	8.8	.4035	£ 29.93	£ 44.38
1/4	13.16	19	100	15	11	9	11.8	.4036	£ 39.70	£ 58.43
3/8	16.66	19	100	15	12	9	15.25	.4037	£ 50.09	£ 77.47
1/2	20.96	14	125	17	16	12	19	.4038	£ 63.73	£ 105.46
3/4	26.44	14	140	20	20	16	24.5	.4040	£ 103.43	£ 145.47

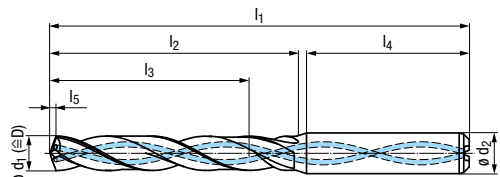
Ordering example: C5503200.4035

DIN
6537
K+L

Carbide



EF-Drill MULTI 3 x D



EF-Drill MULTI 5 x D



TIALN
T21

R30



DIN 6535
HA



Drill depth

3 x D

5 x D

Applications – material 6

- P 1.1-5.1
- M 1.1
- K 1.1-4.2
- N 1.1-1.5
- N 2.1-2.8, 4.1

- P 1.1-5.1
- M 1.1-4.1
- K 1.1-4.2
- N 1.1-2.8
- N 4.1, 5.1

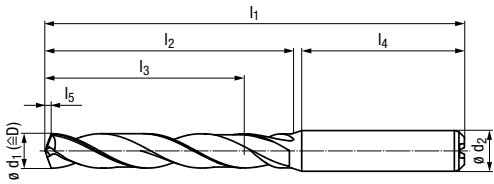
Tool ident												TA109924	TA219924	
	ø d ₁	Tol.	3 x D			5 x D			l ₄	l ₅	ø d ₂	Dimens. Ident	EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21
			l ₁	l ₂	l ₃	l ₁	l ₂	l ₃					£ 40.41	£ 64.95
G 1/8	8.8	m7	89	47	35	103	61	49	40	1.6	10	.0880	£ 40.41	£ 64.95
G 1/4	11.8	m7	102	55	40	118	71	56	45	2.1	12	.1180	£ 54.26	£ 85.51
G 3/8	15.25	m7	115	65	45	133	83	63	48	2.8	16	.1525	£ 96.30	£ 152.29
G 1/2	19	m7	131	79	55	153	101	77	50	3.5	20	.1900	£ 175.20	£ 261.63
G 3/4	24.5	m7	150	91	63	176	117	89	56	4.5	25	.2450	£ 232.61	£ 331.66

Further twist drill dimensions, see page 30

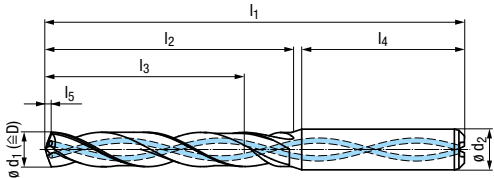
Ordering example: TA219924.0880

With side-lock clamping (Form HB) or with inclined clamping flat (Form HE) upon request

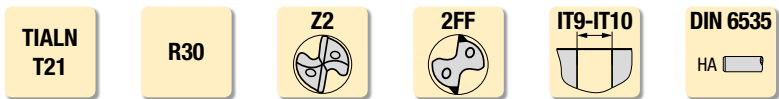
DIN 6537 K+L
Carbide



EF-Drill Micro-MULTI
EF-Drill MULTI 3 x D



EF-Drill MULTI 5 x D



Drill depth	Micro	3 x D	5 x D
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Applications – material	» 6	P 1.1-5.1	P 1.1-5.1	P 1.1-5.1
		M 1.1-4.1	M 1.1	M 1.1-4.1
		K 1.1-4.2	K 1.1-4.2	K 1.1-4.2
		N 1.1-2.8	N 1.1-1.5	N 1.1-2.8
		N 4.1, 5.1	N 2.1-2.8, 4.1	N 4.1, 5.1

Tool ident							TE109924	TA109924	TA219924
Micro							EF-Drill Micro-MULTI HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21
$\varnothing d_1$ h6	l_1	l_2	l_3	l_4	$\varnothing d_2$				
1.60	38	12	9.9	26	2	£ 15.88			
1.85	38	12	9.6	26	2	£ 17.10			
2.05	38	12	9.35	26	3	£ 19.65			
2.33	38	12	8.95	26	3	£ 19.65			
2.35	38	12	8.95	26	3	£ 19.65			
2.50	38	12	8.75	26	3	£ 19.65			

$\varnothing d_1$ m7	3 x D			5 x D			l_4	$\varnothing d_2$			
	l_1	l_2	l_3	l_1	l_2	l_3					
2.80 - 2.90	57	16	11	61	22	17	36	6		£ 29.01	£ 45.81
3.00 - 3.70	62	20	14	66	28	23	36	6		£ 29.01	£ 45.81
3.80 - 4.70	66	24	17	74	36	29	36	6		£ 29.01	£ 45.81
4.80 - 6.00	66	28	20	82	44	35	36	6		£ 29.01	£ 45.81
6.10 - 7.00	79	34	24	91	53	43	36	8		£ 34.10	£ 53.75
7.10 - 8.00	79	41	29	91	53	43	36	8		£ 34.10	£ 53.75
8.10 - 10.00	89	47	35	103	61	49	40	10		£ 40.41	£ 64.95
10.10 - 12.00	102	55	40	118	71	56	45	12		£ 54.26	£ 85.51
12.10 - 14.00	107	60	43	124	77	60	45	14		£ 78.08	£ 124.30
14.10 - 16.00	115	65	45	133	83	63	48	16		£ 96.30	£ 152.29
16.10 - 18.00	123	73	51	143	93	71	48	18		£ 114.02	£ 205.53
18.10 - 20.00	131	79	55	153	101	77	50	20		£ 175.20	£ 261.63
20.10 - 22.00	146	85	59	170	109	83	56	25		£ 232.61	£ 331.66
22.10 - 25.00	150	91	63	176	117	89	56	25		£ 232.61	£ 331.66

From shank dia. 6 mm with side-lock clamping (Form HB) or with inclined clamping flat (Form HE) upon request Other sizes upon request

Available cutting diameter of MULTI twist drills [mm]

1.60	1.85	2.05	2.33	2.35	2.50	2.80	2.85	3.00	3.10	3.20	3.30	3.40	3.50	3.70	3.90	4.00	4.10	4.20	4.30	4.50
4.60	4.65	4.70	4.80	5.00	5.10	5.20	5.30	5.50	5.55	5.60	5.70	5.80	5.90	6.00	6.20	6.35	6.40	6.50	6.60	6.80
6.90	7.00	7.40	7.45	7.60	7.80	8.00	8.20	8.50	8.60	8.80	9.00	9.30	9.35	9.40	9.50	9.60	9.80	9.90	10.00	10.20
10.30	10.40	10.50	10.80	11.00	11.20	11.25	11.35	11.50	11.60	11.80	12.00	12.20	12.50	12.70	12.90	13.00	13.10	13.35	13.50	14.00
14.50	15.00	15.10	15.25	15.35	15.50	16.00	16.50	17.50	18.50	19.00	19.50	20.50	21.00	22.25	22.50	24.50				

Regrinding list

$\varnothing d_1$	Order no.	
1.60 - 6.00	TZ100009.0600	£ 11.10
6.10 - 8.00	TZ100009.0800	£ 13.03
8.10 - 10.00	TZ100009.1000	£ 15.78
10.10 - 12.00	TZ100009.1200	£ 20.87
12.10 - 14.00	TZ100009.1400	£ 30.23
14.10 - 16.00	TZ100009.1600	£ 36.95
16.10 - 18.00	TZ100009.1800	£ 43.77
18.10 - 20.00	TZ100009.2000	£ 47.64
20.10 - 25.00	TZ100009.2500	£ 50.39

Regrinding and recoating form an essential contribution to the economically efficient use of drilling tools.

The EMUGE regrinding and recoating service guarantees the restoration of the original geometry and the original coating of the tool.

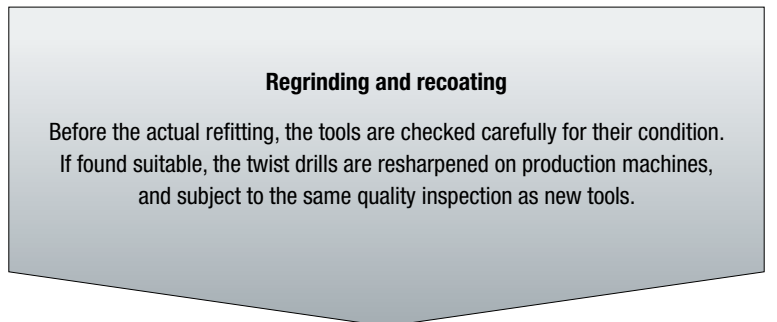


Customer



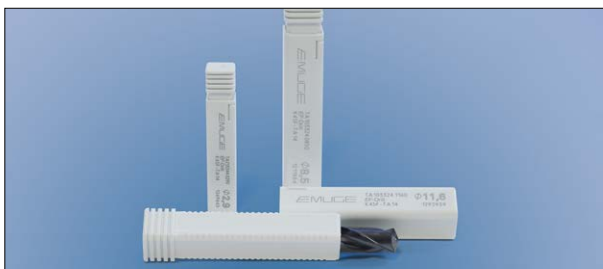
Transport

The tools can be sent either to EMUGE directly, or picked up by your local EMUGE sales contact. Our special TOOL BOX is available for that if you need it.



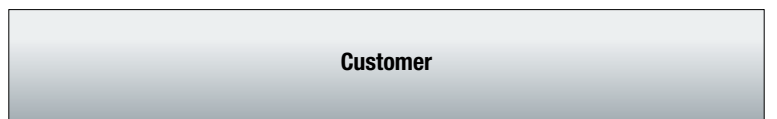
Regrinding and recoating

Before the actual refitting, the tools are checked carefully for their condition. If found suitable, the twist drills are resharpened on production machines, and subject to the same quality inspection as new tools.

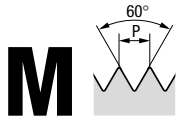


Shipping

The reground and recoated drilling tools are returned after 2-3 weeks to the address specified by you, safely packed.

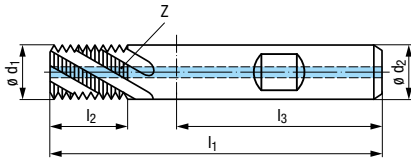


Customer



ISO Metric coarse thread DIN 13

For internal threads



Carbide	TIALN T4
R15	RH + LH
Z3 - Z4	DIN 6535
	HB



Thread depth

≈ 2 x D

Applications – material



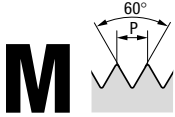
- P** 1.1-3.1
- M** 1.1-2.1
- K** 1.1-4.2
- N** 1.1-2.7
- N** 3.1-5.2
- S** 1.1-2, 2.1

								GF-MULTI-VHM 2xD R15-IKZ-HB TIALN-T4		
	$\varnothing d_1$ mm	P mm	$\varnothing d_1$ mm	$\varnothing d_2$	l_1	l_2	l_3	Z (teeth)		
M	5	0.8	4	6	55	10.8	36	3	GF835117.0050	£ 157.08
	6	1	4.8	6	55	12.5	36	3	GF835117.0060	£ 157.08
	8	1.25	5.9	6	63	16.8	36	3	GF835117.0080	£ 157.08
	10	1.5	7.9	8	70	20.2	36	3	GF835117.0100	£ 168.89
	12	1.75	9.9	10	80	25.3	40	4	GF835117.0112	£ 211.44
	14	2	11.6	12	90	28.9	45	4	GF835117.0114	£ 243.71
	16	2	11.9	12	90	32.9	45	4	GF835117.0116	£ 243.71



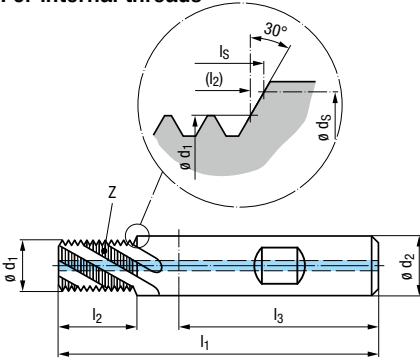
ISO Metric fine thread DIN 13

								GF-MULTI-VHM 2xD R15-IKZ-HB TIALN-T4		
	$\varnothing d_1$ mm	P mm	$\varnothing d_1$ mm	$\varnothing d_2$	l_1	l_2	l_3	Z (teeth)		
M	5	x 0.5	4.3	6	55	10.2	36	3	GF835117.0218	£ 157.08
	6	x 0.75	5	6	55	12.4	36	3	GF835117.0229	£ 157.08
	8	x 0.75	5.9	6	63	16.8	36	3	GF835117.0250	£ 157.08
	8	x 1	5.9	6	63	16.4	36	3	GF835117.0251	£ 157.08
	10	x 1	7.9	8	70	20.5	36	3	GF835117.0276	£ 168.89
	12	x 1	9.9	10	80	24.5	40	4	GF835117.0301	£ 211.44
	12	x 1.5	9.9	10	80	24.7	40	4	GF835117.0303	£ 211.44
	14	x 1.5	9.9	10	80	29.2	40	4	GF835117.0331	£ 211.44
	16	x 1.5	11.9	12	90	32.2	45	4	GF835117.0359	£ 243.71



ISO Metric coarse thread DIN 13

For internal threads



Carbide	TIALN T4
R15	RH + LH
Z3 - Z4	DIN 6535
	HB



Thread depth

≈ 2 x D

Applications – material

- 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

**GSF-MULTI-VHM
2xD
R15-IKZ-HB
TIALN-T4**

	ϕD mm	P mm	ϕd_1 mm	ϕd_2	l_1	l_2	l_3	ϕd_s	l_s	Z (teeth)		
M	5	0.8	4	6	55	10.8	36	5.3	11.2	3	GF895117.0050	£ 157.08
	6	1	4.7	8	62	13.5	36	6.3	13.9	3	GF895117.0060	£ 168.89
	8	1.25	6.5	10	74	18.1	40	8.3	18.6	3	GF895117.0080	£ 211.44
	10	1.5	8	10	74	23.2	40	10	23.8	3	GF895117.0100	£ 211.44
	12	1.75	10	14	90	25.8	45	12.3	26.5	4	GF895117.0112	£ 346.43
	14	2.	11	16	100	31.5	48	14.3	32.5	4	GF895117.0114	£ 403.74
	16	2	12.5	16	100	35.5	48	*)	*)	4	GF895117.0116	£ 403.74

*) Countersinking chamfer on face side



ISO Metric fine thread DIN 13

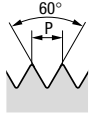
	ϕd_1 mm	P mm	ϕd_1 mm	ϕd_2	l_1	l_2	l_3	ϕd_s	l_s	Z (teeth)		
M	8	x 1	6.5	10	74	18.5	40	8.3	19	3	GF895117.0251	£ 233.43
	10	x 1	8	10	74	22.5	40	10	23	3	GF895117.0276	£ 233.43
	12	x 1	10	14	90	26.8	45	12.3	27.4	4	GF895117.0301	£ 374.32
	12	x 1.5	10	14	90	26.6	45	12.3	27.3	4	GF895117.0303	£ 374.32
	14	x 1.5	11.0	16	100	31.1	48	14.3	32.1	4	GF895117.0331	£ 403.74
	16	x 1.5	12.5	16	100	35.6	48	*)	*)	4	GF895117.0359	£ 403.74

**GSF-MULTI-VHM
2xD
R15-IKZ-HB
TIALN-T4**

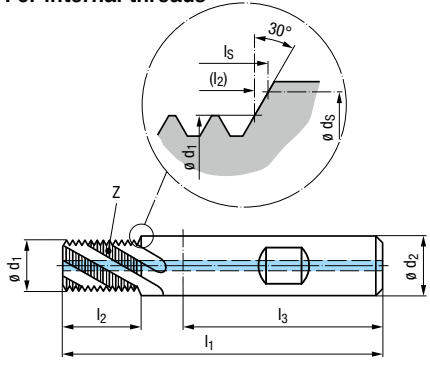
*) Countersinking chamfer on face side

UNC

Unified coarse thread ASME B1.1



For internal threads



Carbide	TIALN T4
R15	RH + LH
Z3 - Z4	DIN 6535 HB
120°	ϕD



Thread depth

≈ 2 x D

Applications – material 8

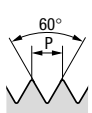
- P** 1.1-3.1
- M** 1.1-2.1
- K** 1.1-4.2
- N** 1.1-2.7
- N** 3.1-5.2
- S** 1.1-2, 2.1

ϕd_1 inch	inch	P tpi	ϕd_1 mm	ϕd_2	l_1	l_2	l_3	ϕd_s	l_s	Z (teeth)	GSF-MULTI-VHM 2xD R15-IKZ-HB TIALN-T4	
1/4	0.2500	20	4.7	8	62	14.6	36	6.7	15.1	3	GF895117.5009	£ 189.45
5/16	0.3125	18	6.1	10	74	17.6	40	8.2	18.2	3	GF895117.5010	£ 233.43
3/8	0.3750	16	7.6	12	80	21.4	45	9.8	22	3	GF895117.5011	£ 256.94
7/16	0.4375	14	8.8	14	90	24.4	45	11.4	25.2	3	GF895117.5012	£ 374.32
1/2	0.5000	13	10.1	14	90	26.9	45	13	27.7	4	GF895117.5013	£ 374.32
9/16	0.5625	12	11.4	16	100	31.2	48	14.6	32.1	4	GF895117.5014	£ 403.74
5/8	0.6250	11	12.7	16	100	34.1	48	16	35	4	GF895117.5015	£ 403.74
3/4	0.7500	10	15.2	20	110	42.5	50	19.4	43.7	5	GF895117.5016	£ 631.26
7/8	0.8750	9	18.8	20	115	50.1	50	*)	*)	5	GF895117.5017	£ 653.25
1"	1.0000	8	19.9	20	115	50	50	*)	*)	5	GF895117.5018	£ 653.25

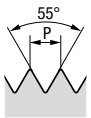
*) Countersinking chamfer on face side

UNF

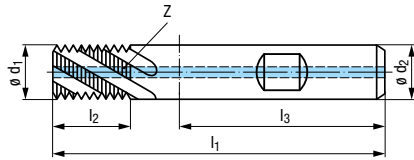
Unified fine thread ASME B1.1









ϕd_1 inch	inch	P tpi	ϕd_1 mm	ϕd_2	l_1	l_2	l_3	ϕd_s	l_s	Z (teeth)	GSF-MULTI-VHM 2xD R15-IKZ-HB TIALN-T4	
1/4	0.2500	28	4.7	8	62	14	36	6.7	14.6	3	GF895117.5043	£ 195.25
5/16	0.3125	24	6.1	10	74	17.4	40	8.2	18	3	GF895117.5044	£ 240.76
3/8	0.3750	24	7.6	12	80	21.7	45	9.8	22.3	3	GF895117.5045	£ 267.23
7/16	0.4375	20	8.8	14	90	24.7	45	11.4	25.5	3	GF895117.5046	£ 381.75
1/2	0.5000	20	10.1	14	90	27.6	45	13	28.5	4	GF895117.5047	£ 381.75
9/16	0.5625	18	11.4	16	100	32.1	48	14.6	33	4	GF895117.5048	£ 418.40
5/8	0.6250	18	12.7	16	100	34.9	48	16	35.9	4	GF895117.5049	£ 418.40
3/4	0.7500	16	15.2	20	110	42.5	50	19.4	43.7	5	GF895117.5050	£ 660.58


G (BSP) 
Whitworth pipe thread DIN EN ISO 228

For internal and external threads



Carbide	TIALN T4
R15	RH + LH
Z3 - Z5 	DIN 6535 
	
	



Applications – material  8

- 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

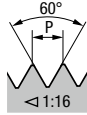
**GF-MULTI-VHM
R15-IKZ-HB
TIALN-T4**

	$\varnothing D$ ¹⁾ inch	P tpi	$\varnothing d_1$ mm	$\varnothing d_2$	l_1	l_2	l_3	Z (teeth)		
G	1/8	28	7.9	8	70	20.4	36	3	GF835117.4035	£ 195.25
	1/4	19	11.0	12	90	27.3	45	4	GF835117.4036	£ 267.23
	3/8	19	11.9	12	90	34	45	4	GF835117.4037	£ 267.23
	1/2	14	13.9	14	95	42.6	45	4	GF835117.4038	£ 381.75
	5/8 - 3/4	14	15.9	16	90	37.2	48	5	GF825117.4039	£ 418.40
	1"	11	15.9	16	90	35.8	48	5	GF8A5117.4042	£ 418.40

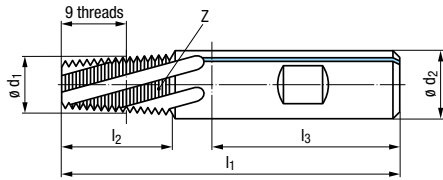
¹⁾ Diameter related to internal pipe thread resp. external pipe thread

NPT (API-LP)

American tapered pipe thread ANSI/ASME B1.20.1



For internal tapered threads



Carbide	TIALN T46
L15	RH + LH
Z4 - Z5	DIN 6535
	HB

With coolant grooves along the shank



Applications – material



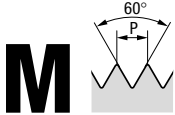
- P** 1.1-5.1
- M** 1.1-4.1
- K** 1.1-4.2
- N** 1.1-5.2
- S** 1.1-2.6
- H** 1.1-2

Nominal size

D	P tpi	$\varnothing d_1$ mm	$\varnothing d_2$	l_1	l_2	l_3	Z (teeth)	GF-KEG-MULTI-VHM L15-SKN-HB TIALN-T46	
1/16 - 1/8	27	5.9	8	60	13.63	36	4	GF18B209.9676	£ 234.95
1/4 - 3/8	18	10.15	12	80	20.43	45	4	GF18B219.9677	£ 295.12
1/2 - 3/4	14	14.25	16	85	26.27	48	4	GF18B239.9678	£ 462.48
1" - 2"	11 1/2	19.6	20	95	31.98	50	5	GF18B259.9679	£ 572.52

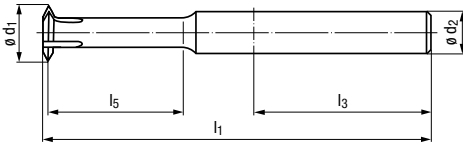
NPT/API-LP cutters are manufactured with a corrected profile

Application recommendation: You must have an NC programme for spiral-worm keyway milling, otherwise the finished thread will have a stepped profile



ISO Metric coarse thread DIN 13

For internal threads



Carbide **TIN**

RH + LH

Z1 - Z5
DIN 6535
 HA
 HB

ϕD



Thread depth

2xD

Applications – material 8

- 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

ϕD mm	$P_{max.}$ mm	l_1	l_3	l_5	ϕd_1 mm	ϕd_2	Z (teeth)	ZGF-MULTI-VHM 2xD		ZGF-MULTI-VHM 2xD	
								HA	TIN	HB	TIN
M1 -M1.2	0.25	39	28	3	0.7	3	1	GF243705.0010	£ 94.78		
M1.4 -M1.8	0.35	39	28	3.6	1.04	3	2	GF253705.0014	£ 92.54		
M2 -M2.3	0.45	39	28	4.6	1.52	3	3	GF253705.0020	£ 93.96		
M2.5 -M3	0.5	39	28	6	1.95	3	3	GF253705.0025	£ 93.96		
M3.5 -M4.5	0.75	42	28	9	2.78	4	3	GF253705.0035	£115.24		
M5 -M7	1.0	55	36	14	4	6	4	GF253705.0050	£127.76	GF253105.0050	£ 125.50
M8 -M10¹⁾	1.5	62	36	20	6.5	8	5	GF253705.0080	£157.08	GF253105.0080	£ 157.08
M12 -M16¹⁾	2.0	78	40	32	9.9	10	5	GF253705.0112	£190.88	GF253105.0112	£ 190.88

¹⁾ Design with internal coolant supply IKZ

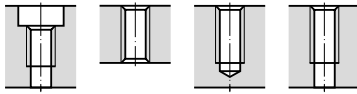
Partly suitable also for UN threads

Other designs upon request

Rekord A-MULTI



- Straight flutes
- Chamfer form C (2-3 threads)
- For blind hole and through hole threads



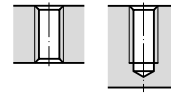
Note:

Especially for short-chipping material. The flutes can hold only a part of the chips. There is practically no chip transport in an axial direction. We do not recommend using this tap type in deep blind hole or through hole threads in long-chipping material.

InnoForm-MULTI



- Cold-forming tap for the chipless production of internal threads
- Lead taper form C (2-3 threads)
- For blind hole and through hole threads



Note:

Depending on the workpiece material, the essential advantages of the cold-forming of threads are not only excellent surface quality but also higher static and dynamic strength of the thread.

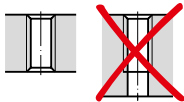
The length of the thread to be produced is not limited by chips which must be removed. The tools feature an excellent stability, especially with small thread sizes.

All ductile materials can be cold-formed. Sufficient lubrication is essential. We generally recommend using oil grooves for through hole threads and horizontal machining (exception: very short through hole threads, e.g. sheet metal components). Sometimes, it is necessary to adjust the recommended thread hole preparatory diameter to work conditions.

Rekord B-MULTI



- Straight flutes with spiral point
- Chamfer form B (4-5 threads)
- For through hole threads



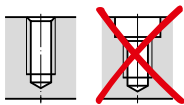
Note:

Typical tool for through hole threads in long-chipping material. The spiral point pushes the tightly rolled chips ahead and prevents clogging of the flutes. Coolant-lubricant can flow freely. Do not use this tap type for a reverse cut!

Enorm-MULTI




- 35-40° right-hand spiral flutes
- Chamfer form C (2-3 threads)
- For blind hole threads in long-chipping materials



Note:

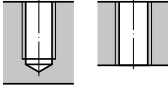
Typical tool for blind hole threads in long-chipping materials. The fast spiral flutes provide good chip removal from the blind hole. Not to be recommended for threads beginning with an increased diameter.

GF-MULTI




Solid carbide thread milling cutters

- For the production of internal and external threads
- Tool for one single thread size, with corrected thread profile
- A ready prepared thread hole is necessary

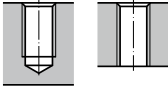


GSF-MULTI




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

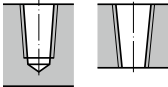


GF-KEG-MULTI




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

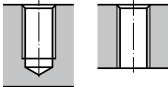


ZGF-MULTI



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



EF-Drill Micro-MULTI



- Long design
- Solid carbide
- Coating TIALN-T21
- Without internal coolant supply
- Straight shank DIN 6535 HA
- 2 Cutting edges
- 2 Margins
- 30° Helix angle
- 118° Point angle
- Cutting diameter tolerance h6

Note:

The EF-Drill Micro-MULTI produces excellent drilling results in a wide variety of materials thanks to its geometry specifically adapted to micro-machining. It is important to use a good lubricant. The best possible drilling results can be achieved with cutting oil or emulsion with EP additives. If cooling is poor, it might be necessary to take measures to improve chip evacuation.

EF-Drill MULTI



3 x D

- Short design
- Solid carbide
- Coating TIALN-T21
- Without internal coolant supply
- Straight shank DIN 6535 HA
- 2 Cutting edges
- 2 Margins
- 30° Helix angle
- 140° Point angle
- Cutting diameter tolerance m7
- Achievable tolerance of drilled hole IT9-IT10




5 x D

- Long design
- Solid carbide
- Coating TIALN-T21
- With internal coolant supply
- Straight shank DIN 6535 HA
- 2 Cutting edges
- 2 Margins
- 30° Helix angle
- 140° Point angle
- Cutting diameter tolerance m7
- Achievable tolerance of drilled hole IT9-IT10


Note:

The EF-Drill MULTI has only two lead chamfers for the versatile application in various materials. In order to achieve the best possible drilling result in tap hole machining, a run-out accuracy of the entire system (spindle, tool holder and drill) of 0.02 mm is required.


EMUGE-FRANKEN UK Limited

 Unit G, The Point
Bradmarsh Way
Rotherham, S60 1BP
UNITED KINGDOM

 0 17 09 / 36 44 94

 0 17 09 / 36 45 40

 sales@emuge-franken.co.uk

 www.emuge-franken.co.uk