



■ Made
■ in
■ Germany



MULTI Promotion F10 valid until 31.03.2021

EMUGE

Versatile Threading Tools and Twist Drills



EMUGE

Thread tools and twist 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





EMUGE

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	
		ISO Metric fine thread DIN 13	MF	
		Unified coarse thread ASME B1.1	UNC	
		Unified fine thread ASME B1.1	UNF	
		Whitworth pipe thread DIN EN ISO 228	G	
		American tapered pipe thread ANSI/ASME B1.20.1	NPT	

Suitable for use in the material groups

MULTI taps/cold-forming taps	MULTI thread milling cutters	Steel materials	P	
		Stainless steel materials	M	
		Cast materials	K	
		Non ferrous materials	N	
		Special materials	S	
		Hard materials	H	

Application recommendation 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 recommended cutting speeds are related to a nominal thread diameter of 10 mm.

= 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/mm²	Cq15	1.1132	
				S235JR (St37-2)	1.0037	
				10SPb20	1.0722	
	2.1	Construction steels, Cementation steels, Steel castings, etc.	≤ 800 N/mm²	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/mm²	20MoCr3	1.7320	
				42CrMo4	1.7225	
				102Cr6	1.2067	
	4.1	Heat-treatable steels, Cold work steels, Nitriding steels, etc.	≤ 1200 N/mm²	50CrMo4	1.7228	
				X45NiCrMo4	1.2767	
				31CrMo12	1.8515	
	5.1	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	Stainless steel materials					
	1.1	Ferritic, martensitic	≤ 950 N/mm²	X2CrTi12	1.4512	
	2.1	Austenitic	≤ 950 N/mm²	X6CrNiMoTi17-12-2	1.4571	
	3.1	Austenitic-ferritic (Duplex)	≤ 1100 N/mm²	X2CrNiMoN22-5-3	1.4462	
	4.1	Austenitic-ferritic heat-resistant (Super Duplex)	≤ 1250 N/mm²	X2CrNiMoN25-7-4	1.4410	
K	Cast materials					
	1.1 1.2	Cast iron with lamellar graphite (GJL)	100-250 N/mm²	EN-GJL-200 (GG20)	EN-JL-1030	
			250-450 N/mm²	EN-GJL-300 (GG30)	EN-JL-1050	
	2.1 2.2	Cast iron with nodular graphite (GJS)	350-500 N/mm²	EN-GJS-400-15 (GGG40)	EN-JS-1030	
			500-900 N/mm²	EN-GJS-700-2 (GGG70)	EN-JS-1070	
	3.1 3.2	Cast iron with vermicular graphite (GJV)	300-400 N/mm²	GJV 300		
			400-500 N/mm²	GJV 450		
	4.1 4.2	Malleable cast iron (GTMW, GTMB)	250-500 N/mm²	EN-GJMW-350-4 (GTW-35)	EN-JM-1010	
500-800 N/mm²			EN-GJMB-450-6 (GTS-45)	EN-JM-1140		
N	Non ferrous materials					
	Aluminium alloys					
	1.1 1.2 1.3	Aluminium wrought alloys	≤ 200 N/mm²	EN AW-AlMn1	EN AW-3103	
			≤ 350 N/mm²	EN AW-AlMgSi	EN AW-6060	
			≤ 550 N/mm²	EN AW-AlZn5Mg3Cu	EN AW-7022	
	1.4 1.5 1.6	Aluminium cast alloys	Si ≤ 7%	EN AC-AlMg5	EN AC-51300	
			7% < Si ≤ 12%	EN AC-ALSi9Cu3	EN AC-46500	
			12% < Si ≤ 17%	GD-ALSi17Cu4FeMg		
	Copper alloys					
	2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8	Pure copper, low-alloyed copper Copper-zinc alloys (brass, long-chipping) Copper-zinc alloys (brass, short-chipping) Copper-aluminium alloys (alu bronze, long-chipping) Copper-tin alloys (tin bronze, long-chipping) Copper-tin alloys (tin bronze, short-chipping) Special copper alloys	≤ 400 N/mm²	E-Cu 57	EN CW 004 A	
			≤ 550 N/mm²	CuZn37 (Ms63)	EN CW 508 L	
			≤ 550 N/mm²	CuZn36Pb3 (Ms58)	EN CW 603 N	
			≤ 800 N/mm²	CuAl10Ni5Fe4	EN CW 307 G	
			≤ 700 N/mm²	CuSn8P	EN CW 459 K	
			≤ 400 N/mm²	CuSn7ZnPb (Rg7)	2.1090	
			≤ 600 N/mm²	(AMPCO® 8)		
			≤ 1400 N/mm²	(AMPCO® 45)		
	Magnesium alloys					
	3.1 3.2	Magnesium wrought alloys Magnesium cast alloys	≤ 500 N/mm²	MgAl6Zn	3.5612	
			≤ 500 N/mm²	EN-MCMgAl9Zn1	EN-MC21120	
	Synthetics					
	4.1 4.2 4.3 4.4	Duroplastics (short-chipping) Thermoplastics (long-chipping) Fibre-reinforced synthetics (fibre content ≤ 30%) Fibre-reinforced synthetics (fibre content > 30%)		Bakelit, Pertinax		
				PMMA, POM, PVC		
				GFK, CFK, AFK		
				GFK, CFK, AFK		
	Special materials					
	5.1 5.2 5.3	Graphite Tungsten-copper alloys Composite materials		C 8000		
				W-Cu 80/20		
				Hylite, Alucobond		
S	Special materials					
	Titanium alloys					
	1.1 1.2 1.3	Pure titanium Titanium alloys	≤ 450 N/mm²	Ti1	3.7025	
			≤ 900 N/mm²	TiAl6V4	3.7165	
			≤ 1250 N/mm²	TiAl4Mo4Sn2	3.7185	
	Nickel alloys, cobalt alloys and iron alloys					
	2.1 2.2 2.3 2.4 2.5 2.6	Pure nickel Nickel-base alloys Nickel-base alloys Cobalt-base alloys Iron-base alloys	≤ 600 N/mm²	Ni 99.6	2.4060	
			≤ 1000 N/mm²	Monel 400	2.4360	
			≤ 1600 N/mm²	Inconel 718	2.4668	
			≤ 1000 N/mm²	Udimet 605		
			≤ 1600 N/mm²	Haynes 25	2.4964	
			≤ 1500 N/mm²	Incoloy 800	1.4958	
H	Hard materials					
	1.1 1.2 1.3 1.4 1.5	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 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-R35 NE2			Enorm MULTI-R45 GLT-1			InnoForm MULTI-SN NT2			InnoForm MULTI-SN TIN					
	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 d₁ 						max. 3 x d₁ 						max. 2.5 x d₁ 						max. 3 x d₁ 						Thread depth and hole type		
M	12			12			14			14			14			14			16			16			M		
MF	18			18			20			20			20			20			22			22			MF		
UNC	–			–			24			24			24			24			–			–			UNC		
UNF	–			–			26			26			26			26			–			–			UNF		
G	28			28			30			30			30			30			–			–			G		
v _c [m/min]	min.	rec.	max.	min.	rec.	max.	min.	rec.	max.	min.	rec.	max.	min.	rec.	max.	min.	rec.	max.	min.	rec.	max.	min.	rec.	max.	v _c [m/min]		
								5	10	20		15	25	45		5	10	20		15	25	45		15	30	45	1.1
								5	10	20		10	20	40		5	10	20		10	20	40		5	8	12	2.1
								2	8	15		5	15	25		2	8	15		5	15	25		10	15	25	3.1
												5	10	15						5	10	15					4.1
																											5.1
						</																					

Application recommendation and cutting data

Please note:

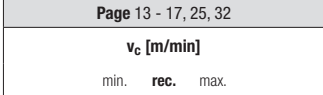
The cutting values listed in the respective columns are standard values which have to be adjusted to individual work conditions (material, lubrication, machine etc.).

v_c = Cutting speed [m/min]

f = Feed per revolution [mm/rev.]

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 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
	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		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		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		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		500-800 N/mm ²	EN-GJMB-450-6 (GTS-45) EN-JM-1140
	Non ferrous materials			
N	Aluminium alloys			
	1.1		≤ 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		≤ 550 N/mm ²	EN AW-AlZn5Mg3Cu EN AW-7022
	1.4		Si ≤ 7%	EN AC-AlMg5 EN AC-51300
	1.5	Aluminium cast alloys	7% < Si ≤ 12%	EN AC-ALSi9Cu3 EN AC-46500
	1.6		12% < Si ≤ 17%	GD-ALSi17Cu4FeMg
	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
S	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	CuSn7ZnPb (Rg7) 2.1090
	2.7		≤ 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			
H	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		Hylite, Alucobond
	Special materials			
	Titanium alloys			
H	1.1	Pure titanium	≤ 450 N/mm ²	Ti1 3.7025
	1.2		≤ 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		≤ 1000 N/mm ²	Monel 400 2.4360
	2.3	Nickel-base alloys	≤ 1600 N/mm ²	Inconel 718 2.4668
	2.4		≤ 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		44 - 50 HRC	Weldox 1100
	1.2		50 - 55 HRC	Hardox 550
	1.3	High strength steels, hardened steels, hard castings	55 - 60 HRC	Armox 600T
	1.4		60 - 63 HRC	Ferro-Titanit
	1.5		63 - 66 HRC	HSSE

EF-Drill Micro-MULTI	
Micro	



	70	80	90

v_c [m/min]		
min.	rec.	max.

f [mm/rev.]		
min.	rec.	max.

f [mm/rev.]		
min.	rec.	max.

	min.	rec.	max.
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FRANKEN

EF-Drill-MULTI



3 x D



5 x D

Page		13 - 32			13 - 32			D = 3 mm			D = 5 mm		
		v _c [m/min]			v _c [m/min]			f [mm/rev.]			f [mm/rev.]		
		min.	rec.	max.	min.	rec.	max.	min.	rec.	max.	min.	rec.	max.
P	1.1	65	85	90	90	110	125	0.06	0.08	0.09	0.08	0.11	0.14
	2.1	55	60	70	75	90	105	0.06	0.07	0.09	0.06	0.08	0.10
	3.1	45	55	65	65	75	90	0.06	0.07	0.09	0.06	0.08	0.10
	4.1	40	45	45	55	65	70	0.04	0.06	0.07	0.06	0.07	0.10
	5.1	30	40	50	40	50	60	0.02	0.04	0.06	0.04	0.06	0.07
M	1.1	30	40	50	45	60	75	0.05	0.06	0.08	0.08	0.10	0.12
	2.1				30	40	45	0.04	0.05	0.07	0.08	0.10	0.12
	3.1				25	30	35	0.03	0.04	0.06	0.06	0.08	0.10
	4.1				20	25	30	0.03	0.04	0.06	0.06	0.08	0.10
K	1.1	100	125	150	110	135	160	0.09	0.12	0.14	0.13	0.16	0.19
	1.2	80	105	125	90	115	135	0.07	0.09	0.12	0.11	0.14	0.17
	2.1	80	105	135	90	115	145	0.07	0.10	0.12	0.11	0.14	0.17
	2.2	75	95	110	90	110	125	0.06	0.09	0.11	0.09	0.12	0.15
	3.1	65	60	70	65	70	80	0.07	0.09	0.10	0.09	0.11	0.14
	3.2	65	60	70	65	70	80	0.07	0.09	0.10	0.09	0.11	0.14
	4.1	90	105	125	100	115	135	0.07	0.09	0.12	0.10	0.12	0.15
	4.2	70	90	105	80	100	115	0.06	0.09	0.11	0.09	0.12	0.14
N	1.1	180	200	235	190	215	245	0.09	0.10	0.12	0.13	0.16	0.18
	1.2	180	200	235	190	215	245	0.09	0.10	0.12	0.13	0.16	0.18
	1.3	145	155	170	160	180	200	0.09	0.10	0.12	0.13	0.16	0.18
	1.4	145	155	170	160	180	200	0.09	0.10	0.12	0.13	0.16	0.18
	1.5	125	140	145	135	155	160	0.09	0.10	0.12	0.12	0.13	0.16
	1.6												
	2.1	95	110	135	100	115	145	0.05	0.06	0.10	0.06	0.09	0.12
	2.2	125	135	140	135	145	155	0.04	0.06	0.08	0.09	0.10	0.12
	2.3	150	180	205	160	190	215	0.09	0.10	0.12	0.10	0.12	0.14
	2.4	45	60	65	55	70	80	0.04	0.05	0.06	0.05	0.06	0.08
	2.5	60	70	95	80	100	125	0.05	0.06	0.08	0.06	0.08	0.09
	2.6	70	80	85	80	90	100	0.05	0.06	0.08	0.06	0.08	0.09
	2.7	40	40	45	45	50	55	0.02	0.03	0.04	0.03	0.04	0.05
	2.8	35	40	45	45	50	55	0.02	0.03	0.04	0.03	0.04	0.05
	3.1												
	3.2												
	4.1	30	35	40	40	50	60	0.02	0.03	0.04	0.03	0.05	0.06
	4.2												
	4.3												
	4.4												
	5.1				65	80	110	0.07	0.09	0.10	0.09	0.10	0.12
	5.2												
	5.3												
S	1.1												
	1.2				20	25	25	0.03	0.04	0.06	0.06	0.08	0.10
	1.3				15	20	25	0.03	0.04	0.06	0.06	0.08	0.10
	2.1												
	2.2												
	2.3												
	2.4												
H	1.1												
	1.2												
	1.3												
	1.4												
	1.5												

	D = 8 mm			D = 10 mm			D = 12 mm			D = 16 mm			D = 20 mm			D = 25 mm				
	f [mm/rev.]			f [mm/rev.]			f [mm/rev.]			f [mm/rev.]			f [mm/rev.]			f [mm/rev.]				
	min.	rec.	max.	min.	rec.	max.	min.	rec.	max.	min.	rec.	max.	min.	rec.	max.	min.	rec.	max.		
	0.10	0.13	0.18	0.14	0.17	0.21	0.16	0.18	0.23	0.18	0.22	0.27	0.21	0.25	0.30	0.24	0.29	0.34	1.1	P
	0.11	0.13	0.15	0.12	0.15	0.17	0.14	0.17	0.19	0.17	0.20	0.23	0.20	0.23	0.26	0.24	0.27	0.30	2.1	
	0.11	0.13	0.15	0.12	0.15	0.17	0.14	0.17	0.19	0.17	0.20	0.23	0.20	0.23	0.26	0.24	0.27	0.30	3.1	
	0.09	0.12	0.13	0.11	0.13	0.15	0.12	0.14	0.17	0.13	0.17	0.22	0.16	0.20	0.24	0.19	0.24	0.28	4.1	
	0.07	0.09	0.11	0.08	0.10	0.12	0.10	0.12	0.13	0.12	0.14	0.17	0.15	0.17	0.19	0.19	0.21	0.23	5.1	
	0.10	0.13	0.17	0.13	0.18	0.21	0.15	0.18	0.20	0.18	0.20	0.24	0.20	0.25	0.27	0.22	0.25	0.29	1.1	M
	0.10	0.12	0.14	0.12	0.14	0.16	0.14	0.16	0.18	0.16	0.18	0.22	0.18	0.22	0.24	0.20	0.23	0.25	2.1	
	0.09	0.11	0.13	0.11	0.13	0.15	0.13	0.15	0.17	0.15	0.17	0.20	0.17	0.20	0.22	0.19	0.21	0.23	3.1	
	0.09	0.11	0.13	0.11	0.13	0.15	0.13	0.15	0.17	0.15	0.17	0.20	0.17	0.20	0.22	0.19	0.21	0.23	4.1	
	0.17	0.22	0.24	0.19	0.24	0.28	0.22	0.26	0.33	0.25	0.30	0.37	0.28	0.32	0.40	0.32	0.36	0.44	1.1	K
	0.14	0.19	0.23	0.17	0.21	0.25	0.19	0.24	0.30	0.23	0.27	0.36	0.26	0.30	0.39	0.30	0.34	0.42	1.2	
	0.15	0.19	0.24	0.17	0.22	0.26	0.19	0.25	0.31	0.24	0.28	0.37	0.27	0.31	0.40	0.30	0.35	0.43	2.1	
	0.12	0.16	0.20	0.13	0.17	0.21	0.14	0.19	0.23	0.17	0.22	0.27	0.20	0.25	0.30	0.24	0.29	0.33	2.2	
	0.12	0.15	0.19	0.15	0.19	0.22	0.19	0.23	0.27	0.23	0.27	0.30	0.26	0.30	0.32	0.30	0.33	0.36	3.1	
	0.12	0.15	0.19	0.15	0.19	0.22	0.19	0.23	0.27	0.23	0.27	0.30	0.26	0.30	0.32	0.30	0.33	0.36	3.2	
	0.13	0.17	0.22	0.16	0.22	0.24	0.17	0.23	0.29	0.20	0.27	0.33	0.23	0.30	0.36	0.27	0.34	0.40	4.1	
	0.12	0.15	0.19	0.14	0.19	0.22	0.16	0.21	0.26	0.19	0.24	0.30	0.22	0.27	0.33	0.26	0.31	0.37	4.2	
	0.17	0.20	0.23	0.22	0.25	0.29	0.27	0.31	0.35	0.32	0.37	0.43	0.35	0.40	0.46	0.39	0.44	0.50	1.1	N
	0.17	0.20	0.23	0.22	0.25	0.29	0.27	0.31	0.35	0.32	0.37	0.43	0.35	0.40	0.46	0.39	0.44	0.50	1.2	
	0.17	0.20	0.23	0.216	0.25	0.288	0.27	0.31	0.35	0.32	0.37	0.43	0.35	0.40	0.46	0.39	0.44	0.50	1.3	
	0.17	0.20	0.23	0.22	0.25	0.29	0.27	0.31	0.35	0.32	0.37	0.43	0.35	0.40	0.46	0.39	0.44	0.50	1.4	
	0.16	0.19	0.22	0.21	0.24	0.27	0.25	0.28	0.32	0.29	0.32	0.36	0.32	0.35	0.39	0.35	0.39	0.42	1.5	
																			1.6	
	0.09	0.12	0.13	0.12	0.14	0.17	0.13	0.16	0.19	0.15	0.19	0.22	0.18	0.22	0.24	0.22	0.25	0.28	2.1	
	0.12	0.14	0.17	0.14	0.17	0.20	0.17	0.20	0.23	0.20	0.24	0.27	0.23	0.27	0.30	0.27	0.30	0.33	2.2	
	0.14	0.18	0.22	0.17	0.22	0.27	0.20	0.26	0.30	0.23	0.27	0.32	0.26	0.30	0.35	0.30	0.34	0.39	2.3	
	0.09	0.10	0.12	0.10	0.12	0.14	0.12	0.13	0.16	0.13	0.14	0.18	0.16	0.17	0.21	0.19	0.21	0.24	2.4	
	0.11	0.12	0.14	0.13	0.15	0.17	0.15	0.17	0.19	0.17	0.20	0.23	0.19	0.21	0.24	0.22	0.24	0.28	2.5	
	0.11	0.12	0.14	0.13	0.15	0.17	0.15	0.17	0.19	0.17	0.20	0.23	0.20	0.23	0.26	0.24	0.27	0.30	2.6	
	0.06	0.06	0.07	0.06	0.07	0.09	0.07	0.09	0.10	0.09	0.10	0.12	0.12	0.13	0.14	0.15	0.17	0.18	2.7	
	0.06	0.06	0.07	0.06	0.07	0.09	0.07	0.09	0.10	0.09	0.10	0.12	0.12	0.13	0.14	0.15	0.17	0.18	2.8	
																			3.1	
																			3.2	
	0.05	0.06	0.08	0.07	0.08	0.09	0.09	0.10	0.11	0.11	0.12	0.14	0.13	0.14	0.15	0.15	0.16	0.17	4.1	
																			4.2	
																			4.3	
																			4.4	
	0.10	0.12	0.13	0.12	0.14	0.15	0.13	0.15	0.17	0.14	0.17	0.20	0.17	0.20	0.23	0.21	0.24	0.27	5.1	
																			5.2	
																			5.3	
																				S
	0.09	0.11	0.13	0.11	0.13	0.15	0.13	0.15	0.17	0.15	0.17	0.21	0.19	0.21	0.25	0.24	0.26	0.30	1.1	
	0.09	0.11	0.13	0.11	0.13	0.15	0.13	0.15	0.17	0.15	0.17	0.21	0.19	0.21	0.25	0.24	0.26	0.30	1.2	
																			1.3	
																			2.1	
																			2.2	
																			2.3	H
																			2.4	
																			2.5	
																			2.6	
																			1.1	H
																			1.2	
																			1.3	
																			1.4	
																			1.5	

Application recommendation 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 (tool clamping, workpiece clamping, etc.).

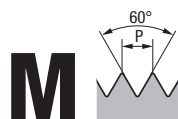
v_c = Cutting speed [m/min]

f_z = Feed per tooth [mm]

f_b = Drilling feed [mm/rev.]

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 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
M	4.1	Heat-treatable steels, Cold work steels, Nitriding steels, etc.	≤ 1200 N/mm ²	50CrMo4 1.7228
				X45NiCrMo4 1.2767
				31CrMo12 1.8515
				X38CrMoV5-3 1.2367
	5.1	High-alloyed steels, Cold work steels, Hot work steels, etc.	≤ 1400 N/mm ²	X100CrMoV8-1-1 1.2990
				X40CrMoV5-1 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
K	4.1	Austenitic-ferritic heat-resistant (Super Duplex)	≤ 1250 N/mm ²	X2CrNiMoN25-7-4 1.4410
	Cast materials			
	1.1	Cast iron with lamellar graphite (GJL)	100-250 N/mm ²	EN-GJL-200 (GG20) EN-JL-1030
	1.2		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		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		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		500-800 N/mm ²	EN-GJMB-450-6 (GTS-45) EN-JM-1140
N	Non ferrous materials			
	Aluminium alloys			
	1.1		≤ 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		≤ 550 N/mm ²	EN AW-AlZn5Mg3Cu EN AW-7022
	1.4		Si ≤ 7%	EN AC-AlMg5 EN AC-51300
	1.5	Aluminium cast alloys	7% < Si ≤ 12%	EN AC-ALSi9Cu3 EN AC-46500
	1.6		12% < Si ≤ 17%	GD-ALSi17Cu4FeMg
	Copper alloys			
	2.1	Pure copper, low-alloyed copper	≤ 400 N/mm ²	E-Cu 57 EN CW 004 A
S	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	CuSn7Zn1Pb (Rg7) 2.1090
	2.7		≤ 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
H	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		Hylite, Alucobond
	Special materials			
	Titanium alloys			
	1.1	Pure titanium	≤ 450 N/mm ²	Ti1 3.7025
	1.2		≤ 900 N/mm ²	TiAl6V4 3.7165
	1.3	Titanium alloys	≤ 1250 N/mm ²	TiAl4Mo4Sn2 3.7185
S	Nickel alloys, cobalt alloys and iron alloys			
	2.1	Pure nickel	≤ 600 N/mm ²	Ni 99.6 2.4060
	2.2		≤ 1000 N/mm ²	Monel 400 2.4360
	2.3	Nickel-base alloys	≤ 1600 N/mm ²	Inconel 718 2.4668
	2.4		≤ 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
	Hard materials			
	1.1		44 - 50 HRC	Weldox 1100
	1.2		50 - 55 HRC	Hardox 550
	1.3	High strength steels, hardened steels, hard castings	55 - 60 HRC	Armox 600T
	1.4		60 - 63 HRC	Ferro-Titanit
	1.5		63 - 66 HRC	HSSE

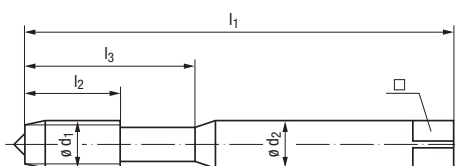
EMUGE
FRANKEN



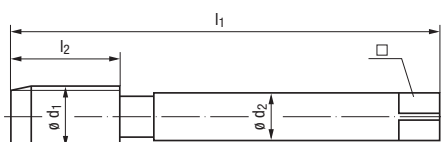
ISO Metric coarse thread DIN 13

DIN
371/376

HSSE



DIN 371



DIN 376



Tolerance
Coating

6HX

6HX

NT2

GLT-1



C / 2-3

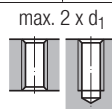
C / 2-3

E / O / P

E / O / P

Technical information

Thread depth and hole type



Applications – material

» 4

Cast materials

Non ferrous materials

K 1.1-4.2

N 4.1

K 1.1-4.2

N 1.5-6, 2.6

N 4.1, 5.1

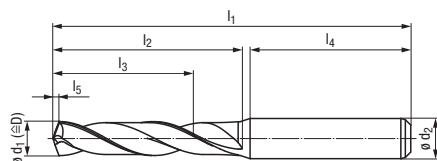
DIN 371	Tool ident								B510D601	B510C101		
	Ø d ₁ mm	P mm	l ₁	l ₂	l ₃	Ø d ₂	□	Dimens. Code	Rekord 1A-MULTI NT2	Rekord 1A-MULTI GLT-1		
M 2	2	0.4	45	7	12	2.8	2.1	1.6 .0020	£ 17.00	£ 20.90		
2.5	2.5	0.45	50	9	14	2.8	2.1	2.05 .0025	£ 15.80	£ 19.70		
3	3	0.5	56	11	18	3.5	2.7	2.5 .0030	£ 11.90	£ 15.70		
4	4	0.7	63	13	21	4.5	3.4	3.3 .0040	£ 12.30	£ 17.20		
5	5	0.8	70	15	25	6	4.9	4.2 .0050	£ 12.90	£ 18.00		
6	6	1	80	17	30	6	4.9	5 .0060	£ 13.10	£ 24.00		
8	8	1.25	90	20	35	8	6.2	6.8 .0080	£ 14.30	£ 25.70		
10	10	1.5	100	22	39	10	8	8.5 .0100	£ 17.70	£ 32.60		

DIN 376		Tool ident							C510D601	C510C101		
								Dimens. Code	Rekord 2A-MULTI NT2	Rekord 2A-MULTI GLT-1		
	ø d ₁ mm	P mm	l ₁	l ₂	ø d ₂	□						
M	12	1.75	110	24	9	7	10.2	.0112	£ 22.50	£ 38.20		
	14	2	110	26	11	9	12	.0114	£ 33.60	£ 52.70		
	16	2	110	27	12	9	14	.0116	£ 32.80	£ 52.00		
	18	2.5	125	30	14	11	15.5	.0118	£ 51.60	£ 80.50		
	20	2.5	140	32	16	12	17.5	.0120	£ 50.90	£ 94.20		
	22	2.5	140	32	18	14.5	19.5	.0122	£ 81.20	£ 123.80		
	24	3	160	34	18	14.5	21	.0124	£ 68.80	£ 112.80		

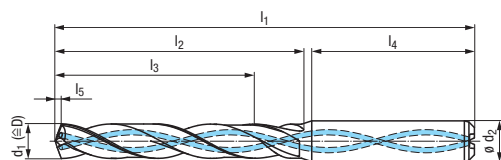
Ordering example: B510D601.0020

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



DIN 6535

HA



118°



140°



140°

Drill depth

Micro

3 x D

5 x D

Applications – material

» 6

Steel materials

Stainless steel materials

Cast materials

Non ferrous materials

Special materials

P 1.1-5.1

M 1.1-4.1

K 1.1-4.2

N 1.1-1.5, 2.2-2.3

S 1.2-1.3

P 1.1-5.1

M 1.1

K 1.1-4.2

N 1.1-1.5, 2.1-2.8

S 1.2-1.3

P 1.1-5.1

M 1.1-4.1

K 1.1-4.2

N 1.1-1.5, 2.1-2.8

S 1.2-1.3

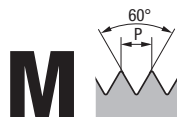
Tool ident												TE109924	TA109924	TA219924
	Micro + 3 x D			5 x D								EF-Drill Micro-MULTI HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21
	Ø d ₁	Tol.	l ₁	l ₂	l ₃	l ₁	l ₂	l ₃	l ₄	l ₅	Ø d ₂	Dimens. Code		
M 2	1.6	h6	38	12	9.90	—	—	—	26	0.5	2	.0160	£ 16.40	
M 2.5	2.05	h6	38	12	9.35	—	—	—	26	0.6	3	.0205	£ 20.30	
M 3	2.5	h6	38	12	8.75	—	—	—	26	0.8	3	.0250	£ 20.30	
M 4	3.3	m7	62	20	14	66	28	23	36	0.6	6	.0330		£ 29.90
M 5	4.2	m7	66	24	17	74	36	29	36	0.8	6	.0420	£ 29.90	£ 47.20
M 6	5	m7	66	28	20	82	44	35	36	0.9	6	.0500	£ 29.90	£ 47.20
M 8	6.8	m7	79	34	24	91	53	43	36	1.2	8	.0680	£ 35.20	£ 55.40
M10	8.5	m7	89	47	35	103	61	49	40	1.5	10	.0850	£ 41.70	£ 66.90

Tool ident													TA109924	TA219924
	3 x D			5 x D								Dimens. Code	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			
M12	10.2	m7	102	55	40	118	71	56	45	1.9	12	.1020	£ 55.90	£ 88.10
M14	12	m7	102	55	40	118	71	56	45	2.2	12	.1200	£ 55.90	£ 88.10
M16	14	m7	107	60	43	124	77	60	45	2.5	14	.1400	£ 80.50	£ 128.10
M18	15.5	m7	115	65	45	133	83	63	48	2.8	16	.1550	£ 99.20	£ 156.90
M20	17.5	m7	123	73	51	143	93	71	48	3.2	18	.1750	£ 117.50	£ 211.80
M22	19.5	m7	131	79	55	153	101	77	50	3.5	20	.1950	£ 180.50	£ 269.50
M24	21	m7	146	85	59	170	109	83	56	3.8	25	.2100	£ 239.60	£ 341.70

Further twist drill dimensions, see page 32

Ordering example: TE109924.0160

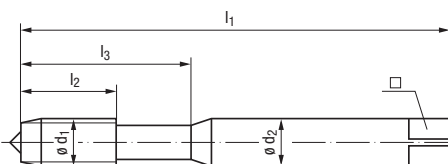
From shank dia. 6 mm with side-lock clamping (Form HB) or with inclined clamping flat (Form HE) upon request



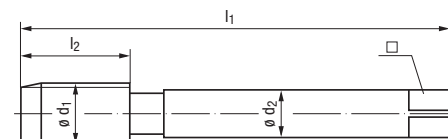
ISO Metric coarse thread DIN 13

DIN
371/376

HSSE



DIN 371



DIN 376

Technical information	Tolerance	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H
	Coating	NT2	GLT-1	NE2	GLT-1
		B / 4-5	B / 4-5	R35	R45
		E / O / P	E / O / P	E / O / P	E / O / P

Thread depth and hole type

max. 3 x d₁



max. 2.5 x d₁



Applications – material	Steel materials	P 1.1-3.1	P 1.1-4.1	P 1.1-3.1	P 1.1-4.1
	Stainless steel materials		M 1.1-3.1		M 1.1-3.1
	Cast materials	K 1.1-3.2	K 1.1-3.2	K 1.1-3.2	K 1.1-3.2
	Non ferrous materials		N 1.4-6, 2.1-5		N 1.4-5, 2.1-5

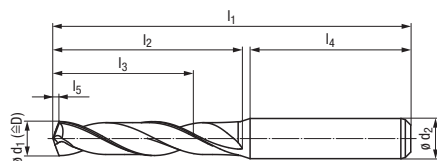
DIN 371	Tool ident								B5207300	B520C300	B5503200	B550C400
	ø d ₁ mm	P mm	l ₁	l ₂	l ₃	ø d ₂	□	Dimens. Code	Rekord 1B-MULTI NT2	Rekord 1B-MULTI GLT-1	Enorm 1-MULTI-R35 NE2	Enorm 1-MULTI-R45 GLT-1
M 2	2	0.4	45	4	12	2.8	2.1	1.6 .0020	£ 17.80	£ 21.50	£ 17.80	£ 21.40
2.5	2.5	0.45	50	5	14	2.8	2.1	2.05 .0025	£ 17.20	£ 21.20	£ 18.20	£ 22.00
3	3	0.5	56	6	18	3.5	2.7	2.5 .0030	£ 13.20	£ 16.80	£ 13.70	£ 17.50
4	4	0.7	63	7	21	4.5	3.4	3.3 .0040	£ 13.40	£ 18.20	£ 14.20	£ 19.10
5	5	0.8	70	8	25	6	4.9	4.2 .0050	£ 13.60	£ 18.50	£ 14.40	£ 19.60
6	6	1	80	10	30	6	4.9	5 .0060	£ 13.70	£ 25.00	£ 14.80	£ 26.30
8	8	1.25	90	14	35	8	6.2	6.8 .0080	£ 15.40	£ 26.70	£ 17.50	£ 28.60
10	10	1.5	100	16	39	10	8	8.5 .0100	£ 18.60	£ 33.40	£ 21.00	£ 36.20

DIN 376		Tool ident							C5207300	C520C300	C5503200	C550C400
ø d ₁ mm	P mm	l ₁	l ₂	ø d ₂	□		Dimens. Code	Rekord 2B-MULTI NT2	Rekord 2B-MULTI GLT-1	Enorm 2-MULTI-R35 NE2	Enorm 2-MULTI-R45 GLT-1	
M 12	1.75	110	18	9	7	10.2	.0112	£ 23.60	£ 39.30	£ 25.80	£ 40.90	
14	2	110	20	11	9	12	.0114	£ 36.20	£ 55.10	£ 39.30	£ 58.60	
16	2	110	22	12	9	14	.0116	£ 34.80	£ 54.40	£ 36.90	£ 56.10	
18	2.5	125	25	14	11	15.5	.0118	£ 58.60	£ 86.70	£ 63.70	£ 91.50	
20	2.5	140	25	16	12	17.5	.0120	£ 53.00	£ 96.30	£ 56.50	£ 100.40	
22	2.5	140	27	18	14.5	19.5	.0122	£ 88.00	£ 132.10	£ 88.00	£ 132.10	
24	3	160	30	18	14.5	21	.0124	£ 72.90	£ 115.60	£ 75.60	£ 118.30	

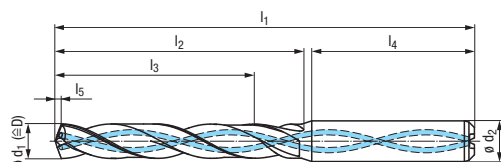
Ordering example: B5207300.0020

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



DIN 6535

HA



118°



140°



140°

Drill depth

Micro

3 x D

5 x D

Applications – material

» 6

Steel materials

Stainless steel materials

Cast materials

Non ferrous materials

Special materials

P 1.1-5.1

M 1.1-4.1

K 1.1-4.2

N 1.1-1.5, 2.2-2.3

S 1.2-1.3

P 1.1-5.1

M 1.1

K 1.1-4.2

N 1.1-1.5, 2.1-2.8

S 1.2-1.3

P 1.1-5.1

M 1.1-4.1

K 1.1-4.2

N 1.1-1.5, 2.1-2.8

S 1.2-1.3

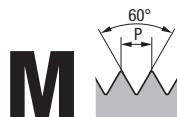
Tool ident												TE109924	TA109924	TA219924
	Micro + 3 x D			5 x D						Dimens. Code		EF-Drill Micro-MULTI HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21
	Ø d ₁	Tol.	l ₁	l ₂	l ₃	l ₁	l ₂	l ₃	l ₄	l ₅	Ø d ₂			
M 2	1.6	h6	38	12	9.90	—	—	—	26	0.5	2	.0160	£ 16.40	
M 2.5	2.05	h6	38	12	9.35	—	—	—	26	0.6	3	.0205	£ 20.30	
M 3	2.5	h6	38	12	8.75	—	—	—	26	0.8	3	.0250	£ 20.30	
M 4	3.3	m7	62	20	14	66	28	23	36	0.6	6	.0330		£ 29.90
M 5	4.2	m7	66	24	17	74	36	29	36	0.8	6	.0420	£ 29.90	£ 47.20
M 6	5	m7	66	28	20	82	44	35	36	0.9	6	.0500	£ 29.90	£ 47.20
M 8	6.8	m7	79	34	24	91	53	43	36	1.2	8	.0680	£ 35.20	£ 55.40
M10	8.5	m7	89	47	35	103	61	49	40	1.5	10	.0850	£ 41.70	£ 66.90

Tool ident													TA109924	TA219924
	3 x D			5 x D						Dimens. Code			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			
M12	10.2	m7	102	55	40	118	71	56	45	1.9	12	.1020	£ 55.90	£ 88.10
M14	12	m7	102	55	40	118	71	56	45	2.2	12	.1200	£ 55.90	£ 88.10
M16	14	m7	107	60	43	124	77	60	45	2.5	14	.1400	£ 80.50	£ 128.10
M18	15.5	m7	115	65	45	133	83	63	48	2.8	16	.1550	£ 99.20	£ 156.90
M20	17.5	m7	123	73	51	143	93	71	48	3.2	18	.1750	£ 117.50	£ 211.80
M22	19.5	m7	131	79	55	153	101	77	50	3.5	20	.1950	£ 180.50	£ 269.50
M24	21	m7	146	85	59	170	109	83	56	3.8	25	.2100	£ 239.60	£ 341.70

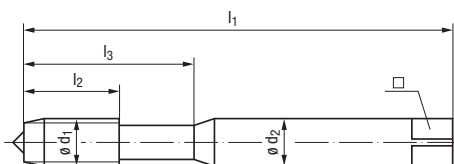
Further twist drill dimensions, see page 32

Ordering example: TE109924.0160

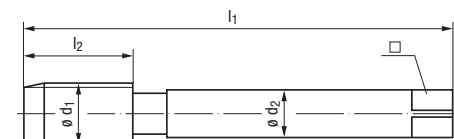
From shank dia. 6 mm with side-lock clamping (Form HB) or with inclined clamping flat (Form HE) upon request



ISO Metric coarse thread DIN 13



DIN 2174



DIN 2174

DIN
2174

HSSE



Tolerance
Coating

6HX

6HX

NT2

TIN



C / 2-3

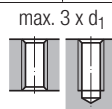
C / 2-3

E / O / P

E / O / P

Technical information

Thread depth and hole type



Applications – material



Steel materials

Stainless steel materials

Cast materials

Non ferrous materials

P 2.1

P 1.1-3.1

M 1.1¹⁾

K 2.1

K 2.1

N 1.5

N 1.5-6, 2.1-2

DIN 2174

Tool ident

B5564900

B5561400

	Ø d ₁ mm	P mm	l ₁	l ₂	l ₃	Ø d ₂	□		Dimens. Code	InnoForm 1-MULTI-SN NT2	InnoForm 1-MULTI-SN TIN
M 2	2	0.4	45	7	12	2.8	2.1	1.85	.0020	£ 26.90	£ 30.70
2.5	2.5	0.45	50	9	14	2.8	2.1	2.33	.0025	£ 23.60	£ 27.40
3	3	0.5	56	11	18	3.5	2.7	2.8	.0030	£ 17.00	£ 20.90
4	4	0.7	63	13	21	4.5	3.4	3.7	.0040	£ 17.00	£ 21.80
5	5	0.8	70	15	25	6	4.9	4.65	.0050	£ 18.20	£ 22.80
6	6	1	80	17	30	6	4.9	5.6	.0060	£ 18.20	£ 29.00
8	8	1.25	90	20	35	8	6.2	7.45	.0080	£ 21.20	£ 32.60
10	10	1.5	100	22	39	10	8	9.35	.0100	£ 27.20	£ 42.00

DIN 2174

Tool ident

C5564900

C5561400

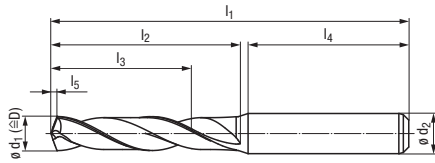
	Ø d ₁ mm	P mm	l ₁	l ₂	Ø d ₂	□		Dimens. Code	InnoForm 2-MULTI-SN NT2	InnoForm 2-MULTI-SN TIN
M 12	12	1.75	110	24	9	7	11.25	.0112	£ 33.30	£ 48.60
14	14	2	110	26	11	9	13.1	.0114	£ 87.40	£ 107.30
16	16	2	110	27	12	9	15.1	.0116	£ 66.40	£ 85.30

¹⁾ Restricted application possibilities with emulsion

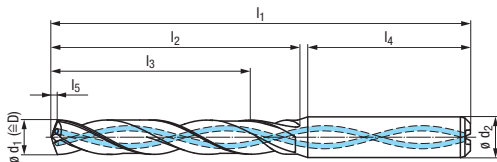
Ordering example: B5564900.0020

DIN
6537
K+L

Carbide



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



EF-Drill MULTI 5 x D



TIALN
T21

R30



Drill depth

Micro

3 x D

5 x D

Applications – material

» 6

Steel materials
Stainless steel materials
Cast materials
Non ferrous materials
Special materials

P	1.1-5.1
M	1.1-4.1
K	1.1-4.2
N	1.1-1.5, 2.2-2.3
S	1.2-1.3

P	1.1-5.1
M	1.1
K	1.1-4.2
N	1.1-1.5, 2.1-2.8
S	1.2-1.3

P	1.1-5.1
M	1.1-4.1
K	1.1-4.2
N	1.1-1.5, 2.1-2.8
S	1.2-1.3

Tool ident													TE109924	TA109924	TA219924
	Micro + 3 x D			5 x D									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
	Ø d ₁	Tol.	l ₁	l ₂	l ₃	l ₁	l ₂	l ₃	l ₄	l ₅	Ø d ₂	Dimens. Code			
M 2	1.85	h6	38	12	9.60	—	—	—	26	0.6	2	.0185	£ 17.70		
M 2.5	2.33	h6	38	12	8.95	—	—	—	26	0.7	3	.0233	£ 20.30		
M 3	2.8	m7	57	16	11	61	22	17	36	0.5	6	.0280		£ 29.90	£ 47.20
M 4	3.7	m7	62	20	14	66	28	23	36	0.7	6	.0370		£ 29.90	£ 47.20
M 5	4.65	m7	66	24	17	74	36	29	36	0.8	6	.0465		£ 29.90	£ 47.20
M 6	5.6	m7	66	28	20	82	44	35	36	1	6	.0560		£ 29.90	£ 47.20
M 8	7.45	m7	79	41	29	91	53	43	36	1.4	8	.0745		£ 35.20	£ 55.40
M10	9.35	m7	89	47	35	103	61	49	40	1.7	10	.0935		£ 41.70	£ 66.90

Tool ident														TA109924	TA219924
	3 x D			5 x D										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	Dimens. Code			
M12	11.25	m7	102	55	40	118	71	56	45	2	12	.1125		£ 55.90	£ 88.10
M14	13.1	m7	107	60	43	124	77	60	45	2.4	14	.1310		£ 80.50	£ 128.10
M16	15.1	m7	115	65	45	133	83	63	48	2.7	16	.1510		£ 99.20	£ 156.90

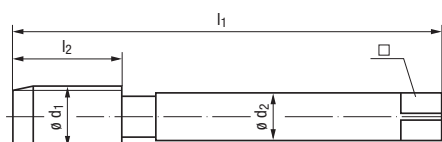
Further twist drill dimensions, see page 32

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

DIN
374

HSSE



Tolerance
Coating

6HX

6HX

NT2

GLT-1



C / 2-3

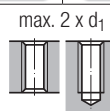
C / 2-3

E / O / P

E / O / P

Technical information

Thread depth and hole type



Applications – material

» 4

Cast materials

Non ferrous materials

K 1.1-4.2

K 1.1-4.2

N 4.1

N 1.5-6, 2.6

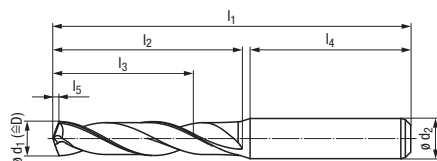
N 4.1, 5.1

DIN 374		Tool ident							C510D601	C510C101		
								Dimens. Code	Rekord 2A-MULTI NT2	Rekord 2A-MULTI GLT-1		
	Ø d ₁ mm	P mm	l ₁	l ₂	Ø d ₂	□						
M	6	x 0.75	80	13	4.5	3.4	5.2	.0229	£ 22.60	£ 33.90		
	8	x 1	90	17	6	4.9	7	.0251	£ 22.60	£ 33.90		
	10	x 1	90	18	7	5.5	9	.0276	£ 22.90	£ 37.90		
	12	x 1	100	18	9	7	11	.0301	£ 28.80	£ 42.70		
	12	x 1.5	100	22	9	7	10.5	.0303	£ 25.50	£ 41.40		
	14	x 1.5	100	22	11	9	12.5	.0331	£ 32.80	£ 52.00		
	16	x 1.5	100	22	12	9	14.5	.0359	£ 39.30	£ 58.10		
	18	x 1.5	110	25	14	11	16.5	.0390	£ 46.50	£ 75.60		
	20	x 1.5	125	25	16	12	18.5	.0422	£ 53.30	£ 96.30		
	22	x 1.5	125	25	18	14.5	20.5	.0438	£ 55.40	£ 99.00		
	24	x 1.5	140	27	18	14.5	22.5	.0452	£ 67.20	£ 110.80		

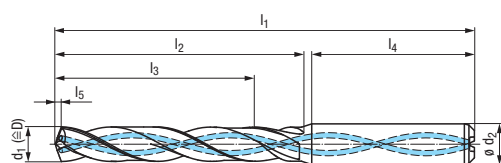
Ordering example: C510D601.0229

DIN
6537
K+L

Carbide



EF-Drill MULTI 3 x D



EF-Drill MULTI 5 x D

TIALN
T21

R30

Z2

2FF

IT9-IT10

DIN 6535

HA



140°



140°

Drill depth

3 x D

5 x D

Applications – material

» 6

Steel materials

Stainless steel materials

Cast materials

Non ferrous materials

Special materials

P 1.1-5.1

M 1.1

K 1.1-4.2

N 1.1-1.5, 2.1-2.8

P 1.1-5.1

M 1.1-4.1

K 1.1-4.2

N 1.1-1.5, 2.1-2.8

S 1.2-1.3

Tool ident												TA109924	TA219924
	3 x D			5 x D								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	Dimens. Code	
M 6 x 0.75	5.2	m7	66	28	20	82	44	35	36	0.9	6	.0520	£ 29.90
M 8 x 1	7	m7	79	34	24	91	53	43	36	1.3	8	.0700	£ 35.20
M10 x 1	9	m7	89	47	35	103	61	49	40	1.6	10	.0900	£ 41.70
M12 x 1	11	m7	102	55	40	118	71	56	45	2	12	.1100	£ 55.90
M12 x 1.5	10.5	m7	102	55	40	118	71	56	45	1.9	12	.1050	£ 55.90
M14 x 1.5	12.5	m7	107	60	43	124	77	60	45	2.3	14	.1250	£ 80.50
M16 x 1.5	14.5	m7	115	65	45	133	83	63	48	2.6	16	.1450	£ 99.20
M18 x 1.5	16.5	m7	123	73	51	143	93	71	48	3	18	.1650	£ 117.50
M20 x 1.5	18.5	m7	131	79	55	153	101	77	50	3.4	20	.1850	£ 180.50
M22 x 1.5	20.5	m7	146	85	59	170	109	83	56	3.7	25	.2050	£ 239.60
M24 x 1.5	22.5	m7	150	91	63	170	109	83	56	4	25	.2250	£ 239.60

Further twist drill dimensions, see page 32

Ordering example: TA109924.0520

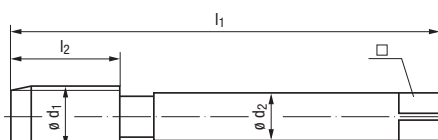
With side-lock clamping (Form HB) or with inclined clamping flat (Form HE) upon request



ISO Metric fine thread DIN 13

DIN
374

HSSE



DIN 374



Tolerance
Coating

ISO 2/6H

ISO 2/6H

ISO 2/6H

ISO 2/6H

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



Technical information

Thread depth and hole type

max. 3 x d₁



max. 2.5 x d₁



Applications – material

» 4

Steel materials

Stainless steel materials

Cast materials

Non ferrous materials

P 1.1-3.1

P 1.1-4.1

P 1.1-3.1

P 1.1-4.1

M 1.1-3.1

M 1.1-3.1

K 1.1-3.2

K 1.1-3.2

K 1.1-3.2

K 1.1-3.2

N 1.4-6, 2.1-5

N 1.4-5, 2.1-5

DIN 374

Tool ident

C5207300

C520C300

C5503200

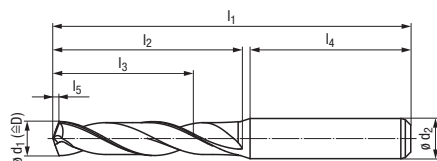
C550C400

	Ø d ₁ mm		P mm	l ₁	l ₂	Ø d ₂	□		Dimens. Code	Rekord 2B-MULTI NT2	Rekord 2B-MULTI GLT-1	Enorm 2-MULTI-R35 NE2	Enorm 2-MULTI-R45 GLT-1
M	6	x	0.75	80	13	4.5	3.4	5.2	.0229	£ 23.60	£ 34.80	£ 24.80	£ 36.20
	8	x	1	90	17	6	4.9	7	.0251	£ 23.60	£ 34.80	£ 24.80	£ 36.20
	10	x	1	90	18	7	5.5	9	.0276	£ 24.00	£ 39.00	£ 26.30	£ 40.90
	12	x	1	100	18	9	7	11	.0301	£ 31.40	£ 43.80	£ 32.00	£ 47.50
	12	x	1.5	100	22	9	7	10.5	.0303	£ 26.90	£ 42.40	£ 29.60	£ 44.80
	14	x	1.5	100	22	11	9	12.5	.0331	£ 34.80	£ 54.40	£ 39.00	£ 57.80
	16	x	1.5	100	22	12	9	14.5	.0359	£ 42.40	£ 61.90	£ 47.50	£ 66.70
	18	x	1.5	110	25	14	11	16.5	.0390	£ 47.90	£ 77.10	£ 52.00	£ 80.50
	20	x	1.5	125	25	16	12	18.5	.0422	£ 56.10	£ 100.40	£ 60.60	£ 104.60
	22	x	1.5	125	25	18	14.5	20.5	.0438	£ 60.60	£ 104.60	£ 71.60	£ 113.50
	24	x	1.5	140	27	18	14.5	22.5	.0452	£ 69.50	£ 112.80	£ 77.70	£ 121.80

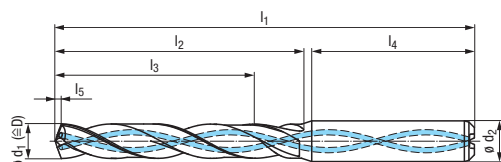
Ordering example: C5207300.0229

DIN
6537
K+L

Carbide



EF-Drill MULTI 3 x D



EF-Drill MULTI 5 x D

TIALN
T21

R30

Z2

2FF

IT9-IT10

DIN 6535

HA



140°



140°

Drill depth

3 x D

5 x D

Applications – material

» 6

Steel materials

Stainless steel materials

Cast materials

Non ferrous materials

Special materials

P 1.1-5.1

M 1.1

K 1.1-4.2

N 1.1-1.5, 2.1-2.8

P 1.1-5.1

M 1.1-4.1

K 1.1-4.2

N 1.1-1.5, 2.1-2.8

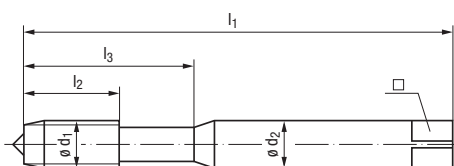
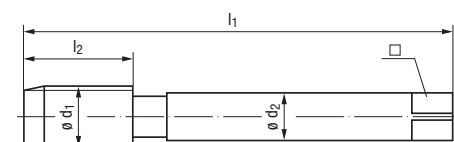
S 1.2-1.3

Tool ident												TA109924	TA219924
	3 x D			5 x D								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	Dimens. Code	
M 6 x 0.75	5.2	m7	66	28	20	82	44	35	36	0.9	6	.0520	£ 29.90
M 8 x 1	7	m7	79	34	24	91	53	43	36	1.3	8	.0700	£ 35.20
M10 x 1	9	m7	89	47	35	103	61	49	40	1.6	10	.0900	£ 41.70
M12 x 1	11	m7	102	55	40	118	71	56	45	2	12	.1100	£ 55.90
M12 x 1.5	10.5	m7	102	55	40	118	71	56	45	1.9	12	.1050	£ 55.90
M14 x 1.5	12.5	m7	107	60	43	124	77	60	45	2.3	14	.1250	£ 80.50
M16 x 1.5	14.5	m7	115	65	45	133	83	63	48	2.6	16	.1450	£ 99.20
M18 x 1.5	16.5	m7	123	73	51	143	93	71	48	3	18	.1650	£ 117.50
M20 x 1.5	18.5	m7	131	79	55	153	101	77	50	3.4	20	.1850	£ 180.50
M22 x 1.5	20.5	m7	146	85	59	170	109	83	56	3.7	25	.2050	£ 239.60
M24 x 1.5	22.5	m7	150	91	63	170	109	83	56	4	25	.2250	£ 239.60

Further twist drill dimensions, see page 32

Ordering example: TA109924.0520

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

 Tolerance
Coating

6HX

6HX

NT2

TIN



C / 2-3

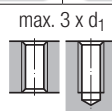
C / 2-3

E / O / P

E / O / P

Technical information

Thread depth and hole type



Applications – material

4

Steel materials

Stainless steel materials

Cast materials

Non ferrous materials

P 2.1
P 1.1-3.1
M 1.1 1)
K 2.1
K 2.1
N 1.5
N 1.5-6, 2.1-2
DIN 2174
Tool ident
B5564900
B5561400

	$\emptyset d_1$ mm	P mm	l_1	l_2	l_3	$\emptyset d_2$	$\square$		Dimens. Code	InnoForm 1-MULTI-SN NT2	InnoForm 1-MULTI-SN TIN		
M	6	x 0.75	80	13	30	6	4.9	5.7	.0229	£ 36.50	£ 47.90		
	8	x 1	90	17	35	8	6.2	7.6	.0251	£ 35.80	£ 47.10		
	10	x 1	90	18	35	10	8	9.6	.0276	£ 37.20	£ 52.40		

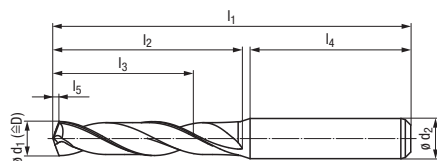
DIN 2174	Tool ident									C5564900	C5561400		
	$\emptyset d_1$ mm	P mm	l_1	l_2	$\emptyset d_2$	$\square$		Dimens. Code		InnoForm 2-MULTI-SN NT2	InnoForm 2-MULTI-SN TIN		
M	12	x 1	100	18	9	7	11.6	.0301		£ 45.50	£ 61.30		
	12	x 1.5	100	22	9	7	11.35	.0303		£ 45.80	£ 61.60		
	14	x 1.5	100	22	11	9	13.35	.0331		£ 56.80	£ 77.10		
	16	x 1.5	100	22	12	9	15.35	.0359		£ 68.10	£ 87.40		

1) Restricted application possibilities with emulsion

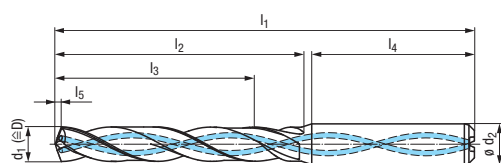
 Ordering example: **B5564900.0229**

DIN
6537
K+L

Carbide



EF-Drill MULTI 3 x D



EF-Drill MULTI 5 x D

TIALN
T21

R30

Z2

2FF

IT9-IT10

DIN 6535

HA



140°



140°

Drill depth

3 x D

5 x D

Applications – material

» 6

Steel materials

Stainless steel materials

Cast materials

Non ferrous materials

Special materials

P 1.1-5.1

M 1.1

K 1.1-4.2

N 1.1-1.5, 2.1-2.8

P 1.1-5.1

M 1.1-4.1

K 1.1-4.2

N 1.1-1.5, 2.1-2.8

S 1.2-1.3

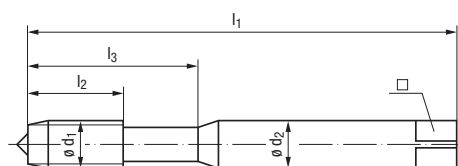
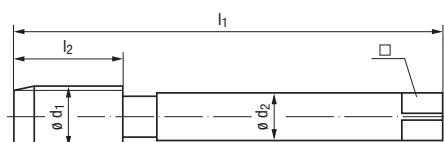
Tool ident												TA109924	TA219924				
			3 x D			5 x D						Dimens. Code	EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21			
	∅ d ₁	Tol.	l ₁	l ₂	l ₃	l ₁	l ₂	l ₃	l ₄	l ₅	∅ d ₂						
	M 6 x 0.75	5.7 m7	66	28	20	82	44	35	36	1	6				.0570	£ 29.90	£ 47.20
	M 8 x 1	7.6 m7	79	41	29	91	53	43	36	1.4	8				.0760	£ 35.20	£ 55.40
	M 10 x 1	9.6 m7	89	47	35	103	61	49	40	1.7	10				.0960	£ 41.70	£ 66.90

Tool ident												TA109924		TA219924		
			3 x D			5 x D						Dimens. Code	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					
	M12 x 1	11.6 m7	102	55	40	118	71	56	45	2.1	12		.1160	£ 55.90	£ 88.10	
	M12 x 1.5	11.35 m7	102	55	40	118	71	56	45	2.1	12		.1135	£ 55.90	£ 88.10	
	M14 x 1.5	13.35 m7	107	60	43	124	77	60	45	2.4	14		.1335	£ 80.50	£ 128.10	
M16 x 1.5	15.35 m7	115	65	45	133	83	63	48	2.8	16	.1535	£ 99.20	£ 156.90			

Further twist drill dimensions, see page 32

Ordering example: TA109924.0570

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


Unified coarse thread ASME B1.1
**≈ DIN
371/376**
HSSE

≈ DIN 371

≈ DIN 376

 Tolerance
Coating

2B

2B

2B

2B

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



Technical information

Thread depth and hole type

 max. 3 x d₁

 max. 2.5 x d₁


Applications – material

4

Steel materials

Stainless steel materials

Cast materials

Non ferrous materials

P 1.1-3.1
P 1.1-4.1
P 1.1-3.1
P 1.1-4.1
M 1.1-3.1
M 1.1-3.1
K 1.1-3.2
K 1.1-3.2
K 1.1-3.2
K 1.1-3.2
N 1.4-6, 2.1-5
N 1.4-5, 2.1-5
≈ DIN 371
Tool ident
B5207300
B520C300
B5503200
B550C400

Ø d ₁ inch	inch	P tpi	l ₁	l ₂	l ₃	Ø d ₂	□		Dimens. Code	Rekord 1B-MULTI NT2	Rekord 1B-MULTI GLT-1	Enorm 1-MULTI-R35 NE2	Enorm 1-MULTI-R45 GLT-1
Nr. 4	0.1120	40	56	11	18	3.5	2.7	2.35	.5003	£ 19.00	£ 22.80	£ 20.20	£ 24.00
Nr. 6	0.1380	32	56	12	20	4	3	2.85	.5005	£ 16.70	£ 20.50	£ 18.00	£ 21.50
Nr. 8	0.1640	32	63	13	21	4.5	3.4	3.5	.5006	£ 16.70	£ 21.50	£ 19.10	£ 24.00
Nr. 10	0.1900	24	70	15	25	6	4.9	3.9	.5007	£ 18.20	£ 22.90	£ 19.90	£ 24.80
1/4	0.2500	20	80	17	30	7	5.5	5.1	.5009	£ 19.60	£ 30.70	£ 21.50	£ 32.90
5/16	0.3125	18	90	20	35	8	6.2	6.6	.5010	£ 22.30	£ 33.60	£ 22.90	£ 34.10
3/8	0.3750	16	100	22	39	10	8	8	.5011	£ 24.80	£ 39.60	£ 25.80	£ 40.60

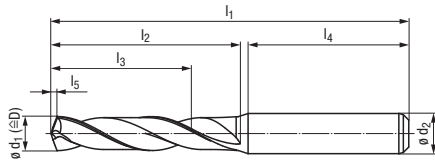
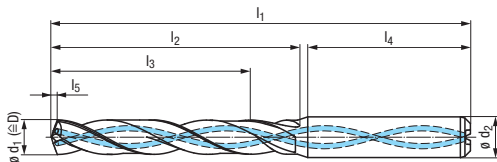
≈ DIN 376
Tool ident
C5207300
C520C300
C5503200
C550C400

Ø d ₁ inch	inch	P tpi	l ₁	l ₂	Ø d ₂	□		Dimens. Code	Rekord 2B-MULTI NT2	Rekord 2B-MULTI GLT-1	Enorm 2-MULTI-R35 NE2	Enorm 2-MULTI-R45 GLT-1
7/16	0.4375	14	100	22	8	6.2	9.4	.5012	£ 31.00	£ 46.80	£ 34.40	£ 50.30
1/2	0.5000	13	110	25	9	7	10.8	.5013	£ 32.60	£ 52.00	£ 34.30	£ 53.70
9/16	0.5625	12	110	26	11	9	12.2	.5014	£ 47.90	£ 67.20	£ 49.50	£ 67.50
5/8	0.6250	11	110	27	12	9	13.5	.5015	£ 44.80	£ 64.30	£ 48.60	£ 67.80
3/4	0.7500	10	125	30	14	11	16.5	.5016	£ 55.40	£ 99.80	£ 58.90	£ 102.50
1"	1.0000	8	160	36	18	14.5	22.25	.5018	£ 90.90	£ 134.20	£ 97.70	£ 141.00

 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

Steel materials

Stainless steel materials

Cast materials

Non ferrous materials

Special materials

P 1.1-5.1

M 1.1-4.1

K 1.1-4.2

N 1.1-1.5, 2.2-2.3

S 1.2-1.3

P 1.1-5.1

M 1.1

K 1.1-4.2

N 1.1-1.5, 2.1-2.8

S 1.2-1.3

P 1.1-5.1

M 1.1-4.1

K 1.1-4.2

N 1.1-1.5, 2.1-2.8

S 1.2-1.3

Tool ident

			Micro + 3 x D			5 x D						Dimens. Code	TE109924 EF-Drill Micro-MULTI HA AK-2FF TIALN-T21	TA109924 EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	TA219924 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				
Nr. 4	2.35	h6	38	12	8.95				26	0.7	3	.0235	£ 20.30		
Nr. 6	2.85	m7	57	16	11	61	22	17	36	0.5	6	.0285		£ 29.90	£ 47.20
Nr. 8	3.5	m7	62	20	14	66	28	23	36	0.6	6	.0350		£ 29.90	£ 47.20
Nr. 10	3.9	m7	66	24	17	74	36	29	36	0.7	6	.0390		£ 29.90	£ 47.20
1/4	5.1	m7	66	28	20	82	44	35	36	0.9	6	.0510		£ 29.90	£ 47.20
5/16	6.6	m7	79	34	24	91	53	43	36	1.2	8	.0660		£ 35.20	£ 55.40
3/8	8	m7	79	41	29	91	53	43	36	1.5	8	.0800		£ 35.20	£ 55.40

Tool ident

			3 x D			5 x D						Dimens. Code		TA109924 EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	TA219924 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	9.4	m7	89	47	35	103	61	49	40	1.7	10	.0940		£ 41.70	£ 66.90
1/2	10.8	m7	102	55	40	118	71	56	45	2	12	.1080		£ 55.90	£ 88.10
9/16	12.2	m7	107	60	43	124	77	60	45	2.2	14	.1220		£ 80.50	£ 128.10
5/8	13.5	m7	107	60	43	124	77	60	45	2.5	14	.1350		£ 80.50	£ 128.10
3/4	16.5	m7	123	73	51	143	93	71	48	3	18	.1650		£ 117.50	£ 211.80
1"	22.25	m7	150	91	63	170	109	83	56	4	25	.2225		£ 239.60	£ 341.70

Further twist drill dimensions, see page 32

Ordering example: TE109924.0235

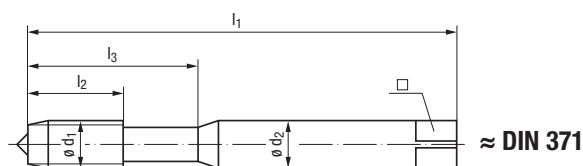
From shank dia. 6 mm with side-lock clamping (Form HB) or with inclined clamping flat (Form HE) upon request



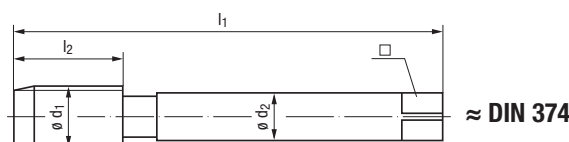
Unified fine thread ASME B1.1

≈ DIN
371/374

HSSE



≈ DIN 371



≈ DIN 374

Technical information

Tolerance
Coating



Thread depth and hole type

Applications – material

» 4

Steel materials
Stainless steel materials
Cast materials
Non ferrous materials

P 1.1-3.1	P 1.1-4.1	P 1.1-3.1	P 1.1-4.1
M 1.1-3.1	M 1.1-3.1	M 1.1-3.1	M 1.1-3.1
K 1.1-3.2	K 1.1-3.2	K 1.1-3.2	K 1.1-3.2
N 1.4-6, 2.1-5	N 1.4-6, 2.1-5	N 1.4-6, 2.1-5	N 1.4-6, 2.1-5

≈ DIN 371

Tool ident

										Rekord 1B-MULTI NT2	Rekord 1B-MULTI GLT-1	Enorm 1-MULTI-R35 NE2	Enorm 1-MULTI-R45 GLT-1	
ø d ₁ inch		P tpi	l ₁	l ₂	l ₃	ø d ₂	□		Dimens. Code					
Nr. 10	0.1900	32	70	15	25	6	4.9		4.1	.5041	£ 20.90	£ 25.80	£ 22.50	£ 27.40
1/4	0.2500	28	80	17	30	7	5.5		5.5	.5043	£ 23.10	£ 34.30	£ 24.80	£ 36.20
5/16	0.3125	24	90	17	35	8	6.2		6.9	.5044	£ 26.10	£ 37.60	£ 26.30	£ 37.60
3/8	0.3750	24	90	18	35	10	8		8.5	.5045	£ 26.60	£ 41.40	£ 27.90	£ 42.70

≈ DIN 374

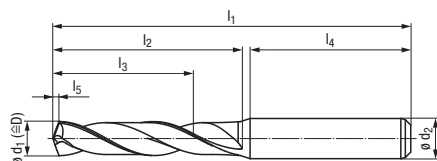
Tool ident

ø d ₁		P						Dimens. Code	Rekord 2B-MULTI NT2	Rekord 2B-MULTI GLT-1	Enorm 2-MULTI-R35 NE2	Enorm 2-MULTI-R45 GLT-1
inch	inch	tpi	l ₁	l ₂	ø d ₂	□						
7/16	0.4375	20	100	22	8	6.2	9.9	.5046	£ 33.40	£ 48.90	£ 34.40	£ 50.30
1/2	0.5000	20	100	22	9	7	11.5	.5047	£ 32.60	£ 52.00	£ 34.80	£ 54.40
9/16	0.5625	18	100	22	11	9	12.9	.5048	£ 50.00	£ 68.80	£ 52.00	£ 71.60
5/8	0.6250	18	100	22	12	9	14.5	.5049	£ 45.50	£ 76.40	£ 48.60	£ 67.80
3/4	0.7500	16	110	25	14	11	17.5	.5050	£ 56.50	£ 100.40	£ 61.60	£ 105.20

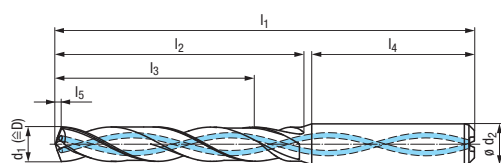
Ordering example: B5207300.5041

DIN
6537
K+L

Carbide



EF-Drill MULTI 3 x D



EF-Drill MULTI 5 x D

TIALN
T21

R30

Z2

2FF

IT9-IT10

DIN 6535

HA



140°



140°

Drill depth

3 x D

5 x D

Applications – material

» 6

Steel materials

Stainless steel materials

Cast materials

Non ferrous materials

Special materials

P 1.1-5.1

M 1.1

K 1.1-4.2

N 1.1-1.5, 2.1-2.8

P 1.1-5.1

M 1.1-4.1

K 1.1-4.2

N 1.1-1.5, 2.1-2.8

S 1.2-1.3

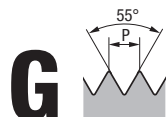
Tool ident												TA109924	TA219924		
			3 x D			5 x D						Dimens. Code	EF-Drill MULTI DIN6537K-HA AK-2FF TIALN-T21	EF-Drill MULTI DIN6537L-HA IK-2FF TIALN-T21	
	ø d ₁	Tol.	l ₁	l ₂	l ₃	l ₁	l ₂	l ₃	l ₄	l ₅	ø d ₂				
	Nr. 10	4.1 m7	66	24	17	74	36	29	36	0.7	6		.0410	£ 29.90	£ 47.20
	1/4	5.5 m7	66	28	20	82	44	35	36	1	6		.0550	£ 29.90	£ 47.20
	5/16	6.9 m7	79	34	24	91	53	43	36	1.3	8		.0690	£ 35.20	£ 55.40
3/8	8.5 m7	89	47	35	103	61	49	40	1.5	10	.0850	£ 41.70	£ 66.90		

Tool ident												TA109924	TA219924	
			3 x D			5 x D						Dimens. Code	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	£ 41.70	£ 66.90
1/2	11.5	m7	102	55	40	118	71	56	45	2.1	12	.1150	£ 55.90	£ 88.10
9/16	12.9	m7	107	60	43	124	77	60	45	2.3	14	.1290	£ 80.50	£ 128.10
5/8	14.5	m7	115	65	45	133	83	63	48	2.6	16	.1450	£ 99.20	£ 156.90
3/4	17.5	m7	123	73	51	143	93	71	48	3.2	18	.1750	£ 117.50	£ 211.80

Further twist drill dimensions, see page 32

Ordering example: TA109924.0410

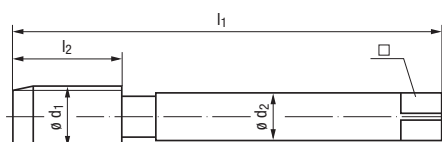
With side-lock clamping (Form HB) or with inclined clamping flat (Form HE) upon request



Whitworth pipe thread DIN EN ISO 228

DIN
5156

HSSE



DIN 5156

Tolerance
Coating

"X"

NT2

"X"

GLT-1



C / 2-3

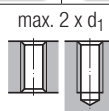
E / O / P

C / 2-3

E / O / P

Technical information

Thread depth and hole type



Applications – material

» 4

Cast materials

Non ferrous materials

K 1.1-4.2

N 4.1

K 1.1-4.2

N 1.5-6, 2.6

N 4.1, 5.1

DIN 5156

Tool ident

C510D601

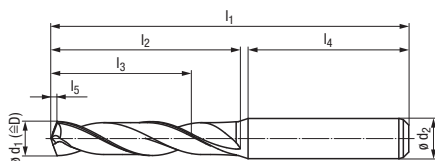
C510C101

Nominal size ø d ₁									Dimens. Code	Rekord 2A-MULTI NT2	Rekord 2A-MULTI GLT-1		
ø d ₁ mm	P tpi	l ₁	l ₂	ø d ₂	□								
G 1/8	9.73	28	90	18	7	5.5	8.8	.4035	£ 25.30	£ 40.30			
1/4	13.16	19	100	22	11	9	11.8	.4036	£ 33.30	£ 52.40			
3/8	16.66	19	100	22	12	9	15.25	.4037	£ 41.40	£ 67.80			
1/2	20.96	14	125	25	16	12	19	.4038	£ 57.10	£ 101.10			
3/4	26.44	14	140	28	20	16	24.5	.4040	£ 91.50	£ 135.50			

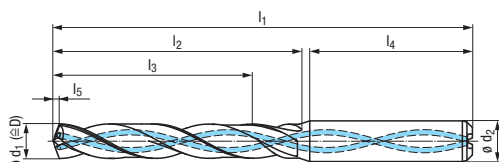
Ordering example: C510D601.4035

DIN
6537
K+L

Carbide



EF-Drill MULTI 3 x D



EF-Drill MULTI 5 x D

TIALN
T21

R30

Z2

2FF

IT9-IT10

DIN 6535

HA



140°



140°

Drill depth

3 x D

5 x D

Applications – material

» 6

Steel materials

Stainless steel materials

Cast materials

Non ferrous materials

Special materials

P 1.1-5.1

M 1.1

K 1.1-4.2

N 1.1-1.5, 2.1-2.8

P 1.1-5.1

M 1.1-4.1

K 1.1-4.2

N 1.1-1.5, 2.1-2.8

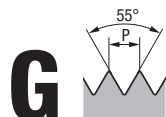
S 1.2-1.3

Tool ident												TA109924	TA219924		
	ø d ₁	Tol.	3 x D			5 x D						Dimens. Code	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
	G 1/8	8.8	m7	89	47	35	103	61	49	40	1.6	10	.0880	£ 41.70	£ 66.90
	G 1/4	11.8	m7	102	55	40	118	71	56	45	2.1	12	.1180	£ 55.90	£ 88.10
	G 3/8	15.25	m7	115	65	45	133	83	63	48	2.8	16	.1525	£ 99.20	£ 156.90
	G 1/2	19	m7	131	79	55	153	101	77	50	3.5	20	.1900	£ 180.50	£ 269.50
	G 3/4	24.5	m7	150	91	63	176	117	89	56	4.5	25	.2450	£ 239.60	£ 341.70

Further twist drill dimensions, see page 32

Ordering example: TA109924.0880

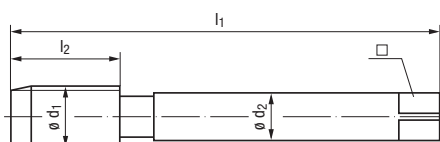
With side-lock clamping (Form HB) or with inclined clamping flat (Form HE) upon request



Whitworth pipe thread DIN EN ISO 228

DIN
5156

HSSE



DIN 5156



Tolerance
Coating

Technical information



NT2
B / 4-5
E / O / P

GLT-1
B / 4-5
E / O / P

NE2
R35
C / 2-3
E / O / P

GLT-1
R45
C / 2-3
E / O / P

Thread depth and hole type

max. 3 x d₁



max. 2.5 x d₁



Applications – material

» 4

Steel materials
Stainless steel materials
Cast materials
Non ferrous materials

P 1.1-3.1
K 1.1-3.2

P 1.1-4.1
M 1.1-3.1
K 1.1-3.2
N 1.4-6, 2.1-5

P 1.1-3.1
K 1.1-3.2

P 1.1-4.1
M 1.1-3.1
K 1.1-3.2
N 1.4-5, 2.1-5

DIN 5156

Tool ident

C5207300

C520C300

C5503200

C550C400

Nominal
size
ø d₁

ø d₁
mm

P
tpi

l₁

l₂

ø d₂

□



Dimens.
Code

Rekord
2B-MULTI
NT2

Rekord
2B-MULTI
GLT-1

Enorm
2-MULTI-R35
NE2

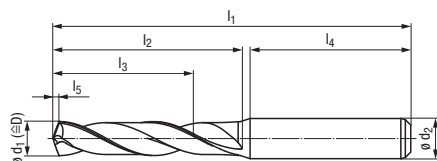
Enorm
2-MULTI-R45
GLT-1

	Nominal size ø d ₁	ø d ₁ mm	P tpi	l ₁	l ₂	ø d ₂	□		Dimens. Code	C5207300 Rekord 2B-MULTI NT2	C520C300 Rekord 2B-MULTI GLT-1	C5503200 Enorm 2-MULTI-R35 NE2	C550C400 Enorm 2-MULTI-R45 GLT-1
G	1/8	9.73	28	90	18	7	5.5	8.8	.4035	£ 28.30	£ 43.00	£ 30.90	£ 45.80
	1/4	13.16	19	100	22	11	9	11.8	.4036	£ 38.20	£ 57.10	£ 40.90	£ 60.20
	3/8	16.66	19	100	22	12	9	15.25	.4037	£ 47.50	£ 76.40	£ 51.60	£ 79.80
	1/2	20.96	14	125	25	16	12	19	.4038	£ 61.90	£ 105.20	£ 65.70	£ 108.70
	3/4	26.44	14	140	28	20	16	24.5	.4040	£ 97.70	£ 141.00	£ 106.60	£ 149.90

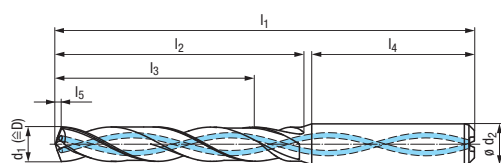
Ordering example: C5207300.4035

DIN
6537
K+L

Carbide



EF-Drill MULTI 3 x D



EF-Drill MULTI 5 x D

TIALN
T21

R30

Z2

2FF

IT9-IT10

DIN 6535

HA



140°



140°

Drill depth

3 x D

5 x D

Applications – material

» 6

Steel materials

Stainless steel materials

Cast materials

Non ferrous materials

Special materials

P 1.1-5.1

M 1.1

K 1.1-4.2

N 1.1-1.5, 2.1-2.8

P 1.1-5.1

M 1.1-4.1

K 1.1-4.2

N 1.1-1.5, 2.1-2.8

S 1.2-1.3

Tool ident												TA109924	TA219924
	3 x D			5 x D								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	Dimens. Code	
G 1/8	8.8	m7	89	47	35	103	61	49	40	1.6	10	.0880	£ 41.70
G 1/4	11.8	m7	102	55	40	118	71	56	45	2.1	12	.1180	£ 55.90
G 3/8	15.25	m7	115	65	45	133	83	63	48	2.8	16	.1525	£ 99.20
G 1/2	19	m7	131	79	55	153	101	77	50	3.5	20	.1900	£ 180.50
G 3/4	24.5	m7	150	91	63	176	117	89	56	4.5	25	.2450	£ 239.60

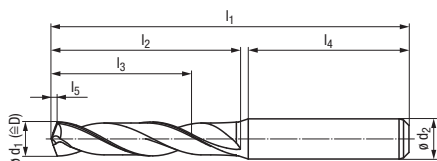
Further twist drill dimensions, see page 32

Ordering example: TA109924.0880

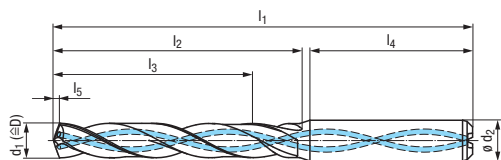
With side-lock clamping (Form HB) or with inclined clamping flat (Form HE) upon request

DIN
6537
K+L

Carbide



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



EF-Drill MULTI 5 x D



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

Steel materials

Stainless steel materials

Cast materials

Non ferrous materials

Special materials

P 1.1-5.1

M 1.1-4.1

K 1.1-4.2

N 1.1-1.5, 2.2-2.3

S 1.2-1.3

P 1.1-5.1

M 1.1

K 1.1-4.2

N 1.1-1.5, 2.1-2.8

S 1.2-1.3

P 1.1-5.1

M 1.1-4.1

K 1.1-4.2

N 1.1-1.5, 2.1-2.8

S 1.2-1.3

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
Ø d ₁ h6	l ₁	l ₂	l ₃	l ₄	Ø d ₂				
1.60	38	12	9.9	26	2	£ 16.40			
1.85	38	12	9.6	26	2	£ 17.70			
2.05	38	12	9.35	26	3	£ 20.30			
2.33	38	12	8.95	26	3	£ 20.30			
2.35	38	12	8.95	26	3	£ 20.30			
2.50	38	12	8.75	26	3	£ 20.30			
3 x D							5 x D		
Ø d ₁ m7	l ₁	l ₂	l ₃	l ₁	l ₂	l ₃	l ₄	Ø d ₂	
2.80 - 2.90	57	16	11	61	22	17	36	6	£ 29.90
3.00 - 3.70	62	20	14	66	28	23	36	6	£ 29.90
3.80 - 4.70	66	24	17	74	36	29	36	6	£ 29.90
4.80 - 6.00	66	28	20	82	44	35	36	6	£ 29.90
6.10 - 7.00	79	34	24	91	53	43	36	8	£ 35.20
7.10 - 8.00	79	41	29	91	53	43	36	8	£ 35.20
8.10 - 10.00	89	47	35	103	61	49	40	10	£ 41.70
10.10 - 12.00	102	55	40	118	71	56	45	12	£ 55.90
12.10 - 14.00	107	60	43	124	77	60	45	14	£ 80.50
14.10 - 16.00	115	65	45	133	83	63	48	16	£ 99.20
16.10 - 18.00	123	73	51	143	93	71	48	18	£ 117.50
18.10 - 20.00	131	79	55	153	101	77	50	20	£ 180.50
20.10 - 22.00	146	85	59	170	109	83	56	25	£ 239.60
22.10 - 25.00	150	91	63	176	117	89	56	25	£ 239.60

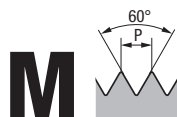
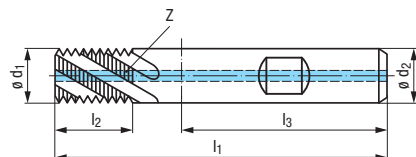
From shank dia. 6 mm with side-lock clamping (Form HB) or with inclined clamping flat (Form HE) upon request

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				




ISO Metric coarse thread DIN 13
For internal threads

Carbide
**TIALN
T4**
R15
RH + LH
Z3 - Z4

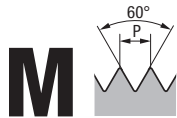
DIN 6535
HB

Thread depth
 $\approx 2 \times D$
Applications – material
» 10
Steel materials
Stainless steel materials
Cast materials
Non ferrous materials
Special materials
P 1.1-3.1
M 1.1-2.1
K 1.1-4.2
N 1.1-2.7, 3.1-5.2
S 1.1-1.2, 2.1
**GF-MULTI
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		
M 5	5	0.8	4	6	55	10.8	36	3	GF835117.0050	£ 161.80
6	6	1	4.8	6	55	12.5	36	3	GF835117.0060	£ 161.80
8	8	1.25	5.9	6	63	16.8	36	3	GF835117.0080	£ 161.80
10	10	1.5	7.9	8	70	20.2	36	3	GF835117.0100	£ 174.00
12	12	1.75	9.9	10	80	25.3	40	4	GF835117.0112	£ 217.80
14	14	2	11.6	12	90	28.9	45	4	GF835117.0114	£ 251.10
16	16	2	11.9	12	90	32.9	45	4	GF835117.0116	£ 251.10

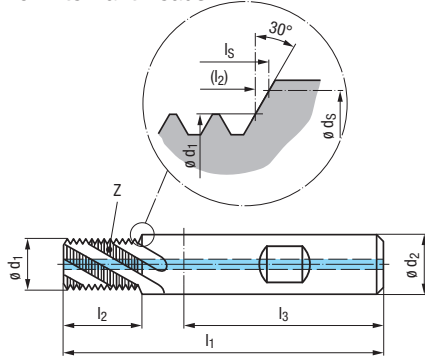

ISO Metric fine thread DIN 13
**GF-MULTI
2xD
R15-IKZ-HB
TIALN-T4**

	$\varnothing d_1$ mm		P mm	$\varnothing d_1$ mm	$\varnothing d_2$	l_1	l_2	l_3	Z		
M 5	5	x	0.5	4.3	6	55	10.2	36	3	GF835117.0218	£ 161.80
6	6	x	0.75	5	6	55	12.4	36	3	GF835117.0229	£ 161.80
8	8	x	0.75	5.9	6	63	16.8	36	3	GF835117.0250	£ 161.80
8	8	x	1	5.9	6	63	16.4	36	3	GF835117.0251	£ 161.80
10	10	x	1	7.9	8	70	20.5	36	3	GF835117.0276	£ 174.00
12	12	x	1	9.9	10	80	24.5	40	4	GF835117.0301	£ 217.80
12	12	x	1.5	9.9	10	80	24.7	40	4	GF835117.0303	£ 217.80
14	14	x	1.5	9.9	10	80	29.2	40	4	GF835117.0331	£ 217.80
16	16	x	1.5	11.9	12	90	32.2	45	4	GF835117.0359	£ 251.10



ISO Metric coarse thread DIN 13

For internal threads



Carbide

TIALN
T4

R15

RH + LH

Z3 - Z4



DIN 6535



Thread depth

$\approx 2 \times D$

Applications – material



Steel materials

Stainless steel materials

Cast materials

Non ferrous materials

Special materials

P 1.1-3.1

M 1.1-2.1

K 1.1-4.2

N 1.1-2.7, 3.1-5.2

S 1.1-1.2, 2.1

**GSF-MULTI
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		
M	5	0.8	4	6	55	10.8	36	5.3	11.2	3	GF895117.0050	£ 161.80
	6	1	4.7	8	62	13.5	36	6.3	13.9	3	GF895117.0060	£ 174.00
	8	1.25	6.5	10	74	18.1	40	8.3	18.6	3	GF895117.0080	£ 217.80
	10	1.5	8	10	74	23.2	40	10	23.8	3	GF895117.0100	£ 217.80
	12	1.75	10	14	90	25.8	45	12.3	26.5	4	GF895117.0112	£ 356.90
	14	2	11	16	100	31.5	48	14.3	32.5	4	GF895117.0114	£ 415.90
	16	2	12.5	16	100	35.5	48	*)	*)	4	GF895117.0116	£ 415.90

*) Countersinking chamfer on face side



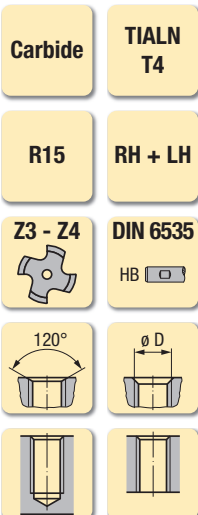
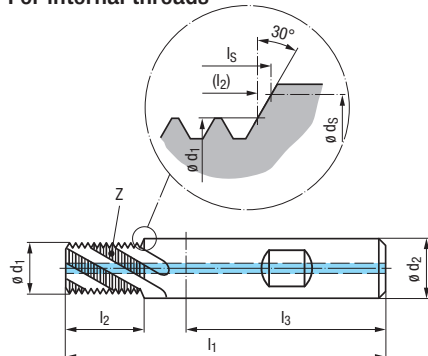
ISO Metric fine thread DIN 13

	ϕd_1 mm	P mm	ϕd_1 mm	ϕd_2	l_1	l_2	l_3	ϕd_s	l_s	Z		
M	8	x 1	6.5	10	74	18.5	40	8.3	19	3	GF895117.0251	£ 240.50
	10	x 1	8	10	74	22.5	40	10	23	3	GF895117.0276	£ 240.50
	12	x 1	10	14	90	26.8	45	12.3	27.4	4	GF895117.0301	£ 385.60
	12	x 1.5	10	14	90	26.6	45	12.3	27.3	4	GF895117.0303	£ 385.60
	14	x 1.5	11	16	100	31.1	48	14.3	32.1	4	GF895117.0331	£ 415.90
	16	x 1.5	12.5	16	100	35.6	48	*)	*)	4	GF895117.0359	£ 415.90

*) Countersinking chamfer on face side


UNC
Unified coarse thread ASME B1.1

For internal threads



Thread depth

 $\approx 2 \times D$

Applications – material

10

Steel materials
Stainless steel materials
Cast materials
Non ferrous materials
Special materials

P	1.1-3.1
M	1.1-2.1
K	1.1-4.2
N	1.1-2.7, 3.1-5.2
S	1.1-1.2, 2.1

											2xD R15-IKZ-HB TIALN-T4	
ø d ₁ inch	inch	P tpi	ø d ₁ mm	ø d ₂	l ₁	l ₂	l ₃	ø d _S	l _S	Z		
1/4	0.2500	20	4.7	8	62	14.6	36	6.7	15.1	3	GF895117.5009	£ 195.20
5/16	0.3125	18	6.1	10	74	17.6	40	8.2	18.2	3	GF895117.5010	£ 240.50
3/8	0.3750	16	7.6	12	80	21.4	45	9.8	22	3	GF895117.5011	£ 264.70
7/16	0.4375	14	8.8	14	90	24.4	45	11.4	25.2	3	GF895117.5012	£ 385.60
1/2	0.5000	13	10.1	14	90	26.9	45	13	27.7	4	GF895117.5013	£ 385.60
9/16	0.5625	12	11.4	16	100	31.2	48	14.6	32.1	4	GF895117.5014	£ 415.90
5/8	0.6250	11	12.7	16	100	34.1	48	16	35	4	GF895117.5015	£ 415.90
3/4	0.7500	10	15.2	20	110	42.5	50	19.4	43.7	5	GF895117.5016	£ 650.20
7/8	0.8750	9	18.8	20	115	50.1	50	*)	*)	5	GF895117.5017	£ 672.90
1"	1.0000	8	19.9	20	115	50	50	*)	*)	5	GF895117.5018	£ 672.90

*) Countersinking chamfer on face side

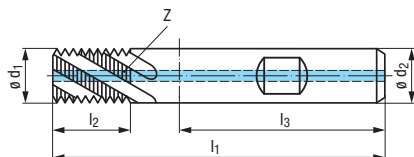

UNF
Unified fine thread ASME B1.1

											GSF-MULTI 2xD R15-IKZ-HB TIALN-T4	
ø d ₁ inch	inch	P tpi	ø d ₁ mm	ø d ₂	l ₁	l ₂	l ₃	ø d _S	l _S	Z		
1/4	0.2500	28	4.7	8	62	14	36	6.7	14.6	3	GF895117.5043	£ 201.20
5/16	0.3125	24	6.1	10	74	17.4	40	8.2	18	3	GF895117.5044	£ 248.00
3/8	0.3750	24	7.6	12	80	21.7	45	9.8	22.3	3	GF895117.5045	£ 275.30
7/16	0.4375	20	8.8	14	90	24.7	45	11.4	25.5	3	GF895117.5046	£ 393.10
1/2	0.5000	20	10.1	14	90	27.6	45	13	28.5	4	GF895117.5047	£ 393.10
9/16	0.5625	18	11.4	16	100	32.1	48	14.6	33	4	GF895117.5048	£ 431.00
5/8	0.6250	18	12.7	16	100	34.9	48	16	35.9	4	GF895117.5049	£ 431.00
3/4	0.7500	16	15.2	20	110	42.5	50	19.4	43.7	5	GF895117.5050	£ 680.40



Whitworth pipe thread DIN EN ISO 228

For internal and external threads



Carbide

TIALN
T4

R15

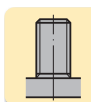
RH + LH

Z3 - Z5



DIN 6535

HB



Applications – material ► 10

Steel materials

Stainless steel materials

Cast materials

Non ferrous materials

Special materials

P 1.1-3.1

M 1.1-2.1

K 1.1-4.2

N 1.1-2.7, 3.1-5.2

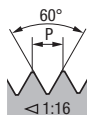
S 1.1-1.2, 2.1

								GF-MULTI R15-IKZ-HB TIALN-T4	
	Ø D ¹⁾ inch	P tpi	Ø d ₁ mm	Ø d ₂	l ₁	l ₂	l ₃	Z	
G	1/8	28	7.9	8	70	20.4	36	3	GF835117.4035
	1/4	19	11.0	12	90	27.3	45	4	GF835117.4036
	3/8	19	11.9	12	90	34	45	4	GF835117.4037
	1/2	14	13.9	14	95	42.6	45	4	GF835117.4038
	5/8 - 3/4	14	15.9	16	90	37.2	48	5	GF825117.4039
	1"	11	15.9	16	90	35.8	48	5	GF8A5117.4042
									£ 201.20
									£ 275.30
									£ 275.30
									£ 393.10
									£ 431.00
									£ 431.00

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

NPT (API-LP)

American tapered pipe thread ANSI/ASME B1.20.1



Carbide

TIALN
T46

L15

RH + LH

Z4 - Z5

DIN 6535



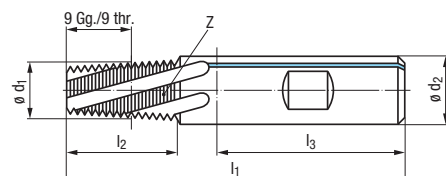
HB



with coolant grooves
along the shank



For internal tapered threads



Applications – material



Steel materials

Stainless steel materials

Cast materials

Non ferrous materials

Special materials

Hard materials

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

S 1.1-1.2

Nom.
size
D

P

tpi

Ø d₁
mm

Ø d₂

l₁

l₂

l₃

Z

GF-KEG-MULTI
L15-SKN-HB
TIALN-T46

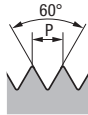
Nom. size D	P tpi	Ø d ₁ mm	Ø d ₂	l ₁	l ₂	l ₃	Z		
1/16 - 1/8	27	5.9	8	60	13.63	36	4	GF18B209.9676	£ 242.10
1/4 - 3/8	18	10.15	12	80	20.43	45	4	GF18B219.9677	£ 304.00
1/2 - 3/4	14	14.25	16	85	26.27	48	4	GF18B239.9678	£ 476.30
1" - 2"	11 1/2	19.6	20	95	31.98	50	5	GF18B259.9679	£ 589.70

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

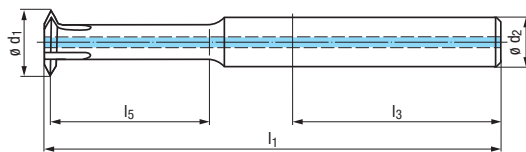
Application recommendation: You must have an NC programme for spiral-worm keyway milling, otherwise the finished thread will have a stepped profile

M, MF

ISO Metric thread DIN 13



For internal threads



Carbide

TIN

RH + LH

Z1 - Z5



DIN 6535



D



Thread depth

2 x D

Applications – material

» 10

Steel materials

Stainless steel materials

Cast materials

Non ferrous materials

Special materials

Hard materials

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

S 1.1-1.2

Ø D mm	P _{max} mm	l ₁	l ₃	l ₅	Ø d ₁ mm	Ø d ₂	Z	ZGF-MULTI 2xD IKZ-HA TIN	ZGF-MULTI 2xD IKZ-HB TIN
M1 - M1.2 ¹⁾	0.25	39	28	2.8	0.7	3	1	GF243705.0010	£ 97.70
M1.4 - M1.8 ¹⁾	0.35	39	28	3.5	1.04	3	2	GF253705.0014	£ 95.40
M2 - M2.3 ¹⁾	0.45	39	28	4.8	1.52	3	3	GF253705.0020	£ 96.80
M2.5 - M3 ¹⁾	0.5	39	28	6	1.95	3	3	GF253705.0025	£ 96.80
M3.5 - M4.5 ¹⁾	0.75	42	28	9	2.78	4	3	GF253705.0035	£ 118.70
M5 - M7 ¹⁾	1.0	55	36	14	4	6	4	GF253705.0050	£ 131.60
M8 - M10	1.5	62	36	19.8	6.5	8	5	GF253705.0080	£ 161.80
M12 - M16	2.0	78	40	31.8	9.9	10	5	GF253705.0112	£ 196.70

¹⁾ Design without internal coolant supply IKZ

Other designs upon request

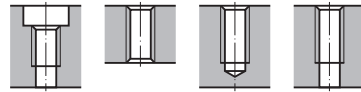
Suitable also for Metric fine threads (MF) and partly also for UN threads

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.

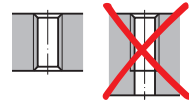


Rekord B-MULTI

- 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!

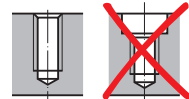


Enorm-MULTI

- 35-45° 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.



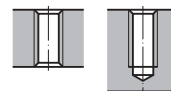
InnoForm-MULTI

- Cold-forming tap for the chipless production of internal threads
- Chamfer 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.

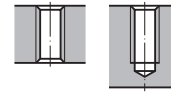
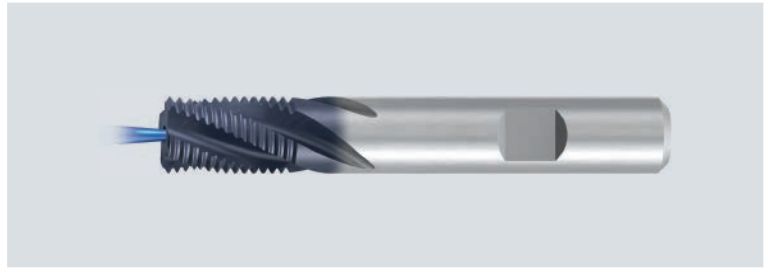
All ductile materials can be cold-formed. Sufficient lubrication is essential. We generally recommend using oil grooves for through hole threads and horizontal machining. (Exception: very short through hole threads, e.g. sheet metal components). Sometimes, it is necessary to adjust the recommended thread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



GF-MULTI

Solid carbide thread milling cutters

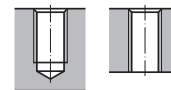
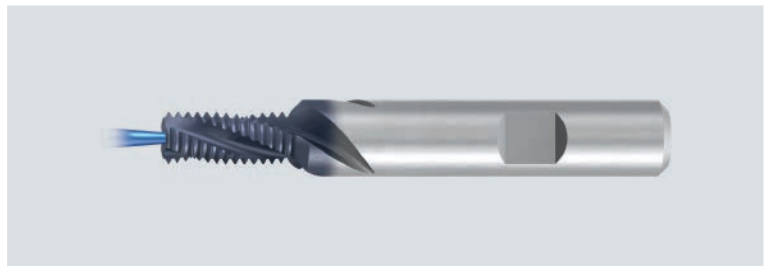
- For the production of internal threads
- Tool for one single thread size, with corrected thread profile
- A ready prepared thread hole is necessary



GSF-MULTI

Solid carbide thread milling cutters with countersinking step

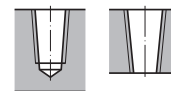
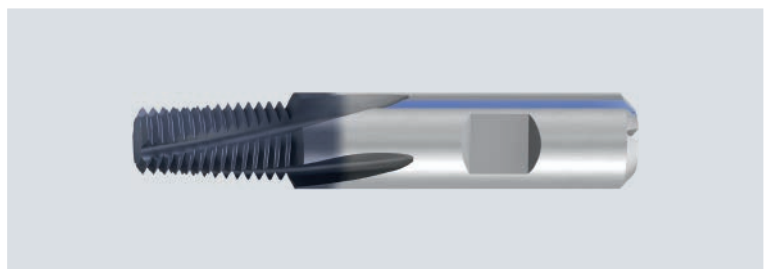
- For the production of internal threads
- For the machining of chamfer and thread in one work process
- Tool for one single thread size, with corrected thread profile
- A ready prepared thread hole is necessary



GF-KEG-MULTI

Solid carbide thread milling cutters for tapered threads

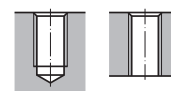
- For the production of tapered internal threads
- Tool for one single thread size, resp. for one pitch only, with corrected thread profile
- A ready prepared cylindrical, or even better, tapered, thread hole is necessary, including chamfer if needed



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

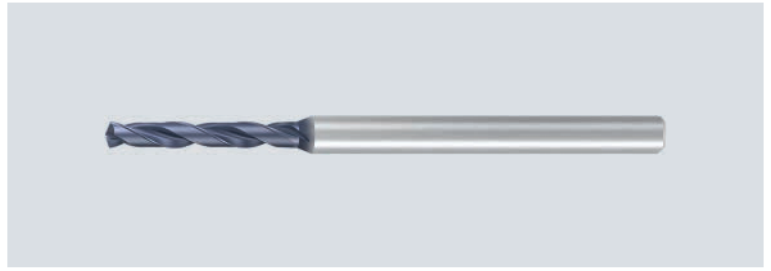


EF-Drill Micro-MULTI

- 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.

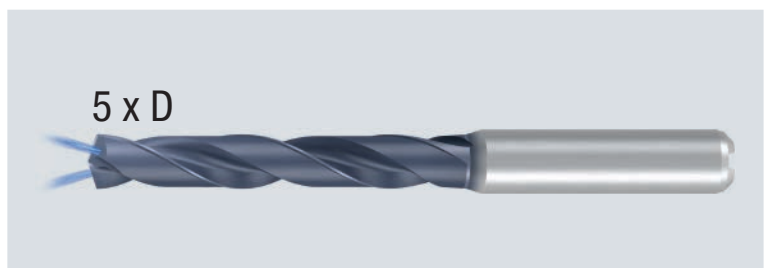
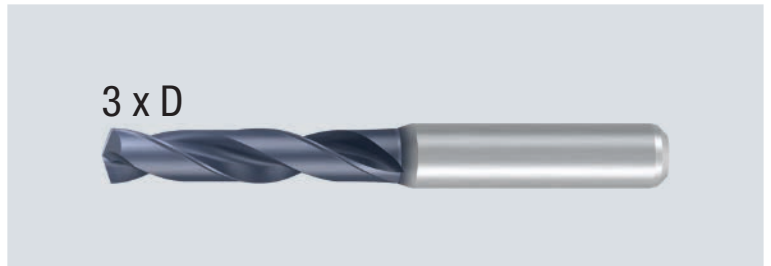


EF-Drill MULTI

- 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
-
- 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.





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