

GÜHRING

SuperLine
SUPER QUALITY · SUPER PRICE · SUPER AVAILABILITY

plus
★

PERFORMANCE HIGHLIGHTS

RT 100 XF • RT 100 T • HT 800
Micro-precision drills • RF 100 Diver
Pionex • MTMH3-Z • HR 500



SuperLine

HIGH-TECH TOOLS AT A
SUPER PRICE

SL

Convincing **price-performance-ratio**.

Exceptional **quality**.

100% **ex-stock** availability.

NEW

RATIO DRILLS WITH COOLANT DUCTS

NEW WITH H8 SHAFT
IN 3xD AND 5xD

SL

NEW

NC SPOTTING DRILLS 90°/120°/142°

NOW WITH COATING AND
CLAMPING SURFACE IN
SOLID CARBIDE AND IN HSC0

SL

NEW

RATIO END MILLS RF 100 A

NOW WITH OR WITHOUT
CLAMPING SURFACE

SL

CENTRE DRILLS

NEW IN OUR
SL PROGRAMME

NEW

SL

NEW

CHAMFERING MILLING CUTTERS 60°/90°/120°

WITH EVEN MORE
DIMENSIONS

SL

NEW

NC MACHINE REAMERS

EXTENDED WITH
STANDARD DIMENSIONS
AND COATED VERSIONS

SL

NEW IN OUR
SL PROGRAMME

HYDRAULIC CHUCKS

NEW

SL



PERFORMANCE **HIGHLIGHTS**



You need more? More performance? Application specialists?

In addition to our SuperLine programme you will find selected performance highlights from Gühring in this catalogue.
The right tool for every application and high efficiency.

All from a single source.

NEW

RT 100 XF SOLID CARBIDE DRILLING TOOL

FOR EXCEPTIONAL
METAL REMOVAL RATES



HR 500 REAMER

PERFECT REAMING
IN STEEL



NEW

RT 100 T SOLID CARBIDE GUN DRILL

SOLID CARBIDE SPIRAL-
FLUTED DEEP HOLE DRILL



NEW

MTMH3-Z DRILL THREAD MILLING CUTTER

UP TO
66 HRC



TAPS

NEW

UNIVERSAL
HIGH PERFORMANCE
PRODUCTION OF THREADS



NEW

RF 100 DIVER SOLID CARBIDE MILLING CUTTER

DRILLING, RAMPING, ROUGHING,
FINISHING, SLOTTING



NEW

HT 800 INDEXABLE INSERT SYSTEM

FOR DEEP AND HIGHLY
ACCURATE DRILLING





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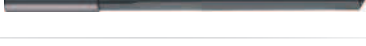
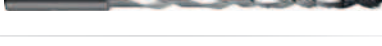


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•	○	•	○	○	○	 	3xD	HA	RT 100 U	DIN 6537K	VHM	F	3.000 - 20.000	5510	22
•	○	•	○	○	○	 	3xD	HE	RT 100 U	DIN 6537K	VHM	F	3.000 - 20.000	5610	22
•	○	•	○	○	○	 	3xD	HB	RT 100 U	DIN 6537K	VHM	F	3.000 - 20.000	6023	22
•	○	•	○	○	○	 	3xD	HA	RT 100 VA	DIN 6537K	VHM	a	3.000 - 20.000	5526	25
•	○	•	○	○	○	 	3xD	HE	RT 100 VA	DIN 6537K	VHM	a	3.000 - 20.000	5528	25
•	○	•	○	○	○	 	3xD	HB	RT 100 VA	DIN 6537K	VHM	a	3.000 - 20.000	6024	25
•	○	•	○	○	○	 	5xD	HA	RT 100 AI	DIN 6537L	VHM	○	3.000 - 20.000	5768	28
•	○	•	○	○	○	 	5xD	HA	RT 100 U	DIN 6537L	VHM	F	3.000 - 20.000	5511	32
•	○	•	○	○	○	 	5xD	HE	RT 100 U	DIN 6537L	VHM	F	3.000 - 20.000	5611	32
•	○	•	○	○	○	 	5xD	HB	RT 100 U	DIN 6537L	VHM	F	3.000 - 20.000	5650	32
•	○	•	○	○	○	 	5xD	HA	RT 100 VA	DIN 6537L	VHM	a	3.000 - 20.000	5580	36
•	○	•	○	○	○	 	5xD	HE	RT 100 VA	DIN 6537L	VHM	a	3.000 - 20.000	5581	36
•	○	•	○	○	○	 	5xD	HB	RT 100 VA	DIN 6537L	VHM	a	3.000 - 20.000	6025	36
•	○	•	○	○	○	 	5xD	HA	RT 100 XF	DIN 6537L	VHM	F	3.000 - 20.000	5498	40
•	○	•	○	○	○	 	7xD	HA	RT 100 U	WN	VHM	F	3.000 - 20.000	5512	44
•	○	•	○	○	○	 	7xD	HE	RT 100 U	WN	VHM	F	3.000 - 20.000	5612	44
•	○	•	○	○	○	 	7xD	HA	RT 100 XF	WN	VHM	F	3.000 - 20.000	5499	47
•	○	•	○	○	○	 	10xD	HA	RT 150 GG	WN	VHM	○	3.000 - 16.000	5513	51
•	○	•	○	○	○	 	12xD	HA	RT 100 U	WN	VHM	F	3.000 - 20.000	5525	53
•	○	•	○	○	○	 	15xD	HA	RT 100 T	WN	VHM	A	3.000 - 16.000	6509	56
•	○	•	○	○	○	 	20xD	HA	RT 100 T	WN	VHM	A	3.000 - 16.000	6511	58
•	○	•	○	○	○	 	25xD	HA	RT 100 T	WN	VHM	A	3.000 - 16.000	6512	60
•	○	•	○	○	○	 	30xD	HA	RT 100 T	WN	VHM	A	3.000 - 14.000	6513	62

P	M	K	N	S	H	Tool illustration	Drilling depth	Shank form	Type	Standard	Tool material	Surface	d1/mm	Article no.	Page
Ratio drills without coolant ducts															
•	○	•	○	○	○	 	3xD	HA	RT 100 U	DIN 6537K	VHM	F	3.000 - 20.000	5514	66
•	○	•	○	○	○	 	3xD	HE	RT 100 U	DIN 6537K	VHM	F	3.000 - 20.000	5614	66
•	○	•	○	○	○	 	3xD	HB	RT 100 U	DIN 6537K	VHM	F	3.000 - 20.000	6026	66
•	○	•	○	○	○	 	5xD	HA	RT 100 U	DIN 6537L	VHM	F	3.000 - 20.000	5515	69
•	○	•	○	○	○	 	5xD	HE	RT 100 U	DIN 6537L	VHM	F	3.000 - 20.000	5615	69
•	○	•	○	○	○	 	5xD	HB	RT 100 U	DIN 6537L	VHM	F	3.000 - 20.000	5651	69
Tool holders for interchangeable inserts HT 800															
						 	3xD	HE	HT 800 WP	WN		Ni		4107	72
						 	5xD	HE	HT 800 WP	WN		Ni		4108	75
						 	7xD	HE	HT 800 WP	WN		Ni		4109	78
Interchangeable inserts HT 800															
•	○	○				 			HT 800 WP	WN	VHM	F	11.000 - 40.000	4112	80
○	•	•				 			HT 800 WP	WN	VHM	Y	11.000 - 40.000	4113	83
○	•		○	○		 			HT 800 WP	WN	VHM	a	11.000 - 40.000	4115	86
Solid carbide micro-precision drills without coolant ducts															
•	○	•	○	○	○	 	Cyl	N		WN	VHM	A	0.100 - 3.000	5652	89
ExclusiveLine micro-precision drills without coolant ducts															
•	•	•	○	○		 	4xD	Cyl	N	WN	VHM	A	0.500 - 3.000	6400	90
•	•	•	○	○		 	7xD	Cyl	N	WN	VHM	A	0.500 - 3.000	6401	92
ExclusiveLine micro-precision drills with coolant ducts															
•	•	•	○	○		 	5xD	Cyl	N	WN	VHM	A	1.400 - 3.000	6405	94
•	•	•	○	○		 	8xD	Cyl	N	WN	VHM	A	1.400 - 3.000	6408	96
•	•	•	○	○		 	15xD	Cyl	N	WN	VHM	A	1.400 - 3.000	6412	98
3-flute Ratio drills															
	•	•				 	5xD	HA	FT 200	DIN 6537L	VHM	○	3.000 - 20.000	5518	99

P	M	K	N	S	H	Tool illustration	Drilling depth	Shank form	Type	Standard	Tool material	Surface	d1/mm	Article no.	Page
Twist drills with reinforced straight shank															
•	•	•	•	•	•		~3xD	HA	GU 500 PM	WN	HSS-E-PM	F	1.000 - 20.000	6005	101
•	•	•	•	•	•		~5xD	HA	GU 500 PM	WN	HSS-E-PM	F	2.000 - 20.000	6006	105
Stub drills															
•	•	•	•	•	•		~3xD	Cyl	N	DIN 6539	VHM	○	1.500 - 12.000	5516	109
•	•	•	•	•	•		~3xD	Cyl	GU 500 DZ	DIN 1897	HSCO	○	1.000 - 14.000	5524	111
•	•	•	•	•	•		~3xD	Cyl	GU 500 DZ	DIN 1897	HSCO	S	1.000 - 14.000	5520	111
•	•	•	•	•	•		~3xD	Cyl	GT 500 DZ	DIN 1897	HSS-E-PM	S	1.000 - 14.000	5521	114
Jobber drills															
•	•	•	•	•	•		~5xD	Cyl	N	WN	VHM	○	2.000 - 12.000	5517	117
•	•	•	•	•	•		~5xD	Cyl	GU 500 DZ	DIN 338	HSCO	○	1.000 - 14.000	5523	119
•	•	•	•	•	•		~5xD	Cyl	GU 500 DZ	DIN 338	HSCO	S	1.000 - 14.000	5519	119
•	•	•	•	•	•		~5xD	Cyl	GT 500 DZ	DIN 338	HSS-E-PM	S	1.000 - 14.000	5522	122
•	•	•	•	•	•		~5xD	Cyl	N	DIN 338	HSS	S	1.000 - 16.000	9651	125
Long series twist drills															
•	•	•	•	•	•		~10xD	Cyl	GU 500 DZ	DIN 340	HSCO	○	1.000 - 14.000	5536	129
•	•	•	•	•	•		~10xD	Cyl	GU 500 DZ	DIN 340	HSCO	S	1.000 - 14.000	5537	129
90° NC spotting drills															
•	•	•	•	•	•			B	N	WN	HSCO	F	3.000 - 25.400	5678	132
•	•	•	•	•	•			HB	N	WN	VHM	F	4.000 - 20.000	6027	133
120° NC spotting drills															
•	•	•	•	•	•			B	N	WN	HSCO	F	3.000 - 25.400	5679	134
•	•	•	•	•	•			HB	N	WN	VHM	F	3.000 - 20.000	6028	135
142° NC spotting drills															
•	•	•	•	•	•			HB	N	WN	VHM	F	4.000 - 20.000	6029	136
Centre drills without flat															
•	•	•	•	•	•			Cyl	N	DIN 333	HSCO	F	0.500 - 4.000	5680	137

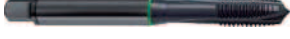
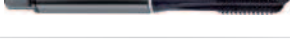
P	M	K	N	S	H	Tool illustration	Drilling depth	Shank form	Type	Standard	Tool material	Surface	d1/mm	Article no.	Page
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Twist drill sets

• • • •									12	138
• • •									234	139

P	M	K	N	S	H	Tool illustration	Standard	Type	Form	Tolerance on Ø	Tool material	Surface	d1/mm	Article no.	Page
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Taps for ISO metric threads

≤ 1000	○						DIN 371/376	NR40	C	ISO2/6H	HSS-E	○	M3 - M20	5555	156
≤ 1000	○						DIN 371/376	NR40	C	ISO2/6H	HSS-E	Ⓢ	M3 - M20	5594	156
≤ 1200							DIN 371/376	HR40	C	ISO2/6H	HSS-E	○	M3 - M20	5552	157
≤ 1200							DIN 371/376	HR40	C	ISO2/6H	HSS-E	●	M3 - M20	5591	157
	●						DIN 371/376	VA R40	C	ISO2/6H	HSS-E	○	M3 - M20	5553	158
	●						DIN 371/376	VA R40	C	ISO2/6H	HSS-E	Ⓢ	M3 - M20	5596	158
			●				DIN 371/376	AI R45	C	ISO2/6H	HSS-E	○	M3 - M20	5551	159
			●	≥ 7			DIN 371/376	H	C	6HX	VHM	○	M3 - M20	5593	160
≤ 1000	○						DIN 371/376	N	B	ISO2/6H	HSS-E	○	M3 - M20	5561	161
≤ 1000	○						DIN 371/376	N	B	ISO2/6H	HSS-E	Ⓢ	M3 - M20	5586	161
≤ 1200							DIN 371/376	H	B	ISO2/6H	HSS-E	○	M3 - M20	5558	162
≤ 1200							DIN 371/376	H	B	ISO2/6H	HSS-E	●	M3 - M20	5587	162
≤ 1000	●						DIN 371/376	VA	B	ISO2/6H	HSS-E	○	M3 - M20	5597	163
≤ 1000	●						DIN 371/376	VA	B	ISO2/6H	HSS-E	Ⓢ	M3 - M20	5588	163
≤ 1000	●						DIN 371	VA	B	ISO2/6H	HSS-E-PM	○	M3 - M10	5559	164
			●				DIN 371/376	AI	B	ISO2/6H	HSS-E	○	M3 - M20	5557	165
		●					DIN 371/376	GG	C	6HX	HSS-E	●	M3 - M20	5550	166
		●					DIN 371/376	GG	C	6HX	HSS-E	●	M3 - M20	5595	166
● ● ○ ○ ○							DIN 371/376	VA R45	C	6HX	HSS-E	●	M2 - M39	393	167
● ● ○ ○ ○							DIN 371/376	VA	B	6HX	HSS-E	Ⓢ	M2 - M30	4218	168

Taps for ISO metric fine threads

● ● ○ ○ ○	★		DIN 374	VA R45	C	6HX	HSS-E	●	M6 x 0,75 - M24 x 1,5	394	169
● ● ○ ○ ○	★		DIN 374	VA	B	6HX	HSS-E	Ⓢ	M6 x 0,75 - M24 x 1,5	4219	170

P	M	K	N	S	H	Tool illustration	Standard	Type	Form	Tolerance on Ø	Tool material	Surface	d1/mm	Article no.	Page	
Taps for UNC threads																
•	•	•	•	•	•			~DIN 371/376	VA R45	C	2BX	HSS-E	A	2 - 56 - 1 - 8	391	171
•	•	•	•	•	•			~DIN 371/376	VA	B	2BX	HSS-E	S	2 - 56 - 1 - 8	4642	172
Taps for UNF threads																
•	•	•	•	•	•			~DIN 371/374	VA R45	C	2BX	HSS-E	A	2 - 64 - 1 - 12	392	173
•	•	•	•	•	•			~DIN 371/374	VA	B	2BX	HSS-E	S	2 - 64 - 1 - 12	4643	174
Taps for BSP threads																
•	•	•	•	•	•			DIN 5156	VA R45	C		HSS-E	A	G1/16 - G1	395	175
•	•	•	•	•	•			DIN 5156	VA	B		HSS-E	S	G1/16 - G1	4220	176
Fluteless taps for ISO metric threads																
•	•	•	•	•	•			~DIN 371	N	C	6HX	HSS-E	S	M1 - M10	5598	177
•	•	•	•	•	•			~DIN 376	N	C	6HX	HSS-E	S	M12 - M16	5599	178
•	•	•	•	•	•			~DIN 371/376	N	C	4HX/6HX	HSS-E-PM	C	M1 - M20	4487	179
Micro thread milling cutters																
•	•	•	•	•	•			WN	MTM3 SP			VHM	C	M1,6 - M16	4226	180
•	•	•	•	•	•			WN	MTMH3-Z			VHM	C	M2 - M16	4002	181
Thread milling cutters without chamfer for ISO metric threads																
•	•	•	•	•	•			WN	TM SP			VHM	C	M6 - M20	5547	182
•	•	•	•	•	•			WN	TM SP			VHM	C	M6 - M20	5548	182

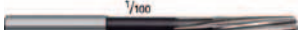
P	M	K	N	S	H	Tool illustration	Z	Hardness	Shank form	Length	Tool material	Surface	d1/mm	Article no.	Page
Standard Ratio end mills RF 100 U															
•	•	•	•	•	•			48 HRC	HB		VHM	F	6.000 - 20.000	5534	192
•	•	•	•	•	•			48 HRC	HA		VHM	F	4.000 - 25.000	5735	193
•	•	•	•	•	•			48 HRC	HB		VHM	F	4.000 - 25.000	5535	193
•	•	•	•	•	•			48 HRC	HA		VHM	F	10.000 - 25.000	5582	194
Ratio end mills RF 100 Speed M															
•	•	•	•	•	•				HB		VHM	A	3.000 - 20.000	6761	195
Ratio end mills RF 100 DIVER															
•	•	•	•	•	•			48 HRC	HA		VHM	Y	3.000 - 20.000	6803	196
•	•	•	•	•	•			48 HRC	HB		VHM	Y	3.000 - 20.000	6804	196
•	•	•	•	•	•			48 HRC	HA		VHM	Y	4.000 - 20.000	6737	197
•	•	•	•	•	•			48 HRC	HB		VHM	Y	4.000 - 20.000	6736	197
Ratio end mills RF 100 iMill															
•	•	•	•	•	•				HA		VHM	Y	3.000 - 20.000	6964	198
•	•	•	•	•	•				HB		VHM	Y	3.000 - 20.000	6965	198
Ratio end mills RF 100 VA															
•	•	•	•	•	•				HA		VHM	a	3.000 - 25.000	5653	200
•	•	•	•	•	•				HB		VHM	a	3.000 - 25.000	5654	200
Ratio end mills Alu RF 100 A															
•	•	•	•	•	•				HA		VHM	○	3.000 - 20.000	6010	201
•	•	•	•	•	•				HB		VHM	○	3.000 - 20.000	5655	201
Slot drills GH 100 U (3-fluted)															
•	•	•	•	•	•				HA		VHM	F	3.000 - 20.000	5505	202
•	•	•	•	•	•				HA		VHM	F	3.000 - 20.000	5506	203
•	•	•	•	•	•				HB		VHM	F	3.000 - 20.000	5546	203
Mini slot drills (3-fluted)															
•	•	•	•	•	•				HA/ HB		VHM	F	1.000 - 10.000	5574	204

P	M	K	N	S	H	Tool illustration	Z	Hardness	Shank form	Length	Tool material	Surface	d1/mm	Article no.	Page
Roughing end mills GS 100 U (fine teeth)															
•	•	•	•	•	•		4		HB		VHM	F	6.000 - 20.000	5504	205
Hard roughing end mills GS 100 H (fine teeth)															
•	•	•	•	•	•		4	55 HRC	HB		VHM	Y	6.000 - 20.000	5583	206
Multi-tooth end mills GH 100 U															
•	•	•	•	•	•		6+	48 HRC	HA		VHM	F	3.000 - 25.000	5745	207
•	•	•	•	•	•		6+	48 HRC	HB		VHM	F	3.000 - 25.000	5545	207
•	•	•	•	•	•		6+	48 HRC	HA		VHM	F	6.000 - 20.000	5729	208
Slot drills (2-fluted)															
•	•	•	•	•	•		2		HA		VHM	F	2.000 - 20.000	5730	209
•	•	•	•	•	•		2		HB		VHM	F	2.000 - 20.000	5530	209
XL slot drills (2-fluted)															
•	•	•	•	•	•		2		HA		VHM	F	3.000 - 20.000	5549	210
Al slot drills (2-fluted)															
•	•	•	•	•	•		2		HB		VHM	○	3.000 - 20.000	5543	211
Slot drills (3-fluted)															
•	•	•	•	•	•		3		HA		VHM	F	2.000 - 20.000	5507	212
•	•	•	•	•	•		3		HB		VHM	F	2.000 - 20.000	5531	212
Mini slot drills (3-fluted)															
•	•	•	•	•	•		3		HA/ HB		VHM	F	0.500 - 20.000	5573	213
End mills (4-fluted)															
•	•	•	•	•	•		4		HB		VHM	F	2.000 - 20.000	5532	214
XL end mills (4-fluted)															
•	•	•	•	•	•		4		HA		VHM	F	3.000 - 20.000	5556	215
Ball nose slot drills (2-fluted)															
•	•	•	•	•	•		2	48 HRC	HB		VHM	F	0.500 - 20.000	5533	216
•	•	•	•	•	•		2	48 HRC	HA		VHM	F	0.500 - 20.000	5585	216

P	M	K	N	S	H	Tool illustration	Z	Hard- ness	Shank form	Length	Tool material	Sur- face	d1/mm	Article no.	Page
						Ball nose end mills (4-fluted)									
•	•	•	•	•	○			48 HRC	HB		VHM		3.000 - 20.000	5584	217
						Chamfering milling cutters 60°									
•	•	•	•	•	○			55 HRC	HA		VHM		4.000 - 12.000	6011	218
•	•	•	•	•	○			55 HRC	HB		VHM		4.000 - 12.000	6012	218
						Chamfering milling cutters 90°									
•	•	•	•	•	○			55 HRC	HA		VHM		4.000 - 12.000	5578	219
•	•	•	•	•	○			55 HRC	HB		VHM		4.000 - 12.000	5579	219
						Chamfering milling cutters 120°									
•	•	•	•	•	○			55 HRC	HA		VHM		4.000 - 12.000	6014	220
•	•	•	•	•	○			55 HRC	HB		VHM		4.000 - 12.000	6015	220
						Front/back deburrer 90°, sets									
•	•	•	○	•	•			55 HRC	Cyl		VHM			6013	221
						Ratio end mill sets RF 100 U									
•	•	•	•	•	○			48 HRC	HB		VHM			5635	222

P	M	K	N	S	H	Tool illustration	Shank form	Standard	Form	Cutting direction	Tool material	Surface	d1/mm	Article no.	Page
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NC machine reamers

•	○	•	•	○			HA	DIN 212-3	B		HSS-E	○	1.500 - 20.000	6019	232
•	○	•	•	○			HA	DIN 212-3	B		HSS-E	○	1.000 - 12.030	6020	233
•	○	•	•	○	52		HA	WN	B		VHM	○	3.000 - 20.000	6016	235
•	•	•	•	•	52		HA	WN	B		VHM		3.000 - 20.000	6017	236
•	○	•	•	○	52		HA	WN	B		VHM	○	0.980 - 12.050	5527	237
•	•	•	•	•	52		HA	WN	B		VHM		0.980 - 12.050	6018	239

High-performance reamers

•	•	•	•	•	63		HA	WN			VHM		2.000 - 20.000	1685	241
•	•	•	•	•	63		HA	WN			VHM		2.000 - 20.000	1686	242

60° Countersinks, spiral-fluted

•	•	•	○	○			Cyl	DIN 334	C		HSS		6.300 - 25.000	5670	243
•	•	•	○	○			3	DIN 334	C		HSS		6.300 - 25.000	5671	244

90° Countersinks, spiral-fluted

•	•	•	○	○			Cyl	DIN 335	C		HSCO		6.300 - 40.000	5500	245
•	•	•	○	○			3	DIN 335	C		HSCO		6.300 - 40.000	5501	246
•	○	•	○	○			Cyl	WN	C		HSS		6.300 - 31.000	5503	247

P	M	K	N	S	H	Tool illustration	Shank form	Standard	Form	Cutting direction	Tool material	Surface	d1/mm	Article no.	Page
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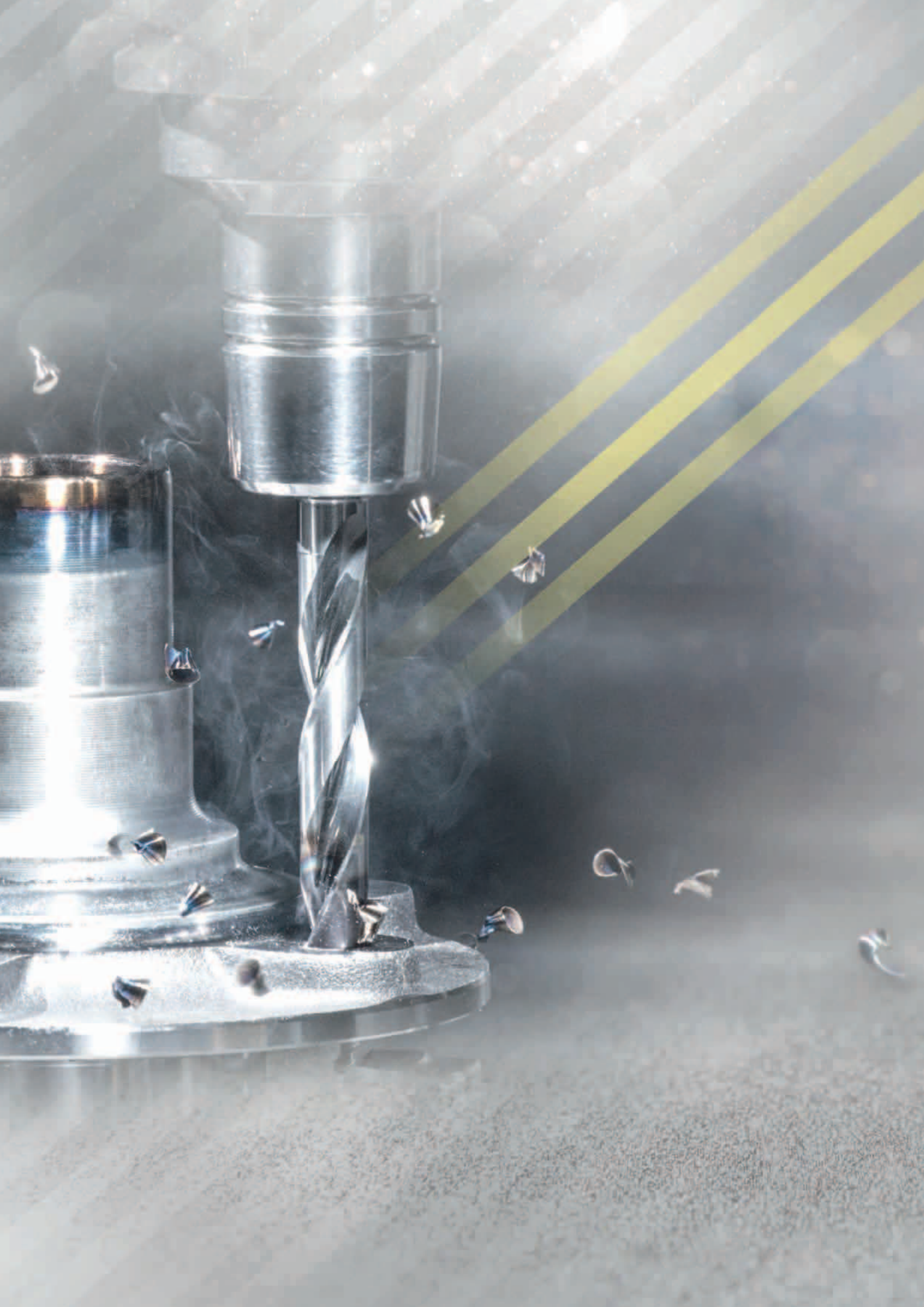
60° Countersink sets, spiral-fluted

• • • ○ ○									5672	248
• • • ○ ○									5673	249

90° Countersink sets, spiral-fluted

• • • ○ ○									5538	250
• • • ○ ○									5539	251

Tool illustration	Standard	Article no.	Page
HSK-A hydraulic chucks 		4662	258
ISO taper hydraulic chucks 		4663	259
MAS/BT hydraulic chucks 		4664	260
Tool dispensing system TM 226 		506920	269



DRILLING TOOLS



Ratio drills with coolant ducts



P • web thinning $\geq \varnothing 3.000$ • facet point grind • main cutting edge form straight • optimised cutting geometry

M ○

K •

N ○

S ○

H ○

structural and case hardened steels • free-cutting steels, heat-treatable steels • steels (alloyed/unalloyed) up to 1200 N/mm² • cast materials • bronze, brass • high-alloyed AlSi alloys

Tool material

Solid carbide

Surface

F

F

F

Shank form

HA

HE

HB

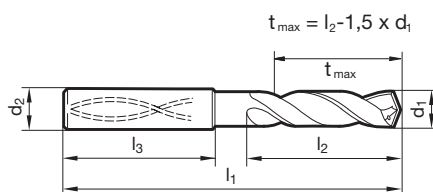
SL

SL

SL

GÜHRING NAVIGATOR

Cutting data page 140



Article no.

5510

5610

6023

Discount group

155

155

155

Cutting direction

R

R

R

d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
3.000		6.00	62.00	20.00	36.00	●
3.100		6.00	62.00	20.00	36.00	●
3.170	1/8	6.00	62.00	20.00	36.00	●
3.200		6.00	62.00	20.00	36.00	●
3.250		6.00	62.00	20.00	36.00	●
3.300		6.00	62.00	20.00	36.00	●
3.400		6.00	62.00	20.00	36.00	●
3.500		6.00	62.00	20.00	36.00	●
3.570	9/64	6.00	62.00	20.00	36.00	●
3.600		6.00	62.00	20.00	36.00	●
3.700		6.00	62.00	20.00	36.00	●
3.800		6.00	66.00	24.00	36.00	●
3.900		6.00	66.00	24.00	36.00	●
3.970	5/32	6.00	66.00	24.00	36.00	●
4.000		6.00	66.00	24.00	36.00	●
4.100		6.00	66.00	24.00	36.00	●
4.200		6.00	66.00	24.00	36.00	●
4.300		6.00	66.00	24.00	36.00	●
4.370	11/64	6.00	66.00	24.00	36.00	●
4.400		6.00	66.00	24.00	36.00	●
4.500		6.00	66.00	24.00	36.00	●
4.600		6.00	66.00	24.00	36.00	●
4.650		6.00	66.00	24.00	36.00	●
4.700		6.00	66.00	24.00	36.00	●
4.760	3/16	6.00	66.00	28.00	36.00	●
4.800		6.00	66.00	28.00	36.00	●
4.900		6.00	66.00	28.00	36.00	●
5.000		6.00	66.00	28.00	36.00	●
5.100		6.00	66.00	28.00	36.00	●
5.160	13/64	6.00	66.00	28.00	36.00	●
5.200		6.00	66.00	28.00	36.00	●
5.300		6.00	66.00	28.00	36.00	●
5.400		6.00	66.00	28.00	36.00	●
5.500		6.00	66.00	28.00	36.00	●
5.550		6.00	66.00	28.00	36.00	●
5.560	7/32	6.00	66.00	28.00	36.00	●

Article no.						5510	5610	6023
Discount group						155	155	155
Cutting direction						(R)	(R)	(R)
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
5.600		6.00	66.00	28.00	36.00	●	●	●
5.700		6.00	66.00	28.00	36.00	●	●	●
5.800		6.00	66.00	28.00	36.00	●	●	●
5.900		6.00	66.00	28.00	36.00	●	●	●
5.950	15/64	6.00	66.00	28.00	36.00	●	●	●
6.000		6.00	66.00	28.00	36.00	●	●	●
6.100		8.00	79.00	34.00	36.00	●	●	●
6.200		8.00	79.00	34.00	36.00	●	●	●
6.300		8.00	79.00	34.00	36.00	●	●	●
6.350	1/4	8.00	79.00	34.00	36.00	●	●	●
6.400		8.00	79.00	34.00	36.00	●	●	●
6.500		8.00	79.00	34.00	36.00	●	●	●
6.600		8.00	79.00	34.00	36.00	●	●	●
6.700		8.00	79.00	34.00	36.00	●	●	●
6.750	17/64	8.00	79.00	34.00	36.00	●	●	●
6.800		8.00	79.00	34.00	36.00	●	●	●
6.900		8.00	79.00	34.00	36.00	●	●	●
7.000		8.00	79.00	34.00	36.00	●	●	●
7.100		8.00	79.00	41.00	36.00	●	●	●
7.140	9/32	8.00	79.00	41.00	36.00	●	●	●
7.200		8.00	79.00	41.00	36.00	●	●	●
7.300		8.00	79.00	41.00	36.00	●	●	●
7.400		8.00	79.00	41.00	36.00	●	●	●
7.500		8.00	79.00	41.00	36.00	●	●	●
7.540	19/64	8.00	79.00	41.00	36.00	●	●	●
7.600		8.00	79.00	41.00	36.00	●	●	●
7.700		8.00	79.00	41.00	36.00	●	●	●
7.800		8.00	79.00	41.00	36.00	●	●	●
7.900		8.00	79.00	41.00	36.00	●	●	●
7.940	5/16	8.00	79.00	41.00	36.00	●	●	●
8.000		8.00	79.00	41.00	36.00	●	●	●
8.100		10.00	89.00	47.00	40.00	●	●	●
8.200		10.00	89.00	47.00	40.00	●	●	●
8.300		10.00	89.00	47.00	40.00	●	●	●
8.330	21/64	10.00	89.00	47.00	40.00	●	●	●
8.400		10.00	89.00	47.00	40.00	●	●	●
8.500		10.00	89.00	47.00	40.00	●	●	●
8.600		10.00	89.00	47.00	40.00	●	●	●
8.700		10.00	89.00	47.00	40.00	●	●	●
8.730	11/32	10.00	89.00	47.00	40.00	●	●	●
8.800		10.00	89.00	47.00	40.00	●	●	●
8.900		10.00	89.00	47.00	40.00	●	●	●
9.000		10.00	89.00	47.00	40.00	●	●	●
9.100		10.00	89.00	47.00	40.00	●	●	●
9.130	23/64	10.00	89.00	47.00	40.00	●	●	●
9.200		10.00	89.00	47.00	40.00	●	●	●
9.250		10.00	89.00	47.00	40.00	●	●	●
9.300		10.00	89.00	47.00	40.00	●	●	●
9.400		10.00	89.00	47.00	40.00	●	●	●
9.500		10.00	89.00	47.00	40.00	●	●	●
9.520	3/8	10.00	89.00	47.00	40.00	●	●	●
9.600		10.00	89.00	47.00	40.00	●	●	●
9.700		10.00	89.00	47.00	40.00	●	●	●
9.800		10.00	89.00	47.00	40.00	●	●	●
9.900		10.00	89.00	47.00	40.00	●	●	●
9.920	25/64	10.00	89.00	47.00	40.00	●	●	●
10.000		10.00	89.00	47.00	40.00	●	●	●
10.100		12.00	102.00	55.00	45.00	●	●	●
10.200		12.00	102.00	55.00	45.00	●	●	●
10.300		12.00	102.00	55.00	45.00	●	●	●



Article no.						5510	5610	6023
Discount group						155	155	155
Cutting direction						(R)	(R)	(R)
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
10.320	13/32	12.00	102.00	55.00	45.00	●	●	●
10.400		12.00	102.00	55.00	45.00	●	●	●
10.500		12.00	102.00	55.00	45.00	●	●	●
10.600		12.00	102.00	55.00	45.00	●	●	●
10.700		12.00	102.00	55.00	45.00	●	●	●
10.800		12.00	102.00	55.00	45.00	●	●	●
10.900		12.00	102.00	55.00	45.00	●	●	●
11.000		12.00	102.00	55.00	45.00	●	●	●
11.100		12.00	102.00	55.00	45.00	●	●	●
11.110	7/16	12.00	102.00	55.00	45.00	●	●	●
11.200		12.00	102.00	55.00	45.00	●	●	●
11.300		12.00	102.00	55.00	45.00	●	●	●
11.400		12.00	102.00	55.00	45.00	●	●	●
11.500		12.00	102.00	55.00	45.00	●	●	●
11.600		12.00	102.00	55.00	45.00	●	●	●
11.700		12.00	102.00	55.00	45.00	●	●	●
11.800		12.00	102.00	55.00	45.00	●	●	●
11.900		12.00	102.00	55.00	45.00	●	●	●
11.910	15/32	12.00	102.00	55.00	45.00	●	●	●
12.000		12.00	102.00	55.00	45.00	●	●	●
12.200		14.00	107.00	60.00	45.00	●	●	●
12.400		14.00	107.00	60.00	45.00	●		●
12.500		14.00	107.00	60.00	45.00	●	●	●
12.700	1/2	14.00	107.00	60.00	45.00	●	●	●
12.800		14.00	107.00	60.00	45.00	●		●
13.000		14.00	107.00	60.00	45.00	●	●	●
13.500		14.00	107.00	60.00	45.00	●	●	●
13.700		14.00	107.00	60.00	45.00	●	●	●
13.800		14.00	107.00	60.00	45.00	●		●
14.000		14.00	107.00	60.00	45.00	●	●	●
14.200		16.00	115.00	65.00	48.00	●	●	●
14.290	9/16	16.00	115.00	65.00	48.00	●	●	●
14.300		16.00	115.00	65.00	48.00	●		●
14.500		16.00	115.00	65.00	48.00	●	●	●
14.700		16.00	115.00	65.00	48.00	●	●	●
14.800		16.00	115.00	65.00	48.00	●	●	●
15.000		16.00	115.00	65.00	48.00	●	●	●
15.200		16.00	115.00	65.00	48.00	●	●	●
15.500		16.00	115.00	65.00	48.00	●	●	●
15.700		16.00	115.00	65.00	48.00	●	●	●
16.000		16.00	115.00	65.00	48.00	●	●	●
16.500		18.00	123.00	73.00	48.00	●	●	●
17.000		18.00	123.00	73.00	48.00	●	●	●
17.500		18.00	123.00	73.00	48.00	●	●	●
17.700		18.00	123.00	73.00	48.00	●		●
18.000		18.00	123.00	73.00	48.00	●	●	●
18.500		20.00	131.00	79.00	50.00	●	●	●
19.000		20.00	131.00	79.00	50.00	●	●	●
19.500		20.00	131.00	79.00	50.00	●	●	●
20.000		20.00	131.00	79.00	50.00	●	●	●



Ratio drills with coolant ducts



P web thinning $\geq \varnothing 3.000$ • facet point grind • main cutting edge form straight • optimised cutting geometry



N stainless/acid-/heat-resistant steels • Titanium and Titanium alloys
S • Inconel, Hastelloy, Monel

Tool material

Solid carbide

Surface

a

a

a

Shank form

HA

HE

HB

SL

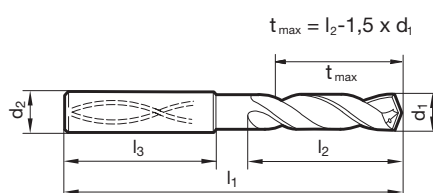
SL

SL

Drilling tools

GUHRING NAVIGATOR

Cutting data page 140



Article no.

5526

5528

6024

Discount group

155

155

155

Cutting direction

R

R

R

d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
3.000		6.00	62.00	20.00	36.00	•
3.100		6.00	62.00	20.00	36.00	•
3.170	1/8	6.00	62.00	20.00	36.00	•
3.200		6.00	62.00	20.00	36.00	•
3.250		6.00	62.00	20.00	36.00	•
3.300		6.00	62.00	20.00	36.00	•
3.400		6.00	62.00	20.00	36.00	•
3.500		6.00	62.00	20.00	36.00	•
3.570	9/64	6.00	62.00	20.00	36.00	•
3.600		6.00	62.00	20.00	36.00	•
3.700		6.00	62.00	20.00	36.00	•
3.800		6.00	66.00	24.00	36.00	•
3.900		6.00	66.00	24.00	36.00	•
3.970	5/32	6.00	66.00	24.00	36.00	•
4.000		6.00	66.00	24.00	36.00	•
4.100		6.00	66.00	24.00	36.00	•
4.200		6.00	66.00	24.00	36.00	•
4.300		6.00	66.00	24.00	36.00	•
4.370	11/64	6.00	66.00	24.00	36.00	•
4.400		6.00	66.00	24.00	36.00	•
4.500		6.00	66.00	24.00	36.00	•
4.600		6.00	66.00	24.00	36.00	•
4.650		6.00	66.00	24.00	36.00	•
4.700		6.00	66.00	24.00	36.00	•
4.760	3/16	6.00	66.00	28.00	36.00	•
4.800		6.00	66.00	28.00	36.00	•
4.900		6.00	66.00	28.00	36.00	•
5.000		6.00	66.00	28.00	36.00	•
5.100		6.00	66.00	28.00	36.00	•
5.160	13/64	6.00	66.00	28.00	36.00	•
5.200		6.00	66.00	28.00	36.00	•
5.300		6.00	66.00	28.00	36.00	•
5.400		6.00	66.00	28.00	36.00	•
5.500		6.00	66.00	28.00	36.00	•
5.550		6.00	66.00	28.00	36.00	•
5.560	7/32	6.00	66.00	28.00	36.00	•



Article no.						5526	5528	6024
Discount group						155	155	155
Cutting direction						(R)	(R)	(R)
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
5.600		6.00	66.00	28.00	36.00	●	●	●
5.700		6.00	66.00	28.00	36.00	●	●	●
5.800		6.00	66.00	28.00	36.00	●	●	●
5.900		6.00	66.00	28.00	36.00	●	●	●
5.950	15/64	6.00	66.00	28.00	36.00	●	●	●
6.000		6.00	66.00	28.00	36.00	●	●	●
6.100		8.00	79.00	34.00	36.00	●	●	●
6.200		8.00	79.00	34.00	36.00	●	●	●
6.300		8.00	79.00	34.00	36.00	●	●	●
6.350	1/4	8.00	79.00	34.00	36.00	●	●	●
6.400		8.00	79.00	34.00	36.00	●	●	●
6.500		8.00	79.00	34.00	36.00	●	●	●
6.600		8.00	79.00	34.00	36.00	●	●	●
6.700		8.00	79.00	34.00	36.00	●	●	●
6.750	17/64	8.00	79.00	34.00	36.00	●	●	●
6.800		8.00	79.00	34.00	36.00	●	●	●
6.900		8.00	79.00	34.00	36.00	●	●	●
7.000		8.00	79.00	34.00	36.00	●	●	●
7.100		8.00	79.00	41.00	36.00	●	●	●
7.140	9/32	8.00	79.00	41.00	36.00	●	●	●
7.200		8.00	79.00	41.00	36.00	●	●	●
7.300		8.00	79.00	41.00	36.00	●	●	●
7.400		8.00	79.00	41.00	36.00	●	●	●
7.500		8.00	79.00	41.00	36.00	●	●	●
7.540	19/64	8.00	79.00	41.00	36.00	●	●	●
7.600		8.00	79.00	41.00	36.00	●	●	●
7.700		8.00	79.00	41.00	36.00	●	●	●
7.800		8.00	79.00	41.00	36.00	●	●	●
7.900		8.00	79.00	41.00	36.00	●	●	●
7.940	5/16	8.00	79.00	41.00	36.00	●	●	●
8.000		8.00	79.00	41.00	36.00	●	●	●
8.100		10.00	89.00	47.00	40.00	●	●	●
8.200		10.00	89.00	47.00	40.00	●	●	●
8.300		10.00	89.00	47.00	40.00	●	●	●
8.330	21/64	10.00	89.00	47.00	40.00	●	●	●
8.400		10.00	89.00	47.00	40.00	●	●	●
8.500		10.00	89.00	47.00	40.00	●	●	●
8.600		10.00	89.00	47.00	40.00	●	●	●
8.700		10.00	89.00	47.00	40.00	●	●	●
8.730	11/32	10.00	89.00	47.00	40.00	●	●	●
8.800		10.00	89.00	47.00	40.00	●	●	●
8.900		10.00	89.00	47.00	40.00	●	●	●
9.000		10.00	89.00	47.00	40.00	●	●	●
9.100		10.00	89.00	47.00	40.00	●	●	●
9.130	23/64	10.00	89.00	47.00	40.00	●	●	●
9.200		10.00	89.00	47.00	40.00	●	●	●
9.250		10.00	89.00	47.00	40.00	●	●	●
9.300		10.00	89.00	47.00	40.00	●	●	●
9.400		10.00	89.00	47.00	40.00	●	●	●
9.500		10.00	89.00	47.00	40.00	●	●	●
9.520	3/8	10.00	89.00	47.00	40.00	●	●	●
9.600		10.00	89.00	47.00	40.00	●	●	●
9.700		10.00	89.00	47.00	40.00	●	●	●
9.800		10.00	89.00	47.00	40.00	●	●	●
9.900		10.00	89.00	47.00	40.00	●	●	●
9.920	25/64	10.00	89.00	47.00	40.00	●	●	●
10.000		10.00	89.00	47.00	40.00	●	●	●
10.100		12.00	102.00	55.00	45.00	●	●	●
10.200		12.00	102.00	55.00	45.00	●	●	●
10.300		12.00	102.00	55.00	45.00	●	●	●



Article no.						5526	5528	6024
Discount group						155	155	155
Cutting direction						(R)	(R)	(R)
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
10.320	13/32	12.00	102.00	55.00	45.00	●	●	●
10.400		12.00	102.00	55.00	45.00	●	●	●
10.500		12.00	102.00	55.00	45.00	●	●	●
10.600		12.00	102.00	55.00	45.00	●	●	●
10.700		12.00	102.00	55.00	45.00	●	●	●
10.800		12.00	102.00	55.00	45.00	●	●	●
10.900		12.00	102.00	55.00	45.00	●	●	●
11.000		12.00	102.00	55.00	45.00	●	●	●
11.100		12.00	102.00	55.00	45.00	●	●	●
11.110	7/16	12.00	102.00	55.00	45.00	●	●	●
11.200		12.00	102.00	55.00	45.00	●	●	●
11.300		12.00	102.00	55.00	45.00	●	●	●
11.400		12.00	102.00	55.00	45.00	●	●	●
11.500		12.00	102.00	55.00	45.00	●	●	●
11.600		12.00	102.00	55.00	45.00	●	●	●
11.700		12.00	102.00	55.00	45.00	●	●	●
11.800		12.00	102.00	55.00	45.00	●	●	●
11.900		12.00	102.00	55.00	45.00	●	●	●
11.910	15/32	12.00	102.00	55.00	45.00	●	●	●
12.000		12.00	102.00	55.00	45.00	●	●	●
12.200		14.00	107.00	60.00	45.00	●	●	●
12.500		14.00	107.00	60.00	45.00	●	●	●
12.700	1/2	14.00	107.00	60.00	45.00	●	●	●
13.000		14.00	107.00	60.00	45.00	●	●	●
13.500		14.00	107.00	60.00	45.00	●	●	●
13.700		14.00	107.00	60.00	45.00	●	●	●
14.000		14.00	107.00	60.00	45.00	●	●	●
14.200		16.00	115.00	65.00	48.00	●	●	●
14.290	9/16	16.00	115.00	65.00	48.00	●	●	●
14.500		16.00	115.00	65.00	48.00	●	●	●
14.700		16.00	115.00	65.00	48.00	●	●	●
15.000		16.00	115.00	65.00	48.00	●	●	●
15.200		16.00	115.00	65.00	48.00	●	●	●
15.500		16.00	115.00	65.00	48.00	●	●	●
15.700		16.00	115.00	65.00	48.00	●	●	●
16.000		16.00	115.00	65.00	48.00	●	●	●
16.500		18.00	123.00	73.00	48.00	●	●	●
17.000		18.00	123.00	73.00	48.00	●	●	●
17.500		18.00	123.00	73.00	48.00	●	●	●
18.000		18.00	123.00	73.00	48.00	●	●	●
18.500		20.00	131.00	79.00	50.00	●	●	●
19.000		20.00	131.00	79.00	50.00	●	●	●
19.500		20.00	131.00	79.00	50.00	●	●	●
20.000		20.00	131.00	79.00	50.00	●	●	●



Ratio drills with coolant ducts

Tool material **Solid carbide**

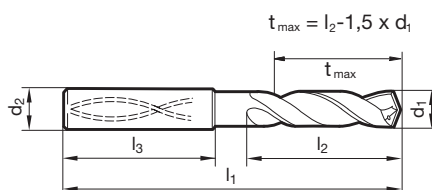
Surface

Shank form **HA**

P relieved cone • main cutting edge is slightly concave • optimised cutting geometry • sharp cutting edges

M**K****N** • aluminium and Al alloys • Al materials with high Si-content**S****H****SL****GUHRING** NAVIGATOR

Cutting data page 140

Article no. **5768**Discount group **155**

Cutting direction

d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
3.000		6.00	66.00	28.00	36.00	●
3.100		6.00	66.00	28.00	36.00	●
3.170	1/8	6.00	66.00	28.00	36.00	●
3.200		6.00	66.00	28.00	36.00	●
3.250		6.00	66.00	28.00	36.00	●
3.300		6.00	66.00	28.00	36.00	●
3.400		6.00	66.00	28.00	36.00	●
3.500		6.00	66.00	28.00	36.00	●
3.570	9/64	6.00	66.00	28.00	36.00	●
3.600		6.00	66.00	28.00	36.00	●
3.700		6.00	66.00	28.00	36.00	●
3.800		6.00	74.00	36.00	36.00	●
3.900		6.00	74.00	36.00	36.00	●
3.970	5/32	6.00	74.00	36.00	36.00	●
4.000		6.00	74.00	36.00	36.00	●
4.100		6.00	74.00	36.00	36.00	●
4.200		6.00	74.00	36.00	36.00	●
4.300		6.00	74.00	36.00	36.00	●
4.370	11/64	6.00	74.00	36.00	36.00	●
4.400		6.00	74.00	36.00	36.00	●
4.500		6.00	74.00	36.00	36.00	●
4.600		6.00	74.00	36.00	36.00	●
4.650		6.00	74.00	36.00	36.00	●
4.700		6.00	74.00	36.00	36.00	●
4.760	3/16	6.00	82.00	44.00	36.00	●
4.800		6.00	82.00	44.00	36.00	●
4.900		6.00	82.00	44.00	36.00	●
5.000		6.00	82.00	44.00	36.00	●
5.100		6.00	82.00	44.00	36.00	●
5.160	13/64	6.00	82.00	44.00	36.00	●
5.200		6.00	82.00	44.00	36.00	●
5.300		6.00	82.00	44.00	36.00	●
5.400		6.00	82.00	44.00	36.00	●
5.500		6.00	82.00	44.00	36.00	●
5.550		6.00	82.00	44.00	36.00	●
5.560	7/32	6.00	82.00	44.00	36.00	●



Article no.						5768
Discount group						155
Cutting direction						(R)
d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
5.600		6.00	82.00	44.00	36.00	●
5.700		6.00	82.00	44.00	36.00	●
5.800		6.00	82.00	44.00	36.00	●
5.900		6.00	82.00	44.00	36.00	●
5.950	15/64	6.00	82.00	44.00	36.00	●
6.000		6.00	82.00	44.00	36.00	●
6.100		8.00	91.00	53.00	36.00	●
6.200		8.00	91.00	53.00	36.00	●
6.300		8.00	91.00	53.00	36.00	●
6.350	1/4	8.00	91.00	53.00	36.00	●
6.400		8.00	91.00	53.00	36.00	●
6.500		8.00	91.00	53.00	36.00	●
6.600		8.00	91.00	53.00	36.00	●
6.700		8.00	91.00	53.00	36.00	●
6.750	17/64	8.00	91.00	53.00	36.00	●
6.800		8.00	91.00	53.00	36.00	●
6.900		8.00	91.00	53.00	36.00	●
7.000		8.00	91.00	53.00	36.00	●
7.100		8.00	91.00	53.00	36.00	●
7.140	9/32	8.00	91.00	53.00	36.00	●
7.200		8.00	91.00	53.00	36.00	●
7.300		8.00	91.00	53.00	36.00	●
7.400		8.00	91.00	53.00	36.00	●
7.500		8.00	91.00	53.00	36.00	●
7.540	19/64	8.00	91.00	53.00	36.00	●
7.600		8.00	91.00	53.00	36.00	●
7.700		8.00	91.00	53.00	36.00	●
7.800		8.00	91.00	53.00	36.00	●
7.900		8.00	91.00	53.00	36.00	●
7.940	5/16	8.00	91.00	53.00	36.00	●
8.000		8.00	91.00	53.00	36.00	●
8.100		10.00	103.00	61.00	40.00	●
8.200		10.00	103.00	61.00	40.00	●
8.300		10.00	103.00	61.00	40.00	●
8.330	21/64	10.00	103.00	61.00	40.00	●
8.400		10.00	103.00	61.00	40.00	●
8.500		10.00	103.00	61.00	40.00	●
8.600		10.00	103.00	61.00	40.00	●
8.700		10.00	103.00	61.00	40.00	●
8.730	11/32	10.00	103.00	61.00	40.00	●
8.800		10.00	103.00	61.00	40.00	●
8.900		10.00	103.00	61.00	40.00	●
9.000		10.00	103.00	61.00	40.00	●
9.100		10.00	103.00	61.00	40.00	●
9.130	23/64	10.00	103.00	61.00	40.00	●
9.200		10.00	103.00	61.00	40.00	●
9.250		10.00	103.00	61.00	40.00	●
9.300		10.00	103.00	61.00	40.00	●
9.340		10.00	103.00	61.00	40.00	●
9.400		10.00	103.00	61.00	40.00	●
9.500		10.00	103.00	61.00	40.00	●
9.520	3/8	10.00	103.00	61.00	40.00	●
9.600		10.00	103.00	61.00	40.00	●
9.700		10.00	103.00	61.00	40.00	●
9.800		10.00	103.00	61.00	40.00	●
9.900		10.00	103.00	61.00	40.00	●
9.920	25/64	10.00	103.00	61.00	40.00	●
10.000		10.00	103.00	61.00	40.00	●
10.100		12.00	118.00	71.00	45.00	●
10.200		12.00	118.00	71.00	45.00	●



Article no.						5768
Discount group						155
Cutting direction						(R)
d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
10.300	13/32	12.00	118.00	71.00	45.00	●
10.320		12.00	118.00	71.00	45.00	●
10.400		12.00	118.00	71.00	45.00	●
10.500		12.00	118.00	71.00	45.00	●
10.600		12.00	118.00	71.00	45.00	●
10.700		12.00	118.00	71.00	45.00	●
10.800		12.00	118.00	71.00	45.00	●
10.900		12.00	118.00	71.00	45.00	●
11.000		12.00	118.00	71.00	45.00	●
11.100	7/16	12.00	118.00	71.00	45.00	●
11.110		12.00	118.00	71.00	45.00	●
11.200		12.00	118.00	71.00	45.00	●
11.300		12.00	118.00	71.00	45.00	●
11.400		12.00	118.00	71.00	45.00	●
11.500		12.00	118.00	71.00	45.00	●
11.600		12.00	118.00	71.00	45.00	●
11.700		12.00	118.00	71.00	45.00	●
11.800		12.00	118.00	71.00	45.00	●
11.900	15/32	12.00	118.00	71.00	45.00	●
11.910		12.00	118.00	71.00	45.00	●
12.000		12.00	118.00	71.00	45.00	●
12.100		14.00	124.00	77.00	45.00	●
12.200		14.00	124.00	77.00	45.00	●
12.500		14.00	124.00	77.00	45.00	●
12.600	1/2	14.00	124.00	77.00	45.00	●
12.700		14.00	124.00	77.00	45.00	●
12.800		14.00	124.00	77.00	45.00	●
12.900	33/64	14.00	124.00	77.00	45.00	●
13.000		14.00	124.00	77.00	45.00	●
13.100		14.00	124.00	77.00	45.00	●
13.300		14.00	124.00	77.00	45.00	●
13.400		14.00	124.00	77.00	45.00	●
13.500		14.00	124.00	77.00	45.00	●
13.700		14.00	124.00	77.00	45.00	●
13.800		14.00	124.00	77.00	45.00	●
14.000		14.00	124.00	77.00	45.00	●
14.100	9/16	16.00	133.00	83.00	48.00	●
14.200		16.00	133.00	83.00	48.00	●
14.290		16.00	133.00	83.00	48.00	●
14.300		16.00	133.00	83.00	48.00	●
14.400		16.00	133.00	83.00	48.00	●
14.500		16.00	133.00	83.00	48.00	●
14.700		16.00	133.00	83.00	48.00	●
14.800		16.00	133.00	83.00	48.00	●
15.000		16.00	133.00	83.00	48.00	●
15.100		16.00	133.00	83.00	48.00	●
15.200		16.00	133.00	83.00	48.00	●
15.300		16.00	133.00	83.00	48.00	●
15.500		16.00	133.00	83.00	48.00	●
15.700		16.00	133.00	83.00	48.00	●
15.800		16.00	133.00	83.00	48.00	●
16.000		16.00	133.00	83.00	48.00	●
16.500		18.00	143.00	93.00	48.00	●
16.700		18.00	143.00	93.00	48.00	●
16.900		18.00	143.00	93.00	48.00	●
17.000		18.00	143.00	93.00	48.00	●
17.500		18.00	143.00	93.00	48.00	●
17.700		18.00	143.00	93.00	48.00	●
18.000		18.00	143.00	93.00	48.00	●
18.500		20.00	153.00	101.00	50.00	●



Article no.						5768
Discount group						155
Cutting direction						(R)
d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
18.900		20.00	153.00	101.00	50.00	●
19.000		20.00	153.00	101.00	50.00	●
19.050	3/4	20.00	153.00	101.00	50.00	●
19.300		20.00	153.00	101.00	50.00	●
19.500		20.00	153.00	101.00	50.00	●
20.000		20.00	153.00	101.00	50.00	●



Ratio drills with coolant ducts



Tool material

Solid carbide

Surface

F

F

F

Shank form

HA

HE

HB

P • web thinning $\geq \varnothing 3.000$ • facet point grind • main cutting edge form straight • optimised cutting geometry

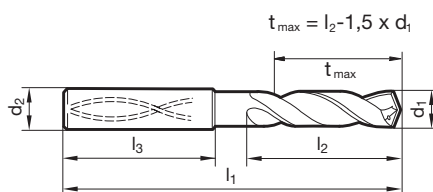
M ○**K** •**N** ○**S** ○**H** ○

structural and case hardened steels • free-cutting steels, heat-treatable steels • steels (alloyed/unalloyed) up to 1200 N/mm² • cast materials • bronze, brass • high-alloyed AlSi alloys

SL**SL****SL**

GÜHRING NAVIGATOR

Cutting data page 140



Article no.

5511

5611

5650

Discount group

155

155

155

Cutting direction

R

R

R

d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
3.000		6.00	66.00	28.00	36.00	•	•	•
3.100		6.00	66.00	28.00	36.00	•	•	•
3.170	1/8	6.00	66.00	28.00	36.00	•	•	•
3.200		6.00	66.00	28.00	36.00	•	•	•
3.250		6.00	66.00	28.00	36.00	•	•	•
3.300		6.00	66.00	28.00	36.00	•	•	•
3.400		6.00	66.00	28.00	36.00	•	•	•
3.500		6.00	66.00	28.00	36.00	•	•	•
3.570	9/64	6.00	66.00	28.00	36.00	•	•	•
3.600		6.00	66.00	28.00	36.00	•	•	•
3.700		6.00	66.00	28.00	36.00	•	•	•
3.800		6.00	74.00	36.00	36.00	•	•	•
3.900		6.00	74.00	36.00	36.00	•	•	•
3.970	5/32	6.00	74.00	36.00	36.00	•	•	•
4.000		6.00	74.00	36.00	36.00	•	•	•
4.100		6.00	74.00	36.00	36.00	•	•	•
4.200		6.00	74.00	36.00	36.00	•	•	•
4.300		6.00	74.00	36.00	36.00	•	•	•
4.370	11/64	6.00	74.00	36.00	36.00	•	•	•
4.400		6.00	74.00	36.00	36.00	•	•	•
4.500		6.00	74.00	36.00	36.00	•	•	•
4.600		6.00	74.00	36.00	36.00	•	•	•
4.650		6.00	74.00	36.00	36.00	•	•	•
4.700		6.00	74.00	36.00	36.00	•	•	•
4.760	3/16	6.00	82.00	44.00	36.00	•	•	•
4.800		6.00	82.00	44.00	36.00	•	•	•
4.900		6.00	82.00	44.00	36.00	•	•	•
5.000		6.00	82.00	44.00	36.00	•	•	•
5.100		6.00	82.00	44.00	36.00	•	•	•
5.160	13/64	6.00	82.00	44.00	36.00	•	•	•
5.200		6.00	82.00	44.00	36.00	•	•	•
5.300		6.00	82.00	44.00	36.00	•	•	•
5.400		6.00	82.00	44.00	36.00	•	•	•
5.500		6.00	82.00	44.00	36.00	•	•	•
5.550		6.00	82.00	44.00	36.00	•	•	•
5.560	7/32	6.00	82.00	44.00	36.00	•	•	•



Article no.						5511	5611	5650
Discount group						155	155	155
Cutting direction						(R)	(R)	(R)
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
5.600		6.00	82.00	44.00	36.00	●	●	●
5.700		6.00	82.00	44.00	36.00	●	●	●
5.800		6.00	82.00	44.00	36.00	●	●	●
5.900		6.00	82.00	44.00	36.00	●	●	●
5.950	15/64	6.00	82.00	44.00	36.00	●	●	●
6.000		6.00	82.00	44.00	36.00	●	●	●
6.100		8.00	91.00	53.00	36.00	●	●	●
6.200		8.00	91.00	53.00	36.00	●	●	●
6.300		8.00	91.00	53.00	36.00	●	●	●
6.350	1/4	8.00	91.00	53.00	36.00	●	●	●
6.400		8.00	91.00	53.00	36.00	●	●	●
6.500		8.00	91.00	53.00	36.00	●	●	●
6.600		8.00	91.00	53.00	36.00	●	●	●
6.700		8.00	91.00	53.00	36.00	●	●	●
6.750	17/64	8.00	91.00	53.00	36.00	●	●	●
6.800		8.00	91.00	53.00	36.00	●	●	●
6.900		8.00	91.00	53.00	36.00	●	●	●
7.000		8.00	91.00	53.00	36.00	●	●	●
7.100		8.00	91.00	53.00	36.00	●	●	●
7.140	9/32	8.00	91.00	53.00	36.00	●	●	●
7.200		8.00	91.00	53.00	36.00	●	●	●
7.300		8.00	91.00	53.00	36.00	●	●	●
7.400		8.00	91.00	53.00	36.00	●	●	●
7.500		8.00	91.00	53.00	36.00	●	●	●
7.540	19/64	8.00	91.00	53.00	36.00	●	●	●
7.600		8.00	91.00	53.00	36.00	●	●	●
7.700		8.00	91.00	53.00	36.00	●	●	●
7.800		8.00	91.00	53.00	36.00	●	●	●
7.900		8.00	91.00	53.00	36.00	●	●	●
7.940	5/16	8.00	91.00	53.00	36.00	●	●	●
8.000		8.00	91.00	53.00	36.00	●	●	●
8.100		10.00	103.00	61.00	40.00	●	●	●
8.200		10.00	103.00	61.00	40.00	●	●	●
8.300		10.00	103.00	61.00	40.00	●	●	●
8.330	21/64	10.00	103.00	61.00	40.00	●	●	●
8.400		10.00	103.00	61.00	40.00	●	●	●
8.500		10.00	103.00	61.00	40.00	●	●	●
8.600		10.00	103.00	61.00	40.00	●	●	●
8.700		10.00	103.00	61.00	40.00	●	●	●
8.730	11/32	10.00	103.00	61.00	40.00	●	●	●
8.800		10.00	103.00	61.00	40.00	●	●	●
8.900		10.00	103.00	61.00	40.00	●	●	●
9.000		10.00	103.00	61.00	40.00	●	●	●
9.100		10.00	103.00	61.00	40.00	●	●	●
9.130	23/64	10.00	103.00	61.00	40.00	●	●	●
9.200		10.00	103.00	61.00	40.00	●	●	●
9.250		10.00	103.00	61.00	40.00	●	●	●
9.300		10.00	103.00	61.00	40.00	●	●	●
9.340		10.00	103.00	61.00	40.00	●	●	●
9.400		10.00	103.00	61.00	40.00	●	●	●
9.500		10.00	103.00	61.00	40.00	●	●	●
9.520	3/8	10.00	103.00	61.00	40.00	●	●	●
9.600		10.00	103.00	61.00	40.00	●	●	●
9.700		10.00	103.00	61.00	40.00	●	●	●
9.800		10.00	103.00	61.00	40.00	●	●	●
9.900		10.00	103.00	61.00	40.00	●	●	●
9.920	25/64	10.00	103.00	61.00	40.00	●	●	●
10.000		10.00	103.00	61.00	40.00	●	●	●
10.100		12.00	118.00	71.00	45.00	●	●	●
10.200		12.00	118.00	71.00	45.00	●	●	●



Article no.						5511	5611	5650
Discount group						155	155	155
Cutting direction						(R)	(R)	(R)
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
10.300	13/32	12.00	118.00	71.00	45.00	●	●	●
10.320		12.00	118.00	71.00	45.00	●	●	●
10.400		12.00	118.00	71.00	45.00	●	●	●
10.500		12.00	118.00	71.00	45.00	●	●	●
10.600		12.00	118.00	71.00	45.00	●	●	●
10.700		12.00	118.00	71.00	45.00	●	●	●
10.800		12.00	118.00	71.00	45.00	●	●	●
10.900		12.00	118.00	71.00	45.00	●	●	●
11.000		12.00	118.00	71.00	45.00	●	●	●
11.100	7/16	12.00	118.00	71.00	45.00	●	●	●
11.110		12.00	118.00	71.00	45.00	●	●	●
11.200		12.00	118.00	71.00	45.00	●	●	●
11.300		12.00	118.00	71.00	45.00	●	●	●
11.400		12.00	118.00	71.00	45.00	●	●	●
11.500		12.00	118.00	71.00	45.00	●	●	●
11.600		12.00	118.00	71.00	45.00	●	●	●
11.700		12.00	118.00	71.00	45.00	●	●	●
11.800		12.00	118.00	71.00	45.00	●	●	●
11.900	15/32	12.00	118.00	71.00	45.00	●	●	●
11.910		12.00	118.00	71.00	45.00	●	●	●
12.000		12.00	118.00	71.00	45.00	●	●	●
12.100		14.00	124.00	77.00	45.00	●	●	
12.200		14.00	124.00	77.00	45.00	●	●	●
12.500		14.00	124.00	77.00	45.00	●	●	●
12.600	1/2	14.00	124.00	77.00	45.00	●		
12.700		14.00	124.00	77.00	45.00	●	●	●
12.800		14.00	124.00	77.00	45.00	●		
12.900		14.00	124.00	77.00	45.00	●		●
13.000		14.00	124.00	77.00	45.00	●	●	
13.300		14.00	124.00	77.00	45.00	●		
13.400		14.00	124.00	77.00	45.00	●		
13.500		14.00	124.00	77.00	45.00	●	●	●
13.700		14.00	124.00	77.00	45.00	●	●	●
13.800		14.00	124.00	77.00	45.00	●		
14.000		14.00	124.00	77.00	45.00	●	●	●
14.100		16.00	133.00	83.00	48.00	●	●	
14.200	9/16	16.00	133.00	83.00	48.00	●	●	●
14.290		16.00	133.00	83.00	48.00	●	●	●
14.400		16.00	133.00	83.00	48.00	●		
14.500		16.00	133.00	83.00	48.00	●	●	●
14.700		16.00	133.00	83.00	48.00	●	●	●
14.800		16.00	133.00	83.00	48.00	●		
15.000		16.00	133.00	83.00	48.00	●	●	●
15.100		16.00	133.00	83.00	48.00	●		
15.200		16.00	133.00	83.00	48.00	●	●	●
15.300		16.00	133.00	83.00	48.00	●		
15.500		16.00	133.00	83.00	48.00	●	●	●
15.700		16.00	133.00	83.00	48.00	●	●	●
15.800		16.00	133.00	83.00	48.00	●		
16.000		16.00	133.00	83.00	48.00	●	●	●
16.500		18.00	143.00	93.00	48.00	●	●	●
16.700		18.00	143.00	93.00	48.00	●	●	
17.000		18.00	143.00	93.00	48.00	●	●	●
17.500		18.00	143.00	93.00	48.00	●	●	●
17.700		18.00	143.00	93.00	48.00	●	●	
18.000		18.00	143.00	93.00	48.00	●	●	●
18.500		20.00	153.00	101.00	50.00	●	●	●
18.900	3/4	20.00	153.00	101.00	50.00	●		
19.000		20.00	153.00	101.00	50.00	●	●	●
19.050		20.00	153.00	101.00	50.00	●	●	●



Article no.						5511	5611	5650
Discount group						155	155	155
Cutting direction								
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
19.500		20.00	153.00	101.00	50.00	●	●	●
20.000		20.00	153.00	101.00	50.00	●	●	●



Ratio drills with coolant ducts



P web thinning $\geq \varnothing 3.000$ • facet point grind • main cutting edge form straight • optimised cutting geometry

M •

K

N stainless/acid-/heat-resistant steels • Titanium and Titanium alloys

S • Inconel, Hastelloy, Monel

H

GÜHRING NAVIGATOR

Cutting data page 140

Tool material

Solid carbide

Surface

a

a

a

Shank form

HA

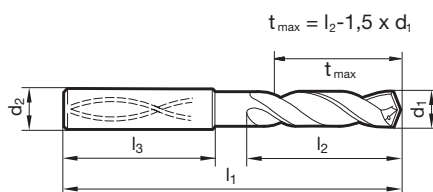
HE

HB

SL

SL

SL



Article no.

5580

5581

6025

Discount group

155

155

155

Cutting direction

R

R

R

d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
3.000		6.00	66.00	28.00	36.00	•
3.100		6.00	66.00	28.00	36.00	•
3.170	1/8	6.00	66.00	28.00	36.00	•
3.200		6.00	66.00	28.00	36.00	•
3.250		6.00	66.00	28.00	36.00	•
3.300		6.00	66.00	28.00	36.00	•
3.400		6.00	66.00	28.00	36.00	•
3.500		6.00	66.00	28.00	36.00	•
3.570	9/64	6.00	66.00	28.00	36.00	•
3.600		6.00	66.00	28.00	36.00	•
3.700		6.00	66.00	28.00	36.00	•
3.800		6.00	74.00	36.00	36.00	•
3.900		6.00	74.00	36.00	36.00	•
3.970	5/32	6.00	74.00	36.00	36.00	•
4.000		6.00	74.00	36.00	36.00	•
4.100		6.00	74.00	36.00	36.00	•
4.200		6.00	74.00	36.00	36.00	•
4.300		6.00	74.00	36.00	36.00	•
4.370	11/64	6.00	74.00	36.00	36.00	•
4.400		6.00	74.00	36.00	36.00	•
4.500		6.00	74.00	36.00	36.00	•
4.600		6.00	74.00	36.00	36.00	•
4.650		6.00	74.00	36.00	36.00	•
4.700		6.00	74.00	36.00	36.00	•
4.760	3/16	6.00	82.00	44.00	36.00	•
4.800		6.00	82.00	44.00	36.00	•
4.900		6.00	82.00	44.00	36.00	•
5.000		6.00	82.00	44.00	36.00	•
5.100		6.00	82.00	44.00	36.00	•
5.160	13/64	6.00	82.00	44.00	36.00	•
5.200		6.00	82.00	44.00	36.00	•
5.300		6.00	82.00	44.00	36.00	•
5.400		6.00	82.00	44.00	36.00	•
5.500		6.00	82.00	44.00	36.00	•
5.550		6.00	82.00	44.00	36.00	•
5.560	7/32	6.00	82.00	44.00	36.00	•



Article no.						5580	5581	6025
Discount group						155	155	155
Cutting direction						(R)	(R)	(R)
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
5.600		6.00	82.00	44.00	36.00	●	●	●
5.700		6.00	82.00	44.00	36.00	●	●	●
5.800		6.00	82.00	44.00	36.00	●	●	●
5.900		6.00	82.00	44.00	36.00	●	●	●
5.950	15/64	6.00	82.00	44.00	36.00	●	●	●
6.000		6.00	82.00	44.00	36.00	●	●	●
6.100		8.00	91.00	53.00	36.00	●	●	●
6.200		8.00	91.00	53.00	36.00	●	●	●
6.300		8.00	91.00	53.00	36.00	●	●	●
6.350	1/4	8.00	91.00	53.00	36.00	●	●	●
6.400		8.00	91.00	53.00	36.00	●	●	●
6.500		8.00	91.00	53.00	36.00	●	●	●
6.600		8.00	91.00	53.00	36.00	●	●	●
6.700		8.00	91.00	53.00	36.00	●	●	●
6.750	17/64	8.00	91.00	53.00	36.00	●	●	●
6.800		8.00	91.00	53.00	36.00	●	●	●
6.900		8.00	91.00	53.00	36.00	●	●	●
7.000		8.00	91.00	53.00	36.00	●	●	●
7.100		8.00	91.00	53.00	36.00	●	●	●
7.140	9/32	8.00	91.00	53.00	36.00	●	●	●
7.200		8.00	91.00	53.00	36.00	●	●	●
7.300		8.00	91.00	53.00	36.00	●	●	●
7.400		8.00	91.00	53.00	36.00	●	●	●
7.500		8.00	91.00	53.00	36.00	●	●	●
7.540	19/64	8.00	91.00	53.00	36.00	●	●	●
7.600		8.00	91.00	53.00	36.00	●	●	●
7.700		8.00	91.00	53.00	36.00	●	●	●
7.800		8.00	91.00	53.00	36.00	●	●	●
7.900		8.00	91.00	53.00	36.00	●	●	●
7.940	5/16	8.00	91.00	53.00	36.00	●	●	●
8.000		8.00	91.00	53.00	36.00	●	●	●
8.100		10.00	103.00	61.00	40.00	●	●	●
8.200		10.00	103.00	61.00	40.00	●	●	●
8.300		10.00	103.00	61.00	40.00	●	●	●
8.330	21/64	10.00	103.00	61.00	40.00	●	●	●
8.400		10.00	103.00	61.00	40.00	●	●	●
8.500		10.00	103.00	61.00	40.00	●	●	●
8.600		10.00	103.00	61.00	40.00	●	●	●
8.700		10.00	103.00	61.00	40.00	●	●	●
8.730	11/32	10.00	103.00	61.00	40.00	●	●	●
8.800		10.00	103.00	61.00	40.00	●	●	●
8.900		10.00	103.00	61.00	40.00	●	●	●
9.000		10.00	103.00	61.00	40.00	●	●	●
9.100		10.00	103.00	61.00	40.00	●	●	●
9.130	23/64	10.00	103.00	61.00	40.00	●	●	●
9.200		10.00	103.00	61.00	40.00	●	●	●
9.250		10.00	103.00	61.00	40.00	●	●	●
9.300		10.00	103.00	61.00	40.00	●	●	●
9.400		10.00	103.00	61.00	40.00	●	●	●
9.500		10.00	103.00	61.00	40.00	●	●	●
9.520	3/8	10.00	103.00	61.00	40.00	●	●	●
9.600		10.00	103.00	61.00	40.00	●	●	●
9.700		10.00	103.00	61.00	40.00	●	●	●
9.800		10.00	103.00	61.00	40.00	●	●	●
9.900		10.00	103.00	61.00	40.00	●	●	●
9.920	25/64	10.00	103.00	61.00	40.00	●	●	●
10.000		10.00	103.00	61.00	40.00	●	●	●
10.100		12.00	118.00	71.00	45.00	●	●	●
10.200		12.00	118.00	71.00	45.00	●	●	●
10.300		12.00	118.00	71.00	45.00	●	●	●



Article no.						5580	5581	6025
Discount group						155	155	155
Cutting direction						(R)	(R)	(R)
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
10.320	13/32	12.00	118.00	71.00	45.00	●	●	●
10.400		12.00	118.00	71.00	45.00	●	●	●
10.500		12.00	118.00	71.00	45.00	●	●	●
10.600		12.00	118.00	71.00	45.00	●	●	●
10.700		12.00	118.00	71.00	45.00	●	●	●
10.800		12.00	118.00	71.00	45.00	●	●	●
10.900		12.00	118.00	71.00	45.00	●	●	●
11.000		12.00	118.00	71.00	45.00	●	●	●
11.100		12.00	118.00	71.00	45.00	●	●	●
11.110	7/16	12.00	118.00	71.00	45.00	●	●	●
11.200		12.00	118.00	71.00	45.00	●	●	●
11.300		12.00	118.00	71.00	45.00	●	●	●
11.400		12.00	118.00	71.00	45.00	●	●	●
11.500		12.00	118.00	71.00	45.00	●	●	●
11.600		12.00	118.00	71.00	45.00	●	●	●
11.700		12.00	118.00	71.00	45.00	●	●	●
11.800		12.00	118.00	71.00	45.00	●	●	●
11.900		12.00	118.00	71.00	45.00	●	●	●
11.910	15/32	12.00	118.00	71.00	45.00	●	●	●
12.000		12.00	118.00	71.00	45.00	●	●	●
12.200		14.00	124.00	77.00	45.00	●	●	●
12.500		14.00	124.00	77.00	45.00	●	●	●
12.700	1/2	14.00	124.00	77.00	45.00	●	●	●
13.000		14.00	124.00	77.00	45.00	●	●	●
13.500		14.00	124.00	77.00	45.00	●	●	●
13.700		14.00	124.00	77.00	45.00	●	●	●
14.000		14.00	124.00	77.00	45.00	●	●	●
14.200	9/16	16.00	133.00	83.00	48.00	●	●	●
14.290		16.00	133.00	83.00	48.00	●	●	●
14.500		16.00	133.00	83.00	48.00	●	●	●
14.700		16.00	133.00	83.00	48.00	●	●	●
15.000		16.00	133.00	83.00	48.00	●	●	●
15.200		16.00	133.00	83.00	48.00	●	●	●
15.500		16.00	133.00	83.00	48.00	●	●	●
15.700		16.00	133.00	83.00	48.00	●	●	●
16.000		16.00	133.00	83.00	48.00	●	●	●
16.500		18.00	143.00	93.00	48.00	●	●	●
17.000		18.00	143.00	93.00	48.00	●	●	●
17.500		18.00	143.00	93.00	48.00	●	●	●
18.000		18.00	143.00	93.00	48.00	●	●	●
18.500		20.00	153.00	101.00	50.00	●	●	●
19.000		20.00	153.00	101.00	50.00	●	●	●
19.500		20.00	153.00	101.00	50.00	●	●	●
20.000		20.00	153.00	101.00	50.00	●	●	●



RT 100 **XF**

NEW. EXTREME. **POWERFUL.**



Ratio drills with coolant ducts

Tool material **Solid carbide**Surface **F**Shank form **HA**

P ● relieved cone • main cutting edge form concave • optimised cutting geometry • maximum performance

M ○

K ○

N ○

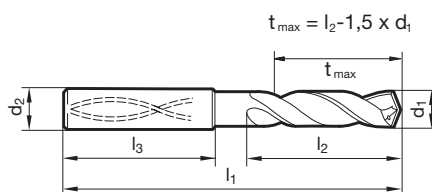
S ○

H ○

structural and case hardened steels • free-cutting steels, heat-treatable steels • steels (alloyed/unalloyed) up to 1400 N/mm²

GUHRING NAVIGATOR

Cutting data page 140

Article no. **5498**Discount group **255**Cutting direction **R**

d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
3.000		6.00	66.00	28.00	36.00	●
3.100		6.00	66.00	28.00	36.00	●
3.170	1/8	6.00	66.00	28.00	36.00	●
3.200		6.00	66.00	28.00	36.00	●
3.250		6.00	66.00	28.00	36.00	●
3.300		6.00	66.00	28.00	36.00	●
3.400		6.00	66.00	28.00	36.00	●
3.500		6.00	66.00	28.00	36.00	●
3.570	9/64	6.00	66.00	28.00	36.00	●
3.600		6.00	66.00	28.00	36.00	●
3.700		6.00	66.00	28.00	36.00	●
3.800		6.00	74.00	36.00	36.00	●
3.900		6.00	74.00	36.00	36.00	●
3.970	5/32	6.00	74.00	36.00	36.00	●
4.000		6.00	74.00	36.00	36.00	●
4.040		6.00	74.00	36.00	36.00	●
4.100		6.00	74.00	36.00	36.00	●
4.200		6.00	74.00	36.00	36.00	●
4.300		6.00	74.00	36.00	36.00	●
4.370	11/64	6.00	74.00	36.00	36.00	●
4.400		6.00	74.00	36.00	36.00	●
4.500		6.00	74.00	36.00	36.00	●
4.600		6.00	74.00	36.00	36.00	●
4.650		6.00	74.00	36.00	36.00	●
4.700		6.00	74.00	36.00	36.00	●
4.760	3/16	6.00	82.00	44.00	36.00	●
4.800		6.00	82.00	44.00	36.00	●
4.900		6.00	82.00	44.00	36.00	●
5.000		6.00	82.00	44.00	36.00	●
5.100		6.00	82.00	44.00	36.00	●
5.110		6.00	82.00	44.00	36.00	●
5.160	13/64	6.00	82.00	44.00	36.00	●
5.200		6.00	82.00	44.00	36.00	●
5.300		6.00	82.00	44.00	36.00	●
5.400		6.00	82.00	44.00	36.00	●
5.410		6.00	82.00	44.00	36.00	●



Article no.						5498
Discount group						255
Cutting direction						(R)
d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
5.500		6.00	82.00	44.00	36.00	●
5.550		6.00	82.00	44.00	36.00	●
5.560	7/32	6.00	82.00	44.00	36.00	●
5.600		6.00	82.00	44.00	36.00	●
5.700		6.00	82.00	44.00	36.00	●
5.800		6.00	82.00	44.00	36.00	●
5.900		6.00	82.00	44.00	36.00	●
5.950	15/64	6.00	82.00	44.00	36.00	●
6.000		6.00	82.00	44.00	36.00	●
6.100		8.00	91.00	53.00	36.00	●
6.200		8.00	91.00	53.00	36.00	●
6.300		8.00	91.00	53.00	36.00	●
6.350	1/4	8.00	91.00	53.00	36.00	●
6.400		8.00	91.00	53.00	36.00	●
6.500		8.00	91.00	53.00	36.00	●
6.530		8.00	91.00	53.00	36.00	●
6.550		8.00	91.00	53.00	36.00	●
6.600		8.00	91.00	53.00	36.00	●
6.700		8.00	91.00	53.00	36.00	●
6.750	17/64	8.00	91.00	53.00	36.00	●
6.800		8.00	91.00	53.00	36.00	●
6.900		8.00	91.00	53.00	36.00	●
7.000		8.00	91.00	53.00	36.00	●
7.100		8.00	91.00	53.00	36.00	●
7.140	9/32	8.00	91.00	53.00	36.00	●
7.200		8.00	91.00	53.00	36.00	●
7.300		8.00	91.00	53.00	36.00	●
7.400		8.00	91.00	53.00	36.00	●
7.500		8.00	91.00	53.00	36.00	●
7.540	19/64	8.00	91.00	53.00	36.00	●
7.550		8.00	91.00	53.00	36.00	●
7.600		8.00	91.00	53.00	36.00	●
7.650		8.00	91.00	53.00	36.00	●
7.700		8.00	91.00	53.00	36.00	●
7.800		8.00	91.00	53.00	36.00	●
7.900		8.00	91.00	53.00	36.00	●
7.940	5/16	8.00	91.00	53.00	36.00	●
8.000		8.00	91.00	53.00	36.00	●
8.100		10.00	103.00	61.00	40.00	●
8.200		10.00	103.00	61.00	40.00	●
8.300		10.00	103.00	61.00	40.00	●
8.330	21/64	10.00	103.00	61.00	40.00	●
8.400		10.00	103.00	61.00	40.00	●
8.500		10.00	103.00	61.00	40.00	●
8.600		10.00	103.00	61.00	40.00	●
8.700		10.00	103.00	61.00	40.00	●
8.730	11/32	10.00	103.00	61.00	40.00	●
8.800		10.00	103.00	61.00	40.00	●
8.900		10.00	103.00	61.00	40.00	●
9.000		10.00	103.00	61.00	40.00	●
9.100		10.00	103.00	61.00	40.00	●
9.130	23/64	10.00	103.00	61.00	40.00	●
9.200		10.00	103.00	61.00	40.00	●
9.250		10.00	103.00	61.00	40.00	●
9.300		10.00	103.00	61.00	40.00	●
9.340		10.00	103.00	61.00	40.00	●
9.400		10.00	103.00	61.00	40.00	●
9.500		10.00	103.00	61.00	40.00	●
9.520	3/8	10.00	103.00	61.00	40.00	●
9.550		10.00	103.00	61.00	40.00	●



Article no.						5498
Discount group						255
Cutting direction						(R)
d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
9.600		10.00	103.00	61.00	40.00	●
9.700		10.00	103.00	61.00	40.00	●
9.800		10.00	103.00	61.00	40.00	●
9.900		10.00	103.00	61.00	40.00	●
9.920	25/64	10.00	103.00	61.00	40.00	●
10.000		10.00	103.00	61.00	40.00	●
10.100		12.00	118.00	71.00	45.00	●
10.200		12.00	118.00	71.00	45.00	●
10.300		12.00	118.00	71.00	45.00	●
10.320	13/32	12.00	118.00	71.00	45.00	●
10.400		12.00	118.00	71.00	45.00	●
10.500		12.00	118.00	71.00	45.00	●
10.600		12.00	118.00	71.00	45.00	●
10.700		12.00	118.00	71.00	45.00	●
10.720	27/64	12.00	118.00	71.00	45.00	●
10.800		12.00	118.00	71.00	45.00	●
10.900		12.00	118.00	71.00	45.00	●
11.000		12.00	118.00	71.00	45.00	●
11.100		12.00	118.00	71.00	45.00	●
11.110	7/16	12.00	118.00	71.00	45.00	●
11.200		12.00	118.00	71.00	45.00	●
11.300		12.00	118.00	71.00	45.00	●
11.400		12.00	118.00	71.00	45.00	●
11.500		12.00	118.00	71.00	45.00	●
11.510	29/64	12.00	118.00	71.00	45.00	●
11.550		12.00	118.00	71.00	45.00	●
11.600		12.00	118.00	71.00	45.00	●
11.700		12.00	118.00	71.00	45.00	●
11.800		12.00	118.00	71.00	45.00	●
11.900		12.00	118.00	71.00	45.00	●
11.910	15/32	12.00	118.00	71.00	45.00	●
12.000		12.00	118.00	71.00	45.00	●
12.100		14.00	124.00	77.00	45.00	●
12.200		14.00	124.00	77.00	45.00	●
12.300	31/64	14.00	124.00	77.00	45.00	●
12.400		14.00	124.00	77.00	45.00	●
12.500		14.00	124.00	77.00	45.00	●
12.600		14.00	124.00	77.00	45.00	●
12.700	1/2	14.00	124.00	77.00	45.00	●
12.800		14.00	124.00	77.00	45.00	●
12.900		14.00	124.00	77.00	45.00	●
13.000		14.00	124.00	77.00	45.00	●
13.100	33/64	14.00	124.00	77.00	45.00	●
13.200		14.00	124.00	77.00	45.00	●
13.300		14.00	124.00	77.00	45.00	●
13.400		14.00	124.00	77.00	45.00	●
13.490	17/32	14.00	124.00	77.00	45.00	●
13.500		14.00	124.00	77.00	45.00	●
13.600		14.00	124.00	77.00	45.00	●
13.700		14.00	124.00	77.00	45.00	●
13.800		14.00	124.00	77.00	45.00	●
13.890	35/64	14.00	124.00	77.00	45.00	●
13.900		14.00	124.00	77.00	45.00	●
14.000		14.00	124.00	77.00	45.00	●
14.100		16.00	133.00	83.00	48.00	●
14.200		16.00	133.00	83.00	48.00	●
14.290	9/16	16.00	133.00	83.00	48.00	●
14.300		16.00	133.00	83.00	48.00	●
14.400		16.00	133.00	83.00	48.00	●
14.500		16.00	133.00	83.00	48.00	●



Article no.						5498
Discount group						255
Cutting direction						(R)
d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
14.600		16.00	133.00	83.00	48.00	●
14.680	37/64	16.00	133.00	83.00	48.00	●
14.700		16.00	133.00	83.00	48.00	●
14.800		16.00	133.00	83.00	48.00	●
14.900		16.00	133.00	83.00	48.00	●
15.000		16.00	133.00	83.00	48.00	●
15.080	19/32	16.00	133.00	83.00	48.00	●
15.100		16.00	133.00	83.00	48.00	●
15.200		16.00	133.00	83.00	48.00	●
15.300		16.00	133.00	83.00	48.00	●
15.400		16.00	133.00	83.00	48.00	●
15.480	39/64	16.00	133.00	83.00	48.00	●
15.500		16.00	133.00	83.00	48.00	●
15.550		16.00	133.00	83.00	48.00	●
15.600		16.00	133.00	83.00	48.00	●
15.700		16.00	133.00	83.00	48.00	●
15.800		16.00	133.00	83.00	48.00	●
15.870	5/8	16.00	133.00	83.00	48.00	●
15.900		16.00	133.00	83.00	48.00	●
16.000		16.00	133.00	83.00	48.00	●
16.270	41/64	18.00	143.00	93.00	48.00	●
16.300		18.00	143.00	93.00	48.00	●
16.500		18.00	143.00	93.00	48.00	●
16.670	21/32	18.00	143.00	93.00	48.00	●
16.700		18.00	143.00	93.00	48.00	●
16.900		18.00	143.00	93.00	48.00	●
17.000		18.00	143.00	93.00	48.00	●
17.070	43/64	18.00	143.00	93.00	48.00	●
17.460	11/16	18.00	143.00	93.00	48.00	●
17.500		18.00	143.00	93.00	48.00	●
17.550		18.00	143.00	93.00	48.00	●
17.700		18.00	143.00	93.00	48.00	●
17.860	45/64	18.00	143.00	93.00	48.00	●
18.000		18.00	143.00	93.00	48.00	●
18.260	23/32	20.00	153.00	101.00	50.00	●
18.500		20.00	153.00	101.00	50.00	●
18.700		20.00	153.00	101.00	50.00	●
18.900		20.00	153.00	101.00	50.00	●
19.000		20.00	153.00	101.00	50.00	●
19.050	3/4	20.00	153.00	101.00	50.00	●
19.250		20.00	153.00	101.00	50.00	●
19.300		20.00	153.00	101.00	50.00	●
19.450	49/64	20.00	153.00	101.00	50.00	●
19.500		20.00	153.00	101.00	50.00	●
19.550		20.00	153.00	101.00	50.00	●
19.700		20.00	153.00	101.00	50.00	●
19.800		20.00	153.00	101.00	50.00	●
19.840	25/32	20.00	153.00	101.00	50.00	●
20.000		20.00	153.00	101.00	50.00	●



Ratio drills with coolant ducts



P • web thinning $\geq \varnothing 3.000$ • facet point grind • main cutting edge form straight • optimised cutting geometry

M ○

K •

N ○

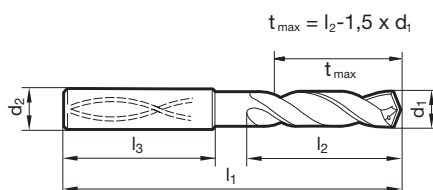
S ○

H ○

structural and case hardened steels • free-cutting steels, heat-treatable steels • steels (alloyed/unalloyed) up to 1200 N/mm² • cast materials • bronze, brass • high-alloyed AlSi alloys

GÜHRING NAVIGATOR

Cutting data page 140



Tool material

Solid carbide

Surface

F

F

Shank form

HA

HE

SL

SL



Article no.

5512

5612

Discount group

155

155

Cutting direction

R

R

d1		d2 h6	l1	l2	l3	Availability	
mm	inch	mm	mm	mm	mm		
3.000		6.00	70.00	30.00	36.00	•	•
3.100		6.00	70.00	30.00	36.00	•	•
3.170	1/8	6.00	70.00	30.00	36.00	•	•
3.200		6.00	70.00	30.00	36.00	•	•
3.250		6.00	70.00	30.00	36.00	•	•
3.300		6.00	70.00	30.00	36.00	•	•
3.400		6.00	75.00	35.50	36.00	•	•
3.500		6.00	75.00	35.50	36.00	•	•
3.570	9/64	6.00	75.00	35.50	36.00	•	•
3.600		6.00	75.00	35.50	36.00	•	•
3.700		6.00	75.00	35.50	36.00	•	•
3.800		6.00	75.00	37.50	36.00	•	•
3.900		6.00	75.00	37.50	36.00	•	•
3.970	5/32	6.00	75.00	37.50	36.00	•	•
4.000		6.00	75.00	37.50	36.00	•	•
4.100		6.00	75.00	37.50	36.00	•	•
4.200		6.00	75.00	37.50	36.00	•	•
4.300		6.00	85.00	45.00	36.00	•	•
4.370	11/64	6.00	85.00	45.00	36.00	•	•
4.400		6.00	85.00	45.00	36.00	•	•
4.500		6.00	85.00	45.00	36.00	•	•
4.600		6.00	85.00	45.00	36.00	•	•
4.650		6.00	85.00	45.00	36.00	•	•
4.700		6.00	85.00	45.00	36.00	•	•
4.760	3/16	6.00	90.00	50.00	36.00	•	•
4.800		6.00	90.00	50.00	36.00	•	•
4.900		6.00	90.00	50.00	36.00	•	•
5.000		6.00	90.00	50.00	36.00	•	•
5.100		6.00	90.00	50.00	36.00	•	•
5.160	13/64	6.00	90.00	50.00	36.00	•	•
5.200		6.00	90.00	50.00	36.00	•	•
5.300		6.00	90.00	50.00	36.00	•	•
5.400		6.00	97.00	57.00	36.00	•	•
5.500		6.00	97.00	57.00	36.00	•	•
5.600		6.00	97.00	57.00	36.00	•	•
5.700		6.00	97.00	57.00	36.00	•	•



Article no.						5512	5612
Discount group						155	155
Cutting direction							
d1		d2 h6	l1	l2	l3	Availability	
mm	inch	mm	mm	mm	mm		
5.800		6.00	97.00	57.00	36.00	●	●
5.900		6.00	97.00	57.00	36.00	●	●
6.000		6.00	97.00	57.00	36.00	●	●
6.100		8.00	106.00	66.00	36.00	●	
6.200		8.00	106.00	66.00	36.00	●	●
6.300		8.00	106.00	66.00	36.00	●	●
6.350	1/4	8.00	106.00	66.00	36.00	●	●
6.500		8.00	106.00	66.00	36.00	●	●
6.600		8.00	106.00	66.00	36.00	●	●
6.700		8.00	106.00	66.00	36.00	●	●
6.800		8.00	106.00	66.00	36.00	●	●
6.900		8.00	116.00	76.00	36.00	●	●
7.000		8.00	116.00	76.00	36.00	●	●
7.100		8.00	116.00	76.00	36.00	●	●
7.200		8.00	116.00	76.00	36.00	●	●
7.300		8.00	116.00	76.00	36.00	●	
7.400		8.00	116.00	76.00	36.00	●	●
7.500		8.00	116.00	76.00	36.00	●	●
7.600		8.00	116.00	76.00	36.00	●	●
7.700		8.00	116.00	76.00	36.00	●	●
7.800		8.00	116.00	76.00	36.00	●	●
8.000		8.00	116.00	76.00	36.00	●	●
8.100		10.00	131.00	87.00	40.00	●	●
8.200		10.00	131.00	87.00	40.00	●	●
8.400		10.00	131.00	87.00	40.00	●	●
8.500		10.00	131.00	87.00	40.00	●	●
8.600		10.00	131.00	87.00	40.00	●	●
8.700		10.00	131.00	87.00	40.00	●	●
8.800		10.00	131.00	87.00	40.00	●	●
9.000		10.00	131.00	87.00	40.00	●	●
9.100		10.00	139.00	95.00	40.00	●	●
9.200		10.00	139.00	95.00	40.00	●	●
9.300		10.00	139.00	95.00	40.00	●	●
9.400		10.00	139.00	95.00	40.00	●	●
9.500		10.00	139.00	95.00	40.00	●	●
9.520	3/8	10.00	139.00	95.00	40.00	●	●
9.700		10.00	139.00	95.00	40.00	●	●
9.800		10.00	139.00	95.00	40.00	●	●
9.900		10.00	139.00	95.00	40.00	●	●
10.000		10.00	139.00	95.00	40.00	●	●
10.200		12.00	155.00	106.00	45.00	●	●
10.500		12.00	155.00	106.00	45.00	●	●
10.700		12.00	155.00	106.00	45.00	●	
10.800		12.00	155.00	106.00	45.00	●	●
11.000		12.00	155.00	106.00	45.00	●	●
11.200		12.00	163.00	114.00	45.00	●	●
11.500		12.00	163.00	114.00	45.00	●	●
11.800		12.00	163.00	114.00	45.00	●	●
12.000		12.00	163.00	114.00	45.00	●	●
12.200		14.00	182.00	133.00	45.00	●	●
12.500		14.00	182.00	133.00	45.00	●	●
12.700	1/2	14.00	182.00	133.00	45.00	●	●
13.000		14.00	182.00	133.00	45.00	●	●
13.500		14.00	182.00	133.00	45.00	●	●
14.000		14.00	182.00	133.00	45.00	●	●
14.200		16.00	204.00	152.00	48.00	●	●
14.500		16.00	204.00	152.00	48.00	●	●
15.000		16.00	204.00	152.00	48.00	●	●
15.500		16.00	204.00	152.00	48.00	●	●
16.000		16.00	204.00	152.00	48.00	●	●



Drilling tools

Article no.						5512	5612
Discount group						155	155
Cutting direction							
d1		d2 h6	l1	l2	l3	Availability	
mm	inch	mm	mm	mm	mm		
16.500		18.00	223.00	171.00	48.00	●	●
17.000		18.00	223.00	171.00	48.00	●	●
17.500		18.00	223.00	171.00	48.00	●	●
18.000		18.00	223.00	171.00	48.00	●	●
18.500		20.00	244.00	190.00	50.00	●	●
19.000		20.00	244.00	190.00	50.00	●	●
19.050	3/4	20.00	244.00	190.00	50.00	●	●
19.500		20.00	244.00	190.00	50.00	●	●
20.000		20.00	244.00	190.00	50.00	●	●



Ratio drills with coolant ducts

Tool material **Solid carbide**Surface **F**Shank form **HA**

P • relieved cone • main cutting edge form concave • optimised cutting geometry • maximum performance

M ○

K ○

N ○

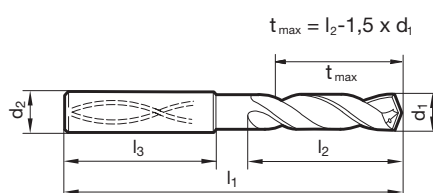
S ○

H ○

structural and case hardened steels • free-cutting steels, heat-treatable steels • steels (alloyed/unalloyed) up to 1400 N/mm²

GUHRING NAVIGATOR

Cutting data page 140

Article no. **5499**Discount group **255**Cutting direction **R**

d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
3.000		6.00	70.00	30.00	36.00	●
3.100		6.00	70.00	30.00	36.00	●
3.170	1/8	6.00	70.00	30.00	36.00	●
3.200		6.00	70.00	30.00	36.00	●
3.250		6.00	70.00	30.00	36.00	●
3.300		6.00	70.00	30.00	36.00	●
3.400		6.00	75.00	35.50	36.00	●
3.500		6.00	75.00	35.50	36.00	●
3.570	9/64	6.00	75.00	35.50	36.00	●
3.600		6.00	75.00	35.50	36.00	●
3.700		6.00	75.00	35.50	36.00	●
3.800		6.00	75.00	37.50	36.00	●
3.900		6.00	75.00	37.50	36.00	●
3.970	5/32	6.00	75.00	37.50	36.00	●
4.000		6.00	75.00	37.50	36.00	●
4.040		6.00	75.00	37.50	36.00	●
4.100		6.00	75.00	37.50	36.00	●
4.200		6.00	75.00	37.50	36.00	●
4.300		6.00	85.00	45.00	36.00	●
4.370	11/64	6.00	85.00	45.00	36.00	●
4.400		6.00	85.00	45.00	36.00	●
4.500		6.00	85.00	45.00	36.00	●
4.600		6.00	85.00	45.00	36.00	●
4.650		6.00	85.00	45.00	36.00	●
4.700		6.00	85.00	45.00	36.00	●
4.760	3/16	6.00	90.00	50.00	36.00	●
4.800		6.00	90.00	50.00	36.00	●
4.900		6.00	90.00	50.00	36.00	●
5.000		6.00	90.00	50.00	36.00	●
5.100		6.00	90.00	50.00	36.00	●
5.110		6.00	90.00	50.00	36.00	●
5.160	13/64	6.00	90.00	50.00	36.00	●
5.200		6.00	90.00	50.00	36.00	●
5.300		6.00	90.00	50.00	36.00	●
5.400		6.00	97.00	57.00	36.00	●
5.410		6.00	97.00	57.00	36.00	●



Article no.						5499
Discount group						255
Cutting direction						(R)
d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
5.500	7/32	6.00	97.00	57.00	36.00	●
5.550		6.00	97.00	57.00	36.00	●
5.560		6.00	97.00	57.00	36.00	●
5.600		6.00	97.00	57.00	36.00	●
5.700		6.00	97.00	57.00	36.00	●
5.800		6.00	97.00	57.00	36.00	●
5.900	15/64	6.00	97.00	57.00	36.00	●
5.950		6.00	97.00	57.00	36.00	●
6.000		6.00	97.00	57.00	36.00	●
6.100		8.00	106.00	66.00	36.00	●
6.200		8.00	106.00	66.00	36.00	●
6.300		8.00	106.00	66.00	36.00	●
6.350	1/4	8.00	106.00	66.00	36.00	●
6.400		8.00	106.00	66.00	36.00	●
6.500		8.00	106.00	66.00	36.00	●
6.530		8.00	106.00	66.00	36.00	●
6.550		8.00	106.00	66.00	36.00	●
6.600		8.00	106.00	66.00	36.00	●
6.700	17/64	8.00	106.00	66.00	36.00	●
6.750		8.00	106.00	66.00	36.00	●
6.800		8.00	106.00	66.00	36.00	●
6.900		8.00	116.00	76.00	36.00	●
7.000		8.00	116.00	76.00	36.00	●
7.100		8.00	116.00	76.00	36.00	●
7.140	9/32	8.00	116.00	76.00	36.00	●
7.200		8.00	116.00	76.00	36.00	●
7.300		8.00	116.00	76.00	36.00	●
7.400		8.00	116.00	76.00	36.00	●
7.500		8.00	116.00	76.00	36.00	●
7.540		8.00	116.00	76.00	36.00	●
7.600	19/64	8.00	116.00	76.00	36.00	●
7.700		8.00	116.00	76.00	36.00	●
7.800		8.00	116.00	76.00	36.00	●
7.900	5/16	8.00	116.00	76.00	36.00	●
7.940		8.00	116.00	76.00	36.00	●
8.000		8.00	116.00	76.00	36.00	●
8.100		10.00	131.00	87.00	40.00	●
8.200		10.00	131.00	87.00	40.00	●
8.300		10.00	131.00	87.00	40.00	●
8.330	21/64	10.00	131.00	87.00	40.00	●
8.400		10.00	131.00	87.00	40.00	●
8.500		10.00	131.00	87.00	40.00	●
8.600		10.00	131.00	87.00	40.00	●
8.700		10.00	131.00	87.00	40.00	●
8.730		10.00	131.00	87.00	40.00	●
8.800	11/32	10.00	131.00	87.00	40.00	●
8.900		10.00	131.00	87.00	40.00	●
9.000		10.00	131.00	87.00	40.00	●
9.100		10.00	139.00	95.00	40.00	●
9.130		10.00	139.00	95.00	40.00	●
9.200		10.00	139.00	95.00	40.00	●
9.250	23/64	10.00	139.00	95.00	40.00	●
9.300		10.00	139.00	95.00	40.00	●
9.340		10.00	139.00	95.00	40.00	●
9.400		10.00	139.00	95.00	40.00	●
9.500		10.00	139.00	95.00	40.00	●
9.520		10.00	139.00	95.00	40.00	●
9.600	3/8	10.00	139.00	95.00	40.00	●
9.700		10.00	139.00	95.00	40.00	●
9.800		10.00	139.00	95.00	40.00	●



Article no.						5499
Discount group						255
Cutting direction						(R)
d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
9.900		10.00	139.00	95.00	40.00	●
9.920	25/64	10.00	139.00	95.00	40.00	●
10.000		10.00	139.00	95.00	40.00	●
10.100		12.00	155.00	106.00	45.00	●
10.200		12.00	155.00	106.00	45.00	●
10.300		12.00	155.00	106.00	45.00	●
10.320	13/32	12.00	155.00	106.00	45.00	●
10.400		12.00	155.00	106.00	45.00	●
10.500		12.00	155.00	106.00	45.00	●
10.600		12.00	155.00	106.00	45.00	●
10.700		12.00	155.00	106.00	45.00	●
10.720	27/64	12.00	155.00	106.00	45.00	●
10.800		12.00	155.00	106.00	45.00	●
10.900		12.00	155.00	106.00	45.00	●
11.000		12.00	155.00	106.00	45.00	●
11.100		12.00	163.00	114.00	45.00	●
11.110	7/16	12.00	163.00	114.00	45.00	●
11.200		12.00	163.00	114.00	45.00	●
11.300		12.00	163.00	114.00	45.00	●
11.400		12.00	163.00	114.00	45.00	●
11.500		12.00	163.00	114.00	45.00	●
11.510	29/64	12.00	163.00	114.00	45.00	●
11.600		12.00	163.00	114.00	45.00	●
11.700		12.00	163.00	114.00	45.00	●
11.800		12.00	163.00	114.00	45.00	●
11.900		12.00	163.00	114.00	45.00	●
11.910	15/32	12.00	163.00	114.00	45.00	●
12.000		12.00	163.00	114.00	45.00	●
12.100		14.00	182.00	133.00	45.00	●
12.200		14.00	182.00	133.00	45.00	●
12.300	31/64	14.00	182.00	133.00	45.00	●
12.400		14.00	182.00	133.00	45.00	●
12.500		14.00	182.00	133.00	45.00	●
12.600		14.00	182.00	133.00	45.00	●
12.700	1/2	14.00	182.00	133.00	45.00	●
12.800		14.00	182.00	133.00	45.00	●
12.900		14.00	182.00	133.00	45.00	●
13.000		14.00	182.00	133.00	45.00	●
13.100	33/64	14.00	182.00	133.00	45.00	●
13.490	17/32	14.00	182.00	133.00	45.00	●
13.500		14.00	182.00	133.00	45.00	●
13.700		14.00	182.00	133.00	45.00	●
13.890	35/64	14.00	182.00	133.00	45.00	●
14.000		14.00	182.00	133.00	45.00	●
14.100		16.00	204.00	152.00	48.00	●
14.200		16.00	204.00	152.00	48.00	●
14.290	9/16	16.00	204.00	152.00	48.00	●
14.300		16.00	204.00	152.00	48.00	●
14.500		16.00	204.00	152.00	48.00	●
14.700		16.00	204.00	152.00	48.00	●
14.800		16.00	204.00	152.00	48.00	●
15.000		16.00	204.00	152.00	48.00	●
15.100		16.00	204.00	152.00	48.00	●
15.300		16.00	204.00	152.00	48.00	●
15.480	39/64	16.00	204.00	152.00	48.00	●
15.500		16.00	204.00	152.00	48.00	●
15.700		16.00	204.00	152.00	48.00	●
15.800		16.00	204.00	152.00	48.00	●
15.870	5/8	16.00	204.00	152.00	48.00	●
16.000		16.00	204.00	152.00	48.00	●



Drilling tools

Article no.						5499
Discount group						255
Cutting direction						
d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
16.300		18.00	223.00	171.00	48.00	●
16.500		18.00	223.00	171.00	48.00	●
16.700		18.00	223.00	171.00	48.00	●
16.900		18.00	223.00	171.00	48.00	●
17.000		18.00	223.00	171.00	48.00	●
17.500		18.00	223.00	171.00	48.00	●
17.700		18.00	223.00	171.00	48.00	●
18.000		18.00	223.00	171.00	48.00	●
18.500		20.00	244.00	190.00	50.00	●
18.900		20.00	244.00	190.00	50.00	●
19.000		20.00	244.00	190.00	50.00	●
19.050	3/4	20.00	244.00	190.00	50.00	●
19.500		20.00	244.00	190.00	50.00	●
19.800		20.00	244.00	190.00	50.00	●
20.000		20.00	244.00	190.00	50.00	●



Ratio drills with coolant ducts

Tool material **Solid carbide**

Surface

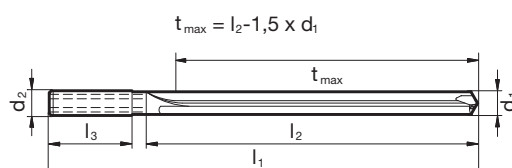
Shank form HA

P web thinning $\geq \varnothing 3.000$ • relieved cone • close diameter tolerances
M • very good surface quality of hole • observe coolant pressure

K •
N • aluminium and Al alloys • Al materials with high Si-content • grey cast iron, malleable and spheroidal iron
S
H

GUHRING NAVIGATOR

Cutting data page 142

**SL**Article no. **5513**Discount group **155**

Cutting direction

d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
3.000		6.00	91.00	42.00	36.00	●
3.100		6.00	91.00	42.00	36.00	●
3.170	1/8	6.00	91.00	42.00	36.00	●
3.200		6.00	91.00	42.00	36.00	●
3.250		6.00	91.00	42.00	36.00	●
3.300		6.00	91.00	42.00	36.00	●
3.400		6.00	91.00	48.00	36.00	●
3.500		6.00	91.00	48.00	36.00	●
3.570	9/64	6.00	91.00	48.00	36.00	●
3.600		6.00	91.00	48.00	36.00	●
3.700		6.00	91.00	48.00	36.00	●
3.800		6.00	121.00	77.00	36.00	●
3.900		6.00	121.00	77.00	36.00	●
3.970	5/32	6.00	121.00	77.00	36.00	●
4.000		6.00	121.00	77.00	36.00	●
4.200		6.00	121.00	77.00	36.00	●
4.500		6.00	121.00	77.00	36.00	●
5.000		6.00	121.00	82.00	36.00	●
5.500		6.00	121.00	82.00	36.00	●
6.000		6.00	121.00	82.00	36.00	●
6.350	1/4	8.00	146.00	106.00	36.00	●
6.500		8.00	146.00	106.00	36.00	●
6.800		8.00	146.00	106.00	36.00	●
7.000		8.00	146.00	106.00	36.00	●
7.500		8.00	146.00	106.00	36.00	●
7.800		8.00	146.00	106.00	36.00	●
8.000		8.00	146.00	106.00	36.00	●
8.500		10.00	175.00	130.00	40.00	●
9.000		10.00	175.00	130.00	40.00	●
9.500		10.00	175.00	130.00	40.00	●
9.520	3/8	10.00	175.00	130.00	40.00	●
10.000		10.00	175.00	130.00	40.00	●
10.200		12.00	209.00	159.00	45.00	●
10.500		12.00	209.00	159.00	45.00	●
11.000		12.00	209.00	159.00	45.00	●
11.500		12.00	209.00	159.00	45.00	●



Drilling tools

Article no.						5513
Discount group						155
Cutting direction						(R)
d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
12.000		12.00	209.00	159.00	45.00	●
12.500		14.00	233.00	183.00	45.00	●
12.700	1/2	14.00	233.00	183.00	45.00	●
13.000		14.00	233.00	183.00	45.00	●
13.500		14.00	233.00	183.00	45.00	●
14.000		14.00	233.00	183.00	45.00	●
14.500		16.00	260.00	207.00	48.00	●
15.000		16.00	260.00	207.00	48.00	●
15.500		16.00	260.00	207.00	48.00	●
16.000		16.00	260.00	207.00	48.00	●



Ratio drills with coolant ducts



P • web thinning $\geq \varnothing 3.000$ • facet point grind • main cutting edge form straight • optimised cutting geometry

M ○

K •

N ○

S ○

H ○

structural and case hardened steels • free-cutting steels, heat-treatable steels • alloyed steels up to 1200 N/mm^2 • cast materials • bronze, brass • high-alloyed AISi alloys

GUHRING NAVIGATOR

Cutting data page 142

Tool material **Solid carbide**

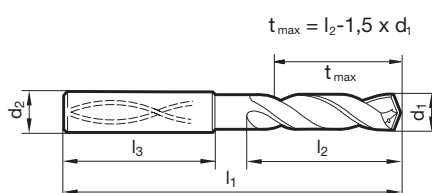
Surface **F**

Shank form **HA**

SL



Drilling tools



Article no. **5525**

Discount group **155**

Cutting direction **R**

d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
3.000		6.00	90.00	50.00	36.00	●
3.100		6.00	90.00	50.00	36.00	●
3.170	1/8	6.00	90.00	50.00	36.00	●
3.200		6.00	90.00	50.00	36.00	●
3.250		6.00	90.00	50.00	36.00	●
3.300		6.00	90.00	50.00	36.00	●
3.400		6.00	90.00	50.00	36.00	●
3.500		6.00	90.00	50.00	36.00	●
3.600		6.00	90.00	50.00	36.00	●
3.700		6.00	90.00	50.00	36.00	●
3.800		6.00	102.00	64.00	36.00	●
3.900		6.00	102.00	64.00	36.00	●
4.000		6.00	102.00	64.00	36.00	●
4.100		6.00	102.00	64.00	36.00	●
4.200		6.00	102.00	64.00	36.00	●
4.300		6.00	102.00	64.00	36.00	●
4.400		6.00	102.00	64.00	36.00	●
4.500		6.00	102.00	64.00	36.00	●
4.600		6.00	102.00	64.00	36.00	●
4.650		6.00	102.00	64.00	36.00	●
4.700		6.00	102.00	64.00	36.00	●
4.800		6.00	116.00	78.00	36.00	●
4.900		6.00	116.00	78.00	36.00	●
5.000		6.00	116.00	78.00	36.00	●
5.100		6.00	116.00	78.00	36.00	●
5.200		6.00	116.00	78.00	36.00	●
5.300		6.00	116.00	78.00	36.00	●
5.400		6.00	116.00	78.00	36.00	●
5.500		6.00	116.00	78.00	36.00	●
5.600		6.00	116.00	78.00	36.00	●
5.700		6.00	116.00	78.00	36.00	●
5.800		6.00	116.00	78.00	36.00	●
5.900		6.00	116.00	78.00	36.00	●
5.950	15/64	6.00	116.00	78.00	36.00	●
6.000		6.00	116.00	78.00	36.00	●
6.100		8.00	146.00	108.00	36.00	●



Article no.						5525
Discount group						155
Cutting direction						(R)
d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
6.200	1/4	8.00	146.00	108.00	36.00	●
6.300		8.00	146.00	108.00	36.00	●
6.350		8.00	146.00	108.00	36.00	●
6.400	17/64	8.00	146.00	108.00	36.00	●
6.500		8.00	146.00	108.00	36.00	●
6.600		8.00	146.00	108.00	36.00	●
6.700	17/64	8.00	146.00	108.00	36.00	●
6.750		8.00	146.00	108.00	36.00	●
6.800		8.00	146.00	108.00	36.00	●
6.900		8.00	146.00	108.00	36.00	●
7.000		8.00	146.00	108.00	36.00	●
7.100		8.00	146.00	108.00	36.00	●
7.200		8.00	146.00	108.00	36.00	●
7.300		8.00	146.00	108.00	36.00	●
7.400		8.00	146.00	108.00	36.00	●
7.500		8.00	146.00	108.00	36.00	●
7.600		8.00	146.00	108.00	36.00	●
7.700		8.00	146.00	108.00	36.00	●
7.800		8.00	146.00	108.00	36.00	●
7.900		8.00	146.00	108.00	36.00	●
8.000		8.00	146.00	108.00	36.00	●
8.100		10.00	162.00	120.00	40.00	●
8.200		10.00	162.00	120.00	40.00	●
8.300		10.00	162.00	120.00	40.00	●
8.400		10.00	162.00	120.00	40.00	●
8.500		10.00	162.00	120.00	40.00	●
8.600		10.00	162.00	120.00	40.00	●
8.700		10.00	162.00	120.00	40.00	●
8.800		10.00	162.00	120.00	40.00	●
8.900		10.00	162.00	120.00	40.00	●
9.000		10.00	162.00	120.00	40.00	●
9.100		10.00	162.00	120.00	40.00	●
9.200		10.00	162.00	120.00	40.00	●
9.250		10.00	162.00	120.00	40.00	●
9.300		10.00	162.00	120.00	40.00	●
9.400		10.00	162.00	120.00	40.00	●
9.500	3/8	10.00	162.00	120.00	40.00	●
9.520		10.00	162.00	120.00	40.00	●
9.600		10.00	162.00	120.00	40.00	●
9.700		10.00	162.00	120.00	40.00	●
9.800		10.00	162.00	120.00	40.00	●
9.900		10.00	162.00	120.00	40.00	●
10.000		10.00	162.00	120.00	40.00	●
10.100		12.00	204.00	156.00	45.00	●
10.200		12.00	204.00	156.00	45.00	●
10.300		12.00	204.00	156.00	45.00	●
10.500		12.00	204.00	156.00	45.00	●
10.600		12.00	204.00	156.00	45.00	●
10.700		12.00	204.00	156.00	45.00	●
10.800		12.00	204.00	156.00	45.00	●
10.900		12.00	204.00	156.00	45.00	●
11.000		12.00	204.00	156.00	45.00	●
11.500		12.00	204.00	156.00	45.00	●
12.000		12.00	204.00	156.00	45.00	●
12.300	31/64	14.00	230.00	182.00	45.00	●
12.500	1/2	14.00	230.00	182.00	45.00	●
12.700		14.00	230.00	182.00	45.00	●
13.000		14.00	230.00	182.00	45.00	●
13.500		14.00	230.00	182.00	45.00	●
14.000		14.00	230.00	182.00	45.00	●



Article no.						5525
Discount group						155
Cutting direction						(R)
d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
14.500		16.00	260.00	208.00	48.00	●
15.000		16.00	260.00	208.00	48.00	●
15.500		16.00	260.00	208.00	48.00	●
16.000		16.00	260.00	208.00	48.00	●
16.500		18.00	285.00	234.00	48.00	●
17.000		18.00	285.00	234.00	48.00	●
17.500		18.00	285.00	234.00	48.00	●
18.000		18.00	285.00	234.00	48.00	●
18.500		20.00	310.00	258.00	50.00	●
19.000		20.00	310.00	258.00	50.00	●
19.050	3/4	20.00	310.00	258.00	50.00	●
19.500		20.00	310.00	258.00	50.00	●
20.000		20.00	310.00	258.00	50.00	●



Ratio drills with coolant ducts

Tool material **Solid carbide**

Surface

Shank form HA

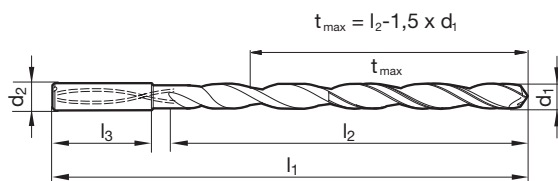
P • web thinning $\geq \varnothing 3.000$ • main cutting edge form concave • optimised flute design • maximum diameter of coolant ducts • observe coolant pressure

M •**K** •**N** ○**S** ○**H** ○

structural and case hardened steels • free-cutting steels, heat-treatable steels • alloyed steels up to 1200 N/mm² • stainless steels • cast materials

GUHRING NAVIGATOR

Cutting data page 142

Article no. **6509**Discount group **165**

Cutting direction

d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
3.000		6.00	94.00	55.00	36.00	●
3.100		6.00	106.00	66.00	36.00	●
3.170	1/8	6.00	106.00	66.00	36.00	●
3.200		6.00	106.00	66.00	36.00	●
3.300		6.00	106.00	66.00	36.00	●
3.500		6.00	116.00	76.00	36.00	●
3.570	9/64	6.00	116.00	76.00	36.00	●
3.700		6.00	116.00	76.00	36.00	●
3.800		6.00	116.00	76.00	36.00	●
3.970	5/32	6.00	116.00	76.00	36.00	●
4.000		6.00	116.00	76.00	36.00	●
4.200		6.00	133.00	93.00	36.00	●
4.300		6.00	133.00	93.00	36.00	●
4.370	11/64	6.00	133.00	93.00	36.00	●
4.500		6.00	133.00	93.00	36.00	●
4.600		6.00	133.00	93.00	36.00	●
4.760	3/16	6.00	133.00	93.00	36.00	●
4.800		6.00	133.00	93.00	36.00	●
5.000		6.00	133.00	93.00	36.00	●
5.100		6.00	150.00	110.00	36.00	●
5.160	13/64	6.00	150.00	110.00	36.00	●
5.410		6.00	150.00	110.00	36.00	●
5.500		6.00	150.00	110.00	36.00	●
5.560	7/32	6.00	150.00	110.00	36.00	●
5.600		6.00	150.00	110.00	36.00	●
5.800		6.00	150.00	110.00	36.00	●
5.950	15/64	6.00	150.00	110.00	36.00	●
6.000		6.00	150.00	110.00	36.00	●
6.300		8.00	167.00	127.00	36.00	●
6.350	1/4	8.00	167.00	127.00	36.00	●
6.500		8.00	167.00	127.00	36.00	●
6.750	17/64	8.00	167.00	127.00	36.00	●
6.800		8.00	167.00	127.00	36.00	●
7.000		8.00	167.00	127.00	36.00	●
7.140	9/32	8.00	183.00	143.00	36.00	●
7.500		8.00	183.00	143.00	36.00	●



Article no.						6509
Discount group						165
Cutting direction						(R)
d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
7.540	19/64	8.00	183.00	143.00	36.00	●
7.800		8.00	183.00	143.00	36.00	●
7.940	5/16	8.00	183.00	143.00	36.00	●
8.000		8.00	183.00	143.00	36.00	●
8.330	21/64	10.00	204.00	160.00	40.00	●
8.500		10.00	204.00	160.00	40.00	●
8.730	11/32	10.00	204.00	160.00	40.00	●
8.800		10.00	204.00	160.00	40.00	●
9.000		10.00	204.00	160.00	40.00	●
9.130	23/64	10.00	221.00	177.00	40.00	●
9.500		10.00	221.00	177.00	40.00	●
9.520	3/8	10.00	221.00	177.00	40.00	●
9.800		10.00	221.00	177.00	40.00	●
9.920	25/64	10.00	221.00	177.00	40.00	●
10.000		10.00	221.00	177.00	40.00	●
10.200		12.00	247.00	198.00	45.00	●
10.320	13/32	12.00	247.00	198.00	45.00	●
10.500		12.00	247.00	198.00	45.00	●
10.720	27/64	12.00	247.00	198.00	45.00	●
11.000		12.00	247.00	198.00	45.00	●
11.110	7/16	12.00	263.00	214.00	45.00	●
11.510	29/64	12.00	263.00	214.00	45.00	●
11.800		12.00	263.00	214.00	45.00	●
11.910	15/32	12.00	263.00	214.00	45.00	●
12.000		12.00	263.00	214.00	45.00	●
12.300	31/64	14.00	297.00	248.00	45.00	●
12.500		14.00	297.00	248.00	45.00	●
12.700	1/2	14.00	297.00	248.00	45.00	●
13.000		14.00	297.00	248.00	45.00	●
13.100	33/64	14.00	297.00	248.00	45.00	●
13.490	17/32	14.00	297.00	248.00	45.00	●
13.890	35/64	14.00	297.00	248.00	45.00	●
14.000		14.00	297.00	248.00	45.00	●
14.290	9/16	16.00	333.00	281.00	48.00	●
15.000		16.00	333.00	281.00	48.00	●
15.870	5/8	16.00	333.00	281.00	48.00	●
16.000		16.00	333.00	281.00	48.00	●



Ratio drills with coolant ducts

Tool material **Solid carbide**

Surface

Shank form HA

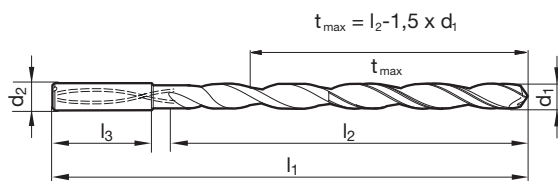
P • web thinning $\geq \varnothing 3.000$ • main cutting edge form concave • optimised flute design • maximum diameter of coolant ducts • observe coolant pressure

M •**K** •**N** ○**S** ○**H** ○

structural and case hardened steels • free-cutting steels, heat-treatable steels • alloyed steels up to 1200 N/mm² • stainless steels • cast materials

GUHRING NAVIGATOR

Cutting data page 142

Article no. **6511**Discount group **165**

Cutting direction

d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
3.000		6.00	110.00	70.00	36.00	●
3.100		6.00	123.00	83.00	36.00	●
3.170	1/8	6.00	123.00	83.00	36.00	●
3.200		6.00	123.00	83.00	36.00	●
3.300		6.00	123.00	83.00	36.00	●
3.500		6.00	136.00	96.00	36.00	●
3.570	9/64	6.00	136.00	96.00	36.00	●
3.700		6.00	136.00	96.00	36.00	●
3.800		6.00	136.00	96.00	36.00	●
3.970	5/32	6.00	136.00	96.00	36.00	●
4.000		6.00	136.00	96.00	36.00	●
4.200		6.00	158.00	118.00	36.00	●
4.300		6.00	158.00	118.00	36.00	●
4.370	11/64	6.00	158.00	118.00	36.00	●
4.500		6.00	158.00	118.00	36.00	●
4.600		6.00	158.00	118.00	36.00	●
4.760	3/16	6.00	158.00	118.00	36.00	●
4.800		6.00	158.00	118.00	36.00	●
5.000		6.00	158.00	118.00	36.00	●
5.100		6.00	180.00	140.00	36.00	●
5.160	13/64	6.00	180.00	140.00	36.00	●
5.410		6.00	180.00	140.00	36.00	●
5.500		6.00	180.00	140.00	36.00	●
5.560	7/32	6.00	180.00	140.00	36.00	●
5.800		6.00	180.00	140.00	36.00	●
5.950	15/64	6.00	180.00	140.00	36.00	●
6.000		6.00	180.00	140.00	36.00	●
6.300		8.00	202.00	162.00	36.00	●
6.350	1/4	8.00	202.00	162.00	36.00	●
6.500		8.00	202.00	162.00	36.00	●
6.750	17/64	8.00	202.00	162.00	36.00	●
6.800		8.00	202.00	162.00	36.00	●
7.000		8.00	202.00	162.00	36.00	●
7.140	9/32	8.00	223.00	183.00	36.00	●
7.500		8.00	223.00	183.00	36.00	●
7.540	19/64	8.00	223.00	183.00	36.00	●



Article no.						6511
Discount group						165
Cutting direction						(R)
d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
7.800		8.00	223.00	183.00	36.00	●
7.940	5/16	8.00	223.00	183.00	36.00	●
8.000		8.00	223.00	183.00	36.00	●
8.330	21/64	10.00	249.00	205.00	40.00	●
8.500		10.00	249.00	205.00	40.00	●
8.730	11/32	10.00	249.00	205.00	40.00	●
8.800		10.00	249.00	205.00	40.00	●
9.000		10.00	249.00	205.00	40.00	●
9.130	23/64	10.00	271.00	227.00	40.00	●
9.520	3/8	10.00	271.00	227.00	40.00	●
9.920	25/64	10.00	271.00	227.00	40.00	●
10.000		10.00	271.00	227.00	40.00	●
10.200		12.00	302.00	253.00	45.00	●
10.320	13/32	12.00	302.00	253.00	45.00	●
10.500		12.00	302.00	253.00	45.00	●
10.720	27/64	12.00	302.00	253.00	45.00	●
11.000		12.00	302.00	253.00	45.00	●
11.110	7/16	12.00	323.00	274.00	45.00	●
11.510	29/64	12.00	323.00	274.00	45.00	●
11.800		12.00	323.00	274.00	45.00	●
11.910	15/32	12.00	323.00	274.00	45.00	●
12.000		12.00	323.00	274.00	45.00	●
12.300	31/64	14.00	367.00	318.00	45.00	●
12.500		14.00	367.00	318.00	45.00	●
12.700	1/2	14.00	367.00	318.00	45.00	●
13.000		14.00	367.00	318.00	45.00	●
13.100	33/64	14.00	367.00	318.00	45.00	●
13.490	17/32	14.00	367.00	318.00	45.00	●
13.890	35/64	14.00	367.00	318.00	45.00	●
14.000		14.00	367.00	318.00	45.00	●
14.290	9/16	16.00	413.00	361.00	48.00	●
15.000		16.00	413.00	361.00	48.00	●
15.870	5/8	16.00	413.00	361.00	48.00	●
16.000		16.00	413.00	361.00	48.00	●



Ratio drills with coolant ducts

Tool material **Solid carbide**

Surface

Shank form HA

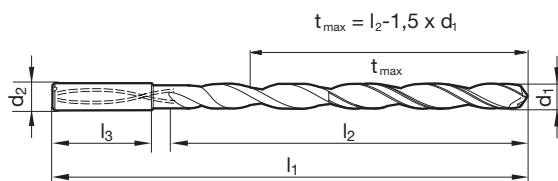
P • web thinning $\geq \varnothing 3.000$ • main cutting edge form concave • optimised flute design • maximum diameter of coolant ducts • observe coolant pressure

M •**K** •**N** ○**S** ○**H** ○

structural and case hardened steels • free-cutting steels, heat-treatable steels • alloyed steels up to 1200 N/mm² • stainless steels • cast materials

GUHRINGNAVIGATOR

Cutting data page 142

Article no. **6512**Discount group **165**

Cutting direction

d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
3.000		6.00	125.00	85.00	36.00	●
3.100		6.00	141.00	101.00	36.00	●
3.170	1/8	6.00	141.00	101.00	36.00	●
3.200		6.00	141.00	101.00	36.00	●
3.300		6.00	141.00	101.00	36.00	●
3.500		6.00	156.00	116.00	36.00	●
3.570	9/64	6.00	156.00	116.00	36.00	●
3.700		6.00	156.00	116.00	36.00	●
3.800		6.00	156.00	116.00	36.00	●
3.970	5/32	6.00	156.00	116.00	36.00	●
4.000		6.00	156.00	116.00	36.00	●
4.200		6.00	183.00	143.00	36.00	●
4.300		6.00	183.00	143.00	36.00	●
4.370	11/64	6.00	183.00	143.00	36.00	●
4.500		6.00	183.00	143.00	36.00	●
4.600		6.00	183.00	143.00	36.00	●
4.760	3/16	6.00	183.00	143.00	36.00	●
4.800		6.00	183.00	143.00	36.00	●
5.000		6.00	183.00	143.00	36.00	●
5.100		6.00	210.00	170.00	36.00	●
5.160	13/64	6.00	210.00	170.00	36.00	●
5.410		6.00	210.00	170.00	36.00	●
5.500		6.00	210.00	170.00	36.00	●
5.560	7/32	6.00	210.00	170.00	36.00	●
5.800		6.00	210.00	170.00	36.00	●
5.950	15/64	6.00	210.00	170.00	36.00	●
6.000		6.00	210.00	170.00	36.00	●
6.300		8.00	237.00	197.00	36.00	●
6.350	1/4	8.00	237.00	197.00	36.00	●
6.500		8.00	237.00	197.00	36.00	●
6.750	17/64	8.00	237.00	197.00	36.00	●
6.800		8.00	237.00	197.00	36.00	●
7.000		8.00	237.00	197.00	36.00	●
7.140	9/32	8.00	263.00	223.00	36.00	●
7.500		8.00	263.00	223.00	36.00	●
7.540	19/64	8.00	263.00	223.00	36.00	●



Article no.						6512
Discount group						165
Cutting direction						(R)
d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
7.940	5/16	8.00	263.00	223.00	36.00	●
8.000		8.00	263.00	223.00	36.00	●
8.330	21/64	10.00	294.00	250.00	40.00	●
8.500		10.00	294.00	250.00	40.00	●
8.730	11/32	10.00	294.00	250.00	40.00	●
9.000		10.00	294.00	250.00	40.00	●
9.130	23/64	10.00	321.00	277.00	40.00	●
9.520	3/8	10.00	321.00	277.00	40.00	●
9.920	25/64	10.00	321.00	277.00	40.00	●
10.000		10.00	321.00	277.00	40.00	●
10.320	13/32	12.00	359.00	310.00	45.00	●
10.720	27/64	12.00	359.00	310.00	45.00	●
11.000		12.00	359.00	310.00	45.00	●
11.110	7/16	12.00	386.00	337.00	45.00	●
11.510	29/64	12.00	386.00	337.00	45.00	●
11.910	15/32	12.00	386.00	337.00	45.00	●
12.000		12.00	386.00	337.00	45.00	●
12.300	31/64	14.00	437.00	388.00	45.00	●
12.700	1/2	14.00	437.00	388.00	45.00	●
13.000		14.00	437.00	388.00	45.00	●
13.100	33/64	14.00	437.00	388.00	45.00	●
13.490	17/32	14.00	437.00	388.00	45.00	●
13.890	35/64	14.00	437.00	388.00	45.00	●
14.000		14.00	437.00	388.00	45.00	●
14.290	9/16	16.00	493.00	441.00	48.00	●
15.000		16.00	493.00	441.00	48.00	●
15.870	5/8	16.00	493.00	441.00	48.00	●
16.000		16.00	493.00	441.00	48.00	●



Ratio drills with coolant ducts

Tool material **Solid carbide**

Surface

Shank form HA

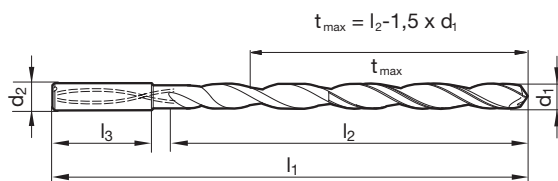
P • web thinning $\geq \varnothing 3.000$ • main cutting edge form concave • optimised flute design • maximum diameter of coolant ducts • observe coolant pressure

M •**K** •**N** ○**S** ○**H** ○

structural and case hardened steels • free-cutting steels, heat-treatable steels • alloyed steels up to 1200 N/mm² • stainless steels • cast materials

GUHRING NAVIGATOR

Cutting data page 142

Article no. **6513**Discount group **165**

Cutting direction

d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
3.000		6.00	140.00	100.00	36.00	●
3.100		6.00	158.00	118.00	36.00	●
3.170	1/8	6.00	158.00	118.00	36.00	●
3.200		6.00	158.00	118.00	36.00	●
3.300		6.00	158.00	118.00	36.00	●
3.500		6.00	176.00	136.00	36.00	●
3.570	9/64	6.00	176.00	136.00	36.00	●
3.700		6.00	176.00	136.00	36.00	●
3.800		6.00	176.00	136.00	36.00	●
3.970	5/32	6.00	176.00	136.00	36.00	●
4.000		6.00	176.00	136.00	36.00	●
4.200		6.00	208.00	168.00	36.00	●
4.370	11/64	6.00	208.00	168.00	36.00	●
4.500		6.00	208.00	168.00	36.00	●
4.760	3/16	6.00	208.00	168.00	36.00	●
5.000		6.00	208.00	168.00	36.00	●
5.100		6.00	240.00	200.00	36.00	●
5.160	13/64	6.00	240.00	200.00	36.00	●
5.410		6.00	240.00	200.00	36.00	●
5.500		6.00	240.00	200.00	36.00	●
5.560	7/32	6.00	240.00	200.00	36.00	●
5.950	15/64	6.00	240.00	200.00	36.00	●
6.000		6.00	240.00	200.00	36.00	●
6.300		8.00	272.00	232.00	36.00	●
6.350	1/4	8.00	272.00	232.00	36.00	●
6.500		8.00	272.00	232.00	36.00	●
6.750	17/64	8.00	272.00	232.00	36.00	●
6.800		8.00	272.00	232.00	36.00	●
7.000		8.00	272.00	232.00	36.00	●
7.140	9/32	8.00	303.00	263.00	36.00	●
7.500		8.00	303.00	263.00	36.00	●
7.540	19/64	8.00	303.00	263.00	36.00	●
7.940	5/16	8.00	303.00	263.00	36.00	●
8.000		8.00	303.00	263.00	36.00	●
8.330	21/64	10.00	339.00	295.00	40.00	●
8.500		10.00	339.00	295.00	40.00	●



Article no.						6513
Discount group						165
Cutting direction						(R)
d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
8.730	11/32	10.00	339.00	295.00	40.00	●
8.800		10.00	339.00	295.00	40.00	●
9.000		10.00	339.00	295.00	40.00	●
9.130	23/64	10.00	371.00	327.00	40.00	●
9.520	3/8	10.00	371.00	327.00	40.00	●
9.920	25/64	10.00	371.00	327.00	40.00	●
10.000		10.00	371.00	327.00	40.00	●
10.320	13/32	12.00	412.00	363.00	45.00	●
10.720	27/64	12.00	412.00	363.00	45.00	●
11.000		12.00	412.00	363.00	45.00	●
11.110	7/16	12.00	443.00	394.00	45.00	●
11.510	29/64	12.00	443.00	394.00	45.00	●
11.910	15/32	12.00	443.00	394.00	45.00	●
12.000		12.00	443.00	394.00	45.00	●
12.300	31/64	14.00	507.00	458.00	45.00	●
12.700	1/2	14.00	507.00	458.00	45.00	●
13.000		14.00	507.00	458.00	45.00	●
13.100	33/64	14.00	507.00	458.00	45.00	●
13.490	17/32	14.00	507.00	458.00	45.00	●
13.890	35/64	14.00	507.00	458.00	45.00	●
14.000		14.00	507.00	458.00	45.00	●



EB 100 M: **THE ROBUST**

Solid carbide single-fluted
gun drills

EB 80: **THE CONVENTIONAL**

Brazed single-fluted gun drills

EB 800:
THE FLEXIBLE

Modular single-fluted gun drill

ZB 80:
THE SPECIALIST FOR CAST IRON

Brazed two-fluted gun drills

Drilling tools



CONVENTIONAL DEEP HOLE DRILLS

THE RIGHT TOOL
FOR EVERY APPLICATION.



Ratio drills without coolant ducts



Tool material

Solid carbide

Surface

F

F

F

Shank form

HA

HE

HB

P • web thinning $\geq \varnothing 3.000$ • facet point grind • main cutting edge form straight • optimised cutting geometry

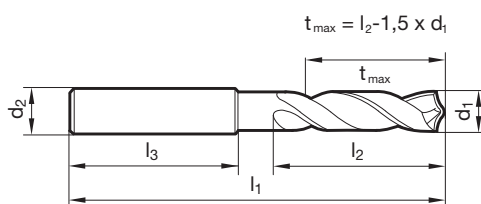
M ○**K** •**N** ○**S** ○**H** ○

structural and case hardened steels • free-cutting steels, heat-treatable steels • steels (alloyed/unalloyed) up to 1200 N/mm² • cast materials • bronze, brass • high-alloyed AlSi alloys

SL**SL****SL**

GÜHRING NAVIGATOR

Cutting data page 140



Article no.

5514

5614

6026

Discount group

155

155

155

Cutting direction

R

R

R

d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
3.000		6.00	62.00	20.00	36.00	•	•	•
3.100		6.00	62.00	20.00	36.00	•	•	•
3.170	1/8	6.00	62.00	20.00	36.00	•	•	•
3.200		6.00	62.00	20.00	36.00	•	•	•
3.250		6.00	62.00	20.00	36.00	•	•	•
3.300		6.00	62.00	20.00	36.00	•	•	•
3.400		6.00	62.00	20.00	36.00	•	•	•
3.500		6.00	62.00	20.00	36.00	•	•	•
3.570	9/64	6.00	62.00	20.00	36.00	•	•	•
3.600		6.00	62.00	20.00	36.00	•	•	•
3.700		6.00	62.00	20.00	36.00	•	•	•
3.800		6.00	66.00	24.00	36.00	•	•	•
3.900		6.00	66.00	24.00	36.00	•	•	•
3.970	5/32	6.00	66.00	24.00	36.00	•	•	•
4.000		6.00	66.00	24.00	36.00	•	•	•
4.100		6.00	66.00	24.00	36.00	•	•	•
4.200		6.00	66.00	24.00	36.00	•	•	•
4.300		6.00	66.00	24.00	36.00	•	•	•
4.370	11/64	6.00	66.00	24.00	36.00	•	•	•
4.400		6.00	66.00	24.00	36.00	•	•	•
4.500		6.00	66.00	24.00	36.00	•	•	•
4.600		6.00	66.00	24.00	36.00	•	•	•
4.650		6.00	66.00	24.00	36.00	•	•	•
4.700		6.00	66.00	24.00	36.00	•	•	•
4.760	3/16	6.00	66.00	28.00	36.00	•	•	•
4.800		6.00	66.00	28.00	36.00	•	•	•
4.900		6.00	66.00	28.00	36.00	•	•	•
5.000		6.00	66.00	28.00	36.00	•	•	•
5.100		6.00	66.00	28.00	36.00	•	•	•
5.160	13/64	6.00	66.00	28.00	36.00	•	•	•
5.200		6.00	66.00	28.00	36.00	•	•	•
5.300		6.00	66.00	28.00	36.00	•	•	•
5.400		6.00	66.00	28.00	36.00	•	•	•
5.500		6.00	66.00	28.00	36.00	•	•	•
5.550		6.00	66.00	28.00	36.00	•	•	•
5.560	7/32	6.00	66.00	28.00	36.00	•	•	•



Article no.						5514	5614	6026
Discount group						155	155	155
Cutting direction						(R)	(R)	(R)
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
5.600		6.00	66.00	28.00	36.00	●	●	●
5.700		6.00	66.00	28.00	36.00	●	●	●
5.800		6.00	66.00	28.00	36.00	●	●	●
5.900		6.00	66.00	28.00	36.00	●	●	●
5.950	15/64	6.00	66.00	28.00	36.00	●	●	●
6.000		6.00	66.00	28.00	36.00	●	●	●
6.100		8.00	79.00	34.00	36.00	●	●	●
6.200		8.00	79.00	34.00	36.00	●	●	●
6.300		8.00	79.00	34.00	36.00	●	●	●
6.350	1/4	8.00	79.00	34.00	36.00	●	●	●
6.400		8.00	79.00	34.00	36.00	●	●	●
6.500		8.00	79.00	34.00	36.00	●	●	●
6.600		8.00	79.00	34.00	36.00	●	●	●
6.700		8.00	79.00	34.00	36.00	●	●	●
6.750	17/64	8.00	79.00	34.00	36.00	●	●	●
6.800		8.00	79.00	34.00	36.00	●	●	●
6.900		8.00	79.00	34.00	36.00	●	●	●
7.000		8.00	79.00	34.00	36.00	●	●	●
7.100		8.00	79.00	41.00	36.00	●	●	●
7.140	9/32	8.00	79.00	41.00	36.00	●	●	●
7.200		8.00	79.00	41.00	36.00	●	●	●
7.300		8.00	79.00	41.00	36.00	●	●	●
7.400		8.00	79.00	41.00	36.00	●	●	●
7.500		8.00	79.00	41.00	36.00	●	●	●
7.540	19/64	8.00	79.00	41.00	36.00	●	●	●
7.600		8.00	79.00	41.00	36.00	●	●	●
7.700		8.00	79.00	41.00	36.00	●	●	●
7.800		8.00	79.00	41.00	36.00	●	●	●
7.900		8.00	79.00	41.00	36.00	●	●	●
7.940	5/16	8.00	79.00	41.00	36.00	●	●	●
8.000		8.00	79.00	41.00	36.00	●	●	●
8.100		10.00	89.00	47.00	40.00	●	●	●
8.200		10.00	89.00	47.00	40.00	●	●	●
8.300		10.00	89.00	47.00	40.00	●	●	●
8.330	21/64	10.00	89.00	47.00	40.00	●	●	●
8.400		10.00	89.00	47.00	40.00	●	●	●
8.500		10.00	89.00	47.00	40.00	●	●	●
8.600		10.00	89.00	47.00	40.00	●	●	●
8.700		10.00	89.00	47.00	40.00	●	●	●
8.730	11/32	10.00	89.00	47.00	40.00	●	●	●
8.800		10.00	89.00	47.00	40.00	●	●	●
8.900		10.00	89.00	47.00	40.00	●	●	●
9.000		10.00	89.00	47.00	40.00	●	●	●
9.100		10.00	89.00	47.00	40.00	●	●	●
9.130	23/64	10.00	89.00	47.00	40.00	●	●	●
9.200		10.00	89.00	47.00	40.00	●	●	●
9.250		10.00	89.00	47.00	40.00	●	●	●
9.300		10.00	89.00	47.00	40.00	●	●	●
9.400		10.00	89.00	47.00	40.00	●	●	●
9.500		10.00	89.00	47.00	40.00	●	●	●
9.520	3/8	10.00	89.00	47.00	40.00	●	●	●
9.600		10.00	89.00	47.00	40.00	●	●	●
9.700		10.00	89.00	47.00	40.00	●	●	●
9.800		10.00	89.00	47.00	40.00	●	●	●
9.900		10.00	89.00	47.00	40.00	●	●	●
9.920	25/64	10.00	89.00	47.00	40.00	●	●	●
10.000		10.00	89.00	47.00	40.00	●	●	●
10.100		12.00	102.00	55.00	45.00	●	●	●
10.200		12.00	102.00	55.00	45.00	●	●	●
10.300		12.00	102.00	55.00	45.00	●	●	●



Article no.						5514	5614	6026
Discount group						155	155	155
Cutting direction								
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
10.320	13/32	12.00	102.00	55.00	45.00	●	●	●
10.400		12.00	102.00	55.00	45.00	●	●	●
10.500		12.00	102.00	55.00	45.00	●	●	●
10.600		12.00	102.00	55.00	45.00	●	●	●
10.700		12.00	102.00	55.00	45.00	●	●	●
10.800		12.00	102.00	55.00	45.00	●	●	●
10.900		12.00	102.00	55.00	45.00	●	●	●
11.000		12.00	102.00	55.00	45.00	●	●	●
11.100		12.00	102.00	55.00	45.00	●	●	●
11.110	7/16	12.00	102.00	55.00	45.00	●	●	●
11.200		12.00	102.00	55.00	45.00	●	●	●
11.300		12.00	102.00	55.00	45.00	●	●	●
11.400		12.00	102.00	55.00	45.00	●	●	●
11.500		12.00	102.00	55.00	45.00	●	●	●
11.600		12.00	102.00	55.00	45.00	●	●	●
11.700		12.00	102.00	55.00	45.00	●	●	●
11.800		12.00	102.00	55.00	45.00	●	●	●
11.900		12.00	102.00	55.00	45.00	●	●	●
11.910	15/32	12.00	102.00	55.00	45.00	●	●	●
12.000		12.00	102.00	55.00	45.00	●	●	●
12.200		14.00	107.00	60.00	45.00	●	●	●
12.500		14.00	107.00	60.00	45.00	●	●	●
12.700	1/2	14.00	107.00	60.00	45.00	●	●	●
12.800		14.00	107.00	60.00	45.00	●	●	●
13.000		14.00	107.00	60.00	45.00	●	●	●
13.200		14.00	107.00	60.00	45.00	●	●	●
13.500		14.00	107.00	60.00	45.00	●	●	●
13.700		14.00	107.00	60.00	45.00	●	●	●
14.000		14.00	107.00	60.00	45.00	●	●	●
14.200		16.00	115.00	65.00	48.00	●	●	●
14.290	9/16	16.00	115.00	65.00	48.00	●	●	●
14.500		16.00	115.00	65.00	48.00	●	●	●
14.700		16.00	115.00	65.00	48.00	●	●	●
15.000		16.00	115.00	65.00	48.00	●	●	●
15.200		16.00	115.00	65.00	48.00	●	●	●
15.500		16.00	115.00	65.00	48.00	●	●	●
15.700		16.00	115.00	65.00	48.00	●	●	●
16.000		16.00	115.00	65.00	48.00	●	●	●
16.500		18.00	123.00	73.00	48.00	●	●	●
17.000		18.00	123.00	73.00	48.00	●	●	●
17.500		18.00	123.00	73.00	48.00	●	●	●
18.000		18.00	123.00	73.00	48.00	●	●	●
18.500		20.00	131.00	79.00	50.00	●	●	●
19.000		20.00	131.00	79.00	50.00	●	●	●
19.500		20.00	131.00	79.00	50.00	●	●	●
20.000		20.00	131.00	79.00	50.00	●	●	●



Ratio drills without coolant ducts



P • web thinning $\geq \varnothing 3.000$ • facet point grind • main cutting edge form straight • optimised cutting geometry

M ○

K •

N ○

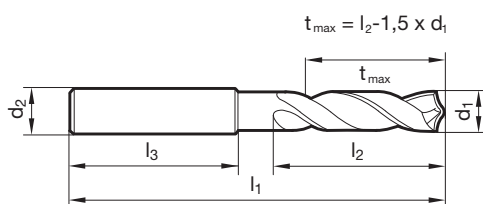
S ○

H ○

structural and case hardened steels • free-cutting steels, heat-treatable steels • steels (alloyed/unalloyed) up to 1200 N/mm² • cast materials • bronze, brass • high-alloyed AlSi alloys

GUHRING NAVIGATOR

Cutting data page 140



Tool material	Solid carbide		
Surface	F	F	F
Shank form	HA	HE	HB
	SL	SL	SL



Drilling tools

Article no.						5515	5615	5651
Discount group						155	155	155
Cutting direction								
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
3.000		6.00	66.00	28.00	36.00	•	•	•
3.100		6.00	66.00	28.00	36.00	•	•	•
3.170	1/8	6.00	66.00	28.00	36.00	•	•	•
3.200		6.00	66.00	28.00	36.00	•	•	•
3.250		6.00	66.00	28.00	36.00	•	•	•
3.300		6.00	66.00	28.00	36.00	•	•	•
3.400		6.00	66.00	28.00	36.00	•	•	•
3.500		6.00	66.00	28.00	36.00	•	•	•
3.570	9/64	6.00	66.00	28.00	36.00	•	•	•
3.600		6.00	66.00	28.00	36.00	•	•	•
3.700		6.00	66.00	28.00	36.00	•	•	•
3.800		6.00	74.00	36.00	36.00	•	•	•
3.900		6.00	74.00	36.00	36.00	•	•	•
3.970	5/32	6.00	74.00	36.00	36.00	•	•	•
4.000		6.00	74.00	36.00	36.00	•	•	•
4.100		6.00	74.00	36.00	36.00	•	•	•
4.200		6.00	74.00	36.00	36.00	•	•	•
4.300		6.00	74.00	36.00	36.00	•	•	•
4.370	11/64	6.00	74.00	36.00	36.00	•	•	•
4.400		6.00	74.00	36.00	36.00	•	•	•
4.500		6.00	74.00	36.00	36.00	•	•	•
4.600		6.00	74.00	36.00	36.00	•	•	•
4.650		6.00	74.00	36.00	36.00	•	•	•
4.700		6.00	74.00	36.00	36.00	•	•	•
4.760	3/16	6.00	82.00	44.00	36.00	•	•	•
4.800		6.00	82.00	44.00	36.00	•	•	•
4.900		6.00	82.00	44.00	36.00	•	•	•
5.000		6.00	82.00	44.00	36.00	•	•	•
5.100		6.00	82.00	44.00	36.00	•	•	•
5.160	13/64	6.00	82.00	44.00	36.00	•	•	•
5.200		6.00	82.00	44.00	36.00	•	•	•
5.300		6.00	82.00	44.00	36.00	•	•	•
5.400		6.00	82.00	44.00	36.00	•	•	•
5.500		6.00	82.00	44.00	36.00	•	•	•
5.550		6.00	82.00	44.00	36.00	•	•	•
5.560	7/32	6.00	82.00	44.00	36.00	•	•	•



Article no.						5515	5615	5651
Discount group						155	155	155
Cutting direction						(R)	(R)	(R)
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
5.600		6.00	82.00	44.00	36.00	●	●	●
5.700		6.00	82.00	44.00	36.00	●	●	●
5.800		6.00	82.00	44.00	36.00	●	●	●
5.900		6.00	82.00	44.00	36.00	●	●	●
5.950	15/64	6.00	82.00	44.00	36.00	●	●	●
6.000		6.00	82.00	44.00	36.00	●	●	●
6.100		8.00	91.00	53.00	36.00	●	●	●
6.200		8.00	91.00	53.00	36.00	●	●	●
6.300		8.00	91.00	53.00	36.00	●	●	●
6.350	1/4	8.00	91.00	53.00	36.00	●	●	●
6.400		8.00	91.00	53.00	36.00	●	●	●
6.500		8.00	91.00	53.00	36.00	●	●	●
6.600		8.00	91.00	53.00	36.00	●	●	●
6.700		8.00	91.00	53.00	36.00	●	●	●
6.750	17/64	8.00	91.00	53.00	36.00	●	●	●
6.800		8.00	91.00	53.00	36.00	●	●	●
6.900		8.00	91.00	53.00	36.00	●	●	●
7.000		8.00	91.00	53.00	36.00	●	●	●
7.100		8.00	91.00	53.00	36.00	●	●	●
7.140	9/32	8.00	91.00	53.00	36.00	●	●	●
7.200		8.00	91.00	53.00	36.00	●	●	●
7.300		8.00	91.00	53.00	36.00	●	●	●
7.400		8.00	91.00	53.00	36.00	●	●	●
7.500		8.00	91.00	53.00	36.00	●	●	●
7.540	19/64	8.00	91.00	53.00	36.00	●	●	●
7.600		8.00	91.00	53.00	36.00	●	●	●
7.700		8.00	91.00	53.00	36.00	●	●	●
7.800		8.00	91.00	53.00	36.00	●	●	●
7.900		8.00	91.00	53.00	36.00	●	●	●
7.940	5/16	8.00	91.00	53.00	36.00	●	●	●
8.000		8.00	91.00	53.00	36.00	●	●	●
8.100		10.00	103.00	61.00	40.00	●	●	●
8.200		10.00	103.00	61.00	40.00	●	●	●
8.300		10.00	103.00	61.00	40.00	●	●	●
8.330	21/64	10.00	103.00	61.00	40.00	●	●	●
8.400		10.00	103.00	61.00	40.00	●	●	●
8.500		10.00	103.00	61.00	40.00	●	●	●
8.600		10.00	103.00	61.00	40.00	●	●	●
8.700		10.00	103.00	61.00	40.00	●	●	●
8.730	11/32	10.00	103.00	61.00	40.00	●	●	●
8.800		10.00	103.00	61.00	40.00	●	●	●
8.900		10.00	103.00	61.00	40.00	●	●	●
9.000		10.00	103.00	61.00	40.00	●	●	●
9.100		10.00	103.00	61.00	40.00	●	●	●
9.130	23/64	10.00	103.00	61.00	40.00	●	●	●
9.200		10.00	103.00	61.00	40.00	●	●	●
9.250		10.00	103.00	61.00	40.00	●	●	●
9.300		10.00	103.00	61.00	40.00	●	●	●
9.400		10.00	103.00	61.00	40.00	●	●	●
9.500		10.00	103.00	61.00	40.00	●	●	●
9.520	3/8	10.00	103.00	61.00	40.00	●	●	●
9.600		10.00	103.00	61.00	40.00	●	●	●
9.700		10.00	103.00	61.00	40.00	●	●	●
9.800		10.00	103.00	61.00	40.00	●	●	●
9.900		10.00	103.00	61.00	40.00	●	●	●
9.920	25/64	10.00	103.00	61.00	40.00	●	●	●
10.000		10.00	103.00	61.00	40.00	●	●	●
10.100		12.00	118.00	71.00	45.00	●	●	●
10.200		12.00	118.00	71.00	45.00	●	●	●
10.300		12.00	118.00	71.00	45.00	●	●	●



Article no.						5515	5615	5651
Discount group						155	155	155
Cutting direction						(R)	(R)	(R)
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
10.320	13/32	12.00	118.00	71.00	45.00	●	●	●
10.400		12.00	118.00	71.00	45.00	●	●	●
10.500		12.00	118.00	71.00	45.00	●	●	●
10.600		12.00	118.00	71.00	45.00	●	●	●
10.700		12.00	118.00	71.00	45.00	●	●	●
10.800		12.00	118.00	71.00	45.00	●	●	●
10.900		12.00	118.00	71.00	45.00	●	●	●
11.000		12.00	118.00	71.00	45.00	●	●	●
11.100		12.00	118.00	71.00	45.00	●	●	●
11.110	7/16	12.00	118.00	71.00	45.00	●	●	●
11.200		12.00	118.00	71.00	45.00	●	●	●
11.300		12.00	118.00	71.00	45.00	●	●	●
11.400		12.00	118.00	71.00	45.00	●	●	●
11.500		12.00	118.00	71.00	45.00	●	●	●
11.600		12.00	118.00	71.00	45.00	●	●	●
11.700		12.00	118.00	71.00	45.00	●	●	●
11.800		12.00	118.00	71.00	45.00	●	●	●
11.900		12.00	118.00	71.00	45.00	●	●	●
11.910	15/32	12.00	118.00	71.00	45.00	●	●	●
12.000		12.00	118.00	71.00	45.00	●	●	●
12.200		14.00	124.00	77.00	45.00	●	●	●
12.500		14.00	124.00	77.00	45.00	●	●	●
12.700	1/2	14.00	124.00	77.00	45.00	●	●	●
13.000		14.00	124.00	77.00	45.00	●	●	●
13.500		14.00	124.00	77.00	45.00	●	●	●
13.700		14.00	124.00	77.00	45.00	●	●	●
14.000		14.00	124.00	77.00	45.00	●	●	●
14.200		16.00	133.00	83.00	48.00	●	●	●
14.290	9/16	16.00	133.00	83.00	48.00	●	●	●
14.500		16.00	133.00	83.00	48.00	●	●	●
14.700		16.00	133.00	83.00	48.00	●	●	●
15.000		16.00	133.00	83.00	48.00	●	●	●
15.200		16.00	133.00	83.00	48.00	●	●	●
15.500		16.00	133.00	83.00	48.00	●	●	●
15.700		16.00	133.00	83.00	48.00	●	●	●
16.000		16.00	133.00	83.00	48.00	●	●	●
16.500		18.00	143.00	93.00	48.00	●	●	●
17.000		18.00	143.00	93.00	48.00	●	●	●
17.500		18.00	143.00	93.00	48.00	●	●	●
18.000		18.00	143.00	93.00	48.00	●	●	●
18.500		20.00	153.00	101.00	50.00	●	●	●
19.000		20.00	153.00	101.00	50.00	●	●	●
19.500		20.00	153.00	101.00	50.00	●	●	●
20.000		20.00	153.00	101.00	50.00	●	●	●



Tool holders for interchangeable inserts HT 800



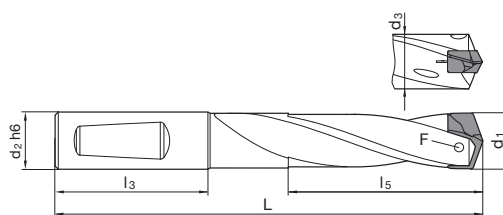
Surface

(Ni)

Shank form

HE

especially high wear resistance • optimised coolant duct exit • optimised flute design • nickel-plated • screwdriver art. no. 1612 included • clamping screws art. no. 4071 included



Article no.

4107

Discount group

140

Cutting direction

(R)

d1	d2 h6	d3	L	l3	l5	F	Availability
mm	mm	mm	mm	mm	mm		
11.00-11.49	12.000	10.70	101.00	45.00	36.60	4071 2.200	●
11.00-11.49	12.700	10.70	101.00	45.00	36.60	4071 2.200	●
11.50-11.99	12.000	11.20	103.00	45.00	38.10	4071 2.200	●
11.50-11.99	12.700	11.20	103.00	45.00	38.10	4071 2.200	●
12.00-12.49	12.000	11.70	106.00	45.00	39.70	4071 2.201	●
12.00-12.49	12.700	11.70	106.00	45.00	39.70	4071 2.201	●
12.50-12.99	14.000	12.20	108.00	45.00	41.30	4071 2.201	●
12.50-12.99	15.875	12.20	108.00	45.00	41.30	4071 2.201	●
13.00-13.49	14.000	12.70	110.00	45.00	42.90	4071 2.500	●
13.00-13.49	15.875	12.70	110.00	45.00	42.90	4071 2.500	●
13.50-13.99	14.000	13.20	113.00	45.00	44.60	4071 2.500	●
13.50-13.99	15.875	13.20	113.00	45.00	44.60	4071 2.500	●
14.00-14.49	14.000	13.70	115.00	45.00	46.20	4071 3.000	●
14.00-14.49	15.875	13.70	115.00	45.00	46.20	4071 3.000	●
14.50-14.99	15.875	14.20	120.00	48.00	47.80	4071 3.000	●
14.50-14.99	16.000	14.20	120.00	48.00	47.80	4071 3.000	●
15.00-15.49	15.875	14.70	123.00	48.00	49.30	4071 3.001	●
15.00-15.49	16.000	14.70	123.00	48.00	49.30	4071 3.001	●
15.50-15.99	15.875	15.20	125.00	48.00	50.90	4071 3.001	●
15.50-15.99	16.000	15.20	125.00	48.00	50.90	4071 3.001	●
16.00-16.49	15.875	15.70	127.00	48.00	52.90	4071 3.500	●
16.00-16.49	16.000	15.70	127.00	48.00	52.90	4071 3.500	●
16.50-16.99	18.000	16.20	130.00	48.00	54.10	4071 3.500	●
16.50-16.99	19.050	16.20	130.00	48.00	54.10	4071 3.500	●
17.00-17.49	18.000	16.70	132.00	48.00	55.80	4071 3.500	●
17.00-17.49	19.050	16.70	132.00	48.00	55.80	4071 3.500	●
17.50-17.99	18.000	17.20	134.00	48.00	57.40	4071 3.500	●
17.50-17.99	19.050	17.20	134.00	48.00	57.40	4071 3.500	●
18.00-18.49	18.000	17.70	137.00	48.00	58.90	4071 4.000	●
18.00-18.49	19.050	17.70	137.00	48.00	58.90	4071 4.000	●
18.50-18.99	19.050	18.20	141.00	50.00	60.50	4071 4.000	●
18.50-18.99	20.000	18.20	141.00	50.00	60.50	4071 4.000	●
19.00-19.49	19.050	18.70	143.00	50.00	62.10	4071 4.000	●
19.00-19.49	20.000	18.70	143.00	50.00	62.10	4071 4.000	●
19.50-19.99	19.050	19.20	146.00	50.00	63.70	4071 4.000	●
19.50-19.99	20.000	19.20	146.00	50.00	63.70	4071 4.000	●

Article no.							4107
Discount group							140
Cutting direction							
d1	d2 h6	d3	L	I3	I5	F	Availability
mm	mm	mm	mm	mm	mm		
20.00-20.49	19.050	19.70	148.00	50.00	65.30	4071 4.500	●
20.00-20.49	20.000	19.70	148.00	50.00	65.30	4071 4.500	●
20.50-20.99	25.000	20.20	159.00	56.00	67.00	4071 4.500	●
20.50-20.99	25.400	20.20	159.00	56.00	67.00	4071 4.500	●
21.00-21.49	25.000	20.70	161.00	56.00	68.60	4071 4.500	●
21.00-21.49	25.400	20.70	161.00	56.00	68.60	4071 4.500	●
21.50-21.99	25.000	21.20	163.00	56.00	70.10	4071 4.500	●
21.50-21.99	25.400	21.20	163.00	56.00	70.10	4071 4.500	●
22.00-22.49	25.000	21.70	165.00	56.00	71.70	4071 5.000	●
22.00-22.49	25.400	21.70	165.00	56.00	71.70	4071 5.000	●
22.50-22.99	25.000	22.20	168.00	56.00	73.30	4071 5.000	●
22.50-22.99	25.400	22.20	168.00	56.00	73.30	4071 5.000	●
23.00-23.49	25.000	22.70	170.00	56.00	74.90	4071 5.000	●
23.00-23.49	25.400	22.70	170.00	56.00	74.90	4071 5.000	●
23.50-23.99	25.000	23.20	173.00	56.00	76.50	4071 5.000	●
23.50-23.99	25.400	23.20	173.00	56.00	76.50	4071 5.000	●
24.00-24.49	25.000	23.70	175.00	56.00	78.10	4071 5.001	●
24.00-24.49	25.400	23.70	175.00	56.00	78.10	4071 5.001	●
24.50-24.99	25.000	24.20	177.00	56.00	79.70	4071 5.001	●
24.50-24.99	25.400	24.20	177.00	56.00	79.70	4071 5.001	●
25.00-25.49	25.000	24.70	180.00	56.00	81.30	4071 5.001	●
25.00-25.49	25.400	24.70	180.00	56.00	81.30	4071 5.001	●
25.50-25.99	31.750	25.20	187.00	60.00	82.90	4071 5.001	●
25.50-25.99	32.000	25.20	187.00	60.00	82.90	4071 5.001	●
26.00-26.49	31.750	25.70	191.00	60.00	84.00	4071 5.003	●
26.00-26.49	32.000	25.70	191.00	60.00	84.00	4071 5.003	●
26.50-26.99	31.750	26.20	193.00	60.00	86.10	4071 5.003	●
26.50-26.99	32.000	26.20	193.00	60.00	86.10	4071 5.003	●
27.00-27.49	31.750	26.70	196.00	60.00	87.20	4071 5.003	●
27.00-27.49	32.000	26.70	196.00	60.00	87.20	4071 5.003	●
27.50-27.99	31.750	27.20	198.00	60.00	88.90	4071 5.003	●
27.50-27.99	32.000	27.20	198.00	60.00	88.90	4071 5.003	●
28.00-28.49	31.750	27.70	200.00	60.00	90.40	4071 5.003	●
28.00-28.49	32.000	27.70	200.00	60.00	90.40	4071 5.003	●
28.50-28.99	31.750	28.20	202.00	60.00	92.50	4071 5.003	●
28.50-28.99	32.000	28.20	202.00	60.00	92.50	4071 5.003	●
29.00-29.49	31.750	28.70	205.00	60.00	94.60	4071 5.003	●
29.00-29.49	32.000	28.70	205.00	60.00	94.60	4071 5.003	●
29.50-29.99	31.750	29.20	207.00	60.00	95.10	4071 5.003	●
29.50-29.99	32.000	29.20	207.00	60.00	95.10	4071 5.003	●
30.00-30.49	31.750	29.70	210.00	60.00	96.70	4071 6.000	●
30.00-30.49	32.000	29.70	210.00	60.00	96.70	4071 6.000	●
30.50-30.99	31.750	30.20	212.00	60.00	98.30	4071 6.000	●
30.50-30.99	32.000	30.20	212.00	60.00	98.30	4071 6.000	●
31.00-31.49	31.750	30.70	214.00	60.00	99.80	4071 6.000	●
31.00-31.49	32.000	30.70	214.00	60.00	99.80	4071 6.000	●
31.50-31.99	31.750	31.20	216.00	60.00	101.40	4071 6.000	●
31.50-31.99	32.000	31.20	216.00	60.00	101.40	4071 6.000	●
32.00-32.99	31.750	31.70	221.00	60.00	104.60	4071 6.001	●
32.00-32.99	32.000	31.70	221.00	60.00	104.60	4071 6.001	●
33.00-33.99	31.750	32.70	226.00	60.00	107.80	4071 6.001	●
33.00-33.99	32.000	32.70	226.00	60.00	107.80	4071 6.001	●
34.00-34.99	31.750	33.70	230.00	60.00	111.00	4071 6.001	●
34.00-34.99	32.000	33.70	230.00	60.00	111.00	4071 6.001	●
35.00-35.99	31.750	34.70	235.00	60.00	114.20	4071 6.001	●
35.00-35.99	32.000	34.70	235.00	60.00	114.20	4071 6.001	●
36.00-36.99	31.750	35.70	240.00	60.00	117.30	4071 6.002	●
36.00-36.99	32.000	35.70	240.00	60.00	117.30	4071 6.002	●
37.00-37.99	31.750	36.70	245.00	60.00	120.50	4071 6.002	●
37.00-37.99	32.000	36.70	245.00	60.00	120.50	4071 6.002	●



Drilling tools	Article no.						4107
	Discount group						140
	Cutting direction						(R)
	d1	d2 h6	d3	L	l3	l5	F
	mm	mm	mm	mm	mm	mm	
	38.00-38.99	31.750	37.70	249.00	60.00	123.70	4071 6.002
	38.00-38.99	32.000	37.70	249.00	60.00	123.70	4071 6.002
	39.00-40.00	31.750	38.70	254.00	60.00	126.90	4071 6.002
	39.00-40.00	32.000	38.70	254.00	60.00	126.90	4071 6.002
							Availability
							●
							●
							●
							●



Tool holders for interchangeable inserts HT 800



Surface

Ni

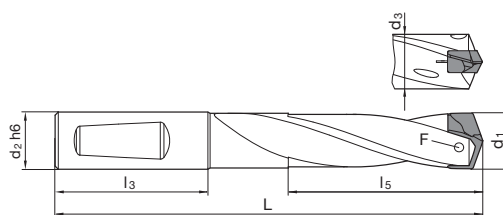
Shank form

HE

especially high wear resistance • optimised coolant duct exit • optimised flute design • nickel-plated • screwdriver art. no. 1612 included • clamping screws art. no. 4071 included



Drilling tools



Article no.

4108

Discount group

140

Cutting direction

(R)

d1	d2 h6	d3	L	l3	l5	F	Availability
mm	mm	mm	mm	mm	mm		
11.00-11.49	12.000	10.70	124.00	45.00	59.60	4071 2.200	●
11.00-11.49	12.700	10.70	124.00	45.00	59.60	4071 2.200	●
11.50-11.99	12.000	11.20	127.00	45.00	62.10	4071 2.200	●
11.50-11.99	12.700	11.20	127.00	45.00	62.10	4071 2.200	●
12.00-12.49	12.000	11.70	131.00	45.00	64.70	4071 2.201	●
12.00-12.49	12.700	11.70	131.00	45.00	64.70	4071 2.201	●
12.50-12.99	14.000	12.20	134.00	45.00	67.30	4071 2.201	●
12.50-12.99	15.875	12.20	134.00	45.00	67.30	4071 2.201	●
13.00-13.49	14.000	12.70	137.00	45.00	69.90	4071 2.500	●
13.00-13.49	15.875	12.70	137.00	45.00	69.90	4071 2.500	●
13.50-13.99	14.000	13.20	141.00	45.00	72.60	4071 2.500	●
13.50-13.99	15.875	13.20	141.00	45.00	72.60	4071 2.500	●
14.00-14.49	14.000	13.70	144.00	45.00	75.20	4071 3.000	●
14.00-14.49	15.875	13.70	144.00	45.00	75.20	4071 3.000	●
14.50-14.99	15.875	14.20	150.00	48.00	77.80	4071 3.000	●
14.50-14.99	16.000	14.20	150.00	48.00	77.80	4071 3.000	●
15.00-15.49	15.875	14.70	154.00	48.00	80.30	4071 3.001	●
15.00-15.49	16.000	14.70	154.00	48.00	80.30	4071 3.001	●
15.50-15.99	15.875	15.20	157.00	48.00	82.90	4071 3.001	●
15.50-15.99	16.000	15.20	157.00	48.00	82.90	4071 3.001	●
16.00-16.49	15.875	15.70	160.00	48.00	85.90	4071 3.500	●
16.00-16.49	16.000	15.70	160.00	48.00	85.90	4071 3.500	●
16.50-16.99	18.000	16.20	164.00	48.00	88.10	4071 3.500	●
16.50-16.99	19.050	16.20	164.00	48.00	88.10	4071 3.500	●
17.00-17.49	18.000	16.70	167.00	48.00	90.80	4071 3.500	●
17.00-17.49	19.050	16.70	167.00	48.00	90.80	4071 3.500	●
17.50-17.99	18.000	17.20	170.00	48.00	93.40	4071 3.500	●
17.50-17.99	19.050	17.20	170.00	48.00	93.40	4071 3.500	●
18.00-18.49	18.000	17.70	174.00	48.00	95.90	4071 4.000	●
18.00-18.49	19.050	17.70	174.00	48.00	95.90	4071 4.000	●
18.50-18.99	19.050	18.20	179.00	50.00	98.50	4071 4.000	●
18.50-18.99	20.000	18.20	179.00	50.00	98.50	4071 4.000	●
19.00-19.49	19.050	18.70	182.00	50.00	101.10	4071 4.000	●
19.00-19.49	20.000	18.70	182.00	50.00	101.10	4071 4.000	●
19.50-19.99	19.050	19.20	186.00	50.00	103.70	4071 4.000	●
19.50-19.99	20.000	19.20	186.00	50.00	103.70	4071 4.000	●



Article no.							4108
Discount group							140
Cutting direction							(R)
d1	d2 h6	d3	L	I3	I5	F	Availability
mm	mm	mm	mm	mm	mm		
20.00-20.49	19.050	19.70	189.00	50.00	106.30	4071 4.500	●
20.00-20.49	20.000	19.70	189.00	50.00	106.30	4071 4.500	●
20.50-20.99	25.000	20.20	201.00	56.00	109.00	4071 4.500	●
20.50-20.99	25.400	20.20	201.00	56.00	109.00	4071 4.500	●
21.00-21.49	25.000	20.70	204.00	56.00	111.60	4071 4.500	●
21.00-21.49	25.400	20.70	204.00	56.00	111.60	4071 4.500	●
21.50-21.99	25.000	21.20	207.00	56.00	114.10	4071 4.500	●
21.50-21.99	25.400	21.20	207.00	56.00	114.10	4071 4.500	●
22.00-22.49	25.000	21.70	210.00	56.00	116.70	4071 5.000	●
22.00-22.49	25.400	21.70	210.00	56.00	116.70	4071 5.000	●
22.50-22.99	25.000	22.20	214.00	56.00	119.30	4071 5.000	●
22.50-22.99	25.400	22.20	214.00	56.00	119.30	4071 5.000	●
23.00-23.49	25.000	22.70	217.00	56.00	121.90	4071 5.000	●
23.00-23.49	25.400	22.70	217.00	56.00	121.90	4071 5.000	●
23.50-23.99	25.000	23.20	221.00	56.00	124.50	4071 5.000	●
23.50-23.99	25.400	23.20	221.00	56.00	124.50	4071 5.000	●
24.00-24.49	25.000	23.70	224.00	56.00	127.10	4071 5.001	●
24.00-24.49	25.400	23.70	224.00	56.00	127.10	4071 5.001	●
24.50-24.99	25.000	24.20	227.00	56.00	129.70	4071 5.001	●
24.50-24.99	25.400	24.20	227.00	56.00	129.70	4071 5.001	●
25.00-25.49	25.000	24.70	231.00	56.00	132.30	4071 5.001	●
25.00-25.49	25.400	24.70	231.00	56.00	132.30	4071 5.001	●
25.50-25.99	31.750	25.20	239.00	60.00	134.90	4071 5.001	●
25.50-25.99	32.000	25.20	239.00	60.00	134.90	4071 5.001	●
26.00-26.49	31.750	25.70	244.00	60.00	137.00	4071 5.003	●
26.00-26.49	32.000	25.70	244.00	60.00	137.00	4071 5.003	●
26.50-26.99	31.750	26.20	247.00	60.00	140.00	4071 5.003	●
26.50-26.99	32.000	26.20	247.00	60.00	140.00	4071 5.003	●
27.00-27.49	31.750	26.70	251.00	60.00	142.20	4071 5.003	●
27.00-27.49	32.000	26.70	251.00	60.00	142.20	4071 5.003	●
27.50-27.99	31.750	27.20	254.00	60.00	144.80	4071 5.003	●
27.50-27.99	32.000	27.20	254.00	60.00	144.80	4071 5.003	●
28.00-28.49	31.750	27.70	257.00	60.00	147.40	4071 5.003	●
28.00-28.49	32.000	27.70	257.00	60.00	147.40	4071 5.003	●
28.50-28.99	31.750	28.20	260.00	60.00	150.40	4071 5.003	●
28.50-28.99	32.000	28.20	260.00	60.00	150.40	4071 5.003	●
29.00-29.49	31.750	28.70	264.00	60.00	153.50	4071 5.003	●
29.00-29.49	32.000	28.70	264.00	60.00	153.50	4071 5.003	●
29.50-29.99	31.750	29.20	267.00	60.00	155.10	4071 5.003	●
29.50-29.99	32.000	29.20	267.00	60.00	155.10	4071 5.003	●
30.00-30.49	31.750	29.70	271.00	60.00	157.60	4071 6.000	●
30.00-30.49	32.000	29.70	271.00	60.00	157.60	4071 6.000	●
30.50-30.99	31.750	30.20	274.00	60.00	160.20	4071 6.000	●
30.50-30.99	32.000	30.20	274.00	60.00	160.20	4071 6.000	●
31.00-31.49	31.750	30.70	277.00	60.00	162.80	4071 6.000	●
31.00-31.49	32.000	30.70	277.00	60.00	162.80	4071 6.000	●
31.50-31.99	31.750	31.20	280.00	60.00	165.40	4071 6.000	●
31.50-31.99	32.000	31.20	280.00	60.00	165.40	4071 6.000	●
32.00-32.99	31.750	31.70	287.00	60.00	170.60	4071 6.001	●
32.00-32.99	32.000	31.70	287.00	60.00	170.60	4071 6.001	●
33.00-33.99	31.750	32.70	294.00	60.00	175.80	4071 6.001	●
33.00-33.99	32.000	32.70	294.00	60.00	175.80	4071 6.001	●
34.00-34.99	31.750	33.70	300.00	60.00	181.00	4071 6.001	●
34.00-34.99	32.000	33.70	300.00	60.00	181.00	4071 6.001	●
35.00-35.99	31.750	34.70	307.00	60.00	186.20	4071 6.001	●
35.00-35.99	32.000	34.70	307.00	60.00	186.20	4071 6.001	●
36.00-36.99	31.750	35.70	314.00	60.00	191.30	4071 6.002	●
36.00-36.99	32.000	35.70	314.00	60.00	191.30	4071 6.002	●
37.00-37.99	31.750	36.70	321.00	60.00	196.50	4071 6.002	●
37.00-37.99	32.000	36.70	321.00	60.00	196.50	4071 6.002	●



Article no.							4108
Discount group							140
Cutting direction							(R)
d1	d2 h6	d3	L	l3	l5	F	Availability
mm	mm	mm	mm	mm	mm		
38.00-38.99	31.750	37.70	327.00	60.00	201.70	4071 6.002	●
38.00-38.99	32.000	37.70	327.00	60.00	201.70	4071 6.002	●
39.00-40.00	31.750	38.70	334.00	60.00	206.90	4071 6.002	●
39.00-40.00	32.000	38.70	334.00	60.00	206.90	4071 6.002	●



Tool holders for interchangeable inserts HT 800



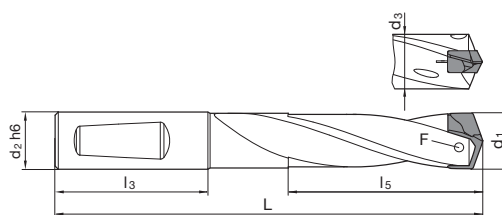
Surface

(Ni)

Shank form

HE

especially high wear resistance • optimised coolant duct exit • optimised flute design • nickel-plated • screwdriver art. no. 1612 included • clamping screws art. no. 4071 included



Article no.

4109

Discount group

140

Cutting direction

(R)

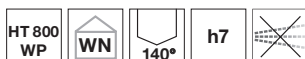
d1	d2 h6	d3	L	l3	l5	F	Availability
mm	mm	mm	mm	mm	mm		
11.00-11.49	12.000	10.70	147.00	45.00	82.60	4071 2.200	●
11.00-11.49	12.700	10.70	147.00	45.00	82.60	4071 2.200	●
11.50-11.99	12.000	11.20	151.00	45.00	86.10	4071 2.200	●
11.50-11.99	12.700	11.20	151.00	45.00	86.10	4071 2.200	●
12.00-12.49	12.000	11.70	156.00	45.00	89.70	4071 2.201	●
12.00-12.49	12.700	11.70	156.00	45.00	89.70	4071 2.201	●
12.50-12.99	14.000	12.20	160.00	45.00	93.30	4071 2.201	●
12.50-12.99	15.875	12.20	160.00	45.00	93.30	4071 2.201	●
13.00-13.49	14.000	12.70	164.00	45.00	96.90	4071 2.500	●
13.00-13.49	15.875	12.70	164.00	45.00	96.90	4071 2.500	●
13.50-13.99	14.000	13.20	169.00	45.00	100.60	4071 2.500	●
13.50-13.99	15.875	13.20	169.00	45.00	100.60	4071 2.500	●
14.00-14.49	14.000	13.70	173.00	45.00	104.20	4071 3.000	●
14.00-14.49	15.875	13.70	173.00	45.00	104.20	4071 3.000	●
14.50-14.99	15.875	14.20	180.00	48.00	107.80	4071 3.000	●
14.50-14.99	16.000	14.20	180.00	48.00	107.80	4071 3.000	●
15.00-15.49	15.875	14.70	185.00	48.00	111.30	4071 3.001	●
15.00-15.49	16.000	14.70	185.00	48.00	111.30	4071 3.001	●
15.50-15.99	15.875	15.20	189.00	48.00	114.90	4071 3.001	●
15.50-15.99	16.000	15.20	189.00	48.00	114.90	4071 3.001	●
16.00-16.49	15.875	15.70	193.00	48.00	118.90	4071 3.500	●
16.00-16.49	16.000	15.70	193.00	48.00	118.90	4071 3.500	●
16.50-16.99	18.000	16.20	198.00	48.00	122.10	4071 3.500	●
16.50-16.99	19.050	16.20	198.00	48.00	122.10	4071 3.500	●
17.00-17.49	18.000	16.70	202.00	48.00	125.80	4071 3.500	●
17.00-17.49	19.050	16.70	202.00	48.00	125.80	4071 3.500	●
17.50-17.99	18.000	17.20	206.00	48.00	129.40	4071 3.500	●
17.50-17.99	19.050	17.20	206.00	48.00	129.40	4071 3.500	●
18.00-18.49	18.000	17.70	211.00	48.00	132.90	4071 4.000	●
18.00-18.49	19.050	17.70	211.00	48.00	132.90	4071 4.000	●
18.50-18.99	19.050	18.20	217.00	50.00	136.50	4071 4.000	●
18.50-18.99	20.000	18.20	217.00	50.00	136.50	4071 4.000	●
19.00-19.49	19.050	18.70	221.00	50.00	140.10	4071 4.000	●
19.00-19.49	20.000	18.70	221.00	50.00	140.10	4071 4.000	●
19.50-19.99	19.050	19.20	226.00	50.00	143.70	4071 4.000	●
19.50-19.99	20.000	19.20	226.00	50.00	143.70	4071 4.000	●



Article no.							4109
Discount group							140
Cutting direction							(R)
d1	d2 h6	d3	L	I3	I5	F	Availability
mm	mm	mm	mm	mm	mm		
20.00-20.49	19.050	19.70	230.00	50.00	147.30	4071 4.500	●
20.00-20.49	20.000	19.70	230.00	50.00	147.30	4071 4.500	●
20.50-20.99	25.000	20.20	243.00	56.00	151.00	4071 4.500	●
20.50-20.99	25.400	20.20	243.00	56.00	151.00	4071 4.500	●
21.00-21.49	25.000	20.70	247.00	56.00	154.60	4071 4.500	●
21.00-21.49	25.400	20.70	247.00	56.00	154.60	4071 4.500	●
21.50-21.99	25.000	21.20	251.00	56.00	158.10	4071 4.500	●
21.50-21.99	25.400	21.20	251.00	56.00	158.10	4071 4.500	●
22.00-22.49	25.000	21.70	255.00	56.00	161.70	4071 5.000	●
22.00-22.49	25.400	21.70	255.00	56.00	161.70	4071 5.000	●
22.50-22.99	25.000	22.20	260.00	56.00	165.30	4071 5.000	●
22.50-22.99	25.400	22.20	260.00	56.00	165.30	4071 5.000	●
23.00-23.49	25.000	22.70	264.00	56.00	168.90	4071 5.000	●
23.00-23.49	25.400	22.70	264.00	56.00	168.90	4071 5.000	●
23.50-23.99	25.000	23.20	269.00	56.00	172.50	4071 5.000	●
23.50-23.99	25.400	23.20	269.00	56.00	172.50	4071 5.000	●
24.00-24.49	25.000	23.70	273.00	56.00	176.10	4071 5.001	●
24.00-24.49	25.400	23.70	273.00	56.00	176.10	4071 5.001	●
24.50-24.99	25.000	24.20	277.00	56.00	179.70	4071 5.001	●
24.50-24.99	25.400	24.20	277.00	56.00	179.70	4071 5.001	●
25.00-25.49	25.000	24.70	282.00	56.00	183.30	4071 5.001	●
25.00-25.49	25.400	24.70	282.00	56.00	183.30	4071 5.001	●
25.50-25.99	31.750	25.20	291.00	60.00	186.90	4071 5.001	●
25.50-25.99	32.000	25.20	291.00	60.00	186.90	4071 5.001	●
26.00-26.49	31.750	25.70	297.00	60.00	190.00	4071 5.003	●
26.00-26.49	32.000	25.70	297.00	60.00	190.00	4071 5.003	●
26.50-26.99	31.750	26.20	301.00	60.00	194.00	4071 5.003	●
26.50-26.99	32.000	26.20	301.00	60.00	194.00	4071 5.003	●
27.00-27.49	31.750	26.70	306.00	60.00	197.20	4071 5.003	●
27.00-27.49	32.000	26.70	306.00	60.00	197.20	4071 5.003	●
27.50-27.99	31.750	27.20	310.00	60.00	200.80	4071 5.003	●
27.50-27.99	32.000	27.20	310.00	60.00	200.80	4071 5.003	●
28.00-28.49	31.750	27.70	314.00	60.00	204.40	4071 5.003	●
28.00-28.49	32.000	27.70	314.00	60.00	204.40	4071 5.003	●
28.50-28.99	31.750	28.20	318.00	60.00	208.40	4071 5.003	●
28.50-28.99	32.000	28.20	318.00	60.00	208.40	4071 5.003	●
29.00-29.49	31.750	28.70	323.00	60.00	212.50	4071 5.003	●
29.00-29.49	32.000	28.70	323.00	60.00	212.50	4071 5.003	●
29.50-29.99	31.750	29.20	327.00	60.00	215.10	4071 5.003	●
29.50-29.99	32.000	29.20	327.00	60.00	215.10	4071 5.003	●
30.00-30.49	31.750	29.70	332.00	60.00	218.60	4071 6.000	●
30.00-30.49	32.000	29.70	332.00	60.00	218.60	4071 6.000	●
30.50-30.99	31.750	30.20	336.00	60.00	222.20	4071 6.000	●
30.50-30.99	32.000	30.20	336.00	60.00	222.20	4071 6.000	●
31.00-31.49	31.750	30.70	340.00	60.00	225.80	4071 6.000	●
31.00-31.49	32.000	30.70	340.00	60.00	225.80	4071 6.000	●
31.50-31.99	31.750	31.20	344.00	60.00	229.40	4071 6.000	●
31.50-31.99	32.000	31.20	344.00	60.00	229.40	4071 6.000	●
33.00-33.99	32.000	32.70	362.00	60.00	244.60	4071 6.001	●
36.00-36.99	32.000	35.70	387.00	60.00	265.80	4071 6.002	●
39.00-40.00	32.000	38.70	413.00	60.00	287.40	4071 6.002	●



Interchangeable inserts HT 800



P	•	web thinning $\geq \varnothing 11.000$ • facet point grind • main cutting edge form straight (after correction) • clamping screws art. no. 4071 included
M	○	
K	○	
N		free-cutting steels, heat-treatable steels • structural and case hardened steels • alloyed steels up to 1200 N/mm ²
S		
H		

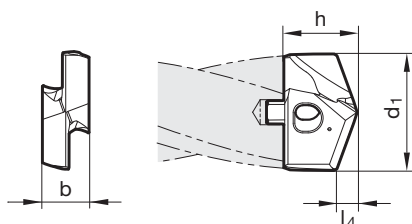
Tool material **Solid carbide**Surface **F**

Type HT 800 WP



GÜHRING NAVIGATOR

Cutting data page 144

Article no. **4112**Discount group **141**

Cutting direction



d1		l4	b	h	Availability
mm	inch	mm	mm	mm	
11.00		2.10	4.50	7.50	•
11.20		2.10	4.50	7.50	•
11.50		2.10	4.50	7.50	•
11.51	29/64	2.10	4.50	7.50	•
11.70		2.20	4.50	7.50	•
11.80		2.20	4.50	7.50	•
11.91	15/32	2.20	4.50	7.50	•
12.00		2.20	5.00	7.70	•
12.10		2.30	5.00	7.70	•
12.20		2.30	5.00	7.70	•
12.30	31/64	2.30	5.00	7.70	•
12.50		2.30	5.00	7.70	•
12.60		2.30	5.00	7.70	•
12.70	1/2	2.40	5.00	7.70	•
12.80		2.40	5.00	7.70	•
12.90		2.40	5.00	7.70	•
13.00		2.40	5.50	8.50	•
13.10	33/64	2.40	5.50	8.50	•
13.30		2.50	5.50	8.50	•
13.49	17/32	2.50	5.50	8.50	•
13.50		2.50	5.50	8.50	•
13.60		2.50	5.50	8.50	•
13.70		2.50	5.50	8.50	•
13.80		2.60	5.50	8.50	•
13.89	35/64	2.60	5.50	8.50	•
14.00		2.60	6.00	9.60	•
14.10		2.60	6.00	9.60	•
14.29	9/16	2.70	6.00	9.60	•
14.40		2.70	6.00	9.60	•
14.50		2.70	6.00	9.60	•
14.60		2.70	6.00	9.60	•
14.68	37/64	2.70	6.00	9.60	•
14.70		2.70	6.00	9.60	•
14.80		2.70	6.00	9.60	•
15.00		2.80	6.00	9.80	•
15.08	19/32	2.80	6.00	9.80	•



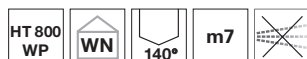
Article no.					4112
Discount group					141
Cutting direction					
d1		l4	b	h	Availability
mm	inch	mm	mm	mm	
15.10		2.80	6.00	9.80	●
15.20		2.80	6.00	9.80	●
15.30		2.80	6.00	9.80	●
15.48	39/64	2.90	6.00	9.80	●
15.50		2.90	6.00	9.80	●
15.60		2.90	6.00	9.80	●
15.70		2.90	6.00	9.80	●
15.80		2.90	6.00	9.80	●
15.87	5/8	2.90	6.00	9.80	●
16.00		3.00	7.00	11.00	●
16.27	41/64	3.00	7.00	11.00	●
16.50		3.10	7.00	11.00	●
16.67	21/32	3.10	7.00	11.00	●
17.00		3.10	7.00	11.00	●
17.07	43/64	3.20	7.00	11.00	●
17.25		3.20	7.00	11.00	●
17.30		3.20	7.00	11.00	●
17.46	11/16	3.20	7.00	11.00	●
17.50		3.20	7.00	11.00	●
17.60		3.30	7.00	11.00	●
17.86	45/64	3.30	7.00	11.00	●
18.00		3.30	8.00	12.60	●
18.26	23/32	3.40	8.00	12.60	●
18.50		3.40	8.00	12.60	●
18.65	47/64	3.40	8.00	12.60	●
18.90		3.50	8.00	12.60	●
19.00		3.50	8.00	12.60	●
19.05	3/4	3.50	8.00	12.60	●
19.25		3.60	8.00	12.60	●
19.30		3.60	8.00	12.60	●
19.45	49/64	3.60	8.00	12.60	●
19.50		3.60	8.00	12.60	●
19.60		3.60	8.00	12.60	●
19.84	25/32	3.70	8.00	12.60	●
20.00		3.70	9.00	13.90	●
20.24	51/64	3.70	9.00	13.90	●
20.50		3.80	9.00	13.90	●
20.64	13/16	3.80	9.00	13.90	●
20.90		3.90	9.00	13.90	●
21.00		3.90	9.00	13.90	●
21.03	53/64	3.90	9.00	13.90	●
21.10		3.90	9.00	13.90	●
21.43	27/32	3.90	9.00	13.90	●
21.50		4.00	9.00	13.90	●
21.70		4.00	9.00	13.90	●
21.83	55/64	4.00	9.00	13.90	●
22.00		4.10	10.00	15.30	●
22.22	7/8	4.10	10.00	15.30	●
22.50		4.10	10.00	15.30	●
22.62	57/64	4.20	10.00	15.30	●
22.70		4.20	10.00	15.30	●
23.00		4.20	10.00	15.30	●
23.02	29/32	4.20	10.00	15.30	●
23.42	59/64	4.30	10.00	15.30	●
23.50		4.30	10.00	15.30	●
23.70		4.40	10.00	15.30	●
23.81	15/16	4.40	10.00	15.30	●
24.00		4.40	11.00	15.80	●
24.10		4.40	11.00	15.80	●
24.21	61/64	4.50	11.00	15.80	●



Article no.					4112
Discount group					141
Cutting direction					
d1		l4	b	h	Availability
mm	inch	mm	mm	mm	
24.50		4.50	11.00	15.80	●
24.61	31/32	4.50	11.00	15.80	●
25.00	63/64	4.60	11.00	15.80	●
25.25		4.60	11.00	15.80	●
25.40	1	4.70	11.00	15.80	●
25.50		4.70	11.00	15.80	●
25.65		4.70	11.00	15.80	●
25.67		4.70	11.00	15.80	●
25.70		4.70	11.00	15.80	●
25.81		4.70	11.00	15.80	●
26.00		4.80	12.00	20.00	●
26.19	1 1/32	4.80	12.00	20.00	●
26.50		4.90	12.00	20.00	●
26.59	1 3/64	4.90	12.00	20.00	●
27.00		5.00	12.00	20.00	●
27.50		5.10	12.00	20.00	●
27.70		5.10	12.00	20.00	●
27.78	1 3/32	5.10	12.00	20.00	●
28.00		5.10	13.00	20.70	●
28.18	1 7/64	5.20	13.00	20.70	●
28.50		5.20	13.00	20.70	●
28.58		5.30	13.00	20.70	●
29.00		5.30	13.00	20.70	●
29.37	1 5/32	5.40	13.00	20.70	●
29.50		5.40	13.00	20.70	●
29.60		5.40	13.00	20.70	●
29.77	1 11/64	5.50	13.00	20.70	●
30.00		5.50	14.00	22.30	●
30.16	1 3/16	5.50	14.00	22.30	●
30.50		5.60	14.00	22.30	●
30.96	1 7/32	5.70	14.00	22.30	●
31.00		5.70	14.00	22.30	●
31.50		5.80	14.00	22.30	●
31.75	1 1/4	5.80	14.00	22.30	●
32.00		5.90	15.00	23.10	●
32.50		6.00	15.00	23.10	●
32.54	1 9/32	6.00	15.00	23.10	●
32.94	1 19/64	6.00	15.00	23.10	●
33.00		6.10	15.00	23.10	●
33.34	1 5/16	6.10	15.00	23.10	●
33.50		6.10	15.00	23.10	●
34.00		6.20	15.00	23.10	●
34.13	1 11/32	6.30	15.00	23.10	●
34.50		6.30	15.00	23.10	●
34.93		6.40	15.00	23.10	●
35.00		6.40	15.00	23.10	●
35.50		6.50	15.00	23.10	●
35.72	1 13/32	6.60	15.00	23.10	●
36.00		6.60	16.00	23.90	●
36.50		6.70	16.00	23.90	●
36.51	1 7/16	6.70	16.00	23.90	●
37.00		6.80	16.00	23.90	●
37.31	1 15/32	6.80	16.00	23.90	●
37.50		6.90	16.00	23.90	●
38.00		7.00	16.00	23.90	●
38.10	1 1/2	7.00	16.00	23.90	●
38.50	1 33/64	7.10	16.00	23.90	●
39.00		7.10	16.00	23.90	●
39.50		7.20	16.00	23.90	●
40.00		7.30	16.00	23.90	●



Interchangeable inserts HT 800

Tool material **Solid carbide**Surface **Y**Type **HT 800 WP**

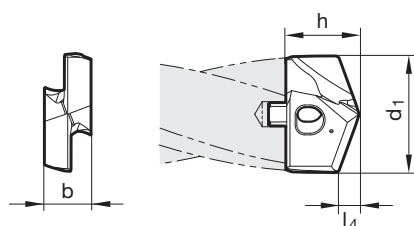
P ○ web thinning $\geq \varnothing 11.000$ • facet point grind • main cutting edge form straight (after correction) • clamping screws art. no. 4071 included

M **K** •
N vermicular cast iron GGK • grey cast iron, malleable and spheroidal iron
S
H



GUHRING NAVIGATOR

Cutting data page 144

Article no. **4113**Discount group **141**

Cutting direction



d1		l4	b	h	Availability
mm	inch	mm	mm	mm	
11.00		2.60	4.50	7.50	●
11.20		2.60	4.50	7.50	●
11.50		2.70	4.50	7.50	●
11.51	29/64	2.70	4.50	7.50	●
11.70		2.70	4.50	7.50	●
11.80		2.70	4.50	7.50	●
11.91	15/32	2.70	4.50	7.50	●
12.00		2.90	5.00	7.70	●
12.10		2.90	5.00	7.70	●
12.20		2.90	5.00	7.70	●
12.30	31/64	2.90	5.00	7.70	●
12.50		3.00	5.00	7.70	●
12.60		3.00	5.00	7.70	●
12.70	1/2	3.00	5.00	7.70	●
12.80		3.00	5.00	7.70	●
12.90		3.00	5.00	7.70	●
13.00		3.10	5.50	8.50	●
13.10	33/64	3.10	5.50	8.50	●
13.30		3.10	5.50	8.50	●
13.49	17/32	3.10	5.50	8.50	●
13.50		3.30	5.50	8.50	●
13.60		3.30	5.50	8.50	●
13.70		3.30	5.50	8.50	●
13.80		3.30	5.50	8.50	●
13.89	35/64	3.30	5.50	8.50	●
14.00		3.40	6.00	9.60	●
14.10		3.40	6.00	9.60	●
14.29	9/16	3.40	6.00	9.60	●
14.40		3.40	6.00	9.60	●
14.50		3.50	6.00	9.60	●
14.60		3.50	6.00	9.60	●
14.68	37/64	3.50	6.00	9.60	●
14.70		3.50	6.00	9.60	●
14.80		3.50	6.00	9.60	●
15.00		3.60	6.00	9.80	●
15.08	19/32	3.60	6.00	9.80	●



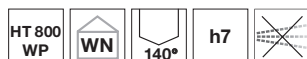
Article no.					4113
Discount group					141
Cutting direction					
d1		l4	b	h	Availability
mm	inch	mm	mm	mm	
15.10		3.60	6.00	9.80	●
15.20		3.60	6.00	9.80	●
15.30		3.60	6.00	9.80	●
15.48	39/64	3.60	6.00	9.80	●
15.50		3.80	6.00	9.80	●
15.60		3.80	6.00	9.80	●
15.70		3.80	6.00	9.80	●
15.80		3.80	6.00	9.80	●
15.87	5/8	3.80	6.00	9.80	●
16.00		3.80	7.00	11.00	●
16.27	41/64	3.80	7.00	11.00	●
16.50		4.00	7.00	11.00	●
16.67	21/32	4.00	7.00	11.00	●
17.00		4.10	7.00	11.00	●
17.07	43/64	4.10	7.00	11.00	●
17.30		4.10	7.00	11.00	●
17.46	11/16	4.10	7.00	11.00	●
17.50		4.20	7.00	11.00	●
17.60		4.20	7.00	11.00	●
17.86	45/64	4.20	7.00	11.00	●
18.00		4.30	8.00	12.60	●
18.26	23/32	4.30	8.00	12.60	●
18.50		4.40	8.00	12.60	●
18.65	47/64	4.40	8.00	12.60	●
18.90		4.40	8.00	12.60	●
19.00		4.60	8.00	12.60	●
19.05	3/4	4.60	8.00	12.60	●
19.25		4.60	8.00	12.60	●
19.30		4.60	8.00	12.60	●
19.45	49/64	4.60	8.00	12.60	●
19.50		4.70	8.00	12.60	●
19.60		4.70	8.00	12.60	●
19.84	25/32	4.70	8.00	12.60	●
20.00		4.80	9.00	13.90	●
20.24	51/64	4.80	9.00	13.90	●
20.50		5.00	9.00	13.90	●
20.64	13/16	5.00	9.00	13.90	●
20.90		5.00	9.00	13.90	●
21.00		5.10	9.00	13.90	●
21.03	53/64	5.10	9.00	13.90	●
21.10		5.10	9.00	13.90	●
21.43	27/32	5.10	9.00	13.90	●
21.50		5.20	9.00	13.90	●
21.70		5.20	9.00	13.90	●
21.83	55/64	5.20	9.00	13.90	●
22.00		5.30	10.00	15.30	●
22.22	7/8	5.30	10.00	15.30	●
22.50		5.40	10.00	15.30	●
22.62	57/64	5.40	10.00	15.30	●
22.70		5.40	10.00	15.30	●
23.00		5.60	10.00	15.30	●
23.02	29/32	5.60	10.00	15.30	●
23.42	59/64	5.60	10.00	15.30	●
23.50		5.70	10.00	15.30	●
23.70		5.70	10.00	15.30	●
23.81	15/16	5.70	10.00	15.30	●
24.00		5.80	11.00	15.80	●
24.10		5.80	11.00	15.80	●
24.21	61/64	5.80	11.00	15.80	●
24.50		6.00	11.00	15.80	●



Article no.					4113
Discount group					141
Cutting direction					
d1		l4	b	h	Availability
mm	inch	mm	mm	mm	
24.61	31/32	6.00	11.00	15.80	●
25.00	63/64	6.10	11.00	15.80	●
25.40	1	6.10	11.00	15.80	●
25.50		6.20	11.00	15.80	●
25.67		6.20	11.00	15.80	●
25.70		6.20	11.00	15.80	●
25.81		6.20	11.00	15.80	●
26.00		6.00	12.00	20.00	●
26.19	1 1/32	6.00	12.00	20.00	●
26.50		6.10	12.00	20.00	●
26.59	1 3/64	6.10	12.00	20.00	●
27.00		6.30	12.00	20.00	●
27.50		6.40	12.00	20.00	●
27.70		6.40	12.00	20.00	●
27.78	1 3/32	6.40	12.00	20.00	●
28.00		6.60	13.00	20.70	●
28.18	1 7/64	6.60	13.00	20.70	●
28.50		6.70	13.00	20.70	●
28.58		6.70	13.00	20.70	●
29.00		6.90	13.00	20.70	●
29.37	1 5/32	6.90	13.00	20.70	●
29.50		7.00	13.00	20.70	●
29.77	1 11/64	7.00	13.00	20.70	●
30.00		6.90	14.00	22.30	●
30.16	1 3/16	6.90	14.00	22.30	●
30.50		7.00	14.00	22.30	●
30.96	1 7/32	7.00	14.00	22.30	●
31.00		7.20	14.00	22.30	●
31.50		7.30	14.00	22.30	●
31.75	1 1/4	7.30	14.00	22.30	●
32.00		7.50	15.00	23.10	●
32.50		7.60	15.00	23.10	●
32.54	1 9/32	7.60	15.00	23.10	●
32.94	1 19/64	7.60	15.00	23.10	●
33.00		7.80	15.00	23.10	●
33.34	1 5/16	7.80	15.00	23.10	●
33.50		7.90	15.00	23.10	●
34.00		8.10	15.00	23.10	●
34.13	1 11/32	8.10	15.00	23.10	●
34.50		8.20	15.00	23.10	●
34.93		8.20	15.00	23.10	●
35.00		8.30	15.00	23.10	●
35.50		8.40	15.00	23.10	●
35.72	1 13/32	8.40	15.00	23.10	●
36.00		8.50	16.00	23.90	●
36.50		8.60	16.00	23.90	●
36.51	1 7/16	8.60	16.00	23.90	●
37.00		8.80	16.00	23.90	●
37.31	1 15/32	8.80	16.00	23.90	●
37.50		8.90	16.00	23.90	●
38.00		9.00	16.00	23.90	●
38.10	1 1/2	9.00	16.00	23.90	●
38.50	1 33/64	9.10	16.00	23.90	●
39.00		9.30	16.00	23.90	●
39.50		9.40	16.00	23.90	●
40.00		9.40	16.00	23.90	●



Interchangeable inserts HT 800



P ○ web thinning $\geq \varnothing 11.000$ • relieved cone • main cutting edge form straight (after correction) • clamping screws art. no. 4071 included

M ●

K

N stainless steels

S ○

H ○

Tool material

Solid carbide

Surface

a

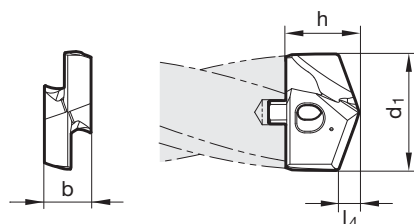
Type

HT 800 WP



GUHRING NAVIGATOR

Cutting data page 144



Article no.

4115

Discount group

141

Cutting direction



d1		l4	b	h	Availability
mm	inch	mm	mm	mm	
11.00		2.10	4.50	7.50	●
11.20		2.10	4.50	7.50	●
11.50		2.10	4.50	7.50	●
11.51	29/64	2.10	4.50	7.50	●
11.70		2.20	4.50	7.50	●
11.80		2.20	4.50	7.50	●
11.91	15/32	2.20	4.50	7.50	●
12.00		2.20	5.00	7.70	●
12.10		2.30	5.00	7.70	●
12.20		2.30	5.00	7.70	●
12.30	31/64	2.30	5.00	7.70	●
12.50		2.30	5.00	7.70	●
12.60		2.30	5.00	7.70	●
12.70	1/2	2.40	5.00	7.70	●
12.80		2.40	5.00	7.70	●
12.90		2.40	5.00	7.70	●
13.00		2.40	5.50	8.50	●
13.10	33/64	2.40	5.50	8.50	●
13.49	17/32	2.50	5.50	8.50	●
13.50		2.50	5.50	8.50	●
13.60		2.50	5.50	8.50	●
13.70		2.50	5.50	8.50	●
13.80		2.60	5.50	8.50	●
13.89	35/64	2.60	5.50	8.50	●
14.00		2.60	6.00	9.60	●
14.10		2.60	6.00	9.60	●
14.29	9/16	2.70	6.00	9.60	●
14.40		2.70	6.00	9.60	●
14.50		2.70	6.00	9.60	●
14.60		2.70	6.00	9.60	●
14.68	37/64	2.70	6.00	9.60	●
14.70		2.70	6.00	9.60	●
14.80		2.70	6.00	9.60	●
15.00		2.80	6.00	9.80	●
15.08	19/32	2.80	6.00	9.80	●
15.10		2.80	6.00	9.80	●

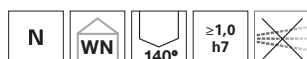
Article no.					4115
Discount group					141
Cutting direction					
d1		l4	b	h	Availability
mm	inch	mm	mm	mm	
15.20		2.80	6.00	9.80	●
15.30		2.80	6.00	9.80	●
15.48	39/64	2.90	6.00	9.80	●
15.50		2.90	6.00	9.80	●
15.60		2.90	6.00	9.80	●
15.70		2.90	6.00	9.80	●
15.80		2.90	6.00	9.80	●
15.87	5/8	2.90	6.00	9.80	●
16.00		3.00	7.00	11.00	●
16.27	41/64	3.00	7.00	11.00	●
16.50		3.10	7.00	11.00	●
16.67	21/32	3.10	7.00	11.00	●
17.00		3.10	7.00	11.00	●
17.07	43/64	3.20	7.00	11.00	●
17.25		3.20	7.00	11.00	●
17.46	11/16	3.20	7.00	11.00	●
17.50		3.20	7.00	11.00	●
17.60		3.30	7.00	11.00	●
17.86	45/64	3.30	7.00	11.00	●
18.00		3.30	8.00	12.60	●
18.26	23/32	3.40	8.00	12.60	●
18.50		3.40	8.00	12.60	●
18.65	47/64	3.40	8.00	12.60	●
19.00		3.50	8.00	12.60	●
19.05	3/4	3.50	8.00	12.60	●
19.25		3.60	8.00	12.60	●
19.45	49/64	3.60	8.00	12.60	●
19.50		3.60	8.00	12.60	●
19.60		3.60	8.00	12.60	●
19.84	25/32	3.70	8.00	12.60	●
20.00		3.70	9.00	13.90	●
20.24	51/64	3.70	9.00	13.90	●
20.50		3.80	9.00	13.90	●
20.64	13/16	3.80	9.00	13.90	●
21.00		3.90	9.00	13.90	●
21.03	53/64	3.90	9.00	13.90	●
21.10		3.90	9.00	13.90	●
21.43	27/32	3.90	9.00	13.90	●
21.50		4.00	9.00	13.90	●
21.83	55/64	4.00	9.00	13.90	●
22.00		4.10	10.00	15.30	●
22.22	7/8	4.10	10.00	15.30	●
22.50		4.10	10.00	15.30	●
22.62	57/64	4.20	10.00	15.30	●
23.00		4.20	10.00	15.30	●
23.02	29/32	4.20	10.00	15.30	●
23.42	59/64	4.30	10.00	15.30	●
23.50		4.30	10.00	15.30	●
23.81	15/16	4.40	10.00	15.30	●
24.00		4.40	11.00	15.80	●
24.10		4.40	11.00	15.80	●
24.21	61/64	4.50	11.00	15.80	●
24.50		4.50	11.00	15.80	●
24.61	31/32	4.50	11.00	15.80	●
25.00	63/64	4.60	11.00	15.80	●
25.25		4.60	11.00	15.80	●
25.40	1	4.70	11.00	15.80	●
25.50		4.70	11.00	15.80	●
25.65		4.70	11.00	15.80	●
25.70		4.70	11.00	15.80	●



Article no.					4115
Discount group					141
Cutting direction					
d1		l4	b	h	Availability
mm	inch	mm	mm	mm	
26.00		4.80	12.00	20.00	●
26.19	1 1/32	4.80	12.00	20.00	●
26.50		4.90	12.00	20.00	●
26.59	1 3/64	4.90	12.00	20.00	●
27.00		5.00	12.00	20.00	●
27.50		5.10	12.00	20.00	●
27.70		5.10	12.00	20.00	●
27.78	1 3/32	5.10	12.00	20.00	●
28.00		5.10	13.00	20.70	●
28.18	1 7/64	5.20	13.00	20.70	●
28.50		5.20	13.00	20.70	●
28.58		5.30	13.00	20.70	●
29.00		5.30	13.00	20.70	●
29.37	1 5/32	5.40	13.00	20.70	●
29.50		5.40	13.00	20.70	●
29.60		5.40	13.00	20.70	●
29.77	1 11/64	5.50	13.00	20.70	●
30.00		5.50	14.00	22.30	●
30.16	1 3/16	5.50	14.00	22.30	●
30.50		5.60	14.00	22.30	●
30.96	1 7/32	5.70	14.00	22.30	●
31.00		5.70	14.00	22.30	●
31.50		5.80	14.00	22.30	●
31.75	1 1/4	5.80	14.00	22.30	●
32.00		5.90	15.00	23.10	●
32.50		6.00	15.00	23.10	●
32.54	1 9/32	6.00	15.00	23.10	●
32.94	1 19/64	6.00	15.00	23.10	●
33.00		6.10	15.00	23.10	●
33.34	1 5/16	6.10	15.00	23.10	●
33.50		6.10	15.00	23.10	●
34.00		6.20	15.00	23.10	●
34.13	1 11/32	6.30	15.00	23.10	●
34.50		6.30	15.00	23.10	●
34.93		6.40	15.00	23.10	●
35.00		6.40	15.00	23.10	●
35.50		6.50	15.00	23.10	●
35.72	1 13/32	6.60	15.00	23.10	●
36.00		6.60	16.00	23.90	●
36.50		6.70	16.00	23.90	●
36.51	1 7/16	6.70	16.00	23.90	●
37.00		6.80	16.00	23.90	●
37.31	1 15/32	6.80	16.00	23.90	●
37.50		6.90	16.00	23.90	●
38.00		7.00	16.00	23.90	●
38.10	1 1/2	7.00	16.00	23.90	●
38.50	1 33/64	7.10	16.00	23.90	●
39.00		7.10	16.00	23.90	●
39.50		7.20	16.00	23.90	●
40.00		7.30	16.00	23.90	●



Solid carbide micro-precision drills without coolant ducts

Tool material **Solid carbide**Surface **A**

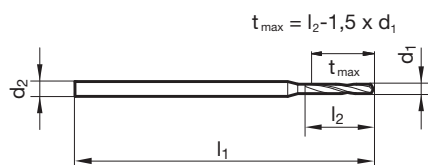
Shank form cyl.

SL

Drilling tools

P • web thinning $\geq \varnothing 0.800$ • facet point grind**M** ○**K** •**N** ○**S** ○**H** ○structural and case hardened steels • free-cutting steels,
heat-treatable steels • alloyed steels up to 1200 N/mm²
• cast materials**GUHRING**NAVIGATOR

Cutting data page 146

Article no. **5652**Discount group **155**

Cutting direction



d1	d2 h6	l1	l2	Availability
mm	mm	mm	mm	
0.100	3.000	38.000	1.200	•
0.200	3.000	38.000	2.500	•
0.300	3.000	38.000	5.000	•
0.400	3.000	38.000	7.000	•
0.500	3.000	38.000	7.000	•
0.600	3.000	38.000	7.000	•
0.700	3.000	38.000	8.000	•
0.800	3.000	38.000	10.000	•
0.900	3.000	38.000	10.000	•
1.000	3.000	38.000	10.000	•
1.100	3.000	38.000	10.000	•
1.200	3.000	38.000	10.000	•
1.300	3.000	38.000	10.000	•
1.400	3.000	38.000	10.000	•
1.500	3.000	38.000	10.000	•
1.600	3.000	38.000	12.000	•
1.700	3.000	38.000	12.000	•
1.800	3.000	38.000	12.000	•
1.900	3.000	38.000	12.000	•
2.000	3.000	38.000	12.000	•
2.100	3.000	38.000	12.000	•
2.200	3.000	38.000	12.000	•
2.400	3.000	38.000	12.000	•
2.500	3.000	38.000	12.000	•
2.600	3.000	38.000	12.000	•
2.800	3.000	38.000	12.000	•
3.000	3.000	38.000	12.000	•



ExclusiveLine micro-precision drills without coolant ducts



Tool material

Solid carbide

Surface



Shank form

cyl.



P • web thinning $\geq \varnothing 0.500$ • facet point grind • main cutting edge form straight • edge preparation

M •**K** •

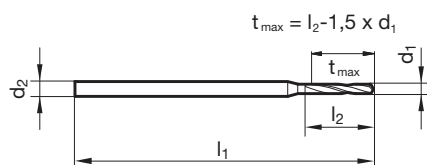
N ○ structural and case hardened steels • free-cutting steels, heat-treatable steels • alloyed steels up to 1200 N/mm²

S ○**H**

• stainless steels • cast materials

GUHRING NAVIGATOR

Cutting data page 146



$$t_{\max} = l_2 - 1,5 \times d_1$$



Article no.

6400

Discount group

164

Cutting direction



d1	d2	l1	l2	Availability
mm	mm	mm	mm	
0.500	3.000	47.000	3.000	•
0.550	3.000	47.000	3.300	•
0.600	3.000	47.000	3.600	•
0.650	3.000	47.000	3.900	•
0.700	3.000	47.000	4.200	•
0.750	3.000	47.000	4.500	•
0.800	3.000	47.000	4.800	•
0.850	3.000	47.000	5.100	•
0.900	3.000	47.000	5.400	•
0.950	3.000	47.000	5.700	•
1.000	3.000	47.000	6.000	•
1.050	3.000	47.000	6.300	•
1.100	3.000	47.000	6.600	•
1.150	3.000	47.000	6.900	•
1.200	3.000	47.000	7.200	•
1.250	3.000	47.000	7.500	•
1.300	3.000	47.000	7.800	•
1.350	3.000	47.000	8.100	•
1.400	3.000	47.000	8.400	•
1.450	3.000	47.000	8.700	•
1.500	3.000	47.000	9.000	•
1.550	3.000	47.000	9.300	•
1.590	3.000	47.000	9.600	•
1.600	3.000	47.000	9.600	•
1.650	3.000	47.000	9.900	•
1.700	3.000	47.000	10.200	•
1.750	3.000	47.000	10.500	•
1.800	3.000	52.000	10.800	•
1.850	3.000	52.000	11.100	•
1.900	3.000	52.000	11.400	•
1.950	3.000	52.000	11.700	•
1.980	4.000	59.000	12.000	•
2.000	4.000	59.000	12.000	•
2.050	4.000	59.000	12.300	•
2.100	4.000	59.000	12.600	•
2.150	4.000	59.000	12.900	•



Article no.				6400
Discount group				164
Cutting direction				
d1	d2	l1	l2	Availability
mm	mm	mm	mm	
2.200	4.000	59.000	13.200	●
2.250	4.000	59.000	13.500	●
2.300	4.000	59.000	13.800	●
2.350	4.000	59.000	14.100	●
2.380	4.000	59.000	14.400	●
2.400	4.000	59.000	14.400	●
2.450	4.000	59.000	14.700	●
2.500	4.000	59.000	15.000	●
2.550	4.000	59.000	15.300	●
2.600	4.000	59.000	15.600	●
2.650	4.000	59.000	15.900	●
2.700	4.000	59.000	16.200	●
2.750	4.000	59.000	16.500	●
2.780	4.000	59.000	16.800	●
2.800	4.000	59.000	16.800	●
2.850	4.000	59.000	17.100	●
2.900	4.000	59.000	17.400	●
2.950	4.000	59.000	17.700	●
3.000	4.000	59.000	18.000	●



ExclusiveLine micro-precision drills without coolant ducts



Tool material

Solid carbide

Surface



Shank form

cyl.



P • web thinning $\geq \varnothing 0.500$ • facet point grind • main cutting edge form straight • edge preparation

M •**K** •

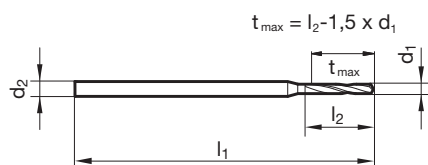
N ○ structural and case hardened steels • free-cutting steels, heat-treatable steels • alloyed steels up to 1200 N/mm²

S ○**H**

• stainless steels • cast materials

GÜHRING NAVIGATOR

Cutting data page 146



Article no.

6401

Discount group

164

Cutting direction



d1	d2	l1	l2	Availability
mm	mm	mm	mm	
0.500	3.000	47.000	4.000	•
0.550	3.000	47.000	4.400	•
0.600	3.000	47.000	4.800	•
0.650	3.000	47.000	5.200	•
0.700	3.000	47.000	5.600	•
0.750	3.000	47.000	6.000	•
0.800	3.000	47.000	6.400	•
0.850	3.000	47.000	6.800	•
0.900	3.000	47.000	7.200	•
0.950	3.000	47.000	7.600	•
1.000	3.000	47.000	8.000	•
1.050	3.000	47.000	8.400	•
1.100	3.000	47.000	8.800	•
1.150	3.000	47.000	9.200	•
1.200	3.000	52.000	10.800	•
1.250	3.000	52.000	11.300	•
1.300	3.000	52.000	11.700	•
1.350	3.000	52.000	12.200	•
1.400	3.000	52.000	12.600	•
1.450	3.000	52.000	13.100	•
1.500	3.000	52.000	13.500	•
1.550	3.000	52.000	14.000	•
1.590	3.000	52.000	14.400	•
1.600	3.000	52.000	14.400	•
1.650	3.000	52.000	14.900	•
1.700	3.000	52.000	15.300	•
1.750	3.000	52.000	15.800	•
1.800	3.000	52.000	16.200	•
1.850	3.000	52.000	16.700	•
1.900	3.000	52.000	17.100	•
1.950	3.000	52.000	17.600	•
1.980	4.000	63.000	18.000	•
2.000	4.000	63.000	18.000	•
2.050	4.000	63.000	18.500	•
2.100	4.000	63.000	18.900	•
2.150	4.000	63.000	19.400	•



Article no.				6401
Discount group				164
Cutting direction				
d1	d2	l1	l2	Availability
mm	mm	mm	mm	
2.200	4.000	63.000	19.800	●
2.250	4.000	63.000	20.300	●
2.300	4.000	63.000	20.700	●
2.350	4.000	63.000	21.200	●
2.380	4.000	63.000	21.600	●
2.400	4.000	63.000	21.600	●
2.450	4.000	63.000	22.100	●
2.500	4.000	63.000	22.500	●
2.550	4.000	63.000	23.000	●
2.600	4.000	67.000	23.400	●
2.650	4.000	67.000	23.900	●
2.700	4.000	67.000	24.300	●
2.750	4.000	67.000	24.800	●
2.780	4.000	67.000	25.200	●
2.800	4.000	67.000	25.200	●
2.850	4.000	67.000	25.700	●
2.900	4.000	67.000	26.100	●
2.950	4.000	67.000	26.600	●
3.000	4.000	67.000	27.000	●



ExclusiveLine micro-precision drills with coolant ducts



Tool material

Solid carbide

Surface



Shank form

cyl.



P • web thinning $\geq \varnothing 1.400$ • facet point grind • main cutting edge form straight • edge preparation

M •**K** •

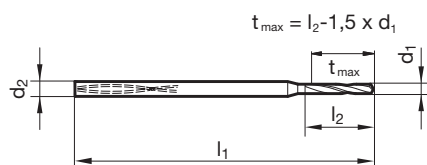
N ○ structural and case hardened steels • free-cutting steels, heat-treatable steels • alloyed steels up to 1200 N/mm²

S ○**H** ○

• stainless steels • cast materials

GUHRING NAVIGATOR

Cutting data page 146



Article no.

6405

Discount group

164

Cutting direction



d1	d2	l1	l2	Availability
mm	mm	mm	mm	
1.400	4.000	52.000	11.000	•
1.450	4.000	52.000	12.000	•
1.500	4.000	52.000	12.000	•
1.550	4.000	52.000	12.000	•
1.590	4.000	52.000	13.000	•
1.600	4.000	52.000	13.000	•
1.650	4.000	52.000	13.000	•
1.700	4.000	56.000	14.000	•
1.750	4.000	56.000	14.000	•
1.800	4.000	56.000	14.000	•
1.850	4.000	56.000	15.000	•
1.900	4.000	56.000	15.000	•
1.950	4.000	56.000	16.000	•
1.980	4.000	56.000	16.000	•
2.000	4.000	56.000	16.000	•
2.050	4.000	56.000	16.000	•
2.100	4.000	62.000	17.000	•
2.150	4.000	62.000	17.000	•
2.200	4.000	62.000	18.000	•
2.250	4.000	62.000	18.000	•
2.300	4.000	62.000	18.000	•
2.350	4.000	62.000	19.000	•
2.380	4.000	62.000	19.000	•
2.400	4.000	62.000	19.000	•
2.450	4.000	62.000	20.000	•
2.500	4.000	62.000	20.000	•
2.550	4.000	62.000	20.000	•
2.600	4.000	66.000	21.000	•
2.650	4.000	66.000	21.000	•
2.700	4.000	66.000	22.000	•
2.750	4.000	66.000	22.000	•
2.780	4.000	66.000	22.000	•
2.800	4.000	66.000	22.000	•
2.850	4.000	66.000	23.000	•
2.900	4.000	66.000	23.000	•
2.950	4.000	66.000	24.000	•

Article no.				6405
Discount group				164
Cutting direction				
d1	d2	l1	l2	Availability
mm	mm	mm	mm	
3.000	4.000	66.000	24.000	
				●

Drilling tools



ExclusiveLine micro-precision drills with coolant ducts



Tool material

Solid carbide

Surface



Shank form

cyl.



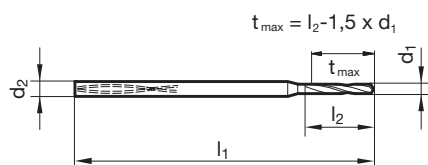
P • web thinning $\geq \varnothing 1.400$ • facet point grind • main cutting edge form straight • edge preparation

M •**K** •**N** ○**S** ○**H**

structural and case hardened steels • free-cutting steels, heat-treatable steels • alloyed steels up to 1200 N/mm² • stainless steels • cast materials

GÜHRING NAVIGATOR

Cutting data page 146



Article no.

6408

Discount group

164

Cutting direction



d1	d2	l1	l2	Availability
mm	mm	mm	mm	
1.400	4.000	52.000	15.000	•
1.450	4.000	52.000	16.000	•
1.500	4.000	52.000	17.000	•
1.550	4.000	52.000	17.000	•
1.590	4.000	52.000	18.000	•
1.600	4.000	52.000	18.000	•
1.650	4.000	52.000	18.000	•
1.700	4.000	56.000	19.000	•
1.750	4.000	56.000	19.000	•
1.800	4.000	56.000	20.000	•
1.850	4.000	56.000	20.000	•
1.900	4.000	56.000	21.000	•
1.950	4.000	56.000	21.000	•
1.980	4.000	56.000	22.000	•
2.000	4.000	56.000	22.000	•
2.050	4.000	56.000	23.000	•
2.100	4.000	62.000	23.000	•
2.150	4.000	62.000	24.000	•
2.200	4.000	62.000	24.000	•
2.250	4.000	62.000	25.000	•
2.300	4.000	62.000	25.000	•
2.320	4.000	62.000	26.000	•
2.350	4.000	62.000	26.000	•
2.380	4.000	62.000	26.000	•
2.400	4.000	62.000	26.000	•
2.450	4.000	62.000	27.000	•
2.500	4.000	62.000	28.000	•
2.550	4.000	62.000	28.000	•
2.600	4.000	66.000	29.000	•
2.650	4.000	66.000	29.000	•
2.700	4.000	66.000	30.000	•
2.750	4.000	66.000	30.000	•
2.780	4.000	66.000	31.000	•
2.800	4.000	66.000	31.000	•
2.850	4.000	66.000	31.000	•
2.900	4.000	66.000	32.000	•



Article no.				6408
Discount group				164
Cutting direction				
d1	d2	l1	l2	Availability
mm	mm	mm	mm	
2.950	4.000	66.000	32.000	•
3.000	4.000	66.000	33.000	•



ExclusiveLine micro-precision drills with coolant ducts



P • web thinning $\geq \varnothing 1.400$ • facet point grind • main cutting edge form straight • edge preparation

M •

K •

N ○ structural and case hardened steels • free-cutting steels, heat-treatable steels • alloyed steels up to 1200 N/mm²

S ○ stainless steels • cast materials

H

GÜHRING NAVIGATOR

Cutting data page 146

Tool material

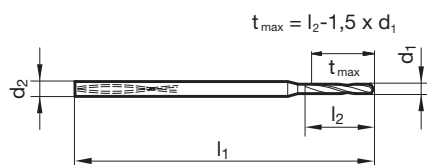
Solid carbide

Surface



Shank form

cyl.



Article no.

6412

Discount group

164

Cutting direction



d1	d2	l1	l2	Availability
mm	mm	mm	mm	
1.400	4.000	62.000	25.000	●
1.500	4.000	62.000	27.000	●
1.590	4.000	62.000	29.000	●
1.600	4.000	62.000	29.000	●
1.700	4.000	70.000	31.000	●
1.750	4.000	70.000	32.000	●
1.800	4.000	70.000	32.000	●
1.900	4.000	70.000	34.000	●
1.980	4.000	70.000	36.000	●
2.000	4.000	70.000	36.000	●
2.100	4.000	78.000	38.000	●
2.200	4.000	78.000	40.000	●
2.300	4.000	78.000	42.000	●
2.380	4.000	78.000	44.000	●
2.400	4.000	78.000	44.000	●
2.500	4.000	78.000	45.000	●
2.600	4.000	87.000	47.000	●
2.700	4.000	87.000	48.000	●
2.780	4.000	87.000	50.000	●
2.800	4.000	87.000	50.000	●
2.900	4.000	87.000	52.000	●
3.000	4.000	87.000	54.000	●



3-flute Ratio drills

Tool material **Solid carbide**

Surface

Shank form HA

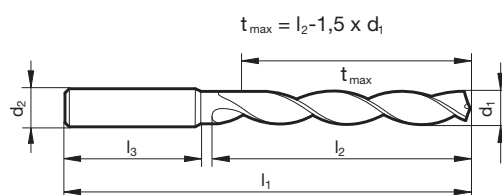
P web thinning $\geq \varnothing 3.000$ • spiro-point • wide flutes • optimal centering
 • suitable for interrupted cutting

M**K** •**N** •**S****H**

cast iron • long chipping Al alloys • brass, bronzes

SL**GUHRING** NAVIGATOR

Cutting data page 140

Article no. **5518**Discount group **155**

Cutting direction

d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
3.000		6.00	66.00	28.00	36.00	•
3.100		6.00	66.00	28.00	36.00	•
3.200		6.00	66.00	28.00	36.00	•
3.300		6.00	66.00	28.00	36.00	•
3.500		6.00	66.00	28.00	36.00	•
3.700		6.00	66.00	28.00	36.00	•
3.800		6.00	74.00	36.00	36.00	•
4.000		6.00	74.00	36.00	36.00	•
4.100		6.00	74.00	36.00	36.00	•
4.200		6.00	74.00	36.00	36.00	•
4.500		6.00	74.00	36.00	36.00	•
4.800		6.00	82.00	44.00	36.00	•
5.000		6.00	82.00	44.00	36.00	•
5.100		6.00	82.00	44.00	36.00	•
5.200		6.00	82.00	44.00	36.00	•
5.300		6.00	82.00	44.00	36.00	•
5.500		6.00	82.00	44.00	36.00	•
5.800		6.00	82.00	44.00	36.00	•
6.000		6.00	82.00	44.00	36.00	•
6.100		8.00	91.00	53.00	36.00	•
6.200		8.00	91.00	53.00	36.00	•
6.400		8.00	91.00	53.00	36.00	•
6.500		8.00	91.00	53.00	36.00	•
6.700		8.00	91.00	53.00	36.00	•
6.800		8.00	91.00	53.00	36.00	•
6.900		8.00	91.00	53.00	36.00	•
7.000		8.00	91.00	53.00	36.00	•
7.100		8.00	91.00	53.00	36.00	•
7.400		8.00	91.00	53.00	36.00	•
7.500		8.00	91.00	53.00	36.00	•
7.800		8.00	91.00	53.00	36.00	•
8.000		8.00	91.00	53.00	36.00	•
8.100		10.00	103.00	61.00	40.00	•
8.200		10.00	103.00	61.00	40.00	•
8.400		10.00	103.00	61.00	40.00	•
8.500		10.00	103.00	61.00	40.00	•



Article no.						5518
Discount group						155
Cutting direction						(R)
d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
8.600		10.00	103.00	61.00	40.00	●
8.700		10.00	103.00	61.00	40.00	●
8.800		10.00	103.00	61.00	40.00	●
9.000		10.00	103.00	61.00	40.00	●
9.100		10.00	103.00	61.00	40.00	●
9.500		10.00	103.00	61.00	40.00	●
9.800		10.00	103.00	61.00	40.00	●
10.000		10.00	103.00	61.00	40.00	●
10.100		12.00	118.00	71.00	45.00	●
10.200		12.00	118.00	71.00	45.00	●
10.300		12.00	118.00	71.00	45.00	●
10.500		12.00	118.00	71.00	45.00	●
11.000		12.00	118.00	71.00	45.00	●
11.200		12.00	118.00	71.00	45.00	●
11.500		12.00	118.00	71.00	45.00	●
11.800		12.00	118.00	71.00	45.00	●
12.000		12.00	118.00	71.00	45.00	●
12.100		14.00	124.00	77.00	45.00	●
12.500		14.00	124.00	77.00	45.00	●
13.000		14.00	124.00	77.00	45.00	●
13.500		14.00	124.00	77.00	45.00	●
14.000		14.00	124.00	77.00	45.00	●
14.100		16.00	133.00	83.00	48.00	●
14.500		16.00	133.00	83.00	48.00	●
15.000		16.00	133.00	83.00	48.00	●
15.500		16.00	133.00	83.00	48.00	●
16.000		16.00	133.00	83.00	48.00	●
16.500		18.00	143.00	93.00	48.00	●
17.000		18.00	143.00	93.00	48.00	●
17.500		18.00	143.00	93.00	48.00	●
18.000		18.00	143.00	93.00	48.00	●
18.500		20.00	153.00	101.00	50.00	●
19.000		20.00	153.00	101.00	50.00	●
19.500		20.00	153.00	101.00	50.00	●
20.000		20.00	153.00	101.00	50.00	●



Twist drills with reinforced straight shank



- P** • web thinning $\geq \varnothing 1.000$ • high-performance twist drills
 • powder metallurgic steel • 4-facet point grind • low feed force • low torque moment

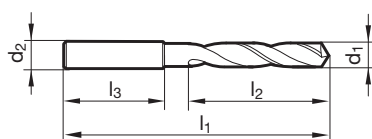
- K** •
N • for universal application
S ○
H

Tool material **HSS-E-PM**Surface **F**Shank form **HA****SL**

Drilling tools

GUHRING NAVIGATOR

Cutting data page 150

Article no. **6005**Discount group **159**

Cutting direction



d1	d2 h6	l1	l2	l3	Availability
mm	mm	mm	mm	mm	
1.000	3.00	38.00	6.00	28.00	•
1.100	3.00	39.00	7.00	28.00	•
1.200	3.00	40.00	8.00	28.00	•
1.300	3.00	40.00	8.00	28.00	•
1.400	3.00	41.00	9.00	28.00	•
1.500	3.00	41.00	9.00	28.00	•
1.600	3.00	42.00	10.00	28.00	•
1.700	3.00	42.00	10.00	28.00	•
1.800	3.00	43.00	11.00	28.00	•
1.900	3.00	43.00	11.00	28.00	•
2.000	3.00	44.00	12.00	28.00	•
2.100	3.00	44.00	12.00	28.00	•
2.200	3.00	45.00	13.00	28.00	•
2.300	3.00	45.00	13.00	28.00	•
2.380	3.00	46.00	14.00	28.00	•
2.400	3.00	46.00	14.00	28.00	•
2.500	3.00	46.00	14.00	28.00	•
2.600	3.00	46.00	14.00	28.00	•
2.700	3.00	48.00	16.00	28.00	•
2.780	3.00	48.00	16.00	28.00	•
2.800	3.00	48.00	16.00	28.00	•
2.900	3.00	48.00	16.00	28.00	•
3.000	3.00	48.00	16.00	28.00	•
3.100	4.00	50.00	18.00	28.00	•
3.170	4.00	50.00	18.00	28.00	•
3.200	4.00	50.00	18.00	28.00	•
3.300	4.00	50.00	18.00	28.00	•
3.400	4.00	52.00	20.00	28.00	•
3.500	4.00	52.00	20.00	28.00	•
3.570	4.00	52.00	20.00	28.00	•
3.600	4.00	52.00	20.00	28.00	•
3.700	4.00	52.00	20.00	28.00	•
3.800	4.00	54.00	22.00	28.00	•
3.900	4.00	54.00	22.00	28.00	•
3.970	4.00	54.00	22.00	28.00	•
4.000	4.00	54.00	22.00	28.00	•



Article no.					6005
Discount group					159
Cutting direction					
d1	d2 h6	l1	l2	l3	Availability
mm	mm	mm	mm	mm	
4.100	6.00	66.00	22.00	36.00	●
4.200	6.00	66.00	22.00	36.00	●
4.300	6.00	68.00	24.00	36.00	●
4.370	6.00	68.00	24.00	36.00	●
4.400	6.00	68.00	24.00	36.00	●
4.500	6.00	68.00	24.00	36.00	●
4.600	6.00	68.00	24.00	36.00	●
4.650	6.00	68.00	24.00	36.00	●
4.700	6.00	68.00	24.00	36.00	●
4.760	6.00	70.00	26.00	36.00	●
4.800	6.00	70.00	26.00	36.00	●
4.900	6.00	70.00	26.00	36.00	●
5.000	6.00	70.00	26.00	36.00	●
5.100	6.00	70.00	26.00	36.00	●
5.160	6.00	70.00	26.00	36.00	●
5.200	6.00	70.00	26.00	36.00	●
5.300	6.00	70.00	26.00	36.00	●
5.400	6.00	72.00	28.00	36.00	●
5.500	6.00	72.00	28.00	36.00	●
5.550	6.00	72.00	28.00	36.00	●
5.560	6.00	72.00	28.00	36.00	●
5.600	6.00	72.00	28.00	36.00	●
5.700	6.00	72.00	28.00	36.00	●
5.800	6.00	72.00	28.00	36.00	●
5.900	6.00	72.00	28.00	36.00	●
5.950	6.00	72.00	28.00	36.00	●
6.000	6.00	72.00	28.00	36.00	●
6.100	8.00	75.00	31.00	36.00	●
6.200	8.00	75.00	31.00	36.00	●
6.300	8.00	75.00	31.00	36.00	●
6.350	8.00	75.00	31.00	36.00	●
6.400	8.00	75.00	31.00	36.00	●
6.500	8.00	75.00	31.00	36.00	●
6.600	8.00	75.00	31.00	36.00	●
6.700	8.00	75.00	31.00	36.00	●
6.750	8.00	78.00	34.00	36.00	●
6.800	8.00	78.00	34.00	36.00	●
6.900	8.00	78.00	34.00	36.00	●
7.000	8.00	78.00	34.00	36.00	●
7.100	8.00	78.00	34.00	36.00	●
7.140	8.00	78.00	34.00	36.00	●
7.200	8.00	78.00	34.00	36.00	●
7.300	8.00	78.00	34.00	36.00	●
7.400	8.00	78.00	34.00	36.00	●
7.500	8.00	78.00	34.00	36.00	●
7.540	8.00	81.00	37.00	36.00	●
7.550	8.00	81.00	37.00	36.00	●
7.600	8.00	81.00	37.00	36.00	●
7.700	8.00	81.00	37.00	36.00	●
7.800	8.00	81.00	37.00	36.00	●
7.900	8.00	81.00	37.00	36.00	●
7.940	8.00	81.00	37.00	36.00	●
8.000	8.00	81.00	37.00	36.00	●
8.100	10.00	87.00	37.00	40.00	●
8.200	10.00	87.00	37.00	40.00	●
8.300	10.00	87.00	37.00	40.00	●
8.330	10.00	87.00	37.00	40.00	●
8.400	10.00	87.00	37.00	40.00	●
8.500	10.00	87.00	37.00	40.00	●
8.600	10.00	91.00	40.00	40.00	●



Article no.					6005
Discount group					159
Cutting direction					
d1	d2 h6	l1	l2	l3	Availability
mm	mm	mm	mm	mm	
8.700	10.00	91.00	40.00	40.00	●
8.730	10.00	91.00	40.00	40.00	●
8.800	10.00	91.00	40.00	40.00	●
8.900	10.00	91.00	40.00	40.00	●
9.000	10.00	91.00	40.00	40.00	●
9.100	10.00	91.00	40.00	40.00	●
9.130	10.00	91.00	40.00	40.00	●
9.200	10.00	91.00	40.00	40.00	●
9.300	10.00	91.00	40.00	40.00	●
9.400	10.00	91.00	40.00	40.00	●
9.500	10.00	91.00	40.00	40.00	●
9.520	10.00	93.00	43.00	40.00	●
9.550	10.00	93.00	43.00	40.00	●
9.600	10.00	93.00	43.00	40.00	●
9.700	10.00	93.00	43.00	40.00	●
9.800	10.00	93.00	43.00	40.00	●
9.900	10.00	93.00	43.00	40.00	●
9.920	10.00	93.00	43.00	40.00	●
10.000	10.00	93.00	43.00	40.00	●
10.100	12.00	100.00	43.00	45.00	●
10.200	12.00	100.00	43.00	45.00	●
10.300	12.00	100.00	43.00	45.00	●
10.320	12.00	100.00	43.00	45.00	●
10.400	12.00	100.00	43.00	45.00	●
10.500	12.00	100.00	43.00	45.00	●
10.600	12.00	100.00	43.00	45.00	●
10.700	12.00	104.00	47.00	45.00	●
10.720	12.00	104.00	47.00	45.00	●
10.800	12.00	104.00	47.00	45.00	●
10.900	12.00	104.00	47.00	45.00	●
11.000	12.00	104.00	47.00	45.00	●
11.100	12.00	104.00	47.00	45.00	●
11.110	12.00	104.00	47.00	45.00	●
11.200	12.00	104.00	47.00	45.00	●
11.300	12.00	104.00	47.00	45.00	●
11.400	12.00	104.00	47.00	45.00	●
11.500	12.00	104.00	47.00	45.00	●
11.510	12.00	104.00	47.00	45.00	●
11.600	12.00	104.00	47.00	45.00	●
11.700	12.00	104.00	47.00	45.00	●
11.800	12.00	104.00	47.00	45.00	●
11.900	12.00	108.00	51.00	45.00	●
11.910	12.00	108.00	51.00	45.00	●
12.000	12.00	108.00	51.00	45.00	●
12.100	16.00	111.00	51.00	48.00	●
12.200	16.00	111.00	51.00	48.00	●
12.300	16.00	111.00	51.00	48.00	●
12.400	16.00	111.00	51.00	48.00	●
12.500	16.00	111.00	51.00	48.00	●
12.600	16.00	111.00	51.00	48.00	●
12.700	16.00	111.00	51.00	48.00	●
12.800	16.00	111.00	51.00	48.00	●
12.900	16.00	111.00	51.00	48.00	●
13.000	16.00	111.00	51.00	48.00	●
13.100	16.00	111.00	51.00	48.00	●
13.490	16.00	114.00	54.00	48.00	●
13.500	16.00	114.00	54.00	48.00	●
13.890	16.00	114.00	54.00	48.00	●
14.000	16.00	114.00	54.00	48.00	●
14.290	16.00	116.00	56.00	48.00	●



Drilling tools	Article no.					6005
	Discount group					159
	Cutting direction					
	d1	d2 h6	l1	l2	l3	Availability
	mm	mm	mm	mm	mm	
	14.500	16.00	116.00	56.00	48.00	●
	15.000	16.00	116.00	56.00	48.00	●
	15.500	16.00	118.00	58.00	48.00	●
	15.870	16.00	118.00	58.00	48.00	●
	16.000	16.00	118.00	58.00	48.00	●
	16.500	20.00	126.00	60.00	50.00	●
	16.670	20.00	126.00	60.00	50.00	●
	17.000	20.00	126.00	60.00	50.00	●
	17.500	20.00	128.00	62.00	50.00	●
	18.000	20.00	128.00	62.00	50.00	●
	18.500	20.00	130.00	64.00	50.00	●
	19.000	20.00	130.00	64.00	50.00	●
	19.500	20.00	132.00	66.00	50.00	●
	20.000	20.00	132.00	66.00	50.00	●



Twist drills with reinforced straight shank

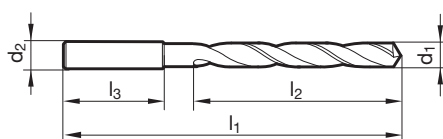


- P** • web thinning $\geq \varnothing 1.000$ • high-performance twist drills
 • powder metallurgic steel • 4-facet point grind • low feed force • low torque moment

- M** •
K •
N • for universal application
S ○
H

GUHRING NAVIGATOR

Cutting data page 150

Tool material **HSS-E-PM**Surface **F**Shank form **HA****SL**Article no. **6006**Discount group **159**

Cutting direction



d1	d2 h6	l1	l2	l3	Availability
mm	mm	mm	mm	mm	
2.000	3.00	56.00	24.00	28.00	•
2.100	3.00	56.00	24.00	28.00	•
2.200	3.00	59.00	27.00	28.00	•
2.300	3.00	59.00	27.00	28.00	•
2.380	3.00	62.00	30.00	28.00	•
2.400	3.00	62.00	30.00	28.00	•
2.500	3.00	62.00	30.00	28.00	•
2.600	3.00	62.00	30.00	28.00	•
2.700	3.00	65.00	33.00	28.00	•
2.780	3.00	65.00	33.00	28.00	•
2.800	3.00	65.00	33.00	28.00	•
2.900	3.00	65.00	33.00	28.00	•
3.000	3.00	65.00	33.00	28.00	•
3.100	4.00	68.00	36.00	28.00	•
3.170	4.00	68.00	36.00	28.00	•
3.200	4.00	68.00	36.00	28.00	•
3.300	4.00	68.00	36.00	28.00	•
3.400	4.00	71.00	39.00	28.00	•
3.500	4.00	71.00	39.00	28.00	•
3.570	4.00	71.00	39.00	28.00	•
3.600	4.00	71.00	39.00	28.00	•
3.700	4.00	71.00	39.00	28.00	•
3.800	4.00	75.00	43.00	28.00	•
3.900	4.00	75.00	43.00	28.00	•
3.970	4.00	75.00	43.00	28.00	•
4.000	4.00	75.00	43.00	28.00	•
4.100	6.00	87.00	43.00	36.00	•
4.200	6.00	87.00	43.00	36.00	•
4.300	6.00	91.00	47.00	36.00	•
4.370	6.00	91.00	47.00	36.00	•
4.400	6.00	91.00	47.00	36.00	•
4.500	6.00	91.00	47.00	36.00	•
4.600	6.00	91.00	47.00	36.00	•
4.650	6.00	91.00	47.00	36.00	•
4.700	6.00	91.00	47.00	36.00	•
4.760	6.00	96.00	52.00	36.00	•



Article no.					6006
Discount group					159
Cutting direction					
d1	d2 h6	l1	l2	l3	Availability
mm	mm	mm	mm	mm	
4.800	6.00	96.00	52.00	36.00	●
4.900	6.00	96.00	52.00	36.00	●
5.000	6.00	96.00	52.00	36.00	●
5.100	6.00	96.00	52.00	36.00	●
5.160	6.00	96.00	52.00	36.00	●
5.200	6.00	96.00	52.00	36.00	●
5.300	6.00	96.00	52.00	36.00	●
5.400	6.00	101.00	57.00	36.00	●
5.500	6.00	101.00	57.00	36.00	●
5.550	6.00	101.00	57.00	36.00	●
5.560	6.00	101.00	57.00	36.00	●
5.600	6.00	101.00	57.00	36.00	●
5.700	6.00	101.00	57.00	36.00	●
5.800	6.00	101.00	57.00	36.00	●
5.900	6.00	101.00	57.00	36.00	●
5.950	6.00	101.00	57.00	36.00	●
6.000	6.00	101.00	57.00	36.00	●
6.100	8.00	107.00	63.00	36.00	●
6.200	8.00	107.00	63.00	36.00	●
6.300	8.00	107.00	63.00	36.00	●
6.350	8.00	107.00	63.00	36.00	●
6.400	8.00	107.00	63.00	36.00	●
6.500	8.00	107.00	63.00	36.00	●
6.600	8.00	107.00	63.00	36.00	●
6.700	8.00	107.00	63.00	36.00	●
6.750	8.00	113.00	69.00	36.00	●
6.800	8.00	113.00	69.00	36.00	●
6.900	8.00	113.00	69.00	36.00	●
7.000	8.00	113.00	69.00	36.00	●
7.100	8.00	113.00	69.00	36.00	●
7.140	8.00	113.00	69.00	36.00	●
7.200	8.00	113.00	69.00	36.00	●
7.300	8.00	113.00	69.00	36.00	●
7.400	8.00	113.00	69.00	36.00	●
7.500	8.00	113.00	69.00	36.00	●
7.540	8.00	119.00	75.00	36.00	●
7.550	8.00	119.00	75.00	36.00	●
7.600	8.00	119.00	75.00	36.00	●
7.700	8.00	119.00	75.00	36.00	●
7.800	8.00	119.00	75.00	36.00	●
7.900	8.00	119.00	75.00	36.00	●
7.940	8.00	119.00	75.00	36.00	●
8.000	8.00	119.00	75.00	36.00	●
8.100	10.00	125.00	75.00	40.00	●
8.200	10.00	125.00	75.00	40.00	●
8.300	10.00	125.00	75.00	40.00	●
8.330	10.00	125.00	75.00	40.00	●
8.400	10.00	125.00	75.00	40.00	●
8.500	10.00	125.00	75.00	40.00	●
8.600	10.00	131.00	81.00	40.00	●
8.700	10.00	131.00	81.00	40.00	●
8.730	10.00	131.00	81.00	40.00	●
8.800	10.00	131.00	81.00	40.00	●
8.900	10.00	131.00	81.00	40.00	●
9.000	10.00	131.00	81.00	40.00	●
9.100	10.00	131.00	81.00	40.00	●
9.130	10.00	131.00	81.00	40.00	●
9.200	10.00	131.00	81.00	40.00	●
9.300	10.00	131.00	81.00	40.00	●
9.400	10.00	131.00	81.00	40.00	●



Article no.					6006
Discount group					159
Cutting direction					
d1	d2 h6	l1	l2	l3	Availability
mm	mm	mm	mm	mm	
9.500	10.00	131.00	81.00	40.00	●
9.520	10.00	137.00	87.00	40.00	●
9.550	10.00	137.00	87.00	40.00	●
9.600	10.00	137.00	87.00	40.00	●
9.700	10.00	137.00	87.00	40.00	●
9.800	10.00	137.00	87.00	40.00	●
9.900	10.00	137.00	87.00	40.00	●
9.920	10.00	137.00	87.00	40.00	●
10.000	10.00	137.00	87.00	40.00	●
10.100	12.00	144.00	87.00	45.00	●
10.200	12.00	144.00	87.00	45.00	●
10.300	12.00	144.00	87.00	45.00	●
10.320	12.00	144.00	87.00	45.00	●
10.400	12.00	144.00	87.00	45.00	●
10.500	12.00	144.00	87.00	45.00	●
10.600	12.00	144.00	87.00	45.00	●
10.700	12.00	151.00	94.00	45.00	●
10.720	12.00	151.00	94.00	45.00	●
10.800	12.00	151.00	94.00	45.00	●
10.900	12.00	151.00	94.00	45.00	●
11.000	12.00	151.00	94.00	45.00	●
11.100	12.00	151.00	94.00	45.00	●
11.110	12.00	151.00	94.00	45.00	●
11.200	12.00	151.00	94.00	45.00	●
11.300	12.00	151.00	94.00	45.00	●
11.400	12.00	151.00	94.00	45.00	●
11.500	12.00	151.00	94.00	45.00	●
11.510	12.00	151.00	94.00	45.00	●
11.600	12.00	151.00	94.00	45.00	●
11.700	12.00	151.00	94.00	45.00	●
11.800	12.00	151.00	94.00	45.00	●
11.900	12.00	158.00	101.00	45.00	●
11.910	12.00	158.00	101.00	45.00	●
12.000	12.00	158.00	101.00	45.00	●
12.100	16.00	161.00	101.00	48.00	●
12.200	16.00	161.00	101.00	48.00	●
12.300	16.00	161.00	101.00	48.00	●
12.400	16.00	161.00	101.00	48.00	●
12.500	16.00	161.00	101.00	48.00	●
12.600	16.00	161.00	101.00	48.00	●
12.700	16.00	161.00	101.00	48.00	●
12.800	16.00	161.00	101.00	48.00	●
12.900	16.00	161.00	101.00	48.00	●
13.000	16.00	161.00	101.00	48.00	●
13.100	16.00	161.00	101.00	48.00	●
13.490	16.00	166.00	106.00	48.00	●
13.500	16.00	166.00	106.00	48.00	●
13.890	16.00	166.00	106.00	48.00	●
14.000	16.00	166.00	106.00	48.00	●
14.290	16.00	169.00	109.00	48.00	●
14.500	16.00	169.00	109.00	48.00	●
15.000	16.00	169.00	109.00	48.00	●
15.500	16.00	172.00	112.00	48.00	●
15.870	16.00	172.00	112.00	48.00	●
16.000	16.00	172.00	112.00	48.00	●
16.500	20.00	181.00	115.00	50.00	●
16.670	20.00	181.00	115.00	50.00	●
17.000	20.00	181.00	115.00	50.00	●
17.460	20.00	184.00	118.00	50.00	●
17.500	20.00	184.00	118.00	50.00	●



Drilling tools

Article no.					6006
Discount group					159
Cutting direction					
d1	d2 h6	l1	l2	l3	Availability
mm	mm	mm	mm	mm	
18.000	20.00	184.00	118.00	50.00	●
18.500	20.00	188.00	122.00	50.00	●
19.000	20.00	188.00	122.00	50.00	●
19.500	20.00	191.00	125.00	50.00	●
20.000	20.00	191.00	125.00	50.00	●



Stub drills



P ○ web thinning $\geq \varnothing 3.000$ • facet point grind • main cutting edge form straight

M ○

K ○

N ●

S ○

H ○

structural and case hardened steels • free-cutting steels, heat-treatable steels • grey cast iron • bronze, brass • aluminium and Al alloys • magnesium and magnesium alloys • plastics and fiber reinforced plastics

Tool material

Solid carbide

Surface



Shank form

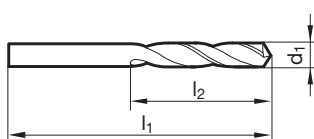
cyl.

SL

Drilling tools

GUHRING NAVIGATOR

Cutting data page 150



Article no.

5516

Discount group

155

Cutting direction



d1		l1	l2	Availability
mm	inch	mm	mm	
1.500		32.000	9.000	●
1.600		34.000	10.000	●
2.000		38.000	12.000	●
2.100		38.000	12.000	●
2.200		40.000	13.000	●
2.300		40.000	13.000	●
2.380	3/32	43.000	14.000	●
2.400		43.000	14.000	●
2.500		43.000	14.000	●
2.600		43.000	14.000	●
2.700		46.000	16.000	●
2.780	7/64	46.000	16.000	●
2.800		46.000	16.000	●
2.900		46.000	16.000	●
3.000		46.000	16.000	●
3.100		49.000	18.000	●
3.170	1/8	49.000	18.000	●
3.200		49.000	18.000	●
3.300		49.000	18.000	●
3.400		52.000	20.000	●
3.500		52.000	20.000	●
3.570	9/64	52.000	20.000	●
3.600		52.000	20.000	●
3.700		52.000	20.000	●
3.800		55.000	22.000	●
3.900		55.000	22.000	●
3.970	5/32	55.000	22.000	●
4.000		55.000	22.000	●
4.100		55.000	22.000	●
4.200		55.000	22.000	●
4.300		58.000	24.000	●
4.370	11/64	58.000	24.000	●
4.400		58.000	24.000	●
4.500		58.000	24.000	●
4.600		58.000	24.000	●
4.700		58.000	24.000	●



Article no.				5516
Discount group				155
Cutting direction				
d1		l1	l2	Availability
mm	inch	mm	mm	
4.760	3/16	62.000	26.000	●
4.800		62.000	26.000	●
4.900		62.000	26.000	●
5.000		62.000	26.000	●
5.100		62.000	26.000	●
5.200		62.000	26.000	●
5.500		66.000	28.000	●
5.800		66.000	28.000	●
6.000		66.000	28.000	●
6.350	1/4	70.000	31.000	●
6.400		70.000	31.000	●
6.500		70.000	31.000	●
6.800		74.000	34.000	●
6.900		74.000	34.000	●
7.000		74.000	34.000	●
7.140	9/32	74.000	34.000	●
7.500		74.000	34.000	●
7.940	5/16	79.000	37.000	●
8.000		79.000	37.000	●
8.500		79.000	37.000	●
8.600		84.000	40.000	●
8.730	11/32	84.000	40.000	●
8.800		84.000	40.000	●
9.000		84.000	40.000	●
9.500		84.000	40.000	●
10.000		89.000	43.000	●
10.200		89.000	43.000	●
10.300		89.000	43.000	●
10.500		89.000	43.000	●
11.000		95.000	47.000	●
11.110	7/16	95.000	47.000	●
11.500		95.000	47.000	●
11.910	15/32	102.000	51.000	●
12.000		102.000	51.000	●



Stub drills



P	•	web thinning $\geq \varnothing 1.000$ • facet point grind • Co-alloyed high speed steel • low feed force required • low torque required
M	•	• for universal application
K	•	
N	•	alloyed/unalloyed steels up to 800 N/mm ² • cold/hot work steels • antifriction bearing steels • non-ferrous metals • cast materials • stainless steels • plastics
S	•	
H	•	

Tool material

HSCO

Surface



Shank form

cyl.

cyl.

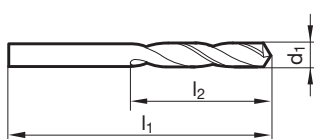
SL

SL

Drilling tools

GUHRING NAVIGATOR

Cutting data page 150



Article no.

5524

5520

Discount group

159

159

Cutting direction



d1		l1	l2	Availability	
mm	inch	mm	mm		
1.000		26.000	6.000	•	•
1.100		28.000	7.000	•	•
1.200		30.000	8.000	•	•
1.300		30.000	8.000	•	•
1.400		32.000	9.000	•	•
1.500		32.000	9.000	•	•
1.600		34.000	10.000	•	•
1.700		34.000	10.000	•	•
1.800		36.000	11.000	•	•
1.900		36.000	11.000	•	•
2.000		38.000	12.000	•	•
2.100		38.000	12.000	•	•
2.200		40.000	13.000	•	•
2.300		40.000	13.000	•	•
2.380	3/32	43.000	14.000	•	•
2.400		43.000	14.000	•	•
2.500		43.000	14.000	•	•
2.600		43.000	14.000	•	•
2.700		46.000	16.000	•	•
2.780	7/64	46.000	16.000	•	•
2.800		46.000	16.000	•	•
2.900		46.000	16.000	•	•
3.000		46.000	16.000	•	•
3.100		49.000	18.000	•	•
3.170	1/8	49.000	18.000	•	•
3.200		49.000	18.000	•	•
3.300		49.000	18.000	•	•
3.400		52.000	20.000	•	•
3.500		52.000	20.000	•	•
3.570	9/64	52.000	20.000	•	•
3.600		52.000	20.000	•	•
3.700		52.000	20.000	•	•
3.800		55.000	22.000	•	•
3.900		55.000	22.000	•	•
3.970	5/32	55.000	22.000	•	•
4.000		55.000	22.000	•	•



Article no.				5524	5520
Discount group				159	159
Cutting direction				(R)	(R)
d1		l1	l2	Availability	
mm	inch	mm	mm		
4.100		55.000	22.000	●	●
4.200		55.000	22.000	●	●
4.300		58.000	24.000	●	●
4.370	11/64	58.000	24.000	●	●
4.400		58.000	24.000	●	●
4.500		58.000	24.000	●	●
4.600		58.000	24.000	●	●
4.700		58.000	24.000	●	●
4.760	3/16	62.000	26.000	●	●
4.800		62.000	26.000	●	●
4.900		62.000	26.000	●	●
5.000		62.000	26.000	●	●
5.100		62.000	26.000	●	●
5.160	13/64	62.000	26.000	●	●
5.200		62.000	26.000	●	●
5.300		62.000	26.000	●	●
5.400		66.000	28.000	●	●
5.500		66.000	28.000	●	●
5.560	7/32	66.000	28.000	●	●
5.600		66.000	28.000	●	●
5.700		66.000	28.000	●	●
5.800		66.000	28.000	●	●
5.900		66.000	28.000	●	●
5.950	15/64	66.000	28.000	●	●
6.000		66.000	28.000	●	●
6.100		70.000	31.000	●	●
6.200		70.000	31.000	●	●
6.300		70.000	31.000	●	●
6.350	1/4	70.000	31.000	●	●
6.400		70.000	31.000	●	●
6.500		70.000	31.000	●	●
6.600		70.000	31.000	●	●
6.700		70.000	31.000	●	●
6.800		74.000	34.000	●	●
6.900		74.000	34.000	●	●
7.000		74.000	34.000	●	●
7.100		74.000	34.000	●	●
7.140	9/32	74.000	34.000	●	●
7.200		74.000	34.000	●	●
7.300		74.000	34.000	●	●
7.400		74.000	34.000	●	●
7.500		74.000	34.000	●	●
7.600		79.000	37.000	●	●
7.700		79.000	37.000	●	●
7.800		79.000	37.000	●	●
7.900		79.000	37.000	●	●
7.940	5/16	79.000	37.000	●	●
8.000		79.000	37.000	●	●
8.100		79.000	37.000	●	●
8.200		79.000	37.000	●	●
8.300		79.000	37.000	●	●
8.400		79.000	37.000	●	●
8.500		79.000	37.000	●	●
8.600		84.000	40.000	●	●
8.700		84.000	40.000	●	●
8.730	11/32	84.000	40.000	●	●
8.800		84.000	40.000	●	●
8.900		84.000	40.000	●	●
9.000		84.000	40.000	●	●
9.100		84.000	40.000	●	●



Article no.				5524	5520
Discount group				159	159
Cutting direction					
d1		l1	l2	Availability	
mm	inch	mm	mm		
9.200		84.000	40.000	●	●
9.300		84.000	40.000	●	●
9.400		84.000	40.000	●	●
9.500		84.000	40.000	●	●
9.600		89.000	43.000	●	●
9.700		89.000	43.000	●	●
9.800		89.000	43.000	●	●
9.900		89.000	43.000	●	●
10.000		89.000	43.000	●	●
10.100		89.000	43.000	●	●
10.200		89.000	43.000	●	●
10.300		89.000	43.000	●	●
10.400		89.000	43.000	●	●
10.500		89.000	43.000	●	●
11.000		95.000	47.000	●	●
11.110	7/16	95.000	47.000	●	●
11.500		95.000	47.000	●	●
12.000		102.000	51.000	●	●
12.500		102.000	51.000	●	●
13.000		102.000	51.000	●	●
13.500		107.000	54.000	●	●
14.000		107.000	54.000	●	●



Stub drills



Tool material

HSS-E-PM

Surface



Shank form

cyl.

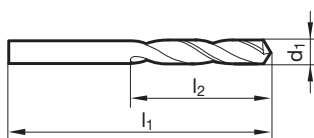
SL

P • web thinning $\geq \varnothing 1.000$ • relieved cone • PM-Co-alloyed high speed steel • especially high rigidity • especially high wear resistance

M ○
K •
N ○ high-alloyed steels • heat treatable and case hardened steels
S ○ • cast iron, brass, bronze
H ○

GÜHRING NAVIGATOR

Cutting data page 150



Article no.

5521

Discount group

159

Cutting direction



d1		l1	l2	Availability
mm	inch	mm	mm	
1.000		26.000	6.000	●
1.100		28.000	7.000	●
1.200		30.000	8.000	●
1.300		30.000	8.000	●
1.400		32.000	9.000	●
1.500		32.000	9.000	●
1.600		34.000	10.000	●
1.700		34.000	10.000	●
1.800		36.000	11.000	●
1.900		36.000	11.000	●
2.000		38.000	12.000	●
2.100		38.000	12.000	●
2.200		40.000	13.000	●
2.300		40.000	13.000	●
2.380	3/32	43.000	14.000	●
2.400		43.000	14.000	●
2.500		43.000	14.000	●
2.600		43.000	14.000	●
2.700		46.000	16.000	●
2.780	7/64	46.000	16.000	●
2.800		46.000	16.000	●
2.900		46.000	16.000	●
3.000		46.000	16.000	●
3.100		49.000	18.000	●
3.170	1/8	49.000	18.000	●
3.200		49.000	18.000	●
3.300		49.000	18.000	●
3.400		52.000	20.000	●
3.500		52.000	20.000	●
3.570	9/64	52.000	20.000	●
3.600		52.000	20.000	●
3.700		52.000	20.000	●
3.800		55.000	22.000	●
3.900		55.000	22.000	●
3.970	5/32	55.000	22.000	●
4.000		55.000	22.000	●



Article no.				5521
Discount group				159
Cutting direction				
d1		l1	l2	Availability
mm	inch	mm	mm	
4.100		55.000	22.000	●
4.200		55.000	22.000	●
4.300		58.000	24.000	●
4.370	11/64	58.000	24.000	●
4.400		58.000	24.000	●
4.500		58.000	24.000	●
4.600		58.000	24.000	●
4.700		58.000	24.000	●
4.760	3/16	62.000	26.000	●
4.800		62.000	26.000	●
4.900		62.000	26.000	●
5.000		62.000	26.000	●
5.100		62.000	26.000	●
5.160	13/64	62.000	26.000	●
5.200		62.000	26.000	●
5.300		62.000	26.000	●
5.400		66.000	28.000	●
5.500		66.000	28.000	●
5.560	7/32	66.000	28.000	●
5.600		66.000	28.000	●
5.700		66.000	28.000	●
5.800		66.000	28.000	●
5.900		66.000	28.000	●
5.950	15/64	66.000	28.000	●
6.000		66.000	28.000	●
6.100		70.000	31.000	●
6.200		70.000	31.000	●
6.300		70.000	31.000	●
6.350	1/4	70.000	31.000	●
6.400		70.000	31.000	●
6.500		70.000	31.000	●
6.600		70.000	31.000	●
6.700		70.000	31.000	●
6.800		74.000	34.000	●
6.900		74.000	34.000	●
7.000		74.000	34.000	●
7.100		74.000	34.000	●
7.140	9/32	74.000	34.000	●
7.200		74.000	34.000	●
7.300		74.000	34.000	●
7.400		74.000	34.000	●
7.500		74.000	34.000	●
7.600		79.000	37.000	●
7.700		79.000	37.000	●
7.800		79.000	37.000	●
7.900		79.000	37.000	●
7.940	5/16	79.000	37.000	●
8.000		79.000	37.000	●
8.100		79.000	37.000	●
8.200		79.000	37.000	●
8.300		79.000	37.000	●
8.400		79.000	37.000	●
8.500		79.000	37.000	●
8.730	11/32	84.000	40.000	●
8.800		84.000	40.000	●
9.000		84.000	40.000	●
9.300		84.000	40.000	●
9.500		84.000	40.000	●
9.800		89.000	43.000	●
10.000		89.000	43.000	●



Drilling tools

Article no.				5521
Discount group				159
Cutting direction				
d1		l1	l2	Availability
mm	inch	mm	mm	
10.200	7/16	89.000	43.000	●
10.500		89.000	43.000	●
11.000		95.000	47.000	●
11.110		95.000	47.000	●
11.500		95.000	47.000	●
12.000		102.000	51.000	●
12.500		102.000	51.000	●
13.000		102.000	51.000	●
13.500		107.000	54.000	●
14.000		107.000	54.000	●



Jobber drills

Tool material **Solid carbide**

Surface

Shank form cyl.

SL

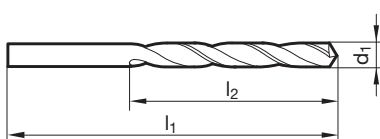
P ○ web thinning $\geq \varnothing 3.000$ • facet point grind • main cutting edge form straight

M ○**K** ○**N** ●**S** ○**H** ○

structural and case hardened steels • free-cutting steels, heat-treatable steels • grey cast iron • bronze, brass • aluminium and Al alloys • magnesium and magnesium alloys • plastics and fiber reinforced plastics

GUHRINGNAVIGATOR

Cutting data page 152



Article no.

5517

Discount group

155

Cutting direction



d1		l1	l2	Availability
mm	inch	mm	mm	
2.000		49.000	24.000	●
2.100		49.000	24.000	●
2.200		53.000	27.000	●
2.300		53.000	27.000	●
2.380	3/32	57.000	30.000	●
2.400		57.000	30.000	●
2.500		57.000	30.000	●
2.600		57.000	30.000	●
2.700		61.000	33.000	●
2.780	7/64	61.000	33.000	●
2.800		61.000	33.000	●
2.900		61.000	33.000	●
3.000		61.000	33.000	●
3.100		65.000	36.000	●
3.170	1/8	65.000	36.000	●
3.200		65.000	36.000	●
3.300		65.000	36.000	●
3.400		70.000	39.000	●
3.500		70.000	39.000	●
3.570	9/64	70.000	39.000	●
3.600		70.000	39.000	●
3.700		70.000	39.000	●
3.800		75.000	43.000	●
3.900		75.000	43.000	●
3.970	5/32	75.000	43.000	●
4.000		75.000	43.000	●
4.100		75.000	43.000	●
4.200		75.000	43.000	●
4.300		80.000	47.000	●
4.370	11/64	80.000	47.000	●
4.400		80.000	47.000	●
4.500		80.000	47.000	●
4.600		80.000	47.000	●
4.700		80.000	47.000	●
4.760	3/16	86.000	52.000	●
4.800		86.000	52.000	●



Article no.				5517
Discount group				155
Cutting direction				
d1		l1	l2	Availability
mm	inch	mm	mm	
4.900		86.000	52.000	●
5.000		86.000	52.000	●
5.100		86.000	52.000	●
5.160	13/64	86.000	52.000	●
5.500		93.000	57.000	●
5.560	7/32	93.000	57.000	●
5.950	15/64	93.000	57.000	●
6.000		93.000	57.000	●
6.350	1/4	101.000	63.000	●
6.500		101.000	63.000	●
6.800		109.000	69.000	●
6.900		109.000	69.000	●
7.000		109.000	69.000	●
7.140	9/32	109.000	69.000	●
7.500		109.000	69.000	●
7.940	5/16	117.000	75.000	●
8.000		117.000	75.000	●
8.500		117.000	75.000	●
8.600		125.000	81.000	●
8.730	11/32	125.000	81.000	●
9.000		125.000	81.000	●
9.500		125.000	81.000	●
10.000		133.000	87.000	●
10.200		133.000	87.000	●
10.300		133.000	87.000	●
10.500		133.000	87.000	●
11.000		142.000	94.000	●
11.110	7/16	142.000	94.000	●
11.500		142.000	94.000	●
11.910	15/32	151.000	101.000	●
12.000		151.000	101.000	●



Jobber drills



P	•	web thinning $\geq \varnothing 1.000$ • facet point grind • Co-alloyed high speed steel • low feed force required • low torque required
M	•	• for universal application
K	•	
N	•	alloyed/unalloyed steels up to 800 N/mm ² • cold/hot work steels • antifriction bearing steels • non-ferrous metals • cast materials • stainless steels • plastics
S	•	
H	•	

GUHRING NAVIGATOR

Cutting data page 150

Tool material

HSCO

Surface



Shank form

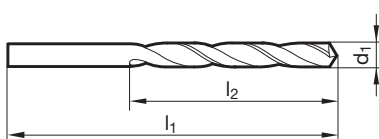
cyl.

cyl.

SL

SL

Drilling tools



Article no.

5523

5519

Discount group

159

159

Cutting direction



d1		l1	l2
mm	inch	mm	mm
1.000		34.000	12.000
1.100		36.000	14.000
1.200		38.000	16.000
1.300		38.000	16.000
1.400		40.000	18.000
1.500		40.000	18.000
1.600		43.000	20.000
1.700		43.000	20.000
1.800		46.000	22.000
1.900		46.000	22.000
2.000		49.000	24.000
2.100		49.000	24.000
2.200		53.000	27.000
2.300		53.000	27.000
2.380	3/32	57.000	30.000
2.400		57.000	30.000
2.500		57.000	30.000
2.600		57.000	30.000
2.700		61.000	33.000
2.780	7/64	61.000	33.000
2.800		61.000	33.000
2.900		61.000	33.000
3.000		61.000	33.000
3.100		65.000	36.000
3.170	1/8	65.000	36.000
3.200		65.000	36.000
3.300		65.000	36.000
3.400		70.000	39.000
3.500		70.000	39.000
3.570	9/64	70.000	39.000
3.600		70.000	39.000
3.700		70.000	39.000
3.800		75.000	43.000
3.900		75.000	43.000
3.970	5/32	75.000	43.000
4.000		75.000	43.000

Availability





Article no.				5523	5519
Discount group				159	159
Cutting direction					
d1		l1	l2	Availability	
mm	inch	mm	mm		
4.100		75.000	43.000	●	●
4.200		75.000	43.000	●	●
4.300		80.000	47.000	●	●
4.370	11/64	80.000	47.000	●	●
4.400		80.000	47.000	●	●
4.500		80.000	47.000	●	●
4.600		80.000	47.000	●	●
4.700		80.000	47.000	●	●
4.760	3/16	86.000	52.000	●	●
4.800		86.000	52.000	●	●
4.900		86.000	52.000	●	●
5.000		86.000	52.000	●	●
5.100		86.000	52.000	●	●
5.160	13/64	86.000	52.000	●	●
5.200		86.000	52.000	●	●
5.300		86.000	52.000	●	●
5.400		93.000	57.000	●	●
5.500		93.000	57.000	●	●
5.560	7/32	93.000	57.000	●	●
5.600		93.000	57.000	●	●
5.700		93.000	57.000	●	●
5.800		93.000	57.000	●	●
5.900		93.000	57.000	●	●
5.950	15/64	93.000	57.000	●	●
6.000		93.000	57.000	●	●
6.100		101.000	63.000	●	●
6.200		101.000	63.000	●	●
6.300		101.000	63.000	●	●
6.350	1/4	101.000	63.000	●	●
6.400		101.000	63.000	●	●
6.500		101.000	63.000	●	●
6.600		101.000	63.000	●	●
6.700		101.000	63.000	●	●
6.800		109.000	69.000	●	●
6.900		109.000	69.000	●	●
7.000		109.000	69.000	●	●
7.100		109.000	69.000	●	●
7.140	9/32	109.000	69.000	●	●
7.200		109.000	69.000	●	●
7.300		109.000	69.000	●	●
7.400		109.000	69.000	●	●
7.500		109.000	69.000	●	●
7.600		117.000	75.000	●	●
7.700		117.000	75.000	●	●
7.800		117.000	75.000	●	●
7.900		117.000	75.000	●	●
7.940	5/16	117.000	75.000	●	●
8.000		117.000	75.000	●	●
8.100		117.000	75.000	●	●
8.200		117.000	75.000	●	●
8.300		117.000	75.000	●	●
8.400		117.000	75.000	●	●
8.500		117.000	75.000	●	●
8.600		125.000	81.000	●	●
8.700		125.000	81.000	●	●
8.730	11/32	125.000	81.000	●	●
8.800		125.000	81.000	●	●
8.900		125.000	81.000	●	●
9.000		125.000	81.000	●	●
9.100		125.000	81.000	●	●



Article no.				5523	5519
Discount group				159	159
Cutting direction					
d1		l1	l2	Availability	
mm	inch	mm	mm		
9.200		125.000	81.000	●	●
9.300		125.000	81.000	●	●
9.400		125.000	81.000	●	●
9.500		125.000	81.000	●	●
9.600		133.000	87.000	●	●
9.700		133.000	87.000	●	●
9.800		133.000	87.000	●	●
9.900		133.000	87.000	●	●
10.000		133.000	87.000	●	●
10.100		133.000	87.000	●	●
10.200		133.000	87.000	●	●
10.300		133.000	87.000	●	●
10.400		133.000	87.000	●	●
10.500		133.000	87.000	●	●
11.000		142.000	94.000	●	●
11.110	7/16	142.000	94.000	●	●
11.500		142.000	94.000	●	●
12.000		151.000	101.000	●	●
12.500		151.000	101.000	●	●
13.000		151.000	101.000	●	●
13.500		160.000	108.000	●	●
14.000		160.000	108.000	●	●



Jobber drills



Tool material

HSS-E-PM

Surface

S

Shank form

cyl.

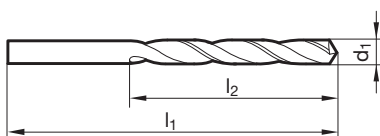
P • web thinning $\geq \varnothing 1.000$ • relieved cone • PM-Co-alloyed high speed steel • especially high rigidity • especially high wear resistance

M ○**K** •**N** ○**S** ○**H** ○

high-alloyed steels • heat treatable and case hardened steels
• cast iron, brass, bronze

GÜHRING NAVIGATOR

Cutting data page 152



Article no.

5522

Discount group

159

Cutting direction



d1		l1	l2	Availability
mm	inch	mm	mm	
1.000		34.000	12.000	●
1.100		36.000	14.000	●
1.200		38.000	16.000	●
1.300		38.000	16.000	●
1.400		40.000	18.000	●
1.500		40.000	18.000	●
1.600		43.000	20.000	●
1.700		43.000	20.000	●
1.800		46.000	22.000	●
1.900		46.000	22.000	●
2.000		49.000	24.000	●
2.100		49.000	24.000	●
2.200		53.000	27.000	●
2.300		53.000	27.000	●
2.380	3/32	57.000	30.000	●
2.400		57.000	30.000	●
2.500		57.000	30.000	●
2.600		57.000	30.000	●
2.700		61.000	33.000	●
2.780	7/64	61.000	33.000	●
2.800		61.000	33.000	●
2.900		61.000	33.000	●
3.000		61.000	33.000	●
3.100		65.000	36.000	●
3.170	1/8	65.000	36.000	●
3.200		65.000	36.000	●
3.300		65.000	36.000	●
3.400		70.000	39.000	●
3.500		70.000	39.000	●
3.570	9/64	70.000	39.000	●
3.600		70.000	39.000	●
3.700		70.000	39.000	●
3.800		75.000	43.000	●
3.900		75.000	43.000	●
3.970	5/32	75.000	43.000	●
4.000		75.000	43.000	●

Article no.				5522
Discount group				159
Cutting direction				
d1		l1	l2	Availability
mm	inch	mm	mm	
4.100		75.000	43.000	●
4.200		75.000	43.000	●
4.300		80.000	47.000	●
4.370	11/64	80.000	47.000	●
4.400		80.000	47.000	●
4.500		80.000	47.000	●
4.600		80.000	47.000	●
4.700		80.000	47.000	●
4.760	3/16	86.000	52.000	●
4.800		86.000	52.000	●
4.900		86.000	52.000	●
5.000		86.000	52.000	●
5.100		86.000	52.000	●
5.160	13/64	86.000	52.000	●
5.200		86.000	52.000	●
5.300		86.000	52.000	●
5.400		93.000	57.000	●
5.500		93.000	57.000	●
5.560	7/32	93.000	57.000	●
5.600		93.000	57.000	●
5.700		93.000	57.000	●
5.800		93.000	57.000	●
5.900		93.000	57.000	●
5.950	15/64	93.000	57.000	●
6.000		93.000	57.000	●
6.100		101.000	63.000	●
6.200		101.000	63.000	●
6.300		101.000	63.000	●
6.350	1/4	101.000	63.000	●
6.400		101.000	63.000	●
6.500		101.000	63.000	●
6.600		101.000	63.000	●
6.700		101.000	63.000	●
6.800		109.000	69.000	●
6.900		109.000	69.000	●
7.000		109.000	69.000	●
7.100		109.000	69.000	●
7.140	9/32	109.000	69.000	●
7.200		109.000	69.000	●
7.300		109.000	69.000	●
7.400		109.000	69.000	●
7.500		109.000	69.000	●
7.600		117.000	75.000	●
7.700		117.000	75.000	●
7.800		117.000	75.000	●
7.900		117.000	75.000	●
7.940	5/16	117.000	75.000	●
8.000		117.000	75.000	●
8.100		117.000	75.000	●
8.200		117.000	75.000	●
8.300		117.000	75.000	●
8.400		117.000	75.000	●
8.500		117.000	75.000	●
8.730	11/32	125.000	81.000	●
8.800		125.000	81.000	●
9.000		125.000	81.000	●
9.300		125.000	81.000	●
9.500		125.000	81.000	●
9.800		133.000	87.000	●
10.000		133.000	87.000	●



Drilling tools

Article no.				5522
Discount group				159
Cutting direction				
d1		l1	l2	Availability
mm	inch	mm	mm	
10.200		133.000	87.000	●
10.500		133.000	87.000	●
11.000		142.000	94.000	●
11.110	7/16	142.000	94.000	●
11.500		142.000	94.000	●
12.000		151.000	101.000	●
12.500		151.000	101.000	●
13.000		151.000	101.000	●
13.500		160.000	108.000	●
14.000		160.000	108.000	●



Jobber drills



Tool material

HSS

Surface

S

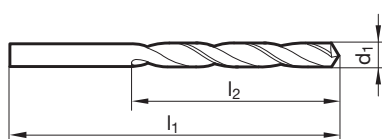
Shank form

cyl.

P	•	web thinning $\geq \varnothing 1.000$ • relieved cone • tip coating
M		
K	•	
N	•	alloyed/unalloyed steel and cast steel • grey cast iron, malleable and spheroidal iron • sintered powder metal and graphite
S		
H		

GUHRING NAVIGATOR

Cutting data page 152



Article no.

9651

Discount group

159

Cutting direction



d1		l1	l2	Availability
mm	inch	mm	mm	
1.000		34.000	12.000	•
1.100		36.000	14.000	•
1.190	3/64	38.000	16.000	•
1.200		38.000	16.000	•
1.300		38.000	16.000	•
1.400		40.000	18.000	•
1.500		40.000	18.000	•
1.590	1/16	43.000	20.000	•
1.600		43.000	20.000	•
1.700		43.000	20.000	•
1.800		46.000	22.000	•
1.900		46.000	22.000	•
1.980	5/64	49.000	24.000	•
2.000		49.000	24.000	•
2.100		49.000	24.000	•
2.200		53.000	27.000	•
2.300		53.000	27.000	•
2.380	3/32	57.000	30.000	•
2.400		57.000	30.000	•
2.500		57.000	30.000	•
2.600		57.000	30.000	•
2.700		61.000	33.000	•
2.780	7/64	61.000	33.000	•
2.800		61.000	33.000	•
2.900		61.000	33.000	•
3.000		61.000	33.000	•
3.100		65.000	36.000	•
3.170	1/8	65.000	36.000	•
3.200		65.000	36.000	•
3.300		65.000	36.000	•
3.400		70.000	39.000	•
3.500		70.000	39.000	•
3.570	9/64	70.000	39.000	•
3.600		70.000	39.000	•
3.700		70.000	39.000	•
3.800		75.000	43.000	•



Article no.				9651
Discount group				159
Cutting direction				
d1		l1	l2	Availability
mm	inch	mm	mm	
3.900		75.000	43.000	●
3.970	5/32	75.000	43.000	●
4.000		75.000	43.000	●
4.100		75.000	43.000	●
4.200		75.000	43.000	●
4.300		80.000	47.000	●
4.370	11/64	80.000	47.000	●
4.400		80.000	47.000	●
4.500		80.000	47.000	●
4.600		80.000	47.000	●
4.700		80.000	47.000	●
4.760	3/16	86.000	52.000	●
4.800		86.000	52.000	●
4.900		86.000	52.000	●
5.000		86.000	52.000	●
5.100		86.000	52.000	●
5.160	13/64	86.000	52.000	●
5.200		86.000	52.000	●
5.300		86.000	52.000	●
5.400		93.000	57.000	●
5.500		93.000	57.000	●
5.560	7/32	93.000	57.000	●
5.600		93.000	57.000	●
5.700		93.000	57.000	●
5.800		93.000	57.000	●
5.900		93.000	57.000	●
5.950	15/64	93.000	57.000	●
6.000		93.000	57.000	●
6.100		101.000	63.000	●
6.200		101.000	63.000	●
6.300		101.000	63.000	●
6.350	1/4	101.000	63.000	●
6.400		101.000	63.000	●
6.500		101.000	63.000	●
6.600		101.000	63.000	●
6.700		101.000	63.000	●
6.750	17/64	109.000	69.000	●
6.800		109.000	69.000	●
6.900		109.000	69.000	●
7.000		109.000	69.000	●
7.100		109.000	69.000	●
7.200		109.000	69.000	●
7.300		109.000	69.000	●
7.400		109.000	69.000	●
7.500		109.000	69.000	●
7.540	19/64	117.000	75.000	●
7.600		117.000	75.000	●
7.700		117.000	75.000	●
7.800		117.000	75.000	●
7.900		117.000	75.000	●
7.940	5/16	117.000	75.000	●
8.000		117.000	75.000	●
8.100		117.000	75.000	●
8.200		117.000	75.000	●
8.300		117.000	75.000	●
8.330	21/64	117.000	75.000	●
8.400		117.000	75.000	●
8.500		117.000	75.000	●
8.600		125.000	81.000	●
8.700		125.000	81.000	●



Article no.				9651
Discount group				159
Cutting direction				
d1		l1	l2	Availability
mm	inch	mm	mm	
8.730	11/32	125.000	81.000	●
8.800		125.000	81.000	●
8.900		125.000	81.000	●
9.000	23/64	125.000	81.000	●
9.100		125.000	81.000	●
9.130		125.000	81.000	●
9.200		125.000	81.000	●
9.300	3/8	125.000	81.000	●
9.400		125.000	81.000	●
9.500		125.000	81.000	●
9.520	3/8	133.000	87.000	●
9.600		133.000	87.000	●
9.700		133.000	87.000	●
9.800	25/64	133.000	87.000	●
9.900		133.000	87.000	●
9.920		133.000	87.000	●
10.000	13/32	133.000	87.000	●
10.100		133.000	87.000	●
10.200		133.000	87.000	●
10.300	13/32	133.000	87.000	●
10.320		133.000	87.000	●
10.400		133.000	87.000	●
10.500	27/64	133.000	87.000	●
10.600		133.000	87.000	●
10.700		142.000	94.000	●
10.720	7/16	142.000	94.000	●
10.800		142.000	94.000	●
10.900		142.000	94.000	●
11.000	29/64	142.000	94.000	●
11.100		142.000	94.000	●
11.110		142.000	94.000	●
11.200	15/32	142.000	94.000	●
11.300		142.000	94.000	●
11.400		142.000	94.000	●
11.500	31/64	142.000	94.000	●
11.510		142.000	94.000	●
11.600		142.000	94.000	●
11.700	1/2	142.000	94.000	●
11.800		142.000	94.000	●
11.900		151.000	101.000	●
11.910	33/64	151.000	101.000	●
12.000		151.000	101.000	●
12.100		151.000	101.000	●
12.200	17/32	151.000	101.000	●
12.300		151.000	101.000	●
12.400		151.000	101.000	●
12.500	17/32	151.000	101.000	●
12.600		151.000	101.000	●
12.700		151.000	101.000	●
12.800	17/32	151.000	101.000	●
12.900		151.000	101.000	●
13.000		151.000	101.000	●
13.100	17/32	151.000	101.000	●
13.200		151.000	101.000	●
13.250		160.000	108.000	●
13.300	17/32	160.000	108.000	●
13.400		160.000	108.000	●
13.490		160.000	108.000	●
13.500	17/32	160.000	108.000	●
13.600		160.000	108.000	●



Drilling tools

Article no.				9651
Discount group				159
Cutting direction				
d1		l1	l2	Availability
mm	inch	mm	mm	
13.700		160.000	108.000	●
13.750		160.000	108.000	●
13.800		160.000	108.000	●
13.890	35/64	160.000	108.000	●
13.900		160.000	108.000	●
14.000		160.000	108.000	●
14.250		169.000	114.000	●
14.290	9/16	169.000	114.000	●
14.500		169.000	114.000	●
14.680	37/64	169.000	114.000	●
14.750		169.000	114.000	●
15.000		169.000	114.000	●
15.080	19/32	178.000	120.000	●
15.250		178.000	120.000	●
15.480	39/64	178.000	120.000	●
15.500		178.000	120.000	●
15.750		178.000	120.000	●
16.000		178.000	120.000	●



Long series twist drills



P • web thinning $\geq \varnothing 1.000$ • facet point grind • Co-alloyed high speed steel • low feed force required • low torque required • increased wear resistance • for universal application • only suitable for short drilling depths when used at full length for reach purposes or interferences

M •
K •
N • alloyed/unalloyed steels up to 800 N/mm² • cold/hot work steels
S • antifriction bearing steels • non-ferrous metals • cast materials
H • stainless steels • plastics

GÜHRING NAVIGATOR

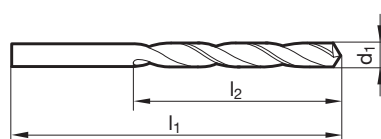
Cutting data page 152

Tool material **HSCo**Surface ○ **S**

Shank form cyl. cyl.

SL**SL**

Drilling tools

Article no. **5536** **5537**Discount group **159** **159**Cutting direction **(R)** **(R)**

d1	l1	l2	Availability	
mm	mm	mm		
1.000	56.000	33.000	•	•
1.100	60.000	37.000	•	•
1.200	65.000	41.000	•	•
1.300	65.000	41.000	•	•
1.400	70.000	45.000	•	•
1.500	70.000	45.000	•	•
1.600	76.000	50.000	•	•
1.700	76.000	50.000	•	•
1.800	80.000	53.000	•	•
1.900	80.000	53.000	•	•
2.000	85.000	56.000	•	•
2.100	85.000	56.000	•	•
2.200	90.000	59.000	•	•
2.300	90.000	59.000	•	•
2.400	95.000	62.000	•	•
2.500	95.000	62.000	•	•
2.600	95.000	62.000	•	•
2.700	100.000	66.000	•	•
2.800	100.000	66.000	•	•
2.900	100.000	66.000	•	•
3.000	100.000	66.000	•	•
3.100	106.000	69.000	•	•
3.200	106.000	69.000	•	•
3.300	106.000	69.000	•	•
3.400	112.000	73.000	•	•
3.500	112.000	73.000	•	•
3.600	112.000	73.000	•	•
3.700	112.000	73.000	•	•
3.800	119.000	78.000	•	•
3.900	119.000	78.000	•	•
4.000	119.000	78.000	•	•
4.100	119.000	78.000	•	•
4.200	119.000	78.000	•	•
4.300	126.000	82.000	•	•
4.400	126.000	82.000	•	•
4.500	126.000	82.000	•	•



Article no.			5536	5537
Discount group			159	159
Cutting direction				
d1	l1	l2	Availability	
mm	mm	mm		
4.600	126.000	82.000	●	●
4.700	126.000	82.000	●	●
4.800	132.000	87.000	●	●
4.900	132.000	87.000	●	●
5.000	132.000	87.000	●	●
5.100	132.000	87.000	●	●
5.200	132.000	87.000	●	●
5.300	132.000	87.000	●	●
5.400	139.000	91.000	●	●
5.500	139.000	91.000	●	●
5.600	139.000	91.000	●	●
5.700	139.000	91.000	●	●
5.800	139.000	91.000	●	●
5.900	139.000	91.000	●	●
6.000	139.000	91.000	●	●
6.100	148.000	97.000	●	●
6.200	148.000	97.000	●	●
6.300	148.000	97.000	●	●
6.400	148.000	97.000	●	●
6.500	148.000	97.000	●	●
6.600	148.000	97.000	●	●
6.700	148.000	97.000	●	●
6.800	156.000	102.000	●	●
6.900	156.000	102.000	●	●
7.000	156.000	102.000	●	●
7.100	156.000	102.000	●	●
7.200	156.000	102.000	●	●
7.300	156.000	102.000	●	●
7.400	156.000	102.000	●	●
7.500	156.000	102.000	●	●
7.600	165.000	109.000	●	●
7.700	165.000	109.000	●	●
7.800	165.000	109.000	●	●
7.900	165.000	109.000	●	●
8.000	165.000	109.000	●	●
8.100	165.000	109.000	●	●
8.200	165.000	109.000	●	●
8.300	165.000	109.000	●	●
8.400	165.000	109.000	●	●
8.500	165.000	109.000	●	●
8.600	175.000	115.000	●	●
8.700	175.000	115.000	●	●
8.800	175.000	115.000	●	●
8.900	175.000	115.000	●	●
9.000	175.000	115.000	●	●
9.100	175.000	115.000	●	●
9.200	175.000	115.000	●	●
9.300	175.000	115.000	●	●
9.400	175.000	115.000	●	●
9.500	175.000	115.000	●	●
9.600	184.000	121.000	●	●
9.700	184.000	121.000	●	●
9.800	184.000	121.000	●	●
9.900	184.000	121.000	●	●
10.000	184.000	121.000	●	●
10.100	184.000	121.000	●	●
10.200	184.000	121.000	●	●
10.300	184.000	121.000	●	●
10.400	184.000	121.000	●	●
10.500	184.000	121.000	●	●



Article no.			5536	5537
Discount group			159	159
Cutting direction				
d1	l1	l2	Availability	
mm	mm	mm		
11.000	195.000	128.000	●	●
11.500	195.000	128.000	●	●
12.000	205.000	134.000	●	●
12.500	205.000	134.000	●	●
13.000	205.000	134.000	●	●
13.500	214.000	140.000	●	●
14.000	214.000	140.000	●	●



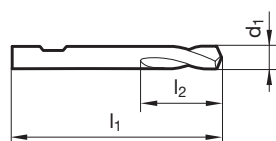
90° NC spotting drills



P • relieved cone • only suitable for spotting • $\geq \varnothing 6.0$ mm with driving face to DIN 1835-B • inch dimensions are without clamping surface • Co-alloyed high speed steel • increased wear resistance

Tool material **HSCO**Surface **F**Shank form **B****SL****GUHRING** NAVIGATOR

Cutting data page 148

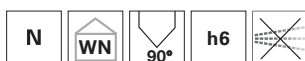
Article no. **5678**Discount group **159**

Cutting direction

d1		l1	l2	Availability
mm	inch	mm	mm	
3.000		46.000	12.000	•
4.000		55.000	12.000	•
5.000		62.000	14.000	•
6.000		66.000	16.000	•
6.350	1/4	70.000	17.000	•
8.000		79.000	21.000	•
9.520	3/8	89.000	25.000	•
10.000		89.000	25.000	•
12.000		102.000	30.000	•
12.700	1/2	102.000	30.000	•
14.000		107.000	33.500	•
15.870	5/8	115.000	37.500	•
16.000		115.000	37.500	•
19.050	3/4	131.000	45.000	•
20.000		131.000	45.000	•
25.000	63/64	151.000	53.000	•
25.400	1	156.000	53.000	•



90° NC spotting drills



P ○ facet point grind • only suitable for spotting • $\geq \varnothing 6.0$ mm with clamping surface shank form HB • inch dimensions are without clamping surface

M ○

K ○

N ○ universal material suitability

S ○

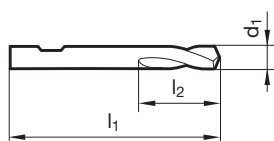
H ○

Tool material **Solid carbide**Surface **F**Shank form **HB****SL**

Drilling tools

GUHRING NAVIGATOR

Cutting data page 148

Article no. **6027**Discount group **155**

Cutting direction

d1		l1	l2	Availability
mm	inch	mm	mm	
4.000		55.000	12.000	●
5.000		62.000	14.000	●
6.000		66.000	16.000	●
6.350	1/4	70.000	17.000	●
8.000		79.000	21.000	●
9.520	3/8	89.000	25.000	●
10.000		89.000	25.000	●
12.000		102.000	30.000	●
12.700	1/2	102.000	30.000	●
15.870	5/8	115.000	37.500	●
16.000		115.000	37.500	●
19.050	3/4	131.000	45.000	●
20.000		131.000	45.000	●



120° NC spotting drills



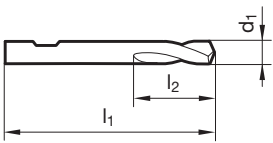
P	•	relieved cone • only suitable for spotting • $\geq \varnothing 6.0$ mm with driving face to DIN 1835-B • inch dimensions are without clamping surface • Co-alloyed high speed steel • increased wear resistance
M	•	
K	•	
N	•	
S	○	
H		

Tool material **HSCO**

Surface **F**

Shank form **B**

SL



Article no. **5679**

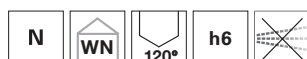
Discount group **159**

Cutting direction

d1		l1	l2	Availability
mm	inch	mm	mm	
3.000		46.000	12.000	•
4.000		55.000	12.000	•
5.000		62.000	14.000	•
6.000		66.000	16.000	•
6.350	1/4	70.000	17.000	•
8.000		79.000	21.000	•
9.520	3/8	89.000	25.000	•
10.000		89.000	25.000	•
12.000		102.000	30.000	•
12.700	1/2	102.000	30.000	•
15.870	5/8	115.000	37.500	•
16.000		115.000	37.500	•
19.050	3/4	131.000	45.000	•
20.000		131.000	45.000	•
25.000	63/64	151.000	53.000	•
25.400	1	156.000	53.000	•



120° NC spotting drills



P ○ facet point grind • only suitable for spotting • $\geq \varnothing 6.0$ mm with clamping surface shank form HB • inch dimensions are without clamping surface

M ○

K ○

N ○ universal material suitability

S ○

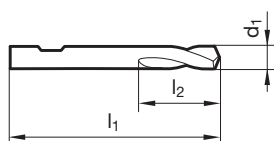
H ○

Tool material **Solid carbide**Surface **F**Shank form **HB****SL**

Drilling tools

GUHRING NAVIGATOR

Cutting data page 148

Article no. **6028**Discount group **155**

Cutting direction

d1		l1	l2	Availability
mm	inch	mm	mm	
3.000		46.000	12.000	●
5.000		62.000	14.000	●
6.000		66.000	16.000	●
6.350	1/4	70.000	17.000	●
8.000		79.000	21.000	●
9.520	3/8	89.000	25.000	●
10.000		89.000	25.000	●
12.000		102.000	30.000	●
12.700	1/2	102.000	30.000	●
15.870	5/8	115.000	37.500	●
16.000		115.000	37.500	●
19.050	3/4	131.000	45.000	●
20.000		131.000	45.000	●



142° NC spotting drills

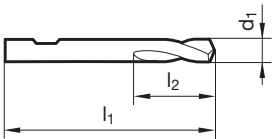


- P** ○ facet point grind • only suitable for spotting • $\geq \varnothing 6.0$ mm with clamping surface shank form HB • inch dimensions are without clamping surface
- M** ○
- K** ○
- N** ○ universal material suitability
- S** ○
- H** ○

GUHRING NAVIGATOR

Cutting data page 148

Tool material	Solid carbide
Surface	F
Shank form	HB
	SL



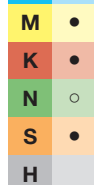
Article no.				6029
Discount group				155
Cutting direction				
d1		l1	l2	Availability
mm	inch	mm	mm	
4.000		55.000	12.000	
5.000		62.000	14.000	
6.000		66.000	16.000	
8.000		79.000	21.000	
10.000		89.000	25.000	
12.000		102.000	30.000	
16.000		115.000	37.500	
20.000		131.000	45.000	



Centre drills without flat



P • relieved cone • without protective countersink • for centre holes to DIN 332, part 1, form A • $d_1 \leq 0.8 \text{ mm}$: not double ended

Tool material **HSCO**Surface **F**

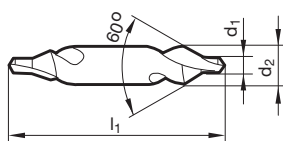
Shank form cyl.

SL

Drilling tools

GUHRING NAVIGATOR

Cutting data page 148

Article no. **5680**Discount group **159**

Cutting direction

d1	d2	l1
mm	mm	mm
0.500	3.150	25.000
1.000	3.150	31.500
1.250	3.150	31.500
1.600	4.000	35.500
2.000	5.000	40.000
2.500	6.300	45.000
3.150	8.000	50.000
4.000	10.000	56.000

Availability
•
•
•
•
•
•
•
•



Twist drill sets



P	•	web thinning ≥ Ø 1.000 • facet point grind • Sets with the most common drill dimensions are available for fitters and craftsmen, which can be supplied with bakelite stands and cassettes. Other set combinations are possible on request.
M	•	
K	•	
N	•	
S	•	
H	•	

Tool material	HSCO
Surface	○
Shank form	cyl.
	SL



Article no.					12
Discount group					159
Cutting direction					Ⓡ
d1	increasing by	supplement. sizes	Pieces/set	Code no.	Availability
mm	mm				
1.0-13.0	0,5		25	7.014	•
1.0-10.5	0,5	3.3/4.2/6.8/10.2	24	7.018	•



Twist drill sets



P • relieved cone • tip coating • Sets with the most common drill dimensions are available for fitters and craftsmen, which can be supplied with bakelite stands and cassettes. Other set combinations are possible on request.
M •
K •
N •
S •
H •

Tool material **HSS**Surface **S**

Shank form cyl.

SL

Drilling tools

Article no. **234**Discount group **159**Cutting direction **R**

d1	increasing by	supplement. sizes	Pieces/set	Code no.	Availability
mm	mm				
1.0-13.0	0,5		25	6.014	•
1.0-10.0	0,5		19	6.013	•
1.0-5.9	0,1		50	6.015	•
6.0-10.0	0,1		41	6.016	•
1.0-10.5	0,5	3.3/4.2/6.8/10.2	24	6.018	•

GUHRINGNAVIGATOR Ratio drills

Generally recommendations:
For safety reasons it is very important, that a drill does not exceed a speed of n = 6,000 rev./min when unsupported. The centrifugal forces can break these long tools before reaching the workpiece surface!

Application recommendations for 7xD, 10xD and 12xD drills: Pilot holes are necessary for extra length SL drills 7xD: 1.) The pilot hole can be produced with a short, rigid drill. The diameter should be 0.01-0.02 mm larger than the diameter of the SL drill, the drilling depth > 1xD.

2.) Alternatively SL drills can produce their own pilot hole. Cutting speed and feed rate should be reduced by 30-40 %.

The recommended **minimum coolant pressure** is 40 bar.

Article no. HA
Article no. HE
Article no. HB
Standard/DIN
Tool material
Carbide grade
Type
Surface finish
Cooling
Std. range page

Tools with bold feed column no. are preferred choice.

Drill Ø mm	Feed column no.								
	1	2	3	4	5	6	7	8	9
	f (mm/rev.)								
2.00	0.020	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125
2.50	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160
3.15	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.160
4.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.200
5.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250
6.30	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315
8.00	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.315
10.00	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.400
12.50	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500
16.00	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630
20.00	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.630

Cooling:
 without coolant ducts
 with coolant ducts

Coolant:
 Air
 Neat oil
 Soluble oil

Material group	Material examples Figures in bold = material no. to DIN EN 10 027	Tensile strength MPa (N/mm ²)	Hardness	Coolant
Common structural steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		  
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		  
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		  
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		  
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		  
Alloyed case hardened steels	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		  
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		  
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		  
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		  
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	  
Hardened steels	-		≤48 HRC ≤66 HRC	  
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤900 ≤1100 ≤1500		  
Cast iron	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	  
Spheroidal graphite iron and malleable cast iron	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	  
Chilled cast iron	-		≤350 HB	  
New cast materials GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	  
New cast materials ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		  
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		
Ti and Ti alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		
Aluminium and Al alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		
Al cast alloys ≤ 10 % Si ≤ 24 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9 3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500		
Brass, short-chipping long-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2 2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600 ≤600		
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn 2.0790 CuNi18Zn19Pb	≤600 ≤850		
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 ≤1000		
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150		
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		
Kevlar	Kevlar	≤1000		
Glass, carbon concentr. plastics	GFK/CFK	≤1000		



$\leq 3xD \leq 5xD$		$\leq 3xD \leq 5xD$		$\leq 3xD \leq 5xD$		$\leq 5xD$	$\leq 5xD$	$\leq 5xD$	$\leq 7xD$	$\leq 7xD$
5510	5511	5514	5515	5526	5580	5768	5498	5518	5512	5499
5610	5611	5614	5615	5528	5581				5612	
6023	5650	6026	5651	6024	6025				Co. std.	Co. std.
6537K	6537L	6537K	6537L	6537K	6537L	6537L	6537L	6537L	Sol. carb.	Sol. carb.
Solid carbide		Solid carbide		Solid carbide		Sol. carb.	Sol. carb.	Sol. carb.		
K/P		K/P		K/P		K/P	K/P	K	K/P	K/P
RT 100 U		RT 100 U		RT 100 VA		RT 100 AI	RT 100 XF	FT 200	RT 100 U	RT 100 XF
22	32	66	69	25	36	28	40	99	44	47



V _C m/min	Feed col. no.		V _C m/min	Feed col. no.		V _C m/min	Feed col. no.		V _C m/min	Feed col. no.		V _C m/min	Feed col. no.		V _C m/min	Feed col. no.	
145	7	7	130	7	7				200	8		145	6	180	8		
120	6	6	110	6	6				200	7		120	5	180	7		
170	8	8	145	8	8				200	8		170	7	180	8		
145	8	8	110	7	7				200	8		145	7	180	8		
130	8	8	120	7	7				180	8		130	7	160	8		
125	7	7	110	7	7				160	8		125	6	140	8		
120	7	7	105	7	7				130	8		120	6	120	8		
120	7	7	105	7	7				120	8		120	6	110	8		
105	7	7	100	6	6				120	7		105	6	110	7		
145	8	8	130	8	8				180	8		145	7	160	8		
120	7	7	120	7	7				120	8		120	6	110	8		
85	5	5	85	5	5				110	7		85	4	100	7		
110	7	7	100	6	6				110	7		110	6	100	7		
105	5	5	90	5	5				100	5		105	4	90	5		
80	6	6	65	6	6				90	7		80	5	80	7		
65	5	5	55	5	5				65	6		65	4	60	6		
60	4	5							60	5		60	4	55	5		
60	3	3	45	3	3				60	5		60	2	55	5		
55	3	2	40	1	1				55	3		55	2	45	3		
35	2	2	20	1	1							35	1				
60	5	5	40	2	2	80	5	5	80	5		60	4	70	5		
55	2	2	15	1	1	60	2-3	2-3				55	2				
45	5	5	35	2	2	80	5	5	60	5		45	4	50	5		
210	9	9	210	8	8				180	9	100	6	195	8	165	9	
160	9	9	155	8	8				160	9	80	6	160	8	145	9	
140	9	9	155	7	7				140	9	80	6	140	8	130	9	
130	8	8	125	7	7				140	8	70	6	130	7	130	8	
40	3	3	35	3	3							40	2				
									140	8				130	8		
									140	8				130	8		
									80	7				70	7		
									80	7				70	7		
35	4	4	25	4	4	30	4	4	30	4		35	3	25	4		
45	4	4	15	1	1	45	4	4	40	4		40	3	35	4		
40	3	3	15	1	1	40	3	3	35	3		40	2	30	3		
310	9	9	260	9	9				350	9	180	7	310	8			
310	9	9	260	9	9				350	9	160	7	310	8			
260	9	9	220	9	9				320	8	150	7	260	8			
220	9	9	180	8	8				280	7	120	6	220	8			
280	8	8	260	8	8				320	7	180	6	280	7			
125	7	7	105	7	7				190	7			125	6			
325	8	8	270	8	8				160	6	180	6	325	7			
220	7	7	180	7	7				160	6			220	6			
125	7	7	105	6	6				160	6			125	6			
105	6	6	85	6	6				160	6			105	5			
90	6	6	80	5	5				150	6			90	5			
80	6	6	60	5	5				150	6			80	5			
									100	3							
									100	3							
									100	2							



GUHRING NAVIGATOR Ratio drills

Generally recommendations:

For safety reasons it is very important, that a drill does not exceed a speed of $n = 6,000 \text{ rev./min}$ when unsupported. The centrifugal forces can break these long tools before reaching the workpiece surface!

Application recommendations for 7xD, 10xD and 12xD drills:

Pilot holes are necessary for extra length SL drills 7xD: 1.) The pilot hole can be produced with a short, rigid drill. The diameter should be 0.01-0.02 mm larger than the diameter of the SL drill, the drilling depth $> 1xD$.

2.) Alternatively SL drills can produce their own pilot hole. Cutting speed and feed rate should be reduced by 30-40 %.

The recommended **minimum coolant pressure** is 40 bar.

Article no. HA

Article no. HE

Article no. HB

Standard/DIN

Tool material

Carbide grade

Type

Surface finish

Cooling

Std. range page

Tools with bold feed column no. are preferred choice.

Drill Ø mm	Feed column no.								
	1	2	3	4	5	6	7	8	9
	f (mm/rev.)								
3.15	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.160
4.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.200
5.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250
6.30	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315
8.00	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.315
10.00	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.400
12.50	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500
16.00	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630
20.00	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.630

Cooling:

☒ without coolant ducts
☒ with coolant ducts

Coolant:

○ Air
● Neat oil
● Soluble oil

Material group	Material examples Figures in bold = material no. to DIN EN 10 027	Tensile strength MPa (N/mm ²)	Hardness	Coolant
Common structural steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		●
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		●
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		●
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		●
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		●
Alloyed case hardened steels	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		●
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		●
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		●
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		●
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	●
Hardened steels	–		≤48 HRC ≤66 HRC	●
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤900 ≤1100 ≤1500		●
Cast iron	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	●
Spheroidal graphite iron and malleable cast iron	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	●
Chilled cast iron	–		≤350 HB	●
New cast materials GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	●
New cast materials ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		●
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Ti and Ti alloys	3.7024 Ti99.5, 3.7114 TiAl5Sn2.5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2.5, - TiAl8Mo1V1	≤850 ≤1400		●
Aluminium and Al alloys	3.0255 Al99.5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		●
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1.5	≤650		●
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		●
≤ 24 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		●
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500		●
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		●
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0.5	≤600		●
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn 2.0790 CuNi18Zn19Pb	≤600 ≤850		●
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 ≤1000		●
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150		○
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		○
Kevlar	Kevlar	≤1000		○
Glass, carbon concentr. plastics	GFK/CFK	≤1000		○



≤ 10xD				≤ 12xD				≤ 15xD				≤ 20xD				≤ 25xD				≤ 30xD			
5513				5525				6509				6511				6512				6513			
Comp. std.				Comp. std.				Company std.				Company std.				Company std.				Company std.			
Solid carb.				Solid carb.				Solid carbide				Solid carbide				Solid carbide				Solid carbide			
K				K/P				K/P				K/P				K/P				K/P			
RT 100 GG				RT 100 U				RT 100 T				RT 100 T				RT 100 T				RT 100 T			
51				53				56				58				60				62			
V _c m/min	Feed col. no.			V _c m/min	Feed col. no.			V _c m/min	Feed col. no.			V _c m/min	Feed col. no.			V _c m/min	Feed col. no.			V _c m/min	Feed col. no.		
				110	6			110	8			110	8			100	8			80	7		
				110	5			110	8			110	8			100	8			80	7		
				110	7			120	8			120	8			120	8			100	8		
				100	7			120	8			120	8			100	8			100	8		
				110	7			110	6			110	6			110	6			110	6		
				110	6			110	8			110	8			100	8			80	7		
				100	6			100	7			100	7			100	7			80	7		
				110	6			110	7	80	7	110	7	80	7	100	7	70	7	80	7	60	7
				105	6			110	6	80	7	110	6	80	7	100	6	70	7	80	6	60	7
				110	7			110	8			110	8			100	8			80	7		
				110	6			110	7	80	6-7	110	7	80	6-7	100	7	70	6-7	80	6	60	6-7
				85	4			110	6	80	6-7	110	6	80	6-7	100	6	70	6-7	80	6	60	6-7
				100	6			100	5			100	5			80	5			80	5		
				80	4			80	5			80	5			60	5			60	5		
				80	5			100	6-7			100	6			90	6			80	6		
				65	4			80	5			80	5			70	4			70	4		
				50	4			50	5			50	5			50	4			50	4		
				50	2			50	5			50	5			50	4			50	4		
								40-50	2-4			40-50	2-4			40-50	2-4			40-50	2-4		
				60	4			100	5			100	5			100	5			80	5		
				55	2			60	2-3			60	2-3			60	2-3			60	2-3		
				45	4			100	5			100	5			100	5			80	5		
120	6			120	8			140	8			140	8			130	8			120	8		
100	6			120	8			100	8			100	8			90	8			80	8		
90	6			100	8			140	8			140	8			130	8			120	8		
80	6			90	7			100	8			100	8			90	8			80	8	65	8
40	2																						
								100	6			100	6			90	6			80	6		
								100	6			100	6			90	6			80	6		
								90	8	60	8-9	90	8	60	8-9	80	8	60	8-9	70	8	60	8-9
								30	2			30	2			30	2			30	2		
410	8			150	8																		
410	8			150	8																		
380	8			150	8																		
330	8			120	8																		
				150	7																		
				80	6			120	1			120	1			120	1			120	1		
280	7			120	7			120	8			120	8			110	8			100	8		
				120	6																		
110	6			40	6																		
80	5																						
				40	5																		

**GUHRINGNAVIGATOR HT 800 WP**

All data are approximate values. The actually achievable cutting speeds and feed rates depend on the respective machining conditions. We recommend suitable drilling trials.

To select the optimal tool and the recommended machining parameters for your application, please also use the electronic version of the Gühring Navigator on the internet: www.guehring.com.

Article no.

Standard/DIN

Tool material

Carbide grade

Surface finish

Application

Std. range page

Drill Ø mm	Feed column no.								
	1	2	3	4	5	6	7	8	9
	f (mm/rev.)								
10.00	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.400
12.50	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500
16.00	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630
20.00	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.630
25.00	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800	0.800
31.50	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800	1.000
40.00	0.200	0.250	0.315	0.400	0.500	0.630	0.800	1.000	1.250

Coolant:

○ Air

● Neat oil

● Soluble oil

Material group	Material examples Figures in bold = material no. to DIN EN 10 027	Tensile strength MPa (N/mm ²)	Hardness	Coolant
Common structural steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		○
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		○
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		○
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		○
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		○
Alloyed case hardened steels	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		●
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		●
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		○
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		●
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	●
Hardened steels	–		≤48 HRC ≤66 HRC	●
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤900 ≤1100 ≤1500		●
Cast iron	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	○
Spheroidal graphite iron and malleable cast iron	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	○
Chilled cast iron	–		≤350 HB	○
New cast materials GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	○
New cast materials ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		○
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Ti and Ti alloys	3.7024 Ti99.5, 3.7114 TiAl5Sn2.5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2.5, - TiAl8Mo1V1	≤850 ≤1400		●
Aluminium and Al alloys	3.0255 Al99.5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		○
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1.5	≤650		○
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		○
≤ 24 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		○
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		○
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500		○
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		○
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0.5	≤600		○
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		○
long-chipping	2.0790 CuNi18Zn19Pb	≤850		○
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 ≤1000		○
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150		○
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		○
Kevlar	Kevlar	≤1000		○
Glass, carbon concentr. plastics	GFK/CFK	≤1000		○

GUHRINGNAVIGATOR Micro-precision drills

Tools with bold feed column no. are preferred choice.
To select the optimal tool and the recommended machining parameters for your application, please also use the electronic version of the Gühring Navigator on the internet: www.guehring.com.

Article no.
Standard/DIN
Tool material
Carbide grade
Type
Surface finish
Cooling
Std. range page

Drill Ø mm	Feed column no.												
	56	57	58	59	60	61	62	63	64	65	66	67	68
	f (mm/rev.)												
0.50	0.006	0.012	0.018	0.022	0.030	0.035	0.040	0.045	0.050	0.050	0.055	0.060	0.060
0.80	0.008	0.016	0.024	0.032	0.040	0.050	0.060	0.070	0.080	0.080	0.080	0.090	0.090
1.00	0.012	0.022	0.032	0.042	0.060	0.070	0.080	0.090	0.100	0.100	0.110	0.110	0.120
1.50	0.021	0.036	0.051	0.066	0.090	0.100	0.120	0.130	0.150	0.150	0.160	0.170	0.180
2.00	0.032	0.052	0.072	0.092	0.120	0.140	0.160	0.180	0.200	0.210	0.220	0.230	0.240
2.50	0.045	0.070	0.095	0.120	0.150	0.170	0.200	0.220	0.250	0.260	0.270	0.280	0.300
3.00	0.060	0.090	0.120	0.150	0.180	0.210	0.240	0.270	0.300	0.310	0.330	0.340	0.360

Coolant:
○ Air
● Neat oil
● Soluble oil

Cutting direction:
Ⓡ right-hand cutting

Material group	Material examples Figures in bold = material no. to DIN EN 10 027	Tensile strength MPa (N/mm²)	Hardness	Coolant
Common structural steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		○
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		○
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		○
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		○
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		○
Alloyed case hardened steels	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		○
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		○
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		○
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		○
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	○
Hardened steels	-		≤48 HRC ≤66 HRC	○
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤900 ≤1100 ≤1500		○
Cast iron	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	○
Spheroidal graphite iron and malleable cast iron	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	○
Chilled cast iron	-		≤350 HB	○
New cast materials GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	○
New cast materials ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		○
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		○
Ti and Ti alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		○
Aluminium and Al alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		○
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		○
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		○
≤ 24 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		○
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		○
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500		○
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		○
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		○
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn 2.0790 CuNi18Zn19Pb	≤600 ≤850		○
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 ≤1000		○
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150		○
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		○
Kevlar	Kevlar	≤1000		○
Glass, carbon concentr. plastics	GFK/CFK	≤1000		○

5652
Company standard
Solid carbide
K/P
N
A

89

[illegible]

GUHRINGNAVIGATOR

Tools with bold feed column no. are preferred choice.
To select the optimal tool and the recommended machining parameters for your application, please also use the electronic version of the Gühring Navigator on the internet: www.guehring.com.

Article no.
Standard/DIN
Tool material
Carbide grade
Surface finish
Type
Point angle
Std. range page

Drill Ø mm	Feed column no.								
	1	2	3	4	5	6	7	8	9
	f (mm/rev.)								
0.50	0.004	0.006	0.007	0.008	0.010	0.012	0.014	0.016	0.019
1.00	0.006	0.008	0.012	0.014	0.016	0.018	0.020	0.023	0.025
2.00	0.020	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125
2.50	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160
3.15	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.160
4.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.200
5.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250
6.30	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315
8.00	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.315
10.00	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.400
12.50	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500
16.00	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630
20.00	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.630
25.00	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800	0.800
31.50	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800	1.000
40.00	0.200	0.250	0.315	0.400	0.500	0.630	0.800	1.000	1.250

Coolant:
○ Air
● Neat oil
⦿ Soluble oil

Material group	Material examples Figures in bold = material no. to DIN EN 10 027	Tensile strength MPa (N/mm ²)	Hardness	Coolant
Common structural steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		○
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		○
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		○
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		○
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		○
Alloyed case hardened steels	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		○
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		○
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		○
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		○
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	○
Hardened steels	-		≤48 HRC ≤66 HRC	○
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤900 ≤1100 ≤1500		○
Cast iron	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	○
Spheroidal graphite iron and malleable cast iron	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	○
Chilled cast iron	-		≤350 HB	○
New cast materials GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	○
New cast materials ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		○
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		○
Ti and Ti alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		○
Aluminium and Al alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		○
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		○
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		○
≤ 24 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		○
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		○
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500		○
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		○
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		○
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn 2.0790 CuNi18Zn19Pb	≤600 ≤850		○
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 ≤1000		○
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150		○
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		○
Kevlar	Kevlar	≤1000		○
Glass, carbon concentr. plastics	GFK/CFK	≤1000		○



NC spotting drills

5678
Comp. std.
HSCO

F
N
90°
132

6027
Comp. std.
Solid carb.

K10/K20
F
N
90°
133

5679
Comp. std.
HSCO

F
N
120°
134

6028
Comp. std.
Solid carb.

K10/K20
F
N
120°
135

6029
Comp. std.
Solid carb.

K10/K20
F
N
142°
136

Centre drills

5680
333
HSCO

F
N
137

Drilling tools



V _c m/min	Feed col. no.	V _c m/min	Feed col. no.	V _c m/min	Feed col. no.	V _c m/min	Feed col. no.	V _c m/min	Feed col. no.	V _c m/min	Feed col. no.
42	6	100	6	42	6	100	6	100	6	37	4
36	5	85	5	36	5	85	5	85	5	32	4
48	6	105	6	48	6	105	6	105	6	37	4
42	6	100	5	42	6	100	5	100	5	37	4
44	6	85	5	44	6	85	5	85	5	32	4
44	6	85	5	44	6	85	5	85	5	27	4
40	5	70	4	40	5	70	4	70	4	24	3
27	4	55	4	27	4	55	4	55	4	18	4
22	3	45	3	22	3	45	3	45	3	11	3
37	6	100	6	37	6	100	6	100	6	32	5
22	4	55	4	22	4	55	4	55	4	19	4
18	3	30	3	18	3	30	3	30	3	11	3
19	4			19	4					14	4
15	3			15	3					11	3
21	4	55	4	21	4	55	4	55	4	14	3
16	3			16	3					9	3
12	3			12	3					9	3
10	2			10	2					9	2
		30	2			30	2	30	2		
18	3	35	3	18	3	35	3	35	3	16	3
15	3	25	3	15	3	25	3	25	3	11	3
12	3	30	3	12	3	30	3	30	3	9	3
38	6	100	6	38	6	100	6	100	6	27	6
35	6	100	6	35	6	100	6	100	6	27	5
33	6	85	6	33	6	85	6	85	6	32	6
28	6	70	6	28	6	70	6	70	6	27	5
7	1	25	2	7	1	25	2	25	2	6	1
10	2	25	1	10	2	25	1	25	1	6	2
8	2	25	1	8	2	25	1	25	1	5	2
		230	7			230	7	230	7	86	7
85	7	230	7	85	7	230	7	230	7	86	7
65	7	165	7	65	7	165	7	165	7	54	6
65	6	165	6	65	6	165	6	165	6	54	6
80	6	230	6	80	6	230	6	230	6	75	6
70	5	200	5	70	5	200	5	200	5	64	5
75	5	200	5	75	5	200	5	200	5	75	5
50	5	135	5	50	5	135	5	135	5	48	5
45	5	100	4	45	5	100	4	100	4	37	4
40	4	85	4	40	4	85	4	85	4	32	4
25	4	55	4	25	4	55	4	55	4	21	4
20	4	45	4	20	4	45	4	45	4	19	4
25	4	65	4	25	4	65	4	65	4	21	4
40	4	95	5	40	4	95	5	95	5	32	5

GUHRINGNAVIGATOR Twist drills

Tools with bold feed column no. are preferred choice.

To select the optimal tool and the recommended machining parameters for your application, please also use the electronic version of the Gühring Navigator on the internet: www.guehring.com.

Article no.
Standard/DIN
Tool material
Carbide grade
Surface finish
Type
Std. range page

Drill Ø mm	Feed column no.								
	1	2	3	4	5	6	7	8	9
	f (mm/rev.)								
0.50	0.004	0.006	0.007	0.008	0.010	0.012	0.014	0.016	0.019
1.00	0.006	0.008	0.012	0.014	0.016	0.018	0.020	0.023	0.025
2.00	0.020	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125
2.50	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160
3.15	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.160
4.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.200
5.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250
6.30	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315
8.00	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.315
10.00	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.400
12.50	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500
16.00	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630
20.00	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.630
25.00	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800	0.800
31.50	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800	1.000
40.00	0.200	0.250	0.315	0.400	0.500	0.630	0.800	1.000	1.250
50.00	0.250	0.310	0.400	0.500	0.630	0.800	1.000	1.250	1.250
63.00	0.315	0.400	0.500	0.630	0.800	1.000	1.250	1.600	1.600
80.00	0.400	0.500	0.630	0.800	1.000	1.250	1.600	1.600	2.000

Coolant:

- ☐ Air
☒ Neat oil
☐ Soluble oil

Material group	Material examples Figures in bold = material no. to DIN EN 10 027	Tensile strength MPa (N/mm ²)	Hardness	Coolant
Common structural steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		☐
Free-cutting steels	1.0718 11SMnPB30 (9SMnPB28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		☐
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		☐
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		☐
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		☐
Alloyed case hardened steels	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		☒
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		☒
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		☒
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		☒
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	☒
Hardened steels	-		≤48 HRC ≤66 HRC	☒
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤900 ≤1100 ≤1500		☒
Cast iron	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	☐
Spheroidal graphite iron and malleable cast iron	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	☐
Chilled cast iron	-		≤350 HB	☐
New cast materials GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	☐
New cast materials ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		☐
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		☒
Ti and Ti alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		☒
Aluminium and Al alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		☐
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		☐
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		☐
≤ 24 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		☐
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		☐
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPB	≤500		☐
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		☐
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		☐
Bronze, short-chipping	2.1090 CuSn7ZnPB, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		☐
	2.0790 CuNi18Zn19Pb	≤850		☒
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		☒
	2.0980 CuAl11Ni, 2.1247 CuBe2	≤1000		☒
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150		☐
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		☐
Kevlar	Kevlar	≤1000		☐
Glass, carbon concentr. plastics	GFK/CFK	≤1000		☐



≤3xD		≤3xD		≤3xD		≤3xD		≤3xD		≤5xD		≤5xD		≤5xD	
5524	1897	5520	1897	5521	1897	6005	Co. std.	5516	6539	5523	338	5519	338	6006	Co. std.
HSCO		HSCO		HSS-E-PM		HSS-E-PM		Sol. carb.		HSCO		HSCO		HSS-E-PM	
○		Ⓢ		Ⓢ		Ⓢ		○		○		Ⓢ		Ⓢ	
GU 500 DZ		GU 500 DZ		GT 500 DZ		GU 500 PM		N		GU 500 DZ		GU 500 DZ		GU 500 PM	
111		111		114		101		109		119		119		105	



V _c m/min	Feed col. no.	V _c m/min	Feed col. no.	V _c m/min	Feed col. no.	V _c m/min	Feed col. no.	V _c m/min	Feed col. no.	V _c m/min	Feed col. no.	V _c m/min	Feed col. no.	V _c m/min	Feed col. no.
35	6	45	6	40	6	47	6	80	4	35	6	45	6	47	6
30	5	35	5	32	5	37	5	70	4	30	5	35	5	37	5
40	6	50	6	45	6	53	6	80	5	40	6	50	6	53	6
30	6	40	6	40	5	42	6	70	4	30	6	40	6	42	6
32	6	44	6	42	6	46	6	80	4	32	6	44	6	46	6
28	6	44	6	40	5	46	6	70	4	28	6	44	6	46	6
20	5	40	5	28	4	42	5	60	4	20	5	40	5	42	5
15	4	27	4	25	4	28	4	60	4	15	4	27	4	28	4
13	3	22	3	20	3	23	3	80	5	13	3	22	3	23	3
30	6	44	6	40	4	46	6	60	4	30	6	44	6	46	6
16	4	22	4	22	4	23	4	60	4	16	4	22	4	23	4
12	3	18	3	18	3	19	3	50	4	12	3	18	3	19	3
15	4	22	4	20	4	23	4	50	3	15	4	22	4	23	4
10	3	16	3	15	3	17	3			10	3	16	3	17	3
15	4	20	4	21	4	21	4			15	4	20	4	21	4
10	3	15	3	16	3	16	3			10	3	15	3	16	3
10	3	13	2	15	3	14	2			10	3	13	3	14	2
		9	2	12	2	9	2	25	2			9	2	9	2
								20	2						
14	4	20	4	15	4	21	4	25	2	14	4	20	4	21	4
10	4	16	4	10	3	17	4	15	1	10	4	16	4	17	4
12	4	18	4	12	3	19	4	25	2	12	4	18	4	19	4
36	6	45	6	50	6	47	6	90	4	36	6	45	6	47	6
30	6	40	6	40	6	42	6	80	4	30	6	40	6	42	6
30	6	40	6	44	6	42	6	80	4	30	6	40	6	42	6
22	6	30	6	32	6	32	6	70	4	22	6	30	6	32	6
				8	3										
				5	2			15	2						
								15	1					5	2
								15	1						
50	7	70	7			74	7	200	7	50	7	70	7	74	7
50	7	70	7			74	7	200	7	50	7	70	7	74	7
65	7	85	7			89	7	150	6	65	7	85	7	89	7
60	6	70	6			74	6	120	6	60	6	70	6	74	6
60	6	80	6			84	6	180	6	60	6	80	6	84	6
70	5	80	5	80	5	84	5	80	5	70	5	80	5	84	5
45	5	77	5			81	5	180	5	45	5	77	5	81	5
30	5	44	5	60	5	46	5	180	5	30	5	44	5	46	5
36	4	50	4	50	5	53	4	120	5	36	4	50	4	53	4
30	4	40	4	45	4	42	4	120	5	30	4	40	4	42	4
30	4	32	4	40	4	34	4	70	4	30	4	32	4	34	4
25	4	28	4	32	4	29	4	50	3	25	4	28	4	29	4
20	4	25	4	25	4	26	4	50	4	20	4	25	4	26	4
15	4	27	4			28	4	40	3	15	4	27	4	28	4
								80	3						

GUHRINGNAVIGATOR Twist drills

Tools with bold feed column no. are preferred choice.

To select the optimal tool and the recommended machining parameters for your application, please also use the electronic version of the Gühring Navigator on the internet: www.guehring.com.

Article no.
Standard/DIN
Tool material
Carbide grade
Surface finish
Type
Std. range page

Drill Ø mm	Feed column no.								
	1	2	3	4	5	6	7	8	9
	f (mm/rev.)								
0.50	0.004	0.006	0.007	0.008	0.010	0.012	0.014	0.016	0.019
1.00	0.006	0.008	0.012	0.014	0.016	0.018	0.020	0.023	0.025
2.00	0.020	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125
2.50	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160
3.15	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.160
4.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.200
5.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250
6.30	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315
8.00	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.315
10.00	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.400
12.50	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500
16.00	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630
20.00	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.630
25.00	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800	0.800
31.50	0.160	0.200	0.250	0.315	0.400	0.50	0.630	0.800	1.000
40.00	0.200	0.250	0.315	0.400	0.500	0.630	0.800	1.000	1.250
50.00	0.250	0.310	0.400	0.500	0.630	0.800	1.000	1.250	1.250
63.00	0.315	0.400	0.500	0.630	0.800	1.000	1.250	1.600	1.600
80.00	0.400	0.500	0.630	0.800	1.000	1.250	1.600	1.600	2.000

Coolant:

- ☐ Air
☒ Neat oil
☐ Soluble oil

Material group	Material examples Figures in bold = material no. to DIN EN 10 027	Tensile strength MPa (N/mm ²)	Hardness	Coolant
Common structural steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		☐
Free-cutting steels	1.0718 11SMnPB30 (9SMnPB28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		☐
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		☐
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		☐
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		☐
Alloyed case hardened steels	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		☐
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		☐
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		☐
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		☐
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	☐
Hardened steels	-		≤48 HRC ≤66 HRC	☐
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤900 ≤1100 ≤1500		☐
Cast iron	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	☐
Spheroidal graphite iron and malleable cast iron	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	☐
Chilled cast iron	-		≤350 HB	☐
New cast materials GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	☐
New cast materials ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		☐
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		☐
Ti and Ti alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		☐
Aluminium and Al alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		☐
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		☐
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		☐
≤ 24 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		☐
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		☐
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPB	≤500		☐
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		☐
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		☐
Bronze, short-chipping	2.1090 CuSn7ZnPB, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		☐
	2.0790 CuNi18Zn19Pb	≤850		☐
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		☐
	2.0980 CuAl11Ni, 2.1247 CuBe2	≤1000		☐
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150		☐
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		☐
Kevlar	Kevlar	≤1000		☐
Glass, carbon concentr. plastics	GFK/CFK	≤1000		☐



≤5xD		≤5xD		≤5xD		≤10xD		≤10xD	
9651		5522		5517		5536		5537	
338		338		Company standard		340		340	
HSS		HSS-E-PM		Solid carbide		HSCO		HSCO	
S		S		K10/K20		○		S	
N		GT 500 DZ		N		GU 500 DZ		GU 500 DZ	
125		122		117		129		129	
									
V _c m/min	Feed col. no.	V _c m/min	Feed col. no.	V _c m/min	Feed col. no.	V _c m/min	Feed col. no.	V _c m/min	Feed col. no.
32	6	40	6	80	4	29	5	32	5
26	5	32	5	70	4	22	4	25	4
36	6	45	6	80	5	32	5	35	5
36	5	40	5	70	4	25	5	28	5
31	5	42	6	80	4	25	5	28	5
31	5	40	5	70	4	22	5	25	5
28	4	28	4	60	4	13	4	15	4
24	4	25	4	60	4	12	3	13	3
36	6	20	3	80	5	11	2	12	2
22	4	40	4	60	4	25	5	28	5
16	4	22	4	50	4	12	3	14	3
20	4	18	3	50	3	11	2	12	2
		20	4			12	3	13	3
		15	3			7	2	8	2
		21	4			12	3	13	3
		16	3			9	2	10	2
		15	3			9	2	10	2
		12	2	25	2				
				20	2				
		15	4	25	2	12	3	13	3
		10	3	15	1	7	3	8	3
		12	3	25	2	11	3	12	3
36	6	50	6	90	4	29	6	32	6
36	6	40	6	80	4	23	6	26	6
31	6	44	6	80	4	25	6	28	6
24	6	32	6	70	4	18	6	20	6
		8	3						
		5	2	15	2				
				15	1				
				15	1				
				200	7	45	7	50	7
				200	7	45	7	50	7
				150	6	54	7	60	7
				120	6	45	6	50	6
90	6			180	6	45	6	50	6
70	5			80	5	60	5	70	5
80	5	80	5	180	5	40	5	50	5
50	5	60	5	180	5	25	5	28	5
36	4	50	5	120	5	31	4	35	4
33	4	45	4	120	5	22	4	25	4
18	4	40	4	70	4	22	4	24	4
18	4	32	4	50	3	18	4	20	4
29	4	25	4	50	4	16	4	18	4
36	5			40	3	11	4	12	4
				80	3			80	3



THREADING TOOLS

Taps for ISO metric threads



P ≤ 1000

M ○

K

N

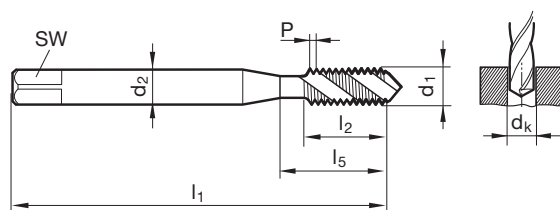
S

H

GÜHRING NAVIGATOR

Cutting data page 184

Tool material	HSS-E	
Tolerance on Ø	ISO2/6H	ISO2/6H
Surface		
Type	N R40	N R40
Form	C	C
Internal cooling		
	SL	SL



DIN 2184-1 DIN 371/DIN 376

Article no.

5555

5594

Discount group

156

156

d1	P	d2	SW	dk	l1	l2	l5	Availability	
mm	mm	mm	mm	mm	mm	mm	mm		
M3	0.50	3.50	2.70	2.50	56.00	6.00	18.00	●	●
M4	0.70	4.50	3.40	3.30	63.00	7.50	21.00	●	●
M5	0.80	6.00	4.90	4.20	70.00	8.50	25.00	●	●
M6	1.00	6.00	4.90	5.00	80.00	11.00	30.00	●	●
M8	1.25	8.00	6.20	6.80	90.00	14.00	35.00	●	●
M10	1.50	10.00	8.00	8.50	100.00	16.00	39.00	●	●
M12	1.75	9.00	7.00	10.20	110.00	18.50	49.00	●	●
M16	2.00	12.00	9.00	14.00	110.00	20.00	54.00	●	●
M20	2.50	16.00	12.00	17.50	140.00	25.00	62.00	●	●



Taps for ISO metric threads



P ≤ 1200

M

K

N

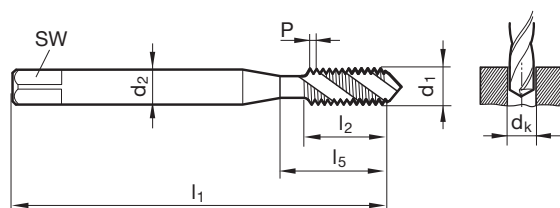
S

H

GÜHRING NAVIGATOR

Cutting data page 184

Tool material	HSS-E	
Tolerance on Ø	ISO2/6H	ISO2/6H
Surface		
Type	H R40	H R40
Form	C	C
Internal cooling		
	SL	SL



Threading tools

DIN 2184-1 DIN 371/DIN 376

Article no.

5552

5591

Discount group

156

156

d1	P	d2	SW	dk	l1	l2	l5	Availability	
mm	mm	mm	mm	mm	mm	mm	mm		
M3	0.50	3.50	2.70	2.50	56.00	6.00	18.00	●	●
M4	0.70	4.50	3.40	3.30	63.00	7.50	21.00	●	●
M5	0.80	6.00	4.90	4.20	70.00	8.50	25.00	●	●
M6	1.00	6.00	4.90	5.00	80.00	11.00	30.00	●	●
M8	1.25	8.00	6.20	6.80	90.00	14.00	35.00	●	●
M10	1.50	10.00	8.00	8.50	100.00	16.00	39.00	●	●
M12	1.75	9.00	7.00	10.20	110.00	18.50	49.00	●	●
M16	2.00	12.00	9.00	14.00	110.00	20.00	54.00	●	●
M20	2.50	16.00	12.00	17.50	140.00	25.00	62.00	●	●

Taps for ISO metric threads

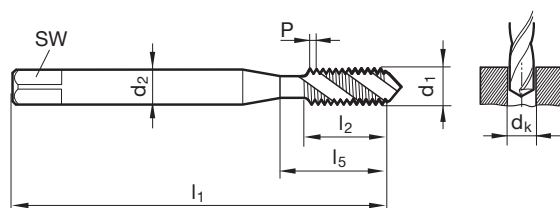


P	
M	•
K	
N	
S	
H	

GÜHRING NAVIGATOR

Cutting data page 184

Tool material	HSS-E	
Tolerance on Ø	ISO2/6H	ISO2/6H
Surface		
Type	VA R40	VA R40
Form	C	C
Internal cooling		
	SL	SL



DIN 2184-1 DIN 371/DIN 376

Article no.

5553

5596

Discount group

156

156

d1	P	d2	SW	dk	l1	l2	l5	Availability	
mm	mm	mm	mm	mm	mm	mm	mm		
M3	0.50	3.50	2.70	2.50	56.00	6.00	18.00	•	•
M4	0.70	4.50	3.40	3.30	63.00	7.50	21.00	•	•
M5	0.80	6.00	4.90	4.20	70.00	8.50	25.00	•	•
M6	1.00	6.00	4.90	5.00	80.00	11.00	30.00	•	•
M8	1.25	8.00	6.20	6.80	90.00	14.00	35.00	•	•
M10	1.50	10.00	8.00	8.50	100.00	16.00	39.00	•	•
M12	1.75	9.00	7.00	10.20	110.00	18.50	49.00	•	•
M16	2.00	12.00	9.00	14.00	110.00	20.00	54.00	•	•
M20	2.50	16.00	12.00	17.50	140.00	25.00	62.00	•	•



Taps for ISO metric threads



P	
M	
K	
N	•
S	
H	

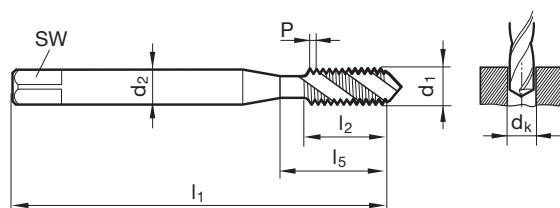
GÜHRING NAVIGATOR

Cutting data page 184

Tool material	HSS-E
Tolerance on Ø	ISO2/6H
Surface	○
Type	AI R45
Form	C
Internal cooling	

SL

Threading tools



DIN 2184-1 DIN 371/DIN 376

Article no.

5551

Discount group

156

d1	P	d2	SW	dk	l1	l2	l5	Availability
mm	mm	mm	mm	mm	mm	mm	mm	
M3	0.50	3.50	2.70	2.50	56.00	6.00	18.00	•
M4	0.70	4.50	3.40	3.30	63.00	7.50	21.00	•
M5	0.80	6.00	4.90	4.20	70.00	8.50	25.00	•
M6	1.00	6.00	4.90	5.00	80.00	11.00	30.00	•
M8	1.25	8.00	6.20	6.80	90.00	14.00	35.00	•
M10	1.50	10.00	8.00	8.50	100.00	16.00	39.00	•
M12	1.75	9.00	7.00	10.20	110.00	18.50	49.00	•
M16	2.00	12.00	9.00	14.00	110.00	20.00	54.00	•
M20	2.50	16.00	12.00	17.50	140.00	25.00	62.00	•



Taps for ISO metric threads

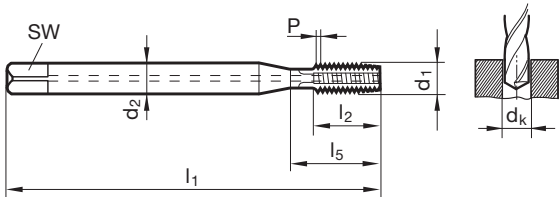


P	
M	
K	•
N	≥ 7
S	
H	

GÜHRINGNAVIGATOR
Cutting data page 184

• with internal coolant ≥ M5

Tool material	Solid carbide
Tolerance on Ø	6HX
Surface	○
Type	H
Form	C
Internal cooling	



DIN 2184-1 DIN 371/DIN 376						Article no.		5593	
Discount group								156	
d1	P	d2	SW	dk	l1	l2	l5	Availability	
	mm	mm	mm	mm	mm	mm	mm		
M3	0.50	3.50	2.70	2.50	56.00	8.00	18.00	●	
M4	0.70	4.50	3.40	3.30	63.00	10.00	21.00	●	
M5	0.80	6.00	4.90	4.20	70.00	10.00	25.00	●	
M6	1.00	6.00	4.90	5.00	80.00	12.00	30.00	●	
M8	1.25	8.00	6.20	6.80	90.00	16.00	35.00	●	
M10	1.50	10.00	8.00	8.50	100.00	18.00	39.00	●	
M12	1.75	9.00	7.00	10.20	110.00	18.00	49.00	●	
M16	2.00	12.00	9.00	14.00	110.00	20.00	54.00	●	
M20	2.50	16.00	12.00	17.50	140.00	25.00	62.00	●	



Taps for ISO metric threads



P ≤ 1000

M ○

K

N

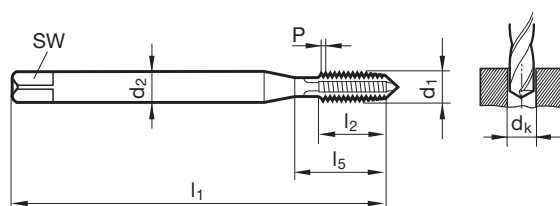
S

H

GÜHRING NAVIGATOR

Cutting data page 186

Tool material	HSS-E	
Tolerance on Ø	ISO2/6H	ISO2/6H
Surface	●	●
Type	N	N
Form	B	B
Internal cooling	✗	✗
	SL	SL



Threading tools

DIN 2184-1 DIN 371/DIN 376

Article no.

5561

5586

Discount group

156

156

d1	P	d2	SW	dk	l1	l2	l5	Availability	
mm	mm	mm	mm	mm	mm	mm	mm		
M3	0.50	3.50	2.70	2.50	56.00	10.00	18.00	●	●
M4	0.70	4.50	3.40	3.30	63.00	12.00	21.00	●	●
M5	0.80	6.00	4.90	4.20	70.00	14.00	25.00	●	●
M6	1.00	6.00	4.90	5.00	80.00	16.00	30.00	●	●
M8	1.25	8.00	6.20	6.80	90.00	17.00	35.00	●	●
M10	1.50	10.00	8.00	8.50	100.00	20.00	39.00	●	●
M12	1.75	9.00	7.00	10.20	110.00	24.00	49.00	●	●
M16	2.00	12.00	9.00	14.00	110.00	26.00	54.00	●	●
M20	2.50	16.00	12.00	17.50	140.00	32.00	62.00	●	●



Taps for ISO metric threads



P ≤ 1200

M

K

N

S

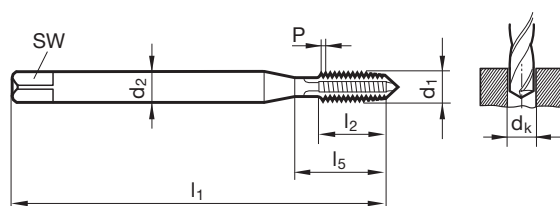
H

GÜHRING NAVIGATOR

Cutting data page 186

Threading tools

Tool material	HSS-E	
Tolerance on Ø	ISO2/6H	ISO2/6H
Surface		
Type	H	H
Form	B	B
Internal cooling		
	SL	SL



DIN 2184-1 DIN 371/DIN 376

Article no.

5558

5587

Discount group

156

156

d1	P	d2	SW	dk	l1	l2	l5	Availability	
	mm	mm	mm	mm	mm	mm	mm		
M3	0.50	3.50	2.70	2.50	56.00	10.00	18.00	●	●
M4	0.70	4.50	3.40	3.30	63.00	12.00	21.00	●	●
M5	0.80	6.00	4.90	4.20	70.00	14.00	25.00	●	●
M6	1.00	6.00	4.90	5.00	80.00	16.00	30.00	●	●
M8	1.25	8.00	6.20	6.80	90.00	17.00	35.00	●	●
M10	1.50	10.00	8.00	8.50	100.00	20.00	39.00	●	●
M12	1.75	9.00	7.00	10.20	110.00	24.00	49.00	●	●
M16	2.00	12.00	9.00	14.00	110.00	26.00	54.00	●	●
M20	2.50	16.00	12.00	17.50	140.00	32.00	62.00	●	●



Taps for ISO metric threads



P ≤ 1000

M •

K

N

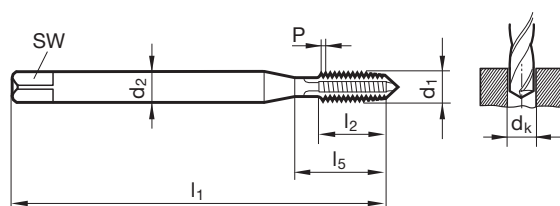
S

H

GÜHRING NAVIGATOR

Cutting data page 186

Tool material	HSS-E	
Tolerance on Ø	ISO2/6H	ISO2/6H
Surface		
Type	VA	VA
Form	B	B
Internal cooling		
	SL	SL



Threading tools

DIN 2184-1 DIN 371/DIN 376

Article no.

5597

5588

Discount group

156

156

d1	P	d2	SW	dk	l1	l2	l5	Availability	
mm	mm	mm	mm	mm	mm	mm	mm		
M3	0.50	3.50	2.70	2.50	56.00	10.00	18.00	•	•
M4	0.70	4.50	3.40	3.30	63.00	12.00	21.00	•	•
M5	0.80	6.00	4.90	4.20	70.00	14.00	25.00	•	•
M6	1.00	6.00	4.90	5.00	80.00	16.00	30.00	•	•
M8	1.25	8.00	6.20	6.80	90.00	17.00	35.00	•	•
M10	1.50	10.00	8.00	8.50	100.00	20.00	39.00	•	•
M12	1.75	9.00	7.00	10.20	110.00	24.00	49.00	•	•
M16	2.00	12.00	9.00	14.00	110.00	26.00	54.00	•	•
M20	2.50	16.00	12.00	17.50	140.00	32.00	62.00	•	•



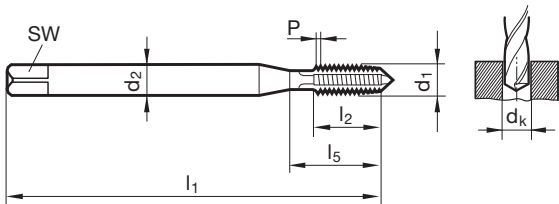
Taps for ISO metric threads



P	≤ 1000
M	•
K	
N	
S	
H	

GÜHRING NAVIGATOR
Cutting data page 186

Tool material	HSS-E-PM
Tolerance on Ø	ISO2/6H
Surface	●
Type	VA
Form	B
Internal cooling	✗



DIN 2184-1 DIN 371						Article no.		5559	
Discount group								156	
d1	P	d2	SW	dk	l1	l2	l5	Availability	
	mm	mm	mm	mm	mm	mm	mm		
M3	0.50	3.50	2.70	2.50	56.00	10.00	18.00	●	
M4	0.70	4.50	3.40	3.30	63.00	12.00	21.00	●	
M5	0.80	6.00	4.90	4.20	70.00	14.00	25.00	●	
M6	1.00	6.00	4.90	5.00	80.00	16.00	30.00	●	
M8	1.25	8.00	6.20	6.80	90.00	17.00	35.00	●	
M10	1.50	10.00	8.00	8.50	100.00	20.00	39.00	●	



Taps for ISO metric threads



P	
M	
K	
N	•
S	
H	

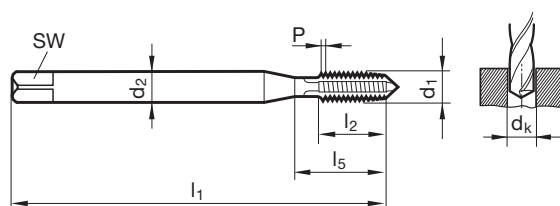
GÜHRING NAVIGATOR

Cutting data page 186

Tool material	HSS-E
Tolerance on Ø	ISO2/6H
Surface	○
Type	AI
Form	B
Internal cooling	✗

SL

Threading tools

**DIN 2184-1 DIN 371/DIN 376**

Article no.

5557

Discount group

156

d1	P	d2	SW	dk	l1	l2	l5	Availability
mm	mm	mm	mm	mm	mm	mm	mm	
M3	0.50	3.50	2.70	2.50	56.00	10.00	18.00	•
M4	0.70	4.50	3.40	3.30	63.00	12.00	21.00	•
M5	0.80	6.00	4.90	4.20	70.00	14.00	25.00	•
M6	1.00	6.00	4.90	5.00	80.00	16.00	30.00	•
M8	1.25	8.00	6.20	6.80	90.00	17.00	35.00	•
M10	1.50	10.00	8.00	8.50	100.00	20.00	39.00	•
M12	1.75	9.00	7.00	10.20	110.00	24.00	49.00	•
M16	2.00	12.00	9.00	14.00	110.00	26.00	54.00	•
M20	2.50	16.00	12.00	17.50	140.00	32.00	62.00	•



Taps for ISO metric threads



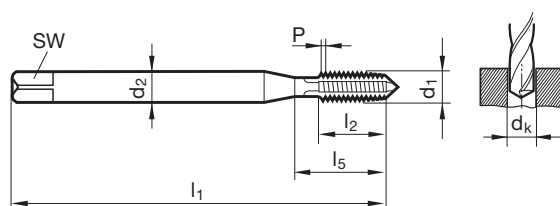
P	
M	
K	•
N	
S	
H	

GÜHRING NAVIGATOR

Cutting data page 186

Threading tools

Tool material	HSS-E	
Tolerance on Ø	6HX	6HX
Surface	●	●
Type	GG	GG
Form	C	C
Internal cooling	✗	✗
	SL	SL



DIN 2184-1 DIN 371/DIN 376

Article no.

5550

5595

Discount group

156

156

d1	P	d2	SW	dk	l1	l2	l5	Availability	
	mm	mm	mm	mm	mm	mm	mm		
M3	0.50	3.50	2.70	2.50	56.00	10.00	18.00	●	●
M4	0.70	4.50	3.40	3.30	63.00	12.00	21.00	●	●
M5	0.80	6.00	4.90	4.20	70.00	14.00	25.00	●	●
M6	1.00	6.00	4.90	5.00	80.00	16.00	30.00	●	●
M8	1.25	8.00	6.20	6.80	90.00	17.00	35.00	●	●
M10	1.50	10.00	8.00	8.50	100.00	20.00	39.00	●	●
M12	1.75	9.00	7.00	10.20	110.00	24.00	49.00	●	●
M16	2.00	12.00	9.00	14.00	110.00	26.00	54.00	●	●
M20	2.50	16.00	12.00	17.50	140.00	32.00	62.00	●	●



Taps for ISO metric threads



P	•
M	•
K	○
N	○
S	○
H	

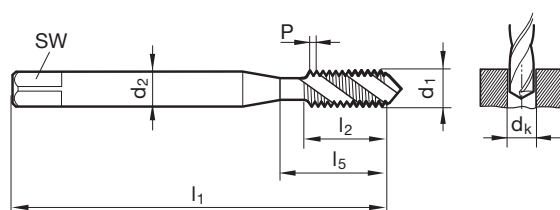
GÜHRING NAVIGATOR

Cutting data page 188

Tool material	HSS-E
Tolerance on Ø	6HX
Surface	A
Type	VA R45
Form	C
Internal cooling	



Threading tools



DIN 2184-1 DIN 371/DIN 376

Article no.

393

Discount group

103

d1	P	d2	SW	dk	l1	l2	l5	Availability
mm	mm	mm	mm	mm	mm	mm	mm	
M2	0.40	2.80	2.10	1.60	45.00	4.50	13.50	•
M2,5	0.45	2.80	2.10	2.05	50.00	5.00	14.50	•
M3	0.50	3.50	2.70	2.50	56.00	6.00	18.00	•
M3,5	0.60	4.00	3.00	2.90	56.00	7.00	20.00	•
M4	0.70	4.50	3.40	3.30	63.00	7.50	21.00	•
M5	0.80	6.00	4.90	4.20	70.00	8.50	25.00	•
M6	1.00	6.00	4.90	5.00	80.00	11.00	30.00	•
M8	1.25	8.00	6.20	6.80	90.00	14.00	35.00	•
M10	1.50	10.00	8.00	8.50	100.00	16.00	39.00	•
M12	1.75	9.00	7.00	10.20	110.00	18.50	49.00	•
M14	2.00	11.00	9.00	12.00	110.00	20.00	53.00	•
M16	2.00	12.00	9.00	14.00	110.00	20.00	54.00	•
M18	2.50	14.00	11.00	15.50	125.00	25.00	62.00	•
M20	2.50	16.00	12.00	17.50	140.00	25.00	62.00	•
M24	3.00	18.00	14.50	21.00	160.00	30.00	73.00	•
M30	3.50	22.00	18.00	26.50	180.00	35.00	85.00	•
M33	3.50	25.00	20.00	29.50	180.00	40.00	91.00	•
M36	4.00	28.00	22.00	32.00	200.00	40.00	102.00	•
M39	4.00	32.00	24.00	35.00	200.00	50.00	107.00	•



Taps for ISO metric threads

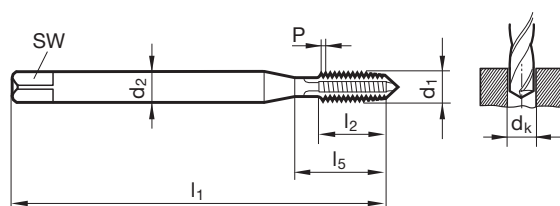


P	•
M	•
K	○
N	○
S	○
H	

GÜHRING NAVIGATOR

Cutting data page 188

Tool material	HSS-E
Tolerance on Ø	6HX
Surface	
Type	VA
Form	B
Internal cooling	



DIN 2184-1 DIN 371/DIN 376

Article no.

4218

Discount group

103

d1	P	d2	SW	dk	l1	l2	l5	Availability
mm	mm	mm	mm	mm	mm	mm	mm	
M2	0.40	2.80	2.10	1.60	45.00	8.00	13.50	•
M2,5	0.45	2.80	2.10	2.05	50.00	9.00	14.50	•
M3	0.50	3.50	2.70	2.50	56.00	10.00	18.00	•
M4	0.70	4.50	3.40	3.30	63.00	12.00	21.00	•
M5	0.80	6.00	4.90	4.20	70.00	14.00	25.00	•
M6	1.00	6.00	4.90	5.00	80.00	16.00	30.00	•
M8	1.25	8.00	6.20	6.80	90.00	17.00	35.00	•
M10	1.50	10.00	8.00	8.50	100.00	20.00	39.00	•
M12	1.75	9.00	7.00	10.20	110.00	24.00	49.00	•
M14	2.00	11.00	9.00	12.00	110.00	26.00	53.00	•
M16	2.00	12.00	9.00	14.00	110.00	26.00	54.00	•
M18	2.50	14.00	11.00	15.50	125.00	30.00	62.00	•
M20	2.50	16.00	12.00	17.50	140.00	32.00	62.00	•
M24	3.00	18.00	14.50	21.00	160.00	36.00	73.00	•
M30	3.50	22.00	18.00	26.50	180.00	40.00	85.00	•



Taps for ISO metric fine threads



P	•
M	•
K	○
N	○
S	○
H	

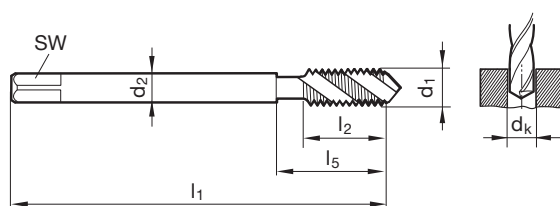
GÜHRING NAVIGATOR

Cutting data page 188

Tool material	HSS-E
Tolerance on Ø	6HX
Surface	A
Type	VA R45
Form	C
Internal cooling	



Threading tools

**DIN 374 DIN 2184-1**

Article no.

394

Discount group

103

d1	d2	SW	dk	l1	l2	l5	Code no.	Availability
	mm	mm	mm	mm	mm	mm		
M6 x 0,75	4.50	3.40	5.20	80.00	8.00	30.00	6.004	•
M8 x 0,75	6.00	4.90	7.20	80.00	8.00	30.00	8.004	•
M8 x 1	6.00	4.90	7.00	90.00	11.00	35.00	8.005	•
M10 x 1	7.00	5.50	9.00	90.00	11.00	35.00	10.005	•
M10 x 1,25	7.00	5.50	8.80	100.00	14.00	39.00	10.006	•
M12 x 1	9.00	7.00	11.00	100.00	11.00	40.00	12.005	•
M12 x 1,25	9.00	7.00	10.80	100.00	16.00	40.00	12.006	•
M12 x 1,5	9.00	7.00	10.50	100.00	16.00	40.00	12.007	•
M14 x 1,5	11.00	9.00	12.50	100.00	15.00	40.00	14.007	•
M16 x 1,5	12.00	9.00	14.50	100.00	15.00	44.00	16.007	•
M18 x 1,5	14.00	11.00	16.50	110.00	16.00	44.00	18.007	•
M20 x 1,5	16.00	12.00	18.50	125.00	16.00	44.00	20.007	•
M24 x 1,5	18.00	14.50	22.50	140.00	16.00	48.00	24.007	•



Taps for ISO metric fine threads

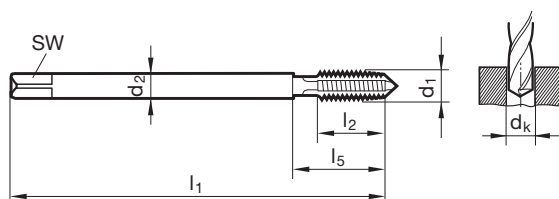


P	•
M	•
K	○
N	○
S	○
H	

GÜHRING NAVIGATOR

Cutting data page 188

Tool material	HSS-E
Tolerance on Ø	6HX
Surface	
Type	VA
Form	B
Internal cooling	



DIN 374 DIN 2184-1

Article no.

4219

Discount group

103

d1	d2	SW	dk	l1	l2	l5	Code no.	Availability
	mm	mm	mm	mm	mm	mm		
M6 x 0,75	4.50	3.40	5.20	80.00	13.00	30.00	6.004	•
M8 x 0,75	6.00	4.90	7.20	80.00	14.00	30.00	8.004	•
M8 x 1	6.00	4.90	7.00	90.00	17.00	35.00	8.005	•
M10 x 1	7.00	5.50	9.00	90.00	16.00	35.00	10.005	•
M10 x 1,25	7.00	5.50	8.80	100.00	20.00	39.00	10.006	•
M12 x 1	9.00	7.00	11.00	100.00	20.00	40.00	12.005	•
M12 x 1,25	9.00	7.00	10.80	100.00	20.00	40.00	12.006	•
M12 x 1,5	9.00	7.00	10.50	100.00	20.00	40.00	12.007	•
M14 x 1,5	11.00	9.00	12.50	100.00	20.00	40.00	14.007	•
M16 x 1,5	12.00	9.00	14.50	100.00	22.00	44.00	16.007	•
M18 x 1,5	14.00	11.00	16.50	110.00	25.00	44.00	18.007	•
M20 x 1,5	16.00	12.00	18.50	125.00	25.00	44.00	20.007	•
M24 x 1,5	18.00	14.50	22.50	140.00	28.00	48.00	24.007	•



Taps for UNC threads



P	•
M	•
K	○
N	○
S	○
H	

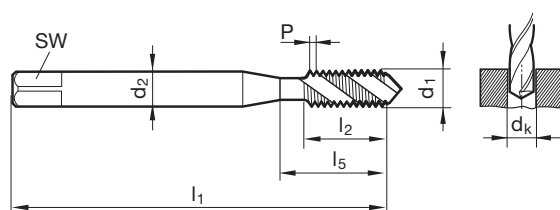
GÜHRING NAVIGATOR

Cutting data page 188

Tool material	HSS-E
Tolerance on Ø	2BX
Surface	A
Type	VA R45
Form	C
Internal cooling	



Threading tools



~DIN 371/~DIN 376 DIN 2184-1

Article no.

391

Discount group

103

d1	d2	SW	dk	l1	l2	l5	Code no.	Availability
	mm	mm	mm	mm	mm	mm		
2 - 56	2.80	2.10	1.85	45.00	5.00	14.50	2.184	•
4 - 40	3.50	2.70	2.35	56.00	7.00	18.00	2.845	•
6 - 32	4.00	3.00	2.85	56.00	8.00	20.00	3.505	•
8 - 32	4.50	3.40	3.50	63.00	8.00	21.00	4.166	•
10 - 24	6.00	4.90	3.90	70.00	11.00	25.00	4.826	•
12 - 24	6.00	4.90	4.50	80.00	11.00	30.00	5.486	•
1/4 - 20	7.00	5.50	5.10	80.00	13.00	30.00	6.350	•
5/16 - 18	8.00	6.20	6.60	90.00	14.00	35.00	7.938	•
3/8 - 16	10.00	8.00	8.00	100.00	16.00	39.00	9.525	•
7/16 - 14	8.00	6.20	9.40	100.00	18.00	42.00	11.113	•
1/2 - 13	9.00	7.00	10.80	110.00	20.00	49.00	12.700	•
9/16 - 12	11.00	9.00	12.20	110.00	21.00	53.00	14.288	•
5/8 - 11	12.00	9.00	13.50	110.00	24.00	53.00	15.875	•
3/4 - 10	14.00	11.00	16.50	125.00	25.00	62.00	19.050	•
7/8 - 9	18.00	14.50	19.50	140.00	28.00	62.00	22.225	•
1 - 8	18.00	14.50	22.25	160.00	32.00	73.00	25.400	•



Taps for UNC threads

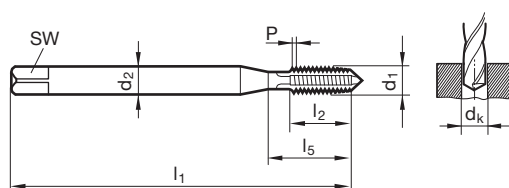


P	•
M	•
K	○
N	○
S	○
H	

GÜHRING NAVIGATOR

Cutting data page 188

Tool material	HSS-E
Tolerance on Ø	2BX
Surface	S
Type	VA
Form	B
Internal cooling	



~DIN 371/~DIN 376 DIN 2184-1

Article no.

4642

Discount group

103

d1	d2	SW	dk	l1	l2	l5	Code no.	Availability
	mm	mm	mm	mm	mm	mm		
2 - 56	2.80	2.10	1.85	45.00	9.00	14.50	2.184	•
4 - 40	3.50	2.70	2.35	56.00	11.00	18.00	2.845	•
6 - 32	4.00	3.00	2.85	56.00	12.00	20.00	3.505	•
8 - 32	4.50	3.40	3.50	63.00	12.00	21.00	4.166	•
10 - 24	6.00	4.90	3.90	70.00	14.00	25.00	4.826	•
12 - 24	6.00	4.90	4.50	80.00	16.00	30.00	5.486	•
1/4 - 20	7.00	5.50	5.10	80.00	16.00	30.00	6.350	•
5/16 - 18	8.00	6.20	6.60	90.00	18.00	35.00	7.938	•
3/8 - 16	10.00	8.00	8.00	100.00	20.00	39.00	9.525	•
7/16 - 14	8.00	6.20	9.40	100.00	22.00	42.00	11.113	•
1/2 - 13	9.00	7.00	10.80	110.00	25.00	49.00	12.700	•
9/16 - 12	11.00	9.00	12.20	110.00	28.00	53.00	14.288	•
5/8 - 11	12.00	9.00	13.50	110.00	30.00	53.00	15.875	•
3/4 - 10	14.00	11.00	16.50	125.00	33.00	62.00	19.050	•
7/8 - 9	18.00	14.50	19.50	140.00	35.00	62.00	22.225	•
1 - 8	18.00	14.50	22.25	160.00	38.00	73.00	25.400	•



Taps for UNF threads



P	•
M	•
K	○
N	○
S	○
H	

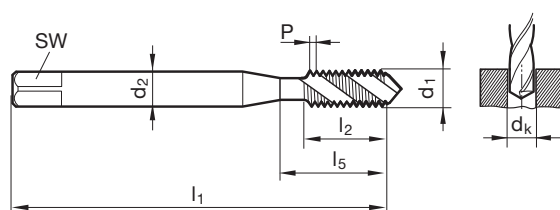
GÜHRING NAVIGATOR

Cutting data page 188

Tool material	HSS-E
Tolerance on Ø	2BX
Surface	A
Type	VA R45
Form	C
Internal cooling	



Threading tools



~DIN 371/~DIN 374 DIN 2184-1

Article no.

392

Discount group

103

d1	d2	SW	dk	l1	l2	l5	Code no.	Availability
	mm	mm	mm	mm	mm	mm		
2 - 64	2.80	2.10	1.85	45.00	5.00	14.50	2.184	•
4 - 48	3.50	2.70	2.40	56.00	6.00	18.00	2.845	•
6 - 40	4.00	3.00	2.95	56.00	6.50	20.00	3.505	•
8 - 36	4.50	3.40	3.50	63.00	7.00	21.00	4.166	•
10 - 32	6.00	4.90	4.10	70.00	8.50	25.00	4.826	•
12 - 28	6.00	4.90	4.60	80.00	9.50	30.00	5.486	•
1/4 - 28	7.00	5.50	5.50	80.00	9.50	30.00	6.350	•
5/16 - 24	8.00	6.20	6.90	90.00	11.50	35.00	7.938	•
3/8 - 24	10.00	8.00	8.50	90.00	11.50	35.00	9.525	•
7/16 - 20	8.00	6.20	9.90	100.00	13.00	42.00	11.113	•
1/2 - 20	9.00	7.00	11.50	100.00	13.00	40.00	12.700	•
9/16 - 18	11.00	9.00	12.90	100.00	14.00	40.00	14.288	•
5/8 - 18	12.00	9.00	14.50	100.00	15.00	44.00	15.875	•
3/4 - 16	14.00	11.00	17.50	110.00	16.00	44.00	19.050	•
7/8 - 14	18.00	14.50	20.40	125.00	19.00	44.00	22.225	•
1 - 12	18.00	14.50	23.25	140.00	22.00	50.00	25.400	•

Taps for UNF threads

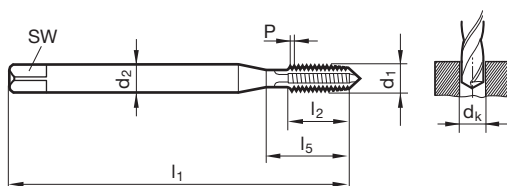


P	•
M	•
K	○
N	○
S	○
H	

GÜHRING NAVIGATOR

Cutting data page 188

Tool material	HSS-E
Tolerance on Ø	2BX
Surface	S
Type	VA
Form	B
Internal cooling	✗



~DIN 371/~DIN 374 DIN 2184-1

Article no.

4643

Discount group

103

d1	d2	SW	dk	l1	l2	l5	Code no.	Availability
	mm	mm	mm	mm	mm	mm		
2 - 64	2.80	2.10	1.85	45.00	9.00	14.50	2.184	•
4 - 48	3.50	2.70	2.40	56.00	10.00	18.00	2.845	•
6 - 40	4.00	3.00	2.95	56.00	11.00	20.00	3.505	•
8 - 36	4.50	3.40	3.50	63.00	12.00	21.00	4.166	•
10 - 32	6.00	4.90	4.10	70.00	14.00	25.00	4.826	•
12 - 28	6.00	4.90	4.60	80.00	16.00	30.00	5.486	•
1/4 - 28	7.00	5.50	5.50	80.00	16.00	30.00	6.350	•
5/16 - 24	8.00	6.20	6.90	90.00	17.00	35.00	7.938	•
3/8 - 24	10.00	8.00	8.50	90.00	18.00	35.00	9.525	•
7/16 - 20	8.00	6.20	9.90	100.00	22.00	42.00	11.113	•
1/2 - 20	9.00	7.00	11.50	100.00	20.00	40.00	12.700	•
9/16 - 18	11.00	9.00	12.90	100.00	22.00	40.00	14.288	•
5/8 - 18	12.00	9.00	14.50	100.00	22.00	44.00	15.875	•
3/4 - 16	14.00	11.00	17.50	110.00	25.00	44.00	19.050	•
7/8 - 14	18.00	14.50	20.40	125.00	25.00	44.00	22.225	•
1 - 12	18.00	14.50	23.25	140.00	28.00	50.00	25.400	•



Taps for BSP threads



P	•
M	•
K	○
N	○
S	○
H	

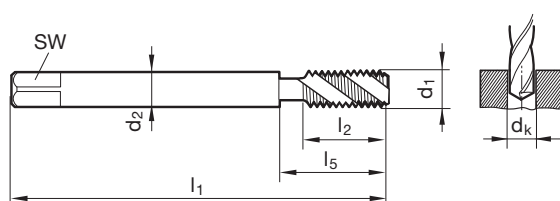
GÜHRING NAVIGATOR

Cutting data page 188

Tool material	HSS-E
Tolerance on Ø	
Surface	A
Type	VA R45
Form	C
Internal cooling	



Threading tools



DIN 5156 DIN 2184-1

Article no.

395

Discount group

103

d1	P	d2	SW	dk	l1	l2	l5	Code no.	Availability
		mm	mm	mm	mm	mm	mm		
G1/16	28	6.00	4.90	6.80	90.00	11.00	30.00	7.723	•
G1/8	28	7.00	5.50	8.80	90.00	11.00	35.00	9.728	•
G1/4	19	11.00	9.00	11.80	100.00	14.00	40.00	13.157	•
G3/8	19	12.00	9.00	15.25	100.00	14.00	44.00	16.662	•
G1/2	14	16.00	12.00	19.00	125.00	18.00	44.00	20.955	•
G5/8	14	18.00	14.50	21.00	125.00	18.00	48.00	22.911	•
G3/4	14	20.00	16.00	24.50	140.00	20.00	53.00	26.441	•
G7/8	14	22.00	18.00	28.25	150.00	22.00	53.00	30.201	•
G1	11	25.00	20.00	30.75	160.00	24.00	56.00	33.249	•



Taps for BSP threads

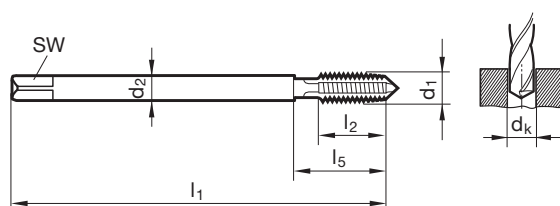


P	•
M	•
K	○
N	○
S	○
H	

GÜHRING NAVIGATOR

Cutting data page 188

Tool material	HSS-E
Tolerance on Ø	
Surface	S
Type	VA
Form	B
Internal cooling	



DIN 5156 DIN 2184-1

Article no.

4220

Discount group

103

d1	P	d2	SW	dk	l1	l2	l5	Code no.	Availability
		mm	mm	mm	mm	mm	mm		
G1/16	28	6.00	4.90	6.80	90.00	18.00	30.00	7.723	•
G1/8	28	7.00	5.50	8.80	90.00	18.00	35.00	9.728	•
G1/4	19	11.00	9.00	11.80	100.00	20.00	40.00	13.157	•
G3/8	19	12.00	9.00	15.25	100.00	22.00	44.00	16.662	•
G1/2	14	16.00	12.00	19.00	125.00	25.00	44.00	20.955	•
G5/8	14	18.00	14.50	21.00	125.00	25.00	48.00	22.911	•
G3/4	14	20.00	16.00	24.50	140.00	28.00	53.00	26.441	•
G7/8	14	22.00	18.00	28.25	150.00	28.00	53.00	30.201	•
G1	11	25.00	20.00	30.75	160.00	30.00	56.00	33.249	•



Fluteless taps for ISO metric threads



P	•
M	•
K	
N	○
S	•
H	

GÜHRING NAVIGATOR

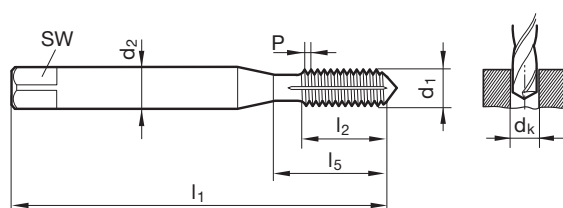
Cutting data page 186

• with oil grooves ≥ M3

Tool material	HSS-E
Tolerance on Ø	6HX
Surface	S
Type	N
Form	C
Internal cooling	

SL

Threading tools



~DIN 371 DIN 2174

Article no.

5598

Discount group

156

d1	P	d2	SW	dk	l1	l2	l5	Code no.	Availability
mm	mm	mm	mm	mm	mm	mm	mm		
M1	0.250	2.50	2.10	0.90	40.00	4.00	4.00	1.000	•
M1,2	0.250	2.50	2.10	1.10	40.00	4.80	4.80	1.200	•
M1,4	0.300	2.50	2.10	1.25	40.00	5.60	5.60	1.400	•
M1,6	0.350	2.50	2.10	1.45	40.00	6.40	6.40	1.600	•
M1,7	0.350	2.50	2.10	1.55	40.00	6.80	6.80	1.700	•
M1,8	0.350	2.50	2.10	1.65	40.00	7.30	7.30	1.800	•
M2	0.400	2.80	2.10	1.85	45.00	8.00	13.50	2.000	•
M2,5	0.450	2.80	2.10	2.30	50.00	9.00	14.50	2.500	•
M3	0.500	3.50	2.70	2.80	56.00	10.00	18.00	3.000	•
M4	0.700	4.50	3.40	3.70	63.00	12.00	21.00	4.000	•
M5	0.800	6.00	4.90	4.65	70.00	14.00	25.00	5.000	•
M6	1.000	6.00	4.90	5.55	80.00	16.00	30.00	6.000	•
M8	1.250	8.00	6.20	7.40	90.00	17.00	35.00	8.000	•
M10	1.500	10.00	8.00	9.30	100.00	20.00	39.00	10.000	•



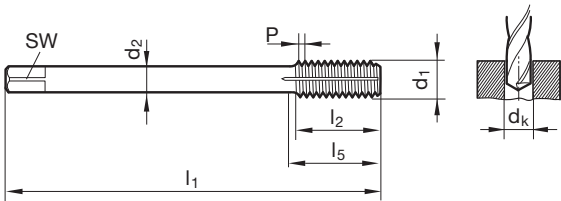
Fluteless taps for ISO metric threads



P	•
M	•
K	•
N	○
S	•
H	•

GÜHRING NAVIGATOR
Cutting data page 186

Tool material	HSS-E
Tolerance on Ø	6HX
Surface	S
Type	N
Form	C
Internal cooling	



~DIN 376 DIN 2174								Article no.	5599
								Discount group	156
d1	P	d2	SW	dk	l1	l2	l5	Code no.	Availability
	mm	mm	mm	mm	mm	mm	mm		
M12	1.750	9.00	7.00	11.20	110.00	24.00	49.00	12.000	
M14	2.000	11.00	9.00	13.10	110.00	26.00	53.00	14.000	
M16	2.000	12.00	9.00	15.10	110.00	26.00	54.00	16.000	



Fluteless taps for ISO metric threads



P	•
M	•
K	•
N	○
S	•
H	

GÜHRING NAVIGATOR

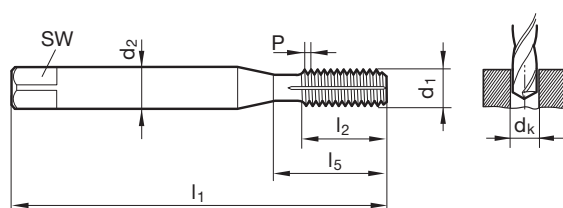
Cutting data page 186

- with oil grooves $\geq$ M2
- $\varnothing$ tolerance M1.4 = 4HX

Tool material	HSS-E-PM
Tolerance on $\varnothing$	4HX/6HX
Surface	
Type	N
Form	C
Internal cooling	



Threading tools



~DIN 371/~DIN 376 DIN 2174

Article no.

4487

Discount group

208

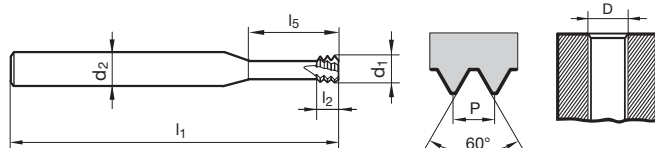
d1	P	d2	SW	dk	l1	l2	l5	Code no.	Availability
mm	mm	mm	mm	mm	mm	mm	mm		
M1	0.250	2.50	2.10	0.90	40.00	4.00	4.00	1.000	•
M1,2	0.250	2.50	2.10	1.10	40.00	4.80	4.80	1.200	•
M1,4	0.300	2.50	2.10	1.25	40.00	5.60	5.60	1.400	•
M1,6	0.350	2.50	2.10	1.45	40.00	6.40	6.40	1.600	•
M1,7	0.350	2.50	2.10	1.55	40.00	6.80	6.80	1.700	•
M1,8	0.350	2.50	2.10	1.65	40.00	7.30	7.30	1.800	•
M2	0.400	2.80	2.10	1.85	45.00	8.00	13.50	2.000	•
M2,5	0.450	2.80	2.10	2.30	50.00	9.00	14.50	2.500	•
M3	0.500	3.50	2.70	2.80	56.00	10.00	18.00	3.000	•
M4	0.700	4.50	3.40	3.70	63.00	12.00	21.00	4.000	•
M5	0.800	6.00	4.90	4.65	70.00	14.00	25.00	5.000	•
M6	1.000	6.00	4.90	5.55	80.00	16.00	30.00	6.000	•
M8	1.250	8.00	6.20	7.40	90.00	17.00	35.00	8.000	•
M10	1.500	10.00	8.00	9.30	100.00	20.00	39.00	10.000	•
M12	1.750	9.00	7.00	11.20	110.00	24.00	49.00	12.000	•
M14	2.000	11.00	9.00	13.10	110.00	26.00	53.00	14.000	•
M16	2.000	12.00	9.00	15.10	110.00	26.00	54.00	16.000	•
M20	2.500	16.00	12.00	18.90	140.00	32.00	62.00	20.000	•

Micro thread milling cutters



P	•	GÜHRING NAVIGATOR Cutting data page 184
M	•	
K	•	
N	•	
S	•	
H	≤ 55	

Tool material	Solid carbide
Tolerance on Ø	
Surface	
Type	MTM3 SP
Shank form	DIN 6535-HA
Internal cooling	

Article no. **4226**Discount group **108**

D	P	d1	d2	l1	l2	l5	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm	mm			
M1,6	0.350	1.200	3.00	39.00	1.10	4.800	3	1.600	•
M1,8	0.350	1.400	3.00	39.00	1.10	5.400	3	1.800	•
M2	0.400	1.550	3.00	39.00	1.20	6.000	4	2.000	•
M2,5	0.450	1.950	3.00	39.00	1.40	7.500	4	2.500	•
M3	0.500	2.400	6.00	58.00	1.50	9.500	4	3.000	•
M3,5	0.600	2.800	6.00	58.00	1.80	11.000	4	3.500	•
M4	0.700	3.200	6.00	58.00	2.10	12.500	4	4.000	•
M5	0.800	4.000	6.00	58.00	2.40	16.000	4	5.000	•
M6	1.000	4.800	6.00	58.00	3.00	20.000	4	6.000	•
M8	1.250	5.950	6.00	58.00	3.80	24.000	4	8.000	•
M10	1.500	7.800	8.00	73.00	4.50	33.000	4	10.000	•
M12	1.750	9.000	10.00	84.00	5.30	38.000	4	12.000	•
M16	2.000	11.800	12.00	84.00	6.00	35.000	5	16.000	•



Micro thread milling cutters


P • **GÜHRING** NAVIGATOR

Cutting data page 184

M	•
K	•
N	•
S	•
H	≤ 65

- with cooling grooves
- rotating direction left-hand

Tool material **Solid carbide**

Tolerance on Ø

Surface

Type

MTMH3-Z

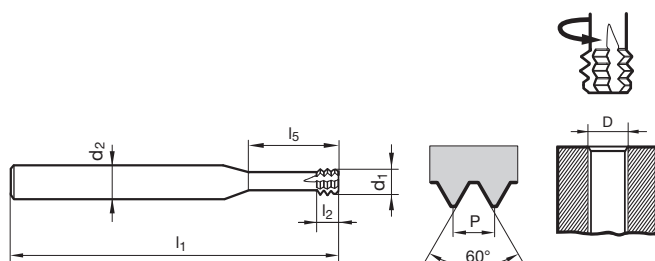
Shank form

~DIN 6535-HB

Internal cooling



Threading tools



Article no.

4002

Discount group

108

D	P	d1	d2	l1	l2	l5	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm	mm			
M2	0.400	1.400	3.00	39.00	1.20	5.000	4	2.000	•
M2,5	0.450	1.800	3.00	39.00	1.30	6.500	4	2.500	•
M3	0.500	2.400	6.00	58.00	1.50	7.500	4	3.000	•
M3,5	0.600	2.700	6.00	58.00	1.80	9.000	4	3.500	•
M4	0.700	3.100	6.00	58.00	2.10	10.000	4	4.000	•
M5	0.800	3.800	6.00	58.00	2.40	12.500	4	5.000	•
M6	1.000	4.600	8.00	64.00	3.00	15.000	4	6.000	•
M8	1.250	6.200	8.00	64.00	3.60	20.000	4	8.000	•
M10	1.500	7.500	10.00	73.00	4.50	25.000	4	10.000	•
M12	1.750	9.000	10.00	73.00	5.20	30.000	4	12.000	•
M16	2.000	11.500	12.00	90.00	6.00	40.000	4	16.000	•



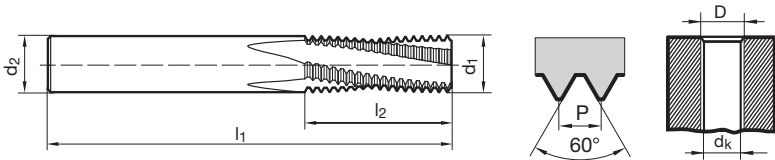
Thread milling cutters without chamfer for ISO metric threads



P	•
M	○
K	•
N	•
S	•
H	≤ 55

GÜHRINGNAVIGATOR
Cutting data page 184

Tool material	Solid carbide	
Tolerance on Ø		
Surface	Ⓢ	Ⓢ
Type	TM SP	TM SP
Shank form	HB	HA
Internal cooling		
	SL	SL



Company std.							Article no.	5547	5548
							Discount group	153	153
D	P	d1	d2	dk	l1	l2	Z	Code no.	Availability
	mm	mm	mm	mm	mm	mm			
M6	1.000	4.800	6.000	5.00	54.000	13.500	3	6.000	•
M8	1.250	6.400	8.000	6.80	62.000	18.100	3	8.000	•
M10	1.500	7.950	10.000	8.50	74.000	21.800	3	10.000	•
M12	1.750	9.950	10.000	10.20	74.000	25.400	4	12.000	•
M14	2.000	11.200	12.000	12.00	90.000	31.000	4	14.000	•
M16	2.000	12.800	14.000	14.00	90.000	35.000	4	16.000	•
M20	2.500	14.950	16.000	17.50	102.000	41.300	4	20.000	•

Pionex

GUHRINGNAVIGATOR

Milling part Ø mm	Feed column no. art. no. 5547/5548					
	1	2	3	4	5	6
	f_z (mm/tooth) up-cut milling					
4.80	0.010	0.020	0.025	0.030	0.045	0.050
6.40	0.012	0.025	0.030	0.035	0.050	0.055
7.95	0.018	0.030	0.040	0.050	0.060	0.060
9.95	0.020	0.040	0.050	0.060	0.070	0.075
11.20	0.022	0.045	0.050	0.060	0.080	0.085
12.80	0.025	0.050	0.050	0.065	0.085	0.090
14.95	0.030	0.050	0.055	0.065	0.090	0.100

Milling part Ø mm	Feed column no. art. no. 4002/4226							
	1	2	3	4	5	6	7	8
	f_z (mm/tooth)							
≤ 1.6	0.005	0.007	0.008	x	0.010	0.010	0.020	0.020
≤ 2.0	0.005	0.007	0.008	0.010	0.020	0.020	0.030	0.030
≤ 2.5	0.008	0.010	0.012	0.010	0.020	0.020	0.030	0.030
≤ 3.0	0.009	0.011	0.014	0.015	0.025	0.020	0.035	0.040
≤ 3.7	0.010	0.012	0.016	0.020	0.020	0.025	0.040	0.045
≤ 4.0	0.014	0.016	0.020	0.020	0.030	0.025	0.040	0.045
≤ 5.0	0.018	0.020	0.024	0.025	0.030	0.030	0.045	0.050
≤ 7.0	0.022	0.025	0.030	0.030	0.035	0.040	0.050	0.055
≤ 8.0	0.028	0.030	0.036	0.035	0.040	0.050	0.060	0.070
≤ 9.0	0.033	0.036	0.040	0.040	0.050	0.055	0.065	0.080
≤ 12.0	0.042	0.044	0.048	0.045	0.055	0.060	0.070	0.090

Cooling:
 without coolant ducts

Coolant:
 Air
 Neat oil
 Soluble oil
 Paste

Material group	Material examples Figures in bold = material no. to DIN EN 10 027	Tensile strength MPa (N/mm ²)	Hardness	Coolant
Common structural steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		  
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		  
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		  
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		  
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		  
Alloyed case hardened steels	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		  
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		  
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		  
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		  
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	  
Hardened steels	–		≤48 HRC ≤66 HRC	  
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤900 ≤1100 ≤1500		  
Cast iron	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	  
Spheroidal graphite iron and malleable cast iron	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	  
Chilled cast iron	–		≤350 HB	
New cast materials GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	
New cast materials ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		
Ti and Ti alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		
Aluminium and Al alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		
Al cast alloys ≤ 10 % Si ≤ 24 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9 3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500		
Brass, short-chipping long-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2 2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600 ≤600		
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn 2.0790 CuNi18Zn19Pb	≤600 ≤850		
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 ≤1000		
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150		
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		
Kevlar	Kevlar	≤1000		
Glass, carbon concentr. plastics	GFK/CFK	≤1000		



≤3xD	≤3xD	≤3xD	≤3xD	≤3xD	≤3xD	≤3xD	≤3xD	≤2xD	≤2xD	≤2,5xD	≤3xD
5555	5594	5552	5591	5553	5596	5551	5593	5547	5548	4002	4226
M	M	M	M	M	M	M	M	M	M	M	M
6H	6H	6H	6H	6H	6H	6H	6HX				
371/376	371/376	371/376	371/376	371/376	371/376	371/376	371/376	Comp. std.	Comp. std.	Comp. std.	Comp. std.
HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	Solid carb.	Solid carb.	Solid carb.	Solid carb.	Solid carb.
N R40/C	N R40/C	H R40/C	H R40/C	VA R40/C	VA R40/C	AI R45/C	H/C	TM SP/HB	TM SP/HA	MTMH3-Z	MTM3 SP
h9	h9	h9	h9	h9	h9	h9	h6	h6	h6	h6	h6
156	156	157	157	158	158	159	160	182	182	181	180

															
V _c m/min	V _c m/min	V _c m/min	V _c m/min	V _c m/min	V _c m/min	V _c m/min	V _c m/min	V _c m/min	Feed col. no.	V _c m/min	Feed col. no.	V _c m/min	Feed col. no.	V _c m/min	Feed col. no.
10	15							110	4	110	4	80	3	90	6
10	15							110	4	110	4	80	3	90	6
10	15							110	4	110	4	70	3	80	6
8	10							110	4	110	4	70	3	80	6
10	15							110	4	110	4	80	3	90	6
10	15							110	4	110	4	80	3	90	6
8	10							110	4	110	4	80	3	90	6
4	6	8	10					90	3	90	3	70	2	70	6
		6	8					90	3	90	3	70	2	70	6
10	15							110	4	110	4	70	3	80	6
4	6	8	10					90	3	90	3	70	2	70	6
		6	8					90	3	90	3	70	2	70	6
4	6	8	10					90	3	90	3	70	2	70	6
		6	8					90	3	90	3	70	2	70	6
4	6	8	10					90	3	90	3	70	2	70	6
		6	8					90	3	90	3	70	2	70	6
		6	8					90	3	90	3	70	2	70	6
								90	3	90	3	70	2	70	6
								90	3	90	3	70	2	70	6
								25	1	25	1	40	2	45	4
												30	1		
				8	10			60	2	60	2	55	2	55	5
				8	10			60	2	60	2	55	2	55	5
				4	6			60	2	60	2	50	2	50	5
							45	120	4	120	4	80	3	120	6
							45	120	4	120	4	80	3	120	6
							35	120	4	120	4	75	3	100	6
							35	120	4	120	4	75	3	100	6
							30	100	3	100	3	65	2	80	6
							30	120	4	120	4	65	2	80	6
							30	120	4	120	4	65	2	80	6
							30	100	3	100	3	65	2	80	6
							30	100	3	100	3	50	2	60	6
								35	2	35	2	45	2	30	5
								35	2	35	2	45	2	40	5
								35	2	35	2	45	2	40	5
						15		250	5	250	5			250	7
						15		250	5	250	5			250	7
							50	250	5	250	5	120	2	230	7
							50	250	5	250	5	100	2	180	7
								250	5	250	5			180	7
						15		250	5	250	5	80	3	130	6
							50	250	5	250	5	80	3	130	6
						15		250	5	250	5	80	3	130	6
								250	5	250	5	80	3	130	6
								250	5	250	5	80	3	130	6
						15	15	250	5	250	5	80	3	130	6
						15	15	250	5	250	5	80	3	130	6
								350	5	350	5			300	8
								350	6	350	6			300	8



Article no.
Thread type
Tolerance
Standard/DIN
Tool material
Type/Form
Surface finish
Cooling
Shank tolerance
Std. range page

Cooling:

☒ without coolant ducts

Coolant:

- Air
● Neat oil
● Soluble oil
△ Paste

Material group	Material examples Figures in bold = material no. to DIN EN 10 027	Tensile strength MPa (N/mm ²)	Hardness	Coolant
Common structural steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		●●△
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		●●△
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		●●△
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		●●△
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		●●△
Alloyed case hardened steels	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		●●△
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		●●△
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		●●△
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		●●△
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	●△●
Hardened steels	–		≤48 HRC ≤66 HRC	●● ●△●
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤900 ≤1100 ≤1500		●△● ●△● ●△●
Cast iron	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	●● ●●
Spheroidal graphite iron and malleable cast iron	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	●● ●●
Chilled cast iron	–		≤350 HB	●●
New cast materials GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	●● ●●
New cast materials ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		●● ●●
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		●●
Ti and Ti alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		●● ●●
Aluminium and Al alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		●△●
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		●△●
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		●△●
≤ 24 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●△●
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		●△●
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500		●△●
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		●△●
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		●△●
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		●△●
	2.0790 CuNi18Zn19Pb	≤850		●△●
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		●△●
	2.0980 CuAl11Ni, 2.1247 CuBe2	≤1000		●△●
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150		●
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		●
Kevlar	Kevlar	≤1000		●
Glass, carbon concentr. plastics	GFK/CFK	≤1000		●



≤3xD	≤3xD	≤3xD	≤3xD	≤3xD	≤3xD	≤3xD	≤3xD	≤3xD	≤3xD	Former		
5561	5586	5558	5587	5597	5588	5559	5557	5550	5595	5598	5599	4487
M	M	M	M	M	M	M	M	M	M	M	M	M
6H	6H	6H	6H	6H	6H	6H	6H	6HX	6HX	6HX	6HX	6HX/6HX
371/376	371/376	371/376	371/376	371/376	371/376	371	371/376	371/376	371/376	~371	~376	~371/376
HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E-PM	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E-PM
N/B	N/B	H/B	H/B	VA/B	VA/B	VA/B	Al/B	GG/C	GG/C	N/C	N/C	N/C
h9	h9	h9	h9	h9	h9	h9	h9	h9	h9	h9	h9	h9
161	161	162	162	163	163	164	165	166	166	177	178	179

V _C m/min	V _C m/min	V _C m/min	V _C m/min	V _C m/min	V _C m/min	V _C m/min	V _C m/min	V _C m/min	V _C m/min	V _C m/min	V _C m/min	V _C m/min
12	15			8	10	12				15	15	25
12	15			8	10	12				15	15	25
10	12			6	8	10				15	15	25
10	12			6	8	10				15	15	25
12	15			8	10	12				15	15	25
12	15			6	10	12				15	15	25
10	12			6	8	10				12	12	25
6	8	10	12	4	4	6				12	12	15
		8	10							8	8	15
12	15			8	10	12				15	15	25
6	8	10	12		4	6				15	15	15
		8	10							8	8	15
6	8	10	12		4	6				15	15	25
		8	10							8	8	25
		10	12							12	12	15
		8	10							8	8	15
		8	10							8	8	15
		8	10							10	10	15
4	6			8	10	8				6	6	15
4	6			8	10	8				6	6	15
				6	8	6				4	4	10
								15	25			
								15	25			
								10	20			30
								10	20			30
								10	15			
								8	15			25
								8	15			25
								8	15			25
									10			
												8
												8
												8
							15			20	20	15
							15			20	20	15
										20	20	30
							15					30
							15			20	20	30
												30
												30
							15			20	20	30
							15			20	20	30



Article no.
Thread type
Tolerance
Standard/DIN
Tool material
Type/Form
Surface finish
Cooling
Shank tolerance
Std. range page

Cooling:

☒ without coolant ducts

Coolant:

- Air
● Neat oil
● Soluble oil
△ Paste

Material group	Material examples Figures in bold = material no. to DIN EN 10 027	Tensile strength MPa (N/mm ²)	Hardness	Coolant
Common structural steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		●●△
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		●●△
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		●●△
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		●●△
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		●●△
Alloyed case hardened steels	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		●●△
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		●●△
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		●●△
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		●●△
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	●△●
Hardened steels	–		≤48 HRC ≤66 HRC	●● ●△●
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤900 ≤1100 ≤1500		●△● ●△● ●△●
Cast iron	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	●● ●●
Spheroidal graphite iron and malleable cast iron	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	●● ●●
Chilled cast iron	–		≤350 HB	●●
New cast materials GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	●● ●●
New cast materials ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		●● ●●
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		●●
Ti and Ti alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		●● ●●
Aluminium and Al alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		●△●
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		●△●
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		●△●
≤ 24 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●△●
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		●△●
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPB	≤500		●△●
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		●△●
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		●△●
Bronze, short-chipping	2.1090 CuSn7ZnPB, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		●△●
	2.0790 CuNi18Zn19Pb	≤850		●△●
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		●△●
	2.0980 CuAl11Ni, 2.1247 CuBe2	≤1000		●△●
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150		●
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		●
Kevlar	Kevlar	≤1000		●
Glass, carbon concentr. plastics	GFK/CFK	≤1000		●



≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD
393 M 6HX	394 MF 6HX	391 UNC 2BX	392 UNF 2BX	395 BSP	4218 M 6HX	4219 MF 6HX	4642 UNC 2BX	4643 UNF 2BX	4220 BSP
371/376	374	~371/376	~371/374	5156	371/376	374	~371/376	~371/374	5156
HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
VA R45/C	VA R45/C	VA R45/C	VA R45/C	VA R45/C	VA/B	VA/B	VA/B	VA/B	VA/B
h9	h9	h9	h9	h9	h9	h9	h9	h9	h9
167	169	171	173	175	168	170	172	174	176

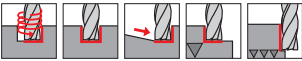
V _c m/min	V _c m/min	V _c m/min	V _c m/min	V _c m/min	V _c m/min	V _c m/min	V _c m/min	V _c m/min	V _c m/min
20	20	20	20	20	20	20	20	20	20
20	20	20	20	20	20	20	20	20	20
20	20	20	20	20	20	20	20	20	20
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10	10	10	10	10	10	10	10	10	10
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MILLING CUTTERS



Standard Ratio end mills RF 100 U

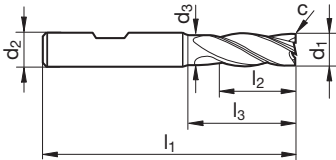


P	•
M	
K	•
N	
S	
H	○

GÜHRING NAVIGATOR

Cutting data page 226

Tool material	Solid carbide
Surface	F
Type	N
Shank form	HB
	SL



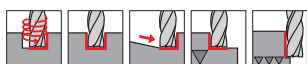
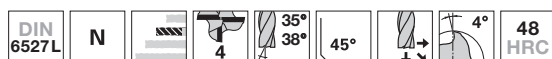
Article no. 5534

Discount group 157

d1 h10	d2 h6	d3	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm	mm x 45°			
6.000	6.000	5.700	54.000	10.000	17.000	0.150	4	6.000	•
8.000	8.000	7.700	58.000	12.000	21.000	0.150	4	8.000	•
10.000	10.000	9.500	66.000	14.000	24.000	0.200	4	10.000	•
12.000	12.000	11.500	73.000	16.000	26.000	0.200	4	12.000	•
14.000	14.000	13.500	75.000	18.000	28.000	0.250	4	14.000	•
16.000	16.000	15.500	82.000	22.000	32.000	0.350	4	16.000	•
18.000	18.000	17.500	84.000	24.000	34.000	0.400	4	18.000	•
20.000	20.000	19.500	92.000	26.000	40.000	0.450	4	20.000	•



Standard Ratio end mills RF 100 U



P	•
M	
K	•
N	
S	
H	○

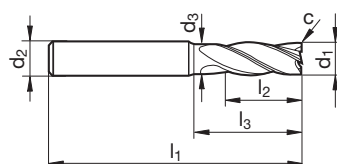
GÜHRING NAVIGATOR

Cutting data page 226

Tool material **Solid carbide**Surface **F** **F**

Type N N

Shank form HA HB

SL**SL**

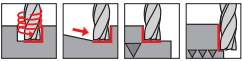
Milling cutters

Article no. **5735** **5535**Discount group **157** **157**

d1 h10	d2 h6	d3	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm	mm x 45°			
4.00	6.00	3.80	57	11.0	18.0	0.10	4	4.000	•
5.00	6.00	4.80	57	13.0	18.0	0.10	4	5.000	•
6.00	6.00	5.70	57	13.0	20.0	0.15	4	6.000	•
8.00	8.00	7.70	63	19.0	26.0	0.15	4	8.000	•
10.00	10.00	9.50	72	22.0	30.0	0.20	4	10.000	•
12.00	12.00	11.50	83	26.0	36.0	0.20	4	12.000	•
14.00	14.00	13.50	83	26.0	36.0	0.25	4	14.000	•
16.00	16.00	15.50	92	32.0	42.0	0.35	4	16.000	•
18.00	18.00	17.50	92	32.0	42.0	0.40	4	18.000	•
20.00	20.00	19.50	104	38.0	52.0	0.45	4	20.000	•
25.00	25.00	24.00	121	45.0	63.0	0.60	4	25.000	•



Standard Ratio end mills RF 100 U



P	•
M	
K	•
N	
S	
H	○

GÜHRINGNAVIGATOR

Cutting data page 226

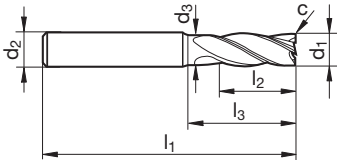
Tool material **Solid carbide**

Surface **F**

Type **NH**

Shank form **HA**

SL



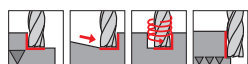
Article no. **5582**

Discount group **157**

d1 h10	d2 h6	d3	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm	mm x 45°			
10.00	10.00	9.50	100	40.0	48.0	0.20	4	10.000	•
12.00	12.00	11.50	150	45.0	58.0	0.20	4	12.000	•
16.00	16.00	15.50	150	65.0	78.0	0.35	4	16.000	•
20.00	20.00	19.50	150	65.0	78.0	0.45	4	20.000	•
25.00	25.00	24.00	150	75.0	92.0	0.60	4	25.000	•



Ratio end mills RF 100 Speed M



P • **GUHRING** NAVIGATOR

M • Cutting data page 229

K

N

S •

H

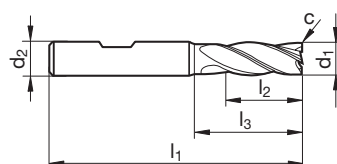
- with chip breaker
- re-inforced core from Ø 6 mm
- centre cutting

Tool material **Solid carbide**

Surface **A**

Type **NH**

Shank form **HB**



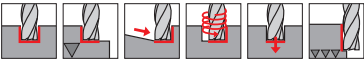
Milling cutters

Article no. **6761**

Discount group **106**

d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
3.000	6.00	57.00	12.00	14.90	0.06	4	3.000	●
4.000	6.00	65.00	16.00	18.90	0.08	4	4.000	●
5.000	6.00	65.00	20.00	22.90	0.10	4	5.000	●
6.000	6.00	65.00	24.00	29.00	0.12	4	6.000	●
8.000	8.00	75.00	32.00	39.00	0.16	4	8.000	●
10.000	10.00	90.00	40.00	50.00	0.20	4	10.000	●
12.000	12.00	100.00	46.00	55.00	0.24	4	12.000	●
16.000	16.00	108.00	55.00	60.00	0.32	4	16.000	●
20.000	20.00	126.00	65.00	76.00	0.40	4	20.000	●

Ratio end mills RF 100 DIVER



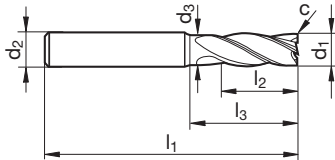
P	•
M	•
K	•
N	•
S	•
H	○

GÜHRINGNAVIGATOR

Cutting data page 228

Tool material	Solid carbide	
Surface		
Type	N	N
Shank form	HA	HB
		

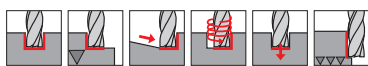
Milling cutters



Article no.									6803	6804
Discount group									106	106
d1 h10	d2 h6	d3	l1	l2	l3	c	Z	Code no.	Availability	
mm	mm	mm	mm	mm	mm	mm x 45°				
3.00	6.00	2.80	50	5.0	12.0	0.03	4	3.000	•	•
3.70	6.00	3.50	54	8.0	12.0	0.04	4	3.700	•	•
4.00	6.00	3.80	54	8.0	15.0	0.04	4	4.000	•	•
4.70	6.00	4.50	54	9.0	15.0	0.05	4	4.700	•	•
5.00	6.00	4.80	54	9.0	15.0	0.05	4	5.000	•	•
5.70	6.00	5.50	54	10.0	16.6	0.06	4	5.700	•	•
6.00	6.00	5.70	54	10.0	17.0	0.06	4	6.000	•	•
7.00	8.00	6.70	58	11.0	19.9	0.07	4	7.000	•	•
7.70	8.00	7.40	58	12.0	20.5	0.08	4	7.700	•	•
8.00	8.00	7.70	58	12.0	21.0	0.08	4	8.000	•	•
9.00	10.00	8.70	66	13.0	23.9	0.09	4	9.000	•	•
9.70	10.00	9.40	66	14.0	24.5	0.10	4	9.700	•	•
10.00	10.00	9.50	66	14.0	24.0	0.10	4	10.000	•	•
11.70	12.00	11.20	73	16.0	25.3	0.12	4	11.700	•	•
12.00	12.00	11.50	73	16.0	26.0	0.12	4	12.000	•	•
15.60	16.00	15.10	82	22.0	31.2	0.16	4	15.600	•	•
16.00	16.00	15.50	82	22.0	32.0	0.16	4	16.000	•	•
19.00	20.00	18.50	92	26.0	38.7	0.19	4	19.000	•	•
20.00	20.00	19.50	92	26.0	40.0	0.20	4	20.000	•	•



Ratio end mills RF 100 DIVER



P	•
M	•
K	•
N	•
S	•
H	○

GÜHRING NAVIGATOR

Cutting data page 228

Tool material

Solid carbide

Surface



Type

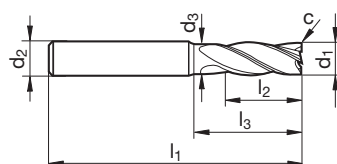
NH

NH

Shank form

HA

HB



Milling cutters

Article no.

6737

6736

Discount group

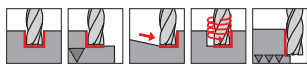
106

106

d1 h10	d2 h6	d3	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm	mm x 45°			
4.00	6.00	3.80	57	11.0	18.0	0.04	4	4.000	•
5.00	6.00	4.80	57	13.0	18.0	0.05	4	5.000	•
5.70	6.00	5.50	57	13.0	19.6	0.06	4	5.700	•
6.00	6.00	5.70	57	13.0	20.0	0.06	4	6.000	•
7.70	8.00	7.40	63	19.0	25.5	0.08	4	7.700	•
8.00	8.00	7.70	63	19.0	26.0	0.08	4	8.000	•
9.70	10.00	9.40	72	22.0	30.5	0.10	4	9.700	•
10.00	10.00	9.50	72	22.0	30.0	0.10	4	10.000	•
11.70	12.00	11.20	83	26.0	35.3	0.12	4	11.700	•
12.00	12.00	11.50	83	26.0	36.0	0.12	4	12.000	•
13.70	14.00	13.20	83	26.0	35.3	0.14	4	13.700	•
14.00	14.00	13.50	83	26.0	36.0	0.14	4	14.000	•
15.60	16.00	15.10	92	32.0	41.2	0.16	4	15.600	•
16.00	16.00	15.50	92	32.0	42.0	0.16	4	16.000	•
19.50	20.00	19.00	104	38.0	51.1	0.20	4	19.500	•
20.00	20.00	19.50	104	38.0	52.0	0.20	4	20.000	•



Ratio end mills RF 100 iMill



P	○
M	●
K	
N	●
S	●
H	

GÜHRING NAVIGATOR

Cutting data page 229

Tool material

Solid carbide

Surface

Y

Y

Type

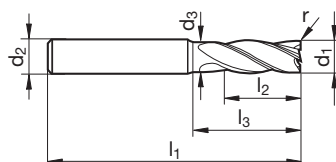
N

N

Shank form

HA

HB



Article no.

6964

6965

Discount group

106

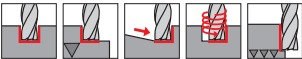
106

d1 e8	d2 h6	d3	l1	l2	l3	r	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm	mm			
3.000	6.000	2.800	57.000	8.000	15.000	0.200	4	3.002	●
3.000	6.000	2.800	57.000	8.000	15.000	0.500	4	3.005	●
4.000	6.000	3.800	57.000	11.000	18.000	0.200	4	4.002	●
4.000	6.000	3.800	57.000	11.000	18.000	0.500	4	4.005	●
4.000	6.000	3.800	57.000	11.000	18.000	1.000	4	4.010	●
5.000	6.000	4.800	57.000	13.000	18.000	0.200	4	5.002	●
5.000	6.000	4.800	57.000	13.000	18.000	0.500	4	5.005	●
5.000	6.000	4.800	57.000	13.000	18.000	1.000	4	5.010	●
6.000	6.000	5.700	57.000	13.000	20.000	0.200	4	6.002	●
6.000	6.000	5.700	57.000	13.000	20.000	0.500	4	6.005	●
6.000	6.000	5.700	57.000	13.000	20.000	1.000	4	6.010	●
6.000	6.000	5.700	57.000	13.000	20.000	1.500	4	6.015	●
8.000	8.000	7.700	63.000	19.000	26.000	0.300	4	8.003	●
8.000	8.000	7.700	63.000	19.000	26.000	0.500	4	8.005	●
8.000	8.000	7.700	63.000	19.000	26.000	1.000	4	8.010	●
8.000	8.000	7.700	63.000	19.000	26.000	1.500	4	8.015	●
8.000	8.000	7.700	63.000	19.000	26.000	2.000	4	8.020	●
10.000	10.000	9.500	72.000	22.000	30.000	0.300	4	10.003	●
10.000	10.000	9.500	72.000	22.000	30.000	0.500	4	10.005	●
10.000	10.000	9.500	72.000	22.000	30.000	1.000	4	10.010	●
10.000	10.000	9.500	72.000	22.000	30.000	1.500	4	10.015	●
10.000	10.000	9.500	72.000	22.000	30.000	2.000	4	10.020	●
10.000	10.000	9.500	72.000	22.000	30.000	2.500	4	10.025	●
12.000	12.000	11.500	83.000	26.000	36.000	0.300	4	12.003	●
12.000	12.000	11.500	83.000	26.000	36.000	0.500	4	12.005	●
12.000	12.000	11.500	83.000	26.000	36.000	1.000	4	12.010	●
12.000	12.000	11.500	83.000	26.000	36.000	1.500	4	12.015	●
12.000	12.000	11.500	83.000	26.000	36.000	2.000	4	12.020	●
12.000	12.000	11.500	83.000	26.000	36.000	2.500	4	12.025	●
12.000	12.000	11.500	83.000	26.000	36.000	3.000	4	12.030	●



Article no.									6964	6965
Discount group									106	106
d1 e8	d2 h6	d3	l1	l2	l3	r	Z	Code no.	Availability	
mm	mm	mm	mm	mm	mm	mm				
16.000	16.000	15.500	92.000	32.000	42.000	0.500	4	16.005	●	●
16.000	16.000	15.500	92.000	32.000	42.000	1.000	4	16.010	●	●
16.000	16.000	15.500	92.000	32.000	42.000	1.500	4	16.015	●	●
16.000	16.000	15.500	92.000	32.000	42.000	2.000	4	16.020	●	●
16.000	16.000	15.500	92.000	32.000	42.000	2.500	4	16.025	●	●
16.000	16.000	15.500	92.000	32.000	42.000	3.000	4	16.030	●	●
16.000	16.000	15.500	92.000	32.000	42.000	4.000	4	16.040	●	●
20.000	20.000	19.500	104.000	38.000	52.000	0.500	4	20.005	●	●
20.000	20.000	19.500	104.000	38.000	52.000	1.000	4	20.010	●	●
20.000	20.000	19.500	104.000	38.000	52.000	1.500	4	20.015	●	●
20.000	20.000	19.500	104.000	38.000	52.000	2.000	4	20.020	●	●
20.000	20.000	19.500	104.000	38.000	52.000	2.500	4	20.025	●	●
20.000	20.000	19.500	104.000	38.000	52.000	3.000	4	20.030	●	●
20.000	20.000	19.500	104.000	38.000	52.000	4.000	4	20.040	●	●

Ratio end mills RF 100 VA

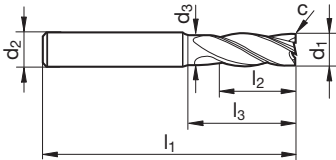


P	•
M	•
K	
N	○
S	•
H	

GUHRINGNAVIGATOR

Cutting data page 226

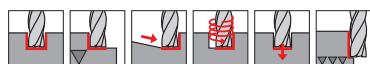
Tool material	Solid carbide	
Surface		
Type	N	N
Shank form	HA	HB



Article no.									5653	5654
Discount group									157	157
d1 h10	d2 h6	d3	l1	l2	l3	c	Z	Code no.	Availability	
mm	mm	mm	mm	mm	mm	mm x 45°				
3.00	6.00	2.80	57	8.0	15.0	0.10	4	3.000	•	•
4.00	6.00	3.80	57	11.0	18.0	0.15	4	4.000	•	•
5.00	6.00	4.80	57	13.0	18.0	0.15	4	5.000	•	•
6.00	6.00	5.70	57	13.0	20.0	0.20	4	6.000	•	•
8.00	8.00	7.70	63	19.0	26.0	0.25	4	8.000	•	•
10.00	10.00	9.50	72	22.0	30.0	0.30	4	10.000	•	•
12.00	12.00	11.50	83	26.0	36.0	0.35	4	12.000	•	•
14.00	14.00	13.50	83	26.0	36.0	0.40	4	14.000	•	•
16.00	16.00	15.50	92	32.0	42.0	0.50	4	16.000	•	•
18.00	18.00	17.50	92	32.0	42.0	0.60	4	18.000	•	•
20.00	20.00	19.50	104	38.0	52.0	0.60	4	20.000	•	•
25.00	25.00	24.00	121	45.0	63.0	0.75	4	25.000	•	•



Ratio end mills Alu RF 100 A



P	
M	
K	
N	•
S	
H	

GÜHRING NAVIGATOR

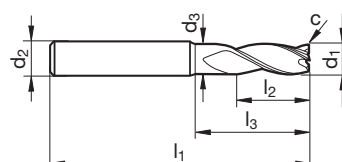
Cutting data page 226

Tool material **Solid carbide**

Surface ○ ○

Type W W

Shank form HA HB

SL**SL**

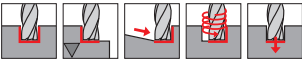
Milling cutters

Article no. **6010** **5655**Discount group **157** **157**

d1 e8	d2 h6	d3	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm	mm x 45°			
3.00	6.00	2.80	57	8.0	15.0	0.03	3	3.000	● ●
4.00	6.00	3.80	57	11.0	18.0	0.04	3	4.000	● ●
5.00	6.00	4.80	57	13.0	18.0	0.05	3	5.000	● ●
6.00	6.00	5.70	57	13.0	20.0	0.06	3	6.000	● ●
8.00	8.00	7.70	63	19.0	26.0	0.08	3	8.000	● ●
10.00	10.00	9.50	72	22.0	30.0	0.10	3	10.000	● ●
12.00	12.00	11.50	83	26.0	36.0	0.12	3	12.000	● ●
16.00	16.00	15.50	92	32.0	42.0	0.16	3	16.000	● ●
20.00	20.00	19.50	104	38.0	52.0	0.20	3	20.000	● ●



Slot drills GH 100 U (3-fluted)

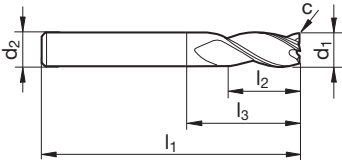


P	•
M	•
K	•
N	○
S	○
H	

GÜHRING NAVIGATOR

Cutting data page 224

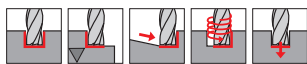
Tool material	Solid carbide
Surface	F
Type	NH
Shank form	HA
	SL



Article no.							5505	
Discount group							157	
d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
3.000	6.00	50.00	4.00	7.90	0.05	3	3.000	●
4.000	6.00	54.00	5.00	8.90	0.06	3	4.000	●
5.000	6.00	54.00	6.00	11.40	0.08	3	5.000	●
6.000	6.00	54.00	7.00	18.00	0.09	3	6.000	●
8.000	8.00	58.00	9.00	22.00	0.12	3	8.000	●
9.000	10.00	66.00	10.00	19.40	0.14	3	9.000	●
10.000	10.00	66.00	11.00	26.00	0.15	3	10.000	●
12.000	12.00	73.00	12.00	28.00	0.18	3	12.000	●
16.000	16.00	82.00	16.00	34.00	0.19	3	16.000	●
20.000	20.00	92.00	20.00	42.00	0.24	3	20.000	●



Slot drills GH 100 U (3-fluted)



P	•
M	•
K	•
N	○
S	○
H	

GÜHRING NAVIGATOR

Cutting data page 224

Tool material

Solid carbide

Surface

F

F

Type

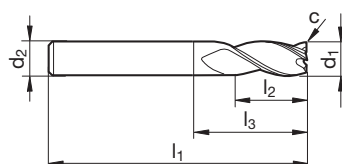
NH

NH

Shank form

HA

HB

SL**SL**

Milling cutters

Article no.

5506

5546

Discount group

157

157

d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
3.000	6.00	57.00	7.00	10.90	0.05	3	3.000	•
3.500	6.00	57.00	7.00	10.90	0.05	3	3.500	•
4.000	6.00	57.00	8.00	11.90	0.06	3	4.000	•
4.500	6.00	57.00	8.00	13.40	0.07	3	4.500	•
5.000	6.00	57.00	10.00	15.40	0.08	3	5.000	•
6.000	6.00	57.00	10.00	21.00	0.09	3	6.000	•
7.000	8.00	63.00	13.00	21.40	0.11	3	7.000	•
8.000	8.00	63.00	16.00	27.00	0.12	3	8.000	•
9.000	10.00	72.00	16.00	25.40	0.14	3	9.000	•
10.000	10.00	72.00	19.00	32.00	0.15	3	10.000	•
12.000	12.00	83.00	22.00	38.00	0.18	3	12.000	•
14.000	14.00	83.00	22.00	38.00	0.21	3	14.000	•
16.000	16.00	92.00	26.00	44.00	0.19	3	16.000	•
18.000	18.00	92.00	26.00	44.00	0.22	3	18.000	•
20.000	20.00	104.00	32.00	54.00	0.24	3	20.000	•

Mini slot drills (3-fluted)



P

M

K

N

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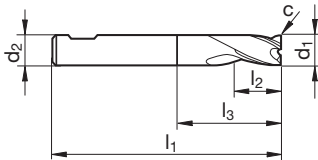
○

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○

GUHRINGNAVIGATOR
 Cutting data page 224

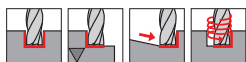
Tool material	Solid carbide
Surface	F
Type	NH
Shank form	HA/HB
	SL



Article no.								5574
Discount group								157
d1 e8	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
1.000	3.00	38.00	2.00	3.40	0.02	3	1.000	●
1.200	3.00	38.00	2.00	3.40	0.02	3	1.200	●
1.500	3.00	38.00	3.00	5.90	0.02	3	1.500	●
1.800	3.00	38.00	3.00	5.90	0.02	3	1.800	●
2.000	6.00	45.00	4.00	6.90	0.02	3	2.000	●
2.500	6.00	45.00	5.00	7.90	0.05	3	2.500	●
3.000	6.00	45.00	6.00	9.90	0.05	3	3.000	●
3.500	6.00	45.00	6.00	9.90	0.05	3	3.500	●
4.000	6.00	45.00	7.00	10.90	0.05	3	4.000	●
4.500	6.00	45.00	8.00	13.40	0.05	3	4.500	●
5.000	6.00	45.00	8.00	13.40	0.05	3	5.000	●
5.500	6.00	45.00	8.00	14.40	0.05	3	5.500	●
5.750	6.00	45.00	10.00	3.80	0.05	3	5.750	●
6.000	6.00	45.00	10.00	15.00	0.05	3	6.000	●
6.750	8.00	55.00	10.00	18.40	0.10	3	6.750	●
7.000	8.00	55.00	12.00	12.00	0.10	3	7.000	●
7.750	8.00	55.00	12.00	12.00	0.10	3	7.750	●
8.000	8.00	55.00	13.00	19.00	0.10	3	8.000	●
8.700	10.00	55.00	14.00	23.40	0.10	3	8.700	●
9.000	10.00	55.00	14.00	23.40	0.10	3	9.000	●
9.700	10.00	55.00	16.00	16.30	0.10	3	9.700	●
10.000	10.00	55.00	16.00	25.00	0.10	3	10.000	●



Roughing end mills GS 100 U (fine teeth)



P	•
M	•
K	•
N	○
S	
H	

GÜHRING NAVIGATOR

Cutting data page 226

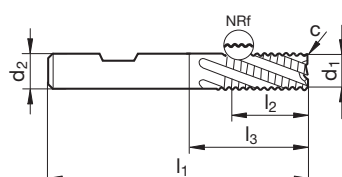
Tool material **Solid carbide**

Surface **F**

Type **NRf**

Shank form **HB**

SL



Milling cutters

Article no. **5504**

Discount group **157**

d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
6.000	6.00	57.00	13.00	21.00	0.30	4	6.000	•
8.000	8.00	63.00	19.00	27.00	0.30	4	8.000	•
10.000	10.00	72.00	22.00	32.00	0.30	4	10.000	•
12.000	12.00	83.00	26.00	38.00	0.50	4	12.000	•
16.000	16.00	92.00	32.00	44.00	0.50	4	16.000	•
20.000	20.00	104.00	38.00	54.00	0.50	4	20.000	•



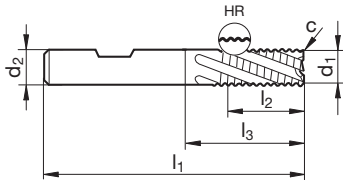
Hard roughing end mills GS 100 H (fine teeth)



P	○
M	
K	●
N	
S	
H	●

GÜHRINGNAVIGATOR
Cutting data page 226

Tool material	Solid carbide
Surface	Y
Type	HR
Shank form	HB



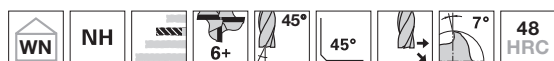
Article no.	5583
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Discount group	157
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d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
6.000	6.00	57.00	13.00	21.00	0.30	4	6.000	●
8.000	8.00	63.00	19.00	27.00	0.30	4	8.000	●
10.000	10.00	72.00	22.00	32.00	0.30	4	10.000	●
12.000	12.00	83.00	26.00	38.00	0.50	4	12.000	●
16.000	16.00	92.00	32.00	44.00	0.50	4	16.000	●
20.000	20.00	104.00	38.00	54.00	0.50	4	20.000	●



Multi-tooth end mills GH 100 U



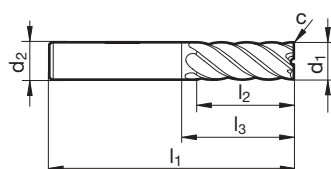
P	•
M	•
K	•
N	•
S	•
H	○

GÜHRING NAVIGATOR

Cutting data page 224

Tool material **Solid carbide**

Surface	F	F
Type	NH	NH
Shank form	HA	HB
	SL	SL



Milling cutters

Article no.								5745	5545
Discount group								157	157
d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability	
mm	mm	mm	mm	mm	mm x 45°				
3.000	6.00	57.00	8.00	11.40	0.05	6	3.000	•	
4.000	6.00	57.00	11.00	15.90	0.05	6	4.000	•	
5.000	6.00	57.00	13.00	17.90	0.05	6	5.000	•	
6.000	6.00	57.00	13.00	21.00	0.05	6	6.000	•	•
8.000	8.00	63.00	19.00	27.00	0.10	6	8.000	•	•
10.000	10.00	72.00	22.00	32.00	0.10	6	10.000	•	•
12.000	12.00	83.00	26.00	38.00	0.10	6	12.000	•	•
14.000	14.00	83.00	26.00	38.00	0.15	6	14.000	•	•
16.000	16.00	92.00	32.00	44.00	0.15	6	16.000	•	•
18.000	18.00	92.00	32.00	44.00	0.15	8	18.000	•	•
20.000	20.00	104.00	38.00	54.00	0.15	8	20.000	•	•
25.000	25.00	121.00	45.00	65.00	0.20	10	25.000	•	



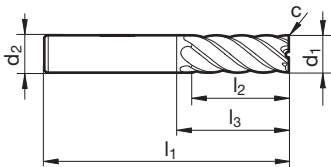
Multi-tooth end mills GH 100 U



P	•
M	•
K	•
N	•
S	•
H	○

GÜHRING NAVIGATOR
Cutting data page 224

Tool material	Solid carbide
Surface	F
Type	NH
Shank form	HA



Article no. 5729

Discount group 157

d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
6.000	6.00	75.00	30.00	39.00	0.05	6	6.000	•
8.000	8.00	100.00	40.00	64.00	0.10	6	8.000	•
10.000	10.00	100.00	40.00	60.00	0.10	6	10.000	•
12.000	12.00	150.00	45.00	105.00	0.10	6	12.000	•
16.000	16.00	150.00	65.00	102.00	0.15	6	16.000	•
20.000	20.00	150.00	65.00	100.00	0.15	8	20.000	•



Slot drills (2-fluted)



P	•
M	•
K	•
N	•
S	
H	

GÜHRING NAVIGATOR

Cutting data page 224

Tool material

Solid carbide

Surface

F

F

Type

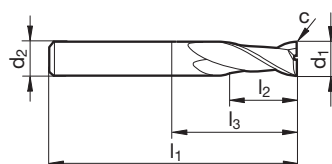
N

N

Shank form

HA

HB

SL**SL**

Milling cutters

Article no.

5730**5530**

Discount group

157**157**

d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
2.000	6.00	57.00	6.00	9.40	0.02	2	2.000	•
3.000	6.00	57.00	7.00	11.90	0.05	2	3.000	•
4.000	6.00	57.00	8.00	13.40	0.05	2	4.000	•
5.000	6.00	57.00	10.00	16.90	0.05	2	5.000	•
6.000	6.00	57.00	10.00	21.00	0.05	2	6.000	•
7.000	8.00	63.00	13.00	22.40	0.10	2	7.000	•
8.000	8.00	63.00	16.00	27.00	0.10	2	8.000	•
9.000	10.00	72.00	16.00	27.40	0.10	2	9.000	•
10.000	10.00	72.00	19.00	32.00	0.10	2	10.000	•
12.000	12.00	83.00	22.00	38.00	0.10	2	12.000	•
14.000	14.00	83.00	22.00	38.00	0.15	2	14.000	•
16.000	16.00	92.00	26.00	44.00	0.15	2	16.000	•
18.000	18.00	92.00	26.00	44.00	0.15	2	18.000	•
20.000	20.00	104.00	32.00	54.00	0.15	2	20.000	•



XL slot drills (2-fluted)

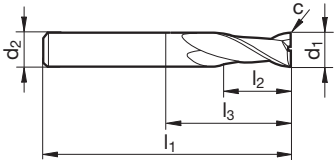


P	•
M	•
K	•
N	•
S	
H	

GÜHRINGNAVIGATOR

Cutting data page 224

Tool material	Solid carbide
Surface	F
Type	N
Shank form	HA



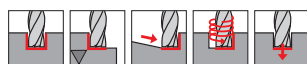
Article no. 5549

Discount group 157

d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
3.000	3.00	75.00	20.00	47.00	0.05	2	3.000	•
4.000	4.00	75.00	25.00	47.00	0.05	2	4.000	•
5.000	5.00	75.00	30.00	47.00	0.05	2	5.000	•
6.000	6.00	75.00	30.00	39.00	0.05	2	6.000	•
8.000	8.00	100.00	40.00	64.00	0.10	2	8.000	•
10.000	10.00	100.00	40.00	60.00	0.10	2	10.000	•
12.000	12.00	150.00	45.00	105.00	0.10	2	12.000	•
14.000	14.00	150.00	45.00	105.00	0.15	2	14.000	•
16.000	16.00	150.00	65.00	102.00	0.15	2	16.000	•
18.000	18.00	150.00	65.00	102.00	0.15	2	18.000	•
20.000	20.00	150.00	65.00	100.00	0.15	2	20.000	•



Al slot drills (2-fluted)



P	
M	
K	
N	•
S	
H	

GÜHRING NAVIGATOR

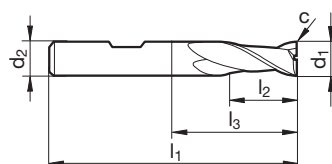
Cutting data page 224

Tool material **Solid carbide**

Surface ○

Type W

Shank form HB

SL

Milling cutters

Article no. **5543**Discount group **157**

d1 e8	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
3.000	6.00	57.00	7.00	10.90	0.03	2	3.000	●
4.000	6.00	57.00	8.00	11.90	0.03	2	4.000	●
5.000	6.00	57.00	10.00	15.40	0.03	2	5.000	●
6.000	6.00	57.00	10.00	21.00	0.03	2	6.000	●
8.000	8.00	63.00	16.00	27.00	0.05	2	8.000	●
10.000	10.00	72.00	19.00	32.00	0.05	2	10.000	●
12.000	12.00	83.00	22.00	38.00	0.10	2	12.000	●
14.000	14.00	83.00	22.00	38.00	0.10	2	14.000	●
16.000	16.00	92.00	26.00	44.00	0.10	2	16.000	●
18.000	18.00	92.00	26.00	44.00	0.10	2	18.000	●
20.000	20.00	104.00	32.00	54.00	0.10	2	20.000	●



Slot drills (3-fluted)



P	•
M	•
K	•
N	•
S	
H	

GÜHRING NAVIGATOR

Cutting data page 224

Tool material

Solid carbide

Surface

F

F

Type

N

N

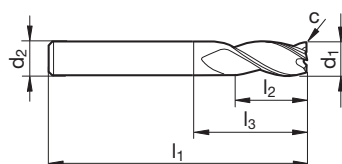
Shank form

HA

HB

SL

SL



Article no.

5507

5531

Discount group

157

157

d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
2.000	6.00	57.00	6.00	10.40	0.02	3	2.000	•
2.500	6.00	57.00	7.00	11.40	0.05	3	2.500	•
3.000	6.00	57.00	7.00	11.40	0.05	3	3.000	•
3.500	6.00	57.00	7.00	11.40	0.05	3	3.500	•
4.000	6.00	57.00	8.00	13.90	0.05	3	4.000	•
4.500	6.00	57.00	8.00	13.90	0.05	3	4.500	•
5.000	6.00	57.00	10.00	16.90	0.05	3	5.000	•
6.000	6.00	57.00	10.00	21.00	0.05	3	6.000	•
7.000	8.00	63.00	13.00	21.90	0.10	3	7.000	•
8.000	8.00	63.00	16.00	27.00	0.10	3	8.000	•
8.500	10.00	72.00	16.00	27.40	0.10	3	8.500	•
9.000	10.00	72.00	16.00	27.40	0.10	3	9.000	•
10.000	10.00	72.00	19.00	32.00	0.10	3	10.000	•
12.000	12.00	83.00	22.00	38.00	0.10	3	12.000	•
14.000	14.00	83.00	22.00	38.00	0.15	3	14.000	•
16.000	16.00	92.00	26.00	44.00	0.15	3	16.000	•
18.000	18.00	92.00	26.00	44.00	0.15	3	18.000	•
20.000	20.00	104.00	32.00	54.00	0.15	3	20.000	•



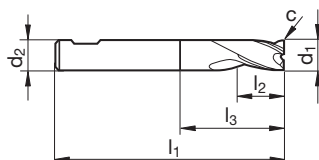
Mini slot drills (3-fluted)

Tool material **Solid carbide**Surface **F**Type **N**Shank form **HA/HB****SL**

P	•
M	•
K	○
N	○
S	•
H	

GÜHRINGNAVIGATOR

Cutting data page 224



Milling cutters

Article no. **5573**Discount group **157**

d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
0.500	3.00	38.00	1.50	3.40	0.02	3	0.500	•
0.600	3.00	38.00	1.50	3.40	0.02	3	0.600	•
0.800	3.00	38.00	2.00	3.90	0.02	3	0.800	•
1.000	3.00	38.00	2.00	3.90	0.02	3	1.000	•
1.200	3.00	38.00	2.00	3.90	0.02	3	1.200	•
1.500	3.00	38.00	2.00	3.90	0.02	3	1.500	•
1.800	3.00	38.00	2.00	3.90	0.02	3	1.800	•
2.000	6.00	38.00	4.00	7.40	0.02	3	2.000	•
2.500	6.00	38.00	5.00	8.40	0.05	3	2.500	•
3.000	6.00	38.00	5.00	8.40	0.05	3	3.000	•
3.500	6.00	38.00	6.00	9.40	0.05	3	3.500	•
4.000	6.00	38.00	7.00	10.40	0.05	3	4.000	•
4.500	6.00	38.00	8.00	12.40	0.05	3	4.500	•
5.000	6.00	38.00	8.00	12.40	0.05	3	5.000	•
5.500	6.00	38.00	8.00	12.40	0.05	3	5.500	•
5.750	6.00	38.00	8.00	12.40	0.05	3	5.750	•
6.000	6.00	38.00	8.00	14.00	0.05	3	6.000	•
6.750	8.00	42.00	10.00	15.40	0.10	3	6.750	•
7.000	8.00	42.00	10.00	16.40	0.10	3	7.000	•
7.750	8.00	42.00	10.00	16.40	0.10	3	7.750	•
8.000	8.00	43.00	11.00	19.00	0.10	3	8.000	•
8.700	10.00	48.00	11.00	17.40	0.10	3	8.700	•
9.000	10.00	48.00	11.00	17.40	0.10	3	9.000	•
9.700	10.00	48.00	11.00	17.40	0.10	3	9.700	•
10.000	10.00	50.00	13.00	23.00	0.10	3	10.000	•
12.000	12.00	55.00	15.00	24.50	0.10	3	12.000	•
14.000	14.00	58.00	15.00	27.50	0.15	3	14.000	•
16.000	16.00	62.00	18.00	29.00	0.15	3	16.000	•
18.000	18.00	70.00	20.00	37.00	0.15	3	18.000	•
20.000	20.00	75.00	22.00	41.00	0.15	3	20.000	•

End mills (4-fluted)



P

M

K

N

S

H

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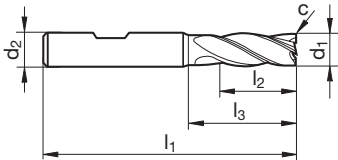
GUHRING

NAVIGATOR

Cutting data page 226

Tool material	Solid carbide
Surface	F
Type	N
Shank form	HB
	SL

Milling cutters



Article no.							5532	
Discount group							157	
d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
2.000	6.00	57.00	7.00	11.40	0.02	4	2.000	●
3.000	6.00	57.00	8.00	12.90	0.05	4	3.000	●
4.000	6.00	57.00	11.00	16.90	0.05	4	4.000	●
5.000	6.00	57.00	13.00	19.90	0.05	4	5.000	●
6.000	6.00	57.00	13.00	21.00	0.05	4	6.000	●
7.000	8.00	63.00	16.00	23.90	0.10	4	7.000	●
8.000	8.00	63.00	19.00	27.00	0.10	4	8.000	●
9.000	10.00	72.00	19.00	28.40	0.10	4	9.000	●
10.000	10.00	72.00	22.00	32.00	0.10	4	10.000	●
12.000	12.00	83.00	26.00	38.00	0.10	4	12.000	●
14.000	14.00	83.00	26.00	38.00	0.15	4	14.000	●
16.000	16.00	92.00	32.00	44.00	0.15	4	16.000	●
18.000	18.00	92.00	32.00	44.00	0.15	4	18.000	●
20.000	20.00	104.00	38.00	54.00	0.15	4	20.000	●

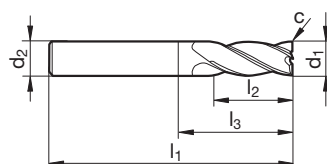


XL end mills (4-fluted)

Tool material **Solid carbide**Surface **F**Type **N**Shank form **HA****SL**

P	•	GÜHRING NAVIGATOR
M	•	
K	•	
N	•	
S		
H		

Cutting data page 226

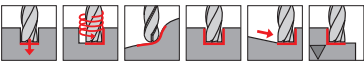


Milling cutters

Article no. **5556**Discount group **157**

d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
3.000	3.00	75.00	20.00	47.00	0.05	4	3.000	•
4.000	4.00	75.00	25.00	47.00	0.05	4	4.000	•
5.000	5.00	75.00	30.00	47.00	0.05	4	5.000	•
6.000	6.00	75.00	30.00	39.00	0.05	4	6.000	•
8.000	8.00	100.00	40.00	64.00	0.10	4	8.000	•
10.000	10.00	100.00	40.00	60.00	0.10	4	10.000	•
12.000	12.00	150.00	45.00	105.00	0.10	4	12.000	•
14.000	14.00	150.00	45.00	105.00	0.15	4	14.000	•
16.000	16.00	150.00	65.00	102.00	0.15	4	16.000	•
18.000	18.00	150.00	65.00	102.00	0.15	4	18.000	•
20.000	20.00	150.00	65.00	100.00	0.15	4	20.000	•

Ball nose slot drills (2-fluted)

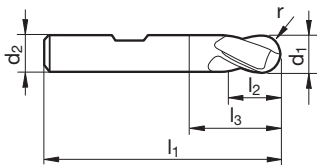


P	•
M	•
K	•
N	•
S	•
H	○

GÜHRINGNAVIGATOR

Cutting data page 224

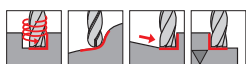
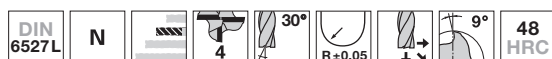
Tool material	Solid carbide	
Surface		
Type	N	N
Shank form	HB	HA



Article no.								5533	5585
Discount group								157	157
d1 h10	d2 h6	l1	l2	l3	r	Z	Code no.	Availability	
mm	mm	mm	mm	mm	mm				
0.500	3.000	38.000	1.000	2.100	0.250	2	0.500		•
1.000	3.000	38.000	2.000	3.900	0.500	2	1.000		•
1.500	3.000	38.000	3.000	6.400	0.750	2	1.500		•
2.000	6.000	57.000	6.000	9.400	1.000	2	2.000		•
3.000	6.000	57.000	7.000	11.900	1.500	2	3.000		•
4.000	6.000	57.000	8.000	13.400	2.000	2	4.000	•	•
5.000	6.000	57.000	10.000	16.900	2.500	2	5.000	•	•
6.000	6.000	57.000	10.000	21.000	3.000	2	6.000	•	•
8.000	8.000	63.000	16.000	27.000	4.000	2	8.000	•	•
10.000	10.000	72.000	19.000	32.000	5.000	2	10.000	•	•
12.000	12.000	83.000	22.000	38.000	6.000	2	12.000	•	•
20.000	20.000	104.000	32.000	54.000	10.000	2	20.000		•



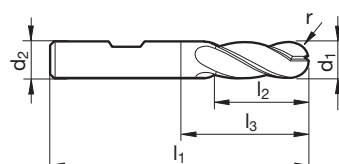
Ball nose end mills (4-fluted)



P	•
M	•
K	•
N	•
S	•
H	○

GÜHRINGNAVIGATOR

Cutting data page 224

Tool material **Solid carbide**Surface **F**Type **N**Shank form **HB****SL**

Milling cutters

Article no. **5584**Discount group **157**

d1 h10	d2 h6	l1	l2	l3	r	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm			
3.000	6.000	57.000	8.000	12.400	1.500	4	3.000	•
4.000	6.000	57.000	11.000	15.900	2.000	4	4.000	•
5.000	6.000	57.000	13.000	19.400	2.500	4	5.000	•
6.000	6.000	57.000	13.000	21.000	3.000	4	6.000	•
8.000	8.000	63.000	19.000	27.000	4.000	4	8.000	•
10.000	10.000	72.000	22.000	32.000	5.000	4	10.000	•
12.000	12.000	83.000	26.000	38.000	6.000	4	12.000	•
16.000	16.000	92.000	32.000	44.000	8.000	4	16.000	•
20.000	20.000	104.000	38.000	54.000	10.000	4	20.000	•



Chamfering milling cutters 60°



P	•
M	•
K	•
N	•
S	•
H	○

GÜHRING NAVIGATOR
Cutting data page 226

Tool material	Solid carbide	
Surface		
Type	N	N
Shank form	HA	HB

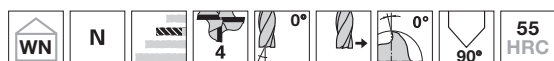
Milling cutters



Article no.						6011	6012
Discount group						157	157
d1 js9	d2 h6	l1	l2	Z	Code no.	Availability	
mm	mm	mm	mm				
4.000	4.000	50.000	3.500	4	4.000	•	
6.000	6.000	57.000	5.200	4	6.000	•	•
8.000	8.000	63.000	7.000	4	8.000	•	•
10.000	10.000	72.000	8.700	4	10.000	•	•
12.000	12.000	83.000	10.400	4	12.000	•	•



Chamfering milling cutters 90°



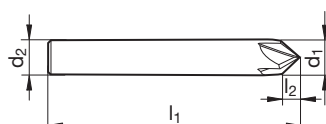
P	•
M	•
K	•
N	•
S	•
H	○

GÜHRING NAVIGATOR

Cutting data page 226

Tool material **Solid carbide**

Surface	A	A
Type	N	N
Shank form	HA	HB
	SL	SL



Milling cutters

Article no.						5578	5579
Discount group						157	157
d1 js9	d2 h6	l1	l2	Z	Code no.	Availability	
mm	mm	mm	mm				
4.000	4.000	50.000	2.000	4	4.000	•	
6.000	6.000	57.000	3.000	4	6.000	•	•
8.000	8.000	63.000	4.000	4	8.000	•	•
10.000	10.000	72.000	5.000	4	10.000	•	•
12.000	12.000	83.000	6.000	4	12.000	•	•

Chamfering milling cutters 120°



P

M

K

N

S

H

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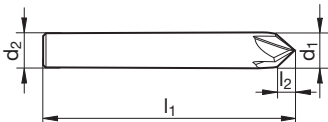
○

GÜHRINGNAVIGATOR

Cutting data page 226

Tool material	Solid carbide	
Surface		
Type	N	N
Shank form	HA	HB
		

Milling cutters



Article no.						6014	6015
Discount group						157	157
d1 js9	d2 h6	l1	l2	Z	Code no.	Availability	
mm	mm	mm	mm				
4.000	4.000	50.000	1.200	4	4.000	•	
6.000	6.000	57.000	1.800	4	6.000	•	•
8.000	8.000	63.000	2.400	4	8.000	•	•
10.000	10.000	72.000	2.900	4	10.000	•	•
12.000	12.000	83.000	3.500	4	12.000	•	•



Front/back deburrer 90°, sets



P	•
M	•
K	•
N	○
S	•
H	•

- neck clearance < Ø 6.0 mm
- without centre cutting
- consisting of art. no. 495

Tool material **Solid carbide**Surface **a**

Type EW 100 VR

Shank form cyl.

SL

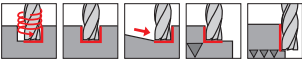
Milling cutters

Article no. **6013**Discount group **157**

Ø-range mm	Pieces/set	Code no.	Availability
4/6/10	3	1.000	•
4/5/6/8/10	5	2.000	•



Ratio end mill sets RF 100 U



P

M

K

N

S

H

•

•

○

GÜHRINGNAVIGATOR

Cutting data page 226

• neck clearance

• centre cutting

• consisting of art. no. 5535

Tool material	Solid carbide
Surface	F
Type	N
Shank form	HB
	SL



Article no.			5635
Discount group			157
Ø-range	Pieces/set	Code no.	Availability
mm			
6/8/10/12/16	5	1.000	•



Milling cutters

RF 100 U



GUHRING NAVIGATOR

Tools with **bold** feed column no. (FC no.) are preferred choice.

a_e = Width of cut

a_p = Depth of cut

Tool material

Type

Art. no.

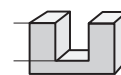
DIN 6527	HA
DIN 6527	HB
Company standard	HA
Company standard	HB

* For large cutting depths on unstable machines f_z and v_c must be reduced or a 4-flute tool RF 100 (art. no. 5582) must be applied.

** To improve the surface quality, the milling angle should be 10°-15°.

Slot milling

Solid carbide	Solid carbide
N	N
5730	5507
5530	5531

 $a_e = 1xD$ $a_e = 1xD$  $a_p = 0.5xD$ $a_p = 0.5xD$

Milling cutters

Milling cutter Ø mm	Feed column no.															
	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
	f_z (mm/tooth)															
2.00	0.001	0.001	0.001	0.002	0.002	0.002	0.004	0.005	0.006	0.007	0.008	0.010	0.012	0.014	0.016	0.018
3.00	0.002	0.002	0.003	0.003	0.004	0.004	0.007	0.010	0.010	0.010	0.015	0.016	0.013	0.019	0.022	0.024
5.00	0.005	0.006	0.007	0.009	0.010	0.014	0.020	0.020	0.022	0.025	0.026	0.026	0.028	0.030	0.032	0.038
6.00	0.006	0.008	0.009	0.011	0.013	0.017	0.024	0.025	0.027	0.031	0.029	0.033	0.039	0.036	0.041	0.047
8.00	0.010	0.012	0.014	0.016	0.019	0.024	0.032	0.032	0.035	0.042	0.042	0.047	0.053	0.052	0.058	0.064
10.00	0.013	0.015	0.018	0.021	0.025	0.030	0.038	0.039	0.044	0.050	0.053	0.059	0.065	0.066	0.073	0.080
12.00	0.010	0.018	0.022	0.026	0.030	0.036	0.046	0.048	0.052	0.059	0.063	0.072	0.079	0.085	0.090	0.100
16.00	0.020	0.023	0.027	0.032	0.038	0.045	0.054	0.058	0.063	0.071	0.079	0.088	0.095	0.100	0.110	0.120
20.00	0.023	0.028	0.033	0.038	0.045	0.057	0.066	0.073	0.080	0.090	0.097	0.100	0.110	0.120	0.130	0.140
25.00	0.030	0.035	0.040	0.045	0.055	0.065	0.075	0.100	0.120	0.130	0.140	0.150	0.165	0.170	0.180	0.190

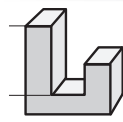
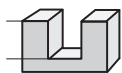
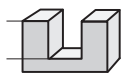
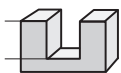
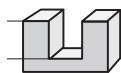
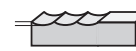
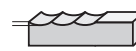
Material group	Material examples	Tensile strength MPa (N/mm ²)	Hardness
Common structural steels	1.0035 S185, 1.0486 P275N, 1.0345 P235GH, 1.0425 P265GH	≤500	
	1.0050 E295, 1.0070 E360, 1.8937 P500NH	≤1000	
Free-cutting steels	1.0718 11SMnPb30, 1.0736 11SMn37	≤850	
	1.0727 46 S20, 1.0728 60 S20, 1.0757 46SPb20	≤1000	
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E	≤700	
	1.0503 C45, 1.1191 C45E	≤850	
	1.0601 C60, 1.1221 C60E	≤1000	
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	≤1000	
	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1400	
Unalloyed case hardened steels	1.0301 C10, 1.1121 C10E	≤850	
Alloyed case hardened steels	1.7043 38Cr4	≤1000	
	1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1400	
Nitriding steels	1.8504 34CrAl6	≤1000	
	1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1400	
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850	
	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6	≤1400	
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400	
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4	≤350 HB	
Hardened steels	-	≤48 HRC	
		≤66 HRC	
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17	≤900	
austenitic	1.4301 X5CrNi18-10, 1.4541 X6CrNiTi18-10	≤1100	
martensitic	1.4057 X20CrNi17-2, 1.4122 X39CrMo17-1	≤1500	
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20)	≤240 HB	
	0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	≤350 HB	
Spheroidal graphite iron and malleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)	≤240 HB	
	0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)	≤350 HB	
Chilled cast iron	-	≤350 HB	
New cast materials GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35)	≤220 HB	
	EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6	≤300 HB	
New cast materials ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000)	≤1000	
	EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1400	
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000	
Ti and Ti alloys	3.7024 Ti99.5, 3.7114 TiAl5Sn2.5, 3.7124 TiCu2	≤850	
	3.7154 TiAl6Zr5, 3.7164 TiAl6V4, 3.7184 TiAl4Mo4Sn2.5	≤1400	
Aluminium and Al alloys	3.0255 Al99.5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400	
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si	≤650	
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600	
≤ 24 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600	
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400	
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnNb	≤500	
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600	
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0.5	≤600	
Bronze, short-chipping	2.1090 CuSn7ZnNb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600	
	2.0790 CuNi18Zn19Pb	≤850	
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850	
	2.0980 CuAl11Ni, 2.1247 CuBe2	≤1000	
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150	
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100	
Kevlar	Kevlar	≤1000	
Glass, carbon concentr. plastics	GFK/CFK	≤1000	

1xD = 75 %
1.5xD = 50 %

1xD = 75 %
1.5xD = 50 %



					Fine finishing		Copying	
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
N	NH	W	N	NH	NH	NH	N	N
	5505 5506						5585**	
	5546	5543					5533**	5584**
5549					5745	5729*		
			5573	5574	5545			

 $a_e = 1xD$ $a_e = 1xD$ $a_e = 1xD$ $a_e = 1xD$ $a_e = 1xD$ $a_e = 0.05xD$ $a_e = 0.05xD$ $a_e = 0.05xD$ $a_e = 0.05xD$  $a_p = 2xD$  $a_p = 0.5xD$  $a_p = 0.5xD$  $a_p = 0.5xD$  $a_p = 0.5xD$  $a_p = 1.5xD$  $a_p = 3xD$  $a_p = 0.05xD$  $a_p = 0.05xD$

V_c m/min	Feed col. no.	V_c m/min	Feed col. no.	V_c m/min	Feed col. no.	V_c m/min	Feed col. no.	V_c m/min	Feed col. no.	V_c m/min	Feed col. no.	V_c m/min	Feed col. no.	V_c m/min	Feed col. no.	V_c m/min	Feed col. no.
72 - 88	39	94 - 116	43			85 - 105	42	94 - 116	43	171 - 209	48	136 - 168	45	153 - 187	48	153 - 187	48
67 - 83	38	89 - 109	42			81 - 99	41	89 - 109	42	157 - 193	47	126 - 154	44	144 - 176	47	144 - 176	47
72 - 88	38	94 - 116	42			85 - 105	41	94 - 116	42	171 - 209	47	136 - 168	44	153 - 187	47	153 - 187	47
54 - 66	39	69 - 85	43			63 - 77	42	69 - 85	43	126 - 154	46	100 - 124	43	153 - 187	46	153 - 187	46
72 - 88	38	94 - 116	42			85 - 105	41	94 - 116	42	171 - 209	47	136 - 168	44	135 - 165	47	135 - 165	47
63 - 77	38	84 - 104	42			76 - 94	41	84 - 104	42	153 - 187	47	122 - 150	44	135 - 165	47	135 - 165	47
54 - 66	39	69 - 85	43			63 - 77	42	69 - 85	43	126 - 154	46	100 - 124	43	117 - 143	46	117 - 143	46
63 - 77	39	84 - 104	43			76 - 94	42	84 - 104	43	153 - 187	46	122 - 150	43	126 - 154	46	126 - 154	46
54 - 66	39	69 - 85	43							126 - 154	45	100 - 124	42	153 - 187	45	153 - 187	45
67 - 83	38	99 - 121	42			90 - 110	41	99 - 121	42	189 - 231	47	151 - 185	44	198 - 242	47	198 - 242	47
63 - 77	38	84 - 104	42			76 - 94	41	84 - 104	42	153 - 187	47	122 - 150	44	171 - 209	47	171 - 209	47
45 - 55	39	59 - 73	43							117 - 143	46	93 - 115	43	108 - 132	46	108 - 132	46
72 - 88	38	94 - 116	42			85 - 105	41	94 - 116	42	171 - 209	47	136 - 168	44	144 - 176	47	144 - 176	47
63 - 77	37	84 - 104	41							153 - 187	45	122 - 150	42	135 - 165	45	135 - 165	45
63 - 77	38	84 - 104	42			76 - 94	41	84 - 104	42	153 - 187	47	122 - 150	44	135 - 165	47	135 - 165	47
54 - 66	37	69 - 85	41			63 - 77	40	69 - 85	41	126 - 154	45	100 - 124	42	117 - 143	45	117 - 143	45
40 - 50	39	49 - 61	43			45 - 55	42	49 - 61	43	94 - 116	46	75 - 93	43	85 - 105	46	85 - 105	46
		49 - 61	41							94 - 116	45	75 - 93	42	85 - 105	45	85 - 105	45
		49 - 61	41							49 - 61	43	39 - 49	41	49 - 61	44	49 - 61	44
		49 - 61	43			45 - 55	42	49 - 61	43	94 - 116	46	75 - 93	43	85 - 105	46	85 - 105	46
		45 - 55	41			40 - 50	40	45 - 55	41	81 - 99	45	64 - 80	42	76 - 94	45	76 - 94	45
		39 - 49	42			36 - 44	41	39 - 49	42	76 - 94	46	61 - 75	43	67 - 83	46	67 - 83	46
94 - 116	38	118 - 146	42			108 - 132	41	118 - 146	42	220 - 270	47	132 - 162	44	198 - 242	47	198 - 242	45
85 - 105	37	108 - 134	41			99 - 121	40	108 - 134	41	202 - 248	46	121 - 149	43	189 - 231	46	189 - 231	47
81 - 99	38	99 - 121	42			90 - 110	41	99 - 121	42	180 - 220	47	108 - 132	44	171 - 209	47	171 - 209	46
67 - 83	37	89 - 109	41			81 - 99	40	89 - 109	41	157 - 193	46	94 - 116	41	144 - 176	46	144 - 176	47
		59 - 73	41			54 - 66	40	59 - 73	41					99 - 121	44	99 - 121	46
																	44
		29 - 37	41					29 - 37	41	54 - 66	45	32 - 40	42	49 - 61	45	49 - 61	45
58 - 72	37	49 - 61	41			45 - 55	40	49 - 61	41	94 - 116	45	56 - 70	42				
31 - 39	37	39 - 49	41			36 - 44	40	39 - 49	41	76 - 94	44	45 - 57	41				
						297 - 363	46	297 - 363	46	297 - 363	46	810 - 990	50	486 - 594	41	720 - 880	50
						360 - 440	46	360 - 440	46	360 - 440	46	720 - 880	50	432 - 528	41	855 - 1045	50
		217 - 267	43			144 - 176	45	144 - 176	45	217 - 267	43	405 - 495	48	243 - 297	45	342 - 418	48
		178 - 218	44			117 - 143	46	117 - 143	46	178 - 218	44	324 - 396	49	194 - 238	46	288 - 352	49
						171 - 209	47	171 - 209	47	171 - 209	47	450 - 550	50			405 - 495	50
						81 - 99	46	81 - 99	46	118 - 146	44	216 - 264	49			180 - 220	49
		118 - 146	44			72 - 88	46	72 - 88	46	99 - 121	44	198 - 242	48	118 - 146	45	171 - 209	48
		99 - 121	44			67 - 83	45	67 - 83	45	67 - 83	45	162 - 198	48			162 - 198	48
						72 - 88	45	72 - 88	45	99 - 121	43	198 - 242	48	118 - 146	45	180 - 220	48
						63 - 77	44	63 - 77	44	79 - 97	42	153 - 187	47	91 - 113	44	171 - 209	47
						63 - 77	45	63 - 77	45	63 - 77	45	153 - 187	47			198 - 242	47
						54 - 66	43	54 - 66	43	54 - 66	43	126 - 154	46	75 - 93	43	189 - 231	46
						81 - 99	43	81 - 99	43	81 - 99	43	216 - 264	46				
						72 - 88	43	72 - 88	43	72 - 88	43	198 - 242	46				

3xD = 50 %

1xD = 75 %
1.5xD = 50 %1xD = 75 %
1.5xD = 50 %

1.5xD = 75 %

1.5xD = 75 %

a_e = Width of cut
 a_p = Depth of cut

a_e = Width of cut
 a_p = Depth of cut

Type

Art. no.

DIN 6527	HA
DIN 6527	HB
Company standard	HA
Company standard	HB

* With this application, optimal chip evacuation must be ensured.
Slot milling only recommended
> Ø 5 mm.

** In the event of excessive edge wear through vibration, the feed rate should be reduced by 30 %.

Solid carbide Solid carbide

N

N

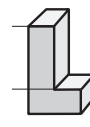
5735*

5* 5534*

5582


$$a_e = 0.5-1.0 \times D$$

$$a_n = 1 \times D$$

$$a_e = 0.25 \times D$$

$$a_n = 2xD$$

Milling cutter Ø mm	Feed column no.															
	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
	f _z (mm/tooth)															
2.00	0.001	0.001	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.008	0.010	0.012	0.014	0.016	0.018	0.020
3.00	0.002	0.002	0.003	0.003	0.004	0.007	0.010	0.010	0.010	0.015	0.016	0.013	0.019	0.022	0.024	0.030
5.00	0.005	0.006	0.007	0.009	0.010	0.014	0.020	0.020	0.022	0.025	0.026	0.026	0.028	0.030	0.032	0.038
6.00	0.006	0.008	0.009	0.011	0.013	0.017	0.024	0.025	0.027	0.031	0.029	0.033	0.039	0.036	0.041	0.047
8.00	0.010	0.012	0.014	0.016	0.019	0.024	0.032	0.032	0.035	0.042	0.042	0.047	0.053	0.052	0.058	0.064
10.00	0.013	0.015	0.018	0.021	0.025	0.030	0.038	0.039	0.044	0.050	0.053	0.059	0.065	0.066	0.073	0.080
12.00	0.010	0.018	0.022	0.026	0.030	0.036	0.046	0.048	0.052	0.059	0.063	0.072	0.079	0.085	0.090	0.100
16.00	0.020	0.023	0.027	0.032	0.038	0.045	0.054	0.058	0.063	0.071	0.079	0.088	0.095	0.100	0.110	0.120
20.00	0.023	0.028	0.033	0.038	0.045	0.057	0.066	0.073	0.080	0.090	0.097	0.100	0.110	0.120	0.130	0.140
25.00	0.030	0.035	0.040	0.045	0.055	0.065	0.075	0.100	0.120	0.130	0.140	0.150	0.165	0.170	0.180	0.190

Material group	Material examples	Tensile strength MPa (N/mm ²)	Hardness
Common structural steels	1.0035 S185, 1.0486 P275N, 1.0345 P235GH, 1.0425 P265GH 1.0050 E295, 1.0070 E360, 1.8937 P500NH	≤500 ≤1000	
Free-cutting steels	1.0718 11SMnPb30, 1.0736 11SMn37 1.0727 46 S20, 1.0728 60 S20, 1.0757 46SPb20	≤850 ≤1000	
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E 1.0503 C45, 1.1191 C45E 1.0601 C60, 1.1221 C60E	≤700 ≤850 ≤1000	
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400	
Unalloyed case hardened steels	1.0301 C10, 1.1121 C10E	≤850	
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400	
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400	
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6	≤850 ≤1400	
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400	
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4		≤350 H
Hardened steels	–		≤48 HR ≤66 HR
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17 1.4301 X5CrNi18-10, 1.4541 X6CrNiTi18-10 1.4057 X20CrNi17-2, 1.4122 X39CrMo17-1	≤900 ≤1100 ≤1500	
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		≤240 H ≤350 H
Spheroidal graphite iron and malleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 H ≤350 H
Chilled cast iron	–		≤350 H
New cast materials GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 H ≤300 H
New cast materials ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400	
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000	
Ti and Ti alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7164 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5	≤850 ≤1400	
Aluminium and Al alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400	
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si	≤650	
Al cast alloys ≤ 10 % Si ≤ 24 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9 3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600	
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400	
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500	
Brass, short-chipping long-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2 2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600 ≤600	
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn 2.0790 CuNi18Zn19Pb	≤600 ≤850	
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 ≤1000	
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150	
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100	
Kevlar	Kevlar	≤1000	
Glass, carbon concentr. plastics	GFK/CFK	≤1000	

	V _c m/min	Feed col. no.	V _c m/min	Feed col. no.
	170 - 208	51	110 - 136	47
	157 - 193	50	102 - 126	46
	170 - 208	50	110 - 136	46
	126 - 154	49	81 - 101	45
	170 - 208	50	110 - 136	46
	151 - 185	50	98 - 120	46
	126 - 154	49	81 - 101	45
	151 - 185	49	98 - 120	45
	126 - 154	48	81 - 101	44
	189 - 231	50	123 - 151	46
	151 - 185	50	98 - 120	46
	113 - 139	49	73 - 91	45
	170 - 208	50	110 - 136	46
	151 - 185	48	98 - 120	44
	151 - 185	50	98 - 120	46
	126 - 154	48	81 - 101	44
	94 - 116	49	61 - 75	45
	94 - 116	48		
	44 - 54	46		
	80 - 100	49	60 - 80	45
	70 - 90	48	55 - 75	44
	65 - 70	49	50 - 65	45
	220 - 270	50	143 - 175	46
	201 - 247	49	131 - 161	45
	182 - 224	50	118 - 146	46
	157 - 193	49	102 - 126	45
	107 - 131	47	69 - 85	43
	56 - 70	48		
	54 - 86	43	61 - 75	44
	44 - 72	42	49 - 61	43
			300 - 380	47
			370 - 440	47
			150 - 185	45
			115 - 145	46
			175 - 215	47
			80 - 100	46
			75 - 95	45
			60 - 75	45
			75 - 95	45
			55 - 70	44

$a_p 1.5xD = 50\%$
 $a_e 0.25xD = 150\%$

$a_p \ 0.5xD = 75 \%$
 $a_p \ 2xD = 50 \%$



				Finishing				
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Sol. carb.	Solid carbide
N	W	NRf	HR	N	NH	N	N	N
5653				5735				
5654		5504**	5583**	5535 5534		5532		
	6010				5582		5556	6011 5578 6014
	5655							6012 5579 6015

 $a_e = 0.5-1.0xD$  $a_e = 0.5-1.0xD$  $a_e = 0.5-1.0xD$  $a_e = 0.5-1.0xD$  $a_e = 0.1xD$  $a_e = 0.1xD$  $a_e = 0.1xD$  $a_e = 0.1xD$  $a_e = 0.1xD$  $a_p = 1xD$  $a_p = 1xD$  $a_p = 1xD$  $a_p = 1xD$  $a_p = 1xD$  $a_p = 2xD$  $a_p = 1xD$  $a_p = 2xD$  $a_p = 0.1xD$

V_c m/min	Feed col. no.	V_c m/min	Feed col. no.	V_c m/min	Feed col. no.	V_c m/min	Feed col. no.	V_c m/min	Feed col. no.	V_c m/min	Feed col. no.	V_c m/min	Feed col. no.	V_c m/min	Feed col. no.	V_c m/min	Feed col. no.
170 - 208	49			97 - 119	43			212 - 260	49	139 - 171	44	157 - 193	48	103 - 127	43	170 - 208	51
157 - 193	48			90 - 110	42			194 - 238	48	127 - 157	43	144 - 176	47	94 - 116	42	157 - 193	50
170 - 208	48			97 - 119	42			212 - 260	48	139 - 171	43	157 - 193	47	103 - 127	42	170 - 208	50
126 - 154	47			72 - 88	41			158 - 194	47	109 - 135	42	117 - 143	46	81 - 99	41	126 - 154	49
170 - 208	48			97 - 119	42			212 - 260	48	139 - 171	43	157 - 193	47	103 - 127	42	170 - 208	50
151 - 185	48			86 - 106	42			194 - 238	48	121 - 149	43	144 - 176	47	90 - 110	42	151 - 185	50
126 - 154	47			72 - 88	41			158 - 194	47	103 - 127	42	117 - 143	46	76 - 94	41	126 - 154	49
151 - 185	47			86 - 106	41			188 - 230	47	121 - 149	42	139 - 171	46	90 - 110	41	151 - 185	49
126 - 154	46			72 - 88	40	72 - 88	39	158 - 194	46	103 - 127	41	117 - 143	45	76 - 94	40	126 - 154	48
189 - 231	48			108 - 132	42			236 - 290	48	134 - 164	43	175 - 215	47	99 - 121	42	189 - 231	50
151 - 185	48			86 - 106	42	86 - 106	41	188 - 230	48	121 - 149	43	139 - 171	47	90 - 110	42	151 - 185	50
113 - 139	47			64 - 80	41	64 - 80	40	139 - 171	47	90 - 112	42	103 - 127	46	67 - 83	41	113 - 139	49
170 - 208	48			97 - 119	42	97 - 119	41	212 - 260	48	139 - 171	43	157 - 193	47	103 - 127	42	170 - 208	50
151 - 185	46			86 - 106	40	86 - 106	39	194 - 238	46	121 - 149	41	144 - 176	45	90 - 110	40	151 - 185	48
151 - 185	48			86 - 106	42	86 - 106	41	188 - 230	48	121 - 149	43	139 - 171	47	90 - 110	42	151 - 185	50
126 - 154	46			72 - 88	40	72 - 88	39	158 - 194	46	103 - 127	41	117 - 143	45	76 - 94	40	126 - 154	48
94 - 116	47					54 - 66	47	121 - 149	47	79 - 97	42	90 - 110	46	58 - 72	41	94 - 116	49
67 - 83	46					54 - 66	26	121 - 149	46							94 - 116	48
31 - 39	44			25 - 31	38	25 - 31	38	61 - 75	44							44 - 54	46
						18 - 22	38										
80 - 120	47			54 - 66	41			121 - 149	47	72 - 90	44	90 - 110	46			80 - 100	49
70 - 90	46			46 - 58	40			103 - 127	46	62 - 75	43	76 - 94	45			70 - 90	48
50 - 70	47			43 - 53	41	43 - 53	40	97 - 119	47	58 - 72	44	72 - 88	46			65 - 70	49
				126 - 154	44	126 - 154	42	255 - 313	48	182 - 224	43	189 - 231	47	135 - 165	42	220 - 270	50
				115 - 141	43	115 - 141	41	255 - 313	47	163 - 201	42	189 - 231	46	121 - 149	41	201 - 247	49
				104 - 128	44	104 - 128	42	231 - 283	48	152 - 186	43	171 - 209	47	112 - 138	42	182 - 224	50
				90 - 110	43	90 - 110	41	194 - 238	47	127 - 157	42	144 - 176	46	94 - 116	41	157 - 193	49
						61 - 75	39	134 - 164	45			99 - 121	44			107 - 131	47
40 - 50	46			32 - 40	42			72 - 90	46			54 - 66	45			56 - 70	48
67 - 83	46			54 - 66	41			121 - 149	46	79 - 97	41	90 - 110	45	58 - 72	40	54 - 86	43
54 - 66	45			43 - 53	40			97 - 119	45	61 - 75	40	72 - 88	44	45 - 55	39	44 - 72	42
		810 - 990	50							220 - 280	46	765 - 935	50	450 - 550	45	342 - 418	51
		720 - 880	50							250 - 300	45					414 - 506	50
		405 - 495	48							220 - 250	44	373 - 457	48	225 - 275	43	165 - 203	49
117 - 143	45			324 - 396	49					200 - 240	45	306 - 374	49	180 - 220	44		
		450 - 550	50							210 - 260	46					197 - 241	51
		216 - 264	49							110 - 120	45	198 - 242	49	135 - 165	44	93 - 115	50
				117 - 143	44	117 - 143	42			100 - 120	44	180 - 220	48	108 - 132	43	82 - 102	49
				162 - 198	48					90 - 110	44	144 - 176	48	90 - 110	43	77 - 95	49
				117 - 143	44	117 - 143	42			100 - 120	44	180 - 220	48	108 - 132	43	82 - 102	49
63 - 77	43			153 - 187	47	87 - 107	43	87 - 107	41			135 - 165	47				
63 - 77	43			153 - 187	47	87 - 107	43									72 - 90	48
54 - 66	42			126 - 154	46	72 - 90	42										
81 - 99	42			216 - 264	46											93 - 115	47
72 - 88	42			198 - 242	46											82 - 102	47

$a_p 0.5xD = 120\%$
 $a_p 2xD = 50\%$

$a_p 0.5xD = 120\%$
 $a_p 2xD = 50\%$

$a_p 1.5xD = 50\%$
 $a_e 0.25xD = 140\%$

$a_p 0.5xD = 120\%$

$a_p 2xD = 50\%$

$a_p 3xD = 50\%$

$a_p 2xD = 50\%$

$a_p 3xD = 50\%$

$a_p 3xD = 50\%$

**SLOTING****Art. no. 6803/6804/6737/6736**

Material/ISO material	Hardness	a _p max.	a _e max.	v _c	f _z (mm/tooth) with nom. Ø							
					4	5	6	8	10	12	16	20
Struct./free-cutting steels, unall. heat-treat./case hard. steels	≤ 850 N/mm ²	1xD	1xD	270	0.017	0.021	0.025	0.034	0.050	0.060	0.080	0.100
P Free-cutting steels, unalloyed case hard. steels, nitr. steels	850-1200 N/mm ²	1xD	1xD	230	0.017	0.021	0.025	0.034	0.050	0.060	0.080	0.100
Alloyed heat-treatable, tool and high speed steels	850-1400 N/mm ²	1xD	1xD	180	0.014	0.018	0.021	0.028	0.045	0.054	0.072	0.090
M Stainless steel - easy to machine/sulphured	≤ 750 N/mm ²	1xD	1xD	120	0.014	0.018	0.021	0.028	0.045	0.054	0.072	0.090
Stainless steel - moderately difficult to machine	750-950 N/mm ²	1xD	1xD	80	0.013	0.016	0.019	0.026	0.040	0.048	0.064	0.080
K Cast iron, grey cast iron, spher. graphite/malleable cast iron	≥ 240 HB	1xD	1xD	150	0.017	0.021	0.025	0.034	0.050	0.060	0.080	0.100
N Aluminium, Al-wrought alloys, Al alloys	≤ 7 % Si	1xD	1xD	500	0.022	0.028	0.033	0.044	0.065	0.078	0.104	0.130
Aluminium-cast alloys	≥ 7 % Si	1xD	1xD	340	0.018	0.023	0.027	0.036	0.055	0.066	0.088	0.110
S Titanium, Titanium alloys	≤ 1300 N/mm ²	1xD	1xD	60	0.013	0.016	0.019	0.026	0.040	0.048	0.064	0.080

HPC ROUGHING

Material/ISO material	Hardness	a _p max.	a _e max.	v _c	f _z (mm/tooth) with nom. Ø							
					4	5	6	8	10	12	16	20
Struct./free-cutting steels, unall. heat-treat./case hard. steels	≤ 850 N/mm ²	1.5xD	0.40xD	350	0.021	0.026	0.032	0.042	0.063	0.075	0.100	0.125
P Free-cutting steels, unalloyed case hard. steels, nitr. steels	850-1200 N/mm ²	1.5xD	0.40xD	290	0.021	0.026	0.032	0.042	0.063	0.075	0.100	0.125
Alloyed heat-treatable, tool and high speed steels	850-1400 N/mm ²	1.5xD	0.33xD	260	0.018	0.023	0.027	0.036	0.059	0.070	0.094	0.117
M Stainless steel - easy to machine/sulphured	≤ 750 N/mm ²	1.5xD	0.33xD	160	0.018	0.023	0.027	0.036	0.059	0.070	0.094	0.117
Stainless steel - moderately difficult to machine	750-950 N/mm ²	1.5xD	0.25xD	120	0.019	0.024	0.029	0.038	0.060	0.072	0.096	0.120
K Cast iron, grey cast iron, spher. graphite/malleable cast iron	≥ 240 HB	1.5xD	0.40xD	190	0.021	0.026	0.032	0.042	0.063	0.075	0.100	0.125
N Aluminium, Al-wrought alloys, Al alloys	≤ 7 % Si	1.5xD	0.40xD	600	0.028	0.034	0.041	0.055	0.081	0.098	0.130	0.163
Aluminium-cast alloys	≥ 7 % Si	1.5xD	0.40xD	440	0.023	0.028	0.034	0.045	0.069	0.083	0.110	0.138
S Titanium, Titanium alloys	≤ 1300 N/mm ²	1.5xD	0.33xD	110	0.017	0.021	0.025	0.033	0.052	0.062	0.083	0.104

HPC FINISHING

Material/ISO material	Hardness	a _p max.	a _e max.	v _c	f _z (mm/tooth) with nom. Ø							
					4	5	6	8	10	12	16	20
Struct./free-cutting steels, unall. heat-treat./case hard. steels	≤ 850 N/mm ²	2xD	0.02xD	540	0.018	0.023	0.028	0.037	0.055	0.066	0.088	0.110
P Free-cutting steels, unalloyed case hard. steels, nitr. steels	850-1200 N/mm ²	2xD	0.02xD	460	0.018	0.023	0.028	0.037	0.055	0.066	0.088	0.110
Alloyed heat-treatable, tool and high speed steels	850-1400 N/mm ²	2xD	0.02xD	350	0.015	0.019	0.023	0.031	0.050	0.059	0.079	0.099
M Stainless steel - easy to machine/sulphured	≤ 750 N/mm ²	2xD	0.02xD	220	0.015	0.019	0.023	0.031	0.050	0.059	0.079	0.099
Stainless steel - moderately difficult to machine	750-950 N/mm ²	2xD	0.02xD	160	0.014	0.018	0.021	0.028	0.044	0.053	0.070	0.088
K Cast iron, grey cast iron, spher. graphite/malleable cast iron	≥ 240 HB	2xD	0.02xD	300	0.018	0.023	0.028	0.037	0.055	0.066	0.088	0.110
N Aluminium, Al-wrought alloys, Al alloys	≤ 7 % Si	2xD	0.02xD	1000	0.024	0.030	0.036	0.048	0.072	0.086	0.114	0.143
Aluminium-cast alloys	≥ 7 % Si	2xD	0.02xD	680	0.020	0.025	0.030	0.040	0.061	0.073	0.097	0.121
S Titanium, Titanium alloys	≤ 1300 N/mm ²	2xD	0.02xD	130	0.014	0.018	0.021	0.028	0.044	0.053	0.070	0.088

RAMPING, HELIX, GROOVING

Material/ISO material	Hardness	a _p	max. ramping angle	v _c	f _z (mm/tooth) with nom. Ø							
					4	5	6	8	10	12	16	20
Struct./free-cutting steels, unall. heat-treat./case hard. steels	≤ 850 N/mm ²	1xD	45°	270	0.015	0.019	0.023	0.030	0.045	0.054	0.072	0.090
P Free-cutting steels, unalloyed case hard. steels, nitr. steels	850-1200 N/mm ²	1xD	45°	230	0.013	0.017	0.020	0.026	0.040	0.048	0.064	0.080
Alloyed heat-treatable, tool and high speed steels	850-1400 N/mm ²	1xD	30°	180	0.011	0.014	0.017	0.022	0.030	0.036	0.048	0.060
M Stainless steel - easy to machine/sulphured	≤ 750 N/mm ²	1xD	10°	120	0.009	0.012	0.014	0.018	0.030	0.036	0.048	0.060
Stainless steel - moderately difficult to machine	750-950 N/mm ²	1xD	5°	80	0.007	0.009	0.011	0.014	0.025	0.030	0.040	0.050
K Cast iron, grey cast iron, spher. graphite/malleable cast iron	≥ 240 HB	1xD	45°	150	0.015	0.019	0.023	0.030	0.045	0.054	0.072	0.090
N Aluminium, Al-wrought alloys, Al alloys	≤ 7 % Si	1xD	30°	500	0.013	0.017	0.020	0.026	0.040	0.048	0.064	0.080
Aluminium-cast alloys	≥ 7 % Si	1xD	45°	340	0.015	0.019	0.023	0.030	0.045	0.054	0.072	0.090
S Titanium, Titanium alloys	≤ 1300 N/mm ²	1xD	10°	60	0.007	0.009	0.011	0.014	0.025	0.030	0.040	0.050

DRILLING

Material/ISO material	Hardness	Drilling depth (a _p max.)	v _c	f _z (mm/tooth) with nom. Ø							
				4	5	6	8	10	12	16	20
Struct./free-cutting steels, unall. heat-treat./case hard. steels	≤ 850 N/mm ²	1.5xD	270	0.014	0.018	0.021	0.028	0.040	0.048	0.064	0.080
P Free-cutting steels, unalloyed case hard. steels, nitr. steels	850-1200 N/mm ²	1.5xD	230	0.012	0.015	0.018	0.024	0.035	0.042	0.056	0.070
Alloyed heat-treatable, tool and high speed steels	850-1400 N/mm ²	1.0xD	180	0.008	0.010	0.012	0.016	0.025	0.030	0.040	0.050
K Cast iron, grey cast iron, spher. graphite/malleable cast iron	≥ 240 HB	1.5xD	150	0.014	0.018	0.021	0.028	0.040	0.048	0.064	0.080
N Aluminium, Al-wrought alloys, Al alloys	≤ 7 % Si	1.0xD	500	0.012	0.015	0.018	0.024	0.035	0.042	0.056	0.070
Aluminium-cast alloys	≥ 7 % Si	1.0xD	340	0.014	0.018	0.021	0.028	0.040	0.048	0.064	0.080



RF 100
SPEED

Art. no. 6761

ROUGHING

Milling conditions	Material	Machinability	max. a_p	max. a_e	max. pressure angle	v_c	f_z (mm/tooth) with nom. ϕ								
							3	4	5	6	8	10	12	16	20
HPC	P	light/medial	L2	0.15xD	46°	280	0.026	0.034	0.043	0.051	0.084	0.105	0.125	0.167	0.209
		difficult	L2	0.15xD	46°	220	0.026	0.034	0.043	0.051	0.076	0.095	0.114	0.152	0.190
	M	light/medial	L2	0.10xD	37°	160	0.024	0.032	0.040	0.048	0.064	0.081	0.097	0.129	0.161
		difficult	L2	0.10xD	37°	100	0.024	0.032	0.040	0.048	0.064	0.081	0.097	0.129	0.161
	S	medial/difficult	L2	0.08xD	31°	90	0.026	0.035	0.044	0.053	0.070	0.088	0.105	0.140	0.175
		very difficult	L2	0.08xD	31°	60	0.023	0.030	0.038	0.045	0.060	0.075	0.090	0.120	0.150

ROUGHING

Milling conditions	Material	Machinability	max. a_p	max. a_e	max. pressure angle	v_c	f_z (mm/tooth) with nom. ϕ								
							3	4	5	6	8	10	12	16	20
HSC	P	light/medial	L2	0.10xD	37°	310	0.031	0.041	0.052	0.062	0.101	0.127	0.152	0.202	0.253
		difficult	L2	0.10xD	37°	240	0.031	0.041	0.052	0.062	0.092	0.115	0.138	0.184	0.230
	M	light/medial	L2	0.08xD	31°	170	0.026	0.035	0.044	0.053	0.070	0.088	0.105	0.140	0.175
		difficult	L2	0.08xD	31°	110	0.026	0.035	0.044	0.053	0.070	0.088	0.105	0.140	0.175
	S	medial/difficult	L2	0.05xD	26°	100	0.026	0.035	0.044	0.053	0.070	0.088	0.105	0.140	0.175
		very difficult	L2	0.05xD	26°	70	0.023	0.030	0.038	0.045	0.060	0.075	0.090	0.120	0.150

FINISHING

Milling conditions	Material	Machinability	max. a_p	max. a_e	max. pressure angle	v_c	f_z (mm/tooth) with nom. ϕ								
							3	4	5	6	8	10	12	16	20
HSC	P	light/medial	L2	0.01xD	11°	340	0.024	0.032	0.041	0.049	0.079	0.099	0.119	0.158	0.198
		difficult	L2	0.01xD	11°	270	0.024	0.032	0.041	0.049	0.072	0.090	0.108	0.144	0.180
	M	light/medial	L2	0.01xD	11°	180	0.019	0.025	0.032	0.038	0.050	0.063	0.076	0.101	0.126
		difficult	L2	0.01xD	11°	120	0.019	0.025	0.032	0.038	0.050	0.063	0.076	0.101	0.126
	S	medial/difficult	L2	0.01xD	11°	100	0.019	0.025	0.032	0.038	0.050	0.063	0.076	0.101	0.126
		very difficult	L2	0.01xD	11°	70	0.016	0.022	0.027	0.032	0.043	0.054	0.065	0.086	0.108



Art. no. 6964/6965

SLOTING

Milling conditions	Material	Machinability	max. a_p	max. a_e	max. pressure angle	v_c	f_z (mm/tooth) with nom. ϕ								
							3	4	5	6	8	10	12	16	20
HPC	P	light/medial	1xD	1xD	180°	180	0.016	0.022	0.026	0.031	0.042	0.060	0.070	0.100	0.120
		difficult	1xD	1xD	180°	135	0.014	0.018	0.022	0.027	0.036	0.050	0.060	0.080	0.100
	M	light/medial	1xD	1xD	180°	120	0.014	0.018	0.022	0.027	0.036	0.050	0.060	0.080	0.100
		difficult	1xD	1xD	180°	60	0.011	0.015	0.018	0.021	0.028	0.040	0.050	0.060	0.080
	S	medial/difficult	1xD	1xD	180°	60	0.012	0.016	0.020	0.024	0.032	0.045	0.050	0.070	0.090
		very difficult	1xD	1xD	180°	30	0.008	0.010	0.014	0.017	0.022	0.032	0.040	0.050	0.060

ROUGHING

Milling conditions	Material	Machinability	max. a_p	max. a_e	max. pressure angle	v_c	f_z (mm/tooth) with nom. ϕ								
							3	4	5	6	8	10	12	16	20
HPC	P	light/medial	L2	0.2xD	53°	305	0.025	0.032	0.040	0.050	0.067	0.096	0.120	0.150	0.190
		difficult	L2	0.2xD	53°	230	0.022	0.028	0.034	0.043	0.058	0.080	0.100	0.130	0.160
	M	light/medial	L2	0.2xD	53°	205	0.022	0.028	0.034	0.043	0.058	0.080	0.100	0.130	0.160
		difficult	L2	0.2xD	53°	100	0.017	0.022	0.026	0.034	0.045	0.064	0.080	0.100	0.130
	S	medial/difficult	L2	0.2xD	53°	100	0.019	0.024	0.028	0.038	0.051	0.072	0.090	0.120	0.140
		very difficult	L2	0.2xD	53°	50	0.013	0.015	0.022	0.027	0.036	0.051	0.060	0.080	0.100

FINISHING

Milling conditions	Material	Machinability	max. a_p	max. a_e	max. pressure angle	v_c	f_z (mm/tooth) with nom. ϕ								
							3	4	5	6	8	10	12	16	20
HSC	P	light/medial	L2	0.01xD	11°	340	0.024	0.032	0.041	0.049	0.079	0.099	0.119	0.158	0.198
		difficult	L2	0.01xD	11°	270	0.024	0.032	0.041	0.049	0.072	0.090	0.108	0.144	0.180
	M	light/medial	L2	0.01xD	11°	180	0.019	0.025	0.032	0.038	0.050	0.063	0.076	0.101	0.126
		difficult	L2	0.01xD	11°	120	0.019	0.025	0.032	0.038	0.050	0.063	0.076	0.101	0.126
	S	medial/difficult	L2	0.01xD	11°	100	0.019	0.025	0.032	0.038	0.050	0.063	0.076	0.101	0.126
		very difficult	L2	0.01xD	11°	70	0.016	0.022	0.027	0.032	0.043	0.054	0.065	0.086	0.108



REAMERS AND COUNTERSINKS



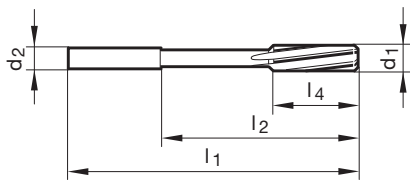
NC machine reamers

DIN 212-3	H7
--------------	----

P	•	• ≤ Ø 3.75 mm with external centres on both ends
M	○	• > Ø 3.75 mm with internal centres on both ends
K	•	
N	•	
S	○	
H		

Tool material	HSS-E
Surface	○
Form	B
Shank form	HA

SL



Article no. 6019

Discount group 154

d1	d2 h6	l1	l2	l4	Z	Code no.	Availability
mm	mm	mm	mm	mm			
1.500	2.000	40.000	12.000	8.000	3	1.500	●
2.000	2.000	49.000	21.000	11.000	4	2.000	●
2.500	3.000	57.000	27.000	14.000	4	2.500	●
3.000	3.000	61.000	31.000	15.000	6	3.000	●
3.500	4.000	70.000	38.000	18.000	6	3.500	●
4.000	4.000	75.000	43.000	19.000	6	4.000	●
4.500	5.000	80.000	47.000	21.000	6	4.500	●
5.000	5.000	86.000	52.000	23.000	6	5.000	●
5.500	6.000	93.000	57.000	26.000	6	5.500	●
6.000	6.000	93.000	57.000	26.000	6	6.000	●
6.500	6.000	101.000	63.000	28.000	6	6.500	●
7.000	8.000	109.000	69.000	31.000	6	7.000	●
7.500	8.000	109.000	69.000	31.000	6	7.500	●
8.000	8.000	117.000	75.000	33.000	6	8.000	●
8.500	8.000	117.000	75.000	33.000	6	8.500	●
9.000	10.000	125.000	81.000	36.000	6	9.000	●
9.500	10.000	125.000	81.000	36.000	6	9.500	●
10.000	10.000	133.000	87.000	38.000	6	10.000	●
11.000	10.000	142.000	96.000	41.000	6	11.000	●
12.000	10.000	151.000	105.000	44.000	6	12.000	●
13.000	10.000	151.000	105.000	44.000	6	13.000	●
14.000	14.000	160.000	110.000	47.000	8	14.000	●
15.000	14.000	162.000	112.000	50.000	8	15.000	●
16.000	14.000	170.000	120.000	52.000	8	16.000	●
17.000	14.000	175.000	123.000	54.000	8	17.000	●
18.000	14.000	182.000	130.000	56.000	8	18.000	●
19.000	16.000	189.000	131.000	58.000	8	19.000	●
20.000	16.000	195.000	137.000	60.000	8	20.000	●



NC machine reamers

DIN 212-3	$\leq \varnothing 5,5 = +0,004$ $> \varnothing 5,5 = +0,005$
--------------	---

P	•	• $\leq \varnothing 3.75$ mm with external centres on both ends
M	○	• $> \varnothing 3.75$ mm with internal centres on both ends
K	•	• $\leq \varnothing 5.50$ mm: 0.000/+0.004
N	•	• $> \varnothing 5.50$ mm: 0.000/+0.005
S	○	
H		

Tool material **HSS-E**

Surface ○

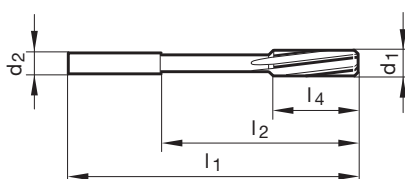
Form B

Shank form HA

SL

GUHRING NAVIGATOR

Cutting data page 252

Article no. **6020**Discount group **154**

d1	d2 h6	l1	l2	l4	Z	Code no.	Availability
mm	mm	mm	mm	mm			
1.000	1.000	34.000	6.500	5.500	3	1.000	●
1.010	1.000	34.000	6.500	5.500	3	1.010	●
1.020	1.000	34.000	6.500	5.500	3	1.020	●
1.030	1.000	34.000	6.500	5.500	3	1.030	●
1.500	2.000	40.000	12.000	8.000	3	1.500	●
1.510	2.000	43.000	15.000	9.000	3	1.510	●
1.520	2.000	43.000	15.000	9.000	3	1.520	●
1.530	2.000	43.000	15.000	9.000	3	1.530	●
1.970	2.000	49.000	21.000	11.000	4	1.970	●
1.980	2.000	49.000	21.000	11.000	4	1.980	●
1.990	2.000	49.000	21.000	11.000	4	1.990	●
2.000	2.000	49.000	21.000	11.000	4	2.000	●
2.010	2.000	49.000	21.000	11.000	4	2.010	●
2.020	2.000	49.000	21.000	11.000	4	2.020	●
2.030	2.000	49.000	21.000	11.000	4	2.030	●
2.470	3.000	57.000	27.000	14.000	4	2.470	●
2.480	3.000	57.000	27.000	14.000	4	2.480	●
2.490	3.000	57.000	27.000	14.000	4	2.490	●
2.500	3.000	57.000	27.000	14.000	4	2.500	●
2.510	3.000	57.000	27.000	14.000	4	2.510	●
2.520	3.000	57.000	27.000	14.000	4	2.520	●
2.530	3.000	57.000	27.000	14.000	4	2.530	●
2.970	3.000	61.000	31.000	15.000	6	2.970	●
2.980	3.000	61.000	31.000	15.000	6	2.980	●
2.990	3.000	61.000	31.000	15.000	6	2.990	●
3.000	3.000	61.000	31.000	15.000	6	3.000	●
3.010	4.000	65.000	34.000	16.000	6	3.010	●
3.020	4.000	65.000	34.000	16.000	6	3.020	●
3.030	4.000	65.000	34.000	16.000	6	3.030	●
3.970	4.000	75.000	43.000	19.000	6	3.970	●
3.980	4.000	75.000	43.000	19.000	6	3.980	●
3.990	4.000	75.000	43.000	19.000	6	3.990	●
4.000	4.000	75.000	43.000	19.000	6	4.000	●
4.010	4.000	75.000	43.000	19.000	6	4.010	●
4.020	4.000	75.000	43.000	19.000	6	4.020	●
4.030	4.000	75.000	43.000	19.000	6	4.030	●



Article no.							6020
Discount group							154
d1	d2 h6	l1	l2	l4	Z	Code no.	Availability
mm	mm	mm	mm	mm			
4.970	5.000	86.000	52.000	23.000	6	4.970	●
4.980	5.000	86.000	52.000	23.000	6	4.980	●
4.990	5.000	86.000	52.000	23.000	6	4.990	●
5.000	5.000	86.000	52.000	23.000	6	5.000	●
5.010	5.000	86.000	52.000	23.000	6	5.010	●
5.020	5.000	86.000	52.000	23.000	6	5.020	●
5.030	5.000	86.000	52.000	23.000	6	5.030	●
5.970	6.000	93.000	57.000	26.000	6	5.970	●
5.980	6.000	93.000	57.000	26.000	6	5.980	●
5.990	6.000	93.000	57.000	26.000	6	5.990	●
6.000	6.000	93.000	57.000	26.000	6	6.000	●
6.010	6.000	101.000	63.000	28.000	6	6.010	●
6.020	6.000	101.000	63.000	28.000	6	6.020	●
6.030	6.000	101.000	63.000	28.000	6	6.030	●
7.970	8.000	117.000	75.000	33.000	6	7.970	●
7.980	8.000	117.000	75.000	33.000	6	7.980	●
7.990	8.000	117.000	75.000	33.000	6	7.990	●
8.000	8.000	117.000	75.000	33.000	6	8.000	●
8.010	8.000	117.000	75.000	33.000	6	8.010	●
8.020	8.000	117.000	75.000	33.000	6	8.020	●
8.030	8.000	117.000	75.000	33.000	6	8.030	●
9.000	10.000	125.000	81.000	36.000	6	9.000	●
9.010	10.000	125.000	81.000	36.000	6	9.010	●
9.020	10.000	125.000	81.000	36.000	6	9.020	●
9.030	10.000	125.000	81.000	36.000	6	9.030	●
9.970	10.000	133.000	87.000	38.000	6	9.970	●
9.980	10.000	133.000	87.000	38.000	6	9.980	●
9.990	10.000	133.000	87.000	38.000	6	9.990	●
10.000	10.000	133.000	87.000	38.000	6	10.000	●
10.010	10.000	133.000	87.000	38.000	6	10.010	●
10.020	10.000	133.000	87.000	38.000	6	10.020	●
10.030	10.000	133.000	87.000	38.000	6	10.030	●
11.970	10.000	151.000	105.000	44.000	6	11.970	●
11.980	10.000	151.000	105.000	44.000	6	11.980	●
11.990	10.000	151.000	105.000	44.000	6	11.990	●
12.000	10.000	151.000	105.000	44.000	6	12.000	●
12.010	10.000	151.000	105.000	44.000	6	12.010	●
12.020	10.000	151.000	105.000	44.000	6	12.020	●
12.030	10.000	151.000	105.000	44.000	6	12.030	●



NC machine reamers



P	•
M	○
K	•
N	•
S	○
H	52

• $\varnothing > 3.75$ mm with extremely unequal flute spacing

Tool material **Solid carbide**

Surface ○

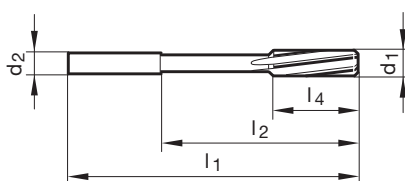
Form B

Shank form HA

SL

GUHRING NAVIGATOR

Cutting data page 252

Article no. **6016**Discount group **154**

d1	d2 h6	l1	l2	l4	Z	Code no.	Availability
mm	mm	mm	mm	mm			
3.000	4.000	64.000	35.400	17.000	6	3.000	●
3.500	4.000	74.000	46.000	20.000	6	3.500	●
4.000	4.000	77.000	45.000	21.000	6	4.000	●
4.500	6.000	82.000	50.000	23.000	6	4.500	●
5.000	6.000	93.000	59.000	26.000	6	5.000	●
5.500	6.000	93.000	57.000	26.000	6	5.500	●
6.000	6.000	93.000	57.000	26.000	6	6.000	●
6.500	8.000	101.000	63.000	28.000	6	6.500	●
7.000	8.000	109.000	69.000	31.000	6	7.000	●
7.500	8.000	109.000	69.000	31.000	6	7.500	●
8.000	8.000	117.000	75.000	33.000	6	8.000	●
8.500	10.000	117.000	75.000	33.000	6	8.500	●
9.000	10.000	125.000	81.000	36.000	6	9.000	●
9.500	10.000	125.000	81.000	36.000	6	9.500	●
10.000	10.000	133.000	87.000	38.000	6	10.000	●
10.500	10.000	133.000	87.000	38.000	6	10.500	●
11.000	10.000	142.000	96.000	41.000	6	11.000	●
11.500	10.000	142.000	96.000	41.000	6	11.500	●
12.000	12.000	151.000	105.000	44.000	6	12.000	●
13.000	14.000	160.000	114.000	44.000	6	13.000	●
14.000	14.000	160.000	110.000	47.000	6	14.000	●
15.000	16.000	170.000	120.000	50.000	6	15.000	●
16.000	16.000	170.000	120.000	52.000	6	16.000	●
17.000	18.000	182.000	130.000	52.000	6	17.000	●
18.000	18.000	182.000	130.000	52.000	6	18.000	●
19.000	20.000	195.000	137.000	52.000	6	19.000	●
20.000	20.000	195.000	137.000	52.000	6	20.000	●



NC machine reamers



P	•	• Ø > 3.75 mm with extremely unequal flute spacing
M	•	
K	•	
N		
S	•	
H	52	

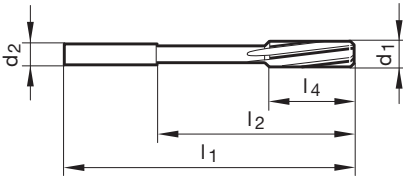
Tool material Solid carbide

Surface a

Form B

Shank form HA

SL



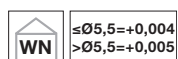
Article no. 6017

Discount group 154

d1	d2 h6	l1	l2	l4	Z	Code no.	Availability
mm	mm	mm	mm	mm			
3.000	4.000	64.000	35.400	17.000	6	3.000	•
3.500	4.000	74.000	74.000	20.000	6	3.500	•
4.000	4.000	77.000	45.000	21.000	6	4.000	•
4.500	6.000	82.000	50.000	23.000	6	4.500	•
5.000	6.000	93.000	59.000	26.000	6	5.000	•
5.500	6.000	93.000	57.000	26.000	6	5.500	•
6.000	6.000	93.000	57.000	26.000	6	6.000	•
6.500	8.000	101.000	63.000	28.000	6	6.500	•
7.000	8.000	109.000	69.000	31.000	6	7.000	•
7.500	8.000	109.000	69.000	31.000	6	7.500	•
8.000	8.000	117.000	75.000	33.000	6	8.000	•
8.500	10.000	117.000	75.000	33.000	6	8.500	•
9.000	10.000	125.000	81.000	36.000	6	9.000	•
9.500	10.000	125.000	81.000	36.000	6	9.500	•
10.000	10.000	133.000	87.000	38.000	6	10.000	•
10.500	10.000	133.000	87.000	38.000	6	10.500	•
11.000	10.000	142.000	96.000	41.000	6	11.000	•
11.500	10.000	142.000	96.000	41.000	6	11.500	•
12.000	12.000	151.000	105.000	44.000	6	12.000	•
13.000	14.000	160.000	114.000	44.000	6	13.000	•
14.000	14.000	160.000	110.000	47.000	6	14.000	•
15.000	16.000	170.000	120.000	50.000	6	15.000	•
16.000	16.000	170.000	120.000	52.000	6	16.000	•
17.000	18.000	182.000	130.000	52.000	6	17.000	•
18.000	18.000	182.000	130.000	52.000	6	18.000	•
19.000	20.000	195.000	137.000	52.000	6	19.000	•
20.000	20.000	195.000	137.000	52.000	6	20.000	•



NC machine reamers



P	•	• $\varnothing > 3.75$ mm with extremely unequal flute spacing
M	○	• $\leq \varnothing 5.50$ mm: 0.000/+0.004
K	•	• $> \varnothing 5.50$ mm: 0.000/+0.005
N	•	
S	○	
H	52	

Tool material **Solid carbide**

Surface ○

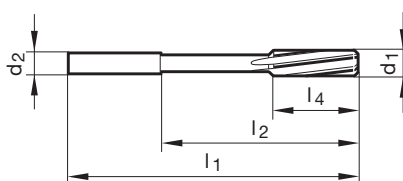
Form B

Shank form HA

SL

GUHRING NAVIGATOR

Cutting data page 252

Article no. **5527**Discount group **154**

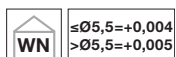
d1	d2 h6	l1	l2	l4	Z	Code no.	Availability
mm	mm	mm	mm	mm			
0.980	4.000	50.000	22.000	6.000	3	0.980	●
0.990	4.000	50.000	22.000	6.000	3	0.990	●
1.000	4.000	50.000	22.000	6.000	3	1.000	●
1.010	4.000	50.000	22.000	6.000	3	1.010	●
1.020	4.000	50.000	22.000	6.000	3	1.020	●
1.030	4.000	50.000	22.000	9.000	3	1.030	●
1.480	4.000	50.000	22.000	9.000	3	1.480	●
1.490	4.000	50.000	22.000	9.000	3	1.490	●
1.500	4.000	50.000	22.000	9.000	3	1.500	●
1.510	4.000	50.000	22.000	9.000	3	1.510	●
1.520	4.000	50.000	22.000	9.000	3	1.520	●
1.530	4.000	50.000	22.000	9.000	3	1.530	●
1.980	4.000	50.000	22.000	12.000	4	1.980	●
1.990	4.000	50.000	22.000	12.000	4	1.990	●
2.000	4.000	50.000	22.000	12.000	4	2.000	●
2.010	4.000	50.000	22.000	12.000	4	2.010	●
2.020	4.000	50.000	22.000	12.000	4	2.020	●
2.030	4.000	50.000	22.000	12.000	4	2.030	●
2.480	4.000	60.000	32.000	16.000	4	2.480	●
2.490	4.000	60.000	32.000	16.000	4	2.490	●
2.500	4.000	60.000	32.000	16.000	4	2.500	●
2.510	4.000	60.000	32.000	16.000	4	2.510	●
2.520	4.000	60.000	32.000	16.000	4	2.520	●
2.530	4.000	60.000	32.000	16.000	4	2.530	●
2.970	4.000	64.000	36.000	17.000	6	2.970	●
2.980	4.000	64.000	36.000	17.000	6	2.980	●
2.990	4.000	64.000	36.000	17.000	6	2.990	●
3.000	4.000	64.000	36.000	17.000	6	3.000	●
3.010	4.000	64.000	36.000	17.000	6	3.010	●
3.020	4.000	64.000	36.000	17.000	6	3.020	●
3.030	4.000	64.000	36.000	17.000	6	3.030	●
3.970	4.000	77.000	45.000	21.000	6	3.970	●
3.980	4.000	77.000	45.000	21.000	6	3.980	●
3.990	4.000	77.000	45.000	21.000	6	3.990	●
4.000	4.000	77.000	45.000	21.000	6	4.000	●
4.010	4.000	77.000	45.000	21.000	6	4.010	●



Article no. 5527							
Discount group 154							
d1	d2 h6	l1	l2	l4	Z	Code no.	Availability
mm	mm	mm	mm	mm			
4.020	4.000	77.000	45.000	21.000	6	4.020	●
4.030	4.000	77.000	45.000	21.000	6	4.030	●
4.970	6.000	93.000	59.000	26.000	6	4.970	●
4.980	6.000	93.000	59.000	26.000	6	4.980	●
4.990	6.000	93.000	59.000	26.000	6	4.990	●
5.000	6.000	93.000	59.000	26.000	6	5.000	●
5.010	6.000	93.000	59.000	26.000	6	5.010	●
5.020	6.000	93.000	59.000	26.000	6	5.020	●
5.030	6.000	93.000	59.000	26.000	6	5.030	●
5.970	6.000	93.000	57.000	26.000	6	5.970	●
5.980	6.000	93.000	57.000	26.000	6	5.980	●
5.990	6.000	93.000	57.000	26.000	6	5.990	●
6.000	6.000	93.000	57.000	26.000	6	6.000	●
6.010	6.000	93.000	57.000	26.000	6	6.010	●
6.020	6.000	93.000	57.000	26.000	6	6.020	●
6.030	6.000	93.000	57.000	26.000	6	6.030	●
7.000	8.000	109.000	69.000	31.000	6	7.000	●
7.970	8.000	117.000	75.000	33.000	6	7.970	●
7.980	8.000	117.000	75.000	33.000	6	7.980	●
7.990	8.000	117.000	75.000	33.000	6	7.990	●
8.000	8.000	117.000	75.000	33.000	6	8.000	●
8.010	8.000	117.000	75.000	33.000	6	8.010	●
8.020	8.000	117.000	75.000	33.000	6	8.020	●
8.030	8.000	117.000	75.000	33.000	6	8.030	●
8.040	8.000	117.000	75.000	33.000	6	8.040	●
9.000	10.000	125.000	81.000	36.000	6	9.000	●
9.970	10.000	133.000	87.000	38.000	6	9.970	●
9.980	10.000	133.000	87.000	38.000	6	9.980	●
9.990	10.000	133.000	87.000	38.000	6	9.990	●
10.000	10.000	133.000	87.000	38.000	6	10.000	●
10.010	10.000	133.000	87.000	38.000	6	10.010	●
10.020	10.000	133.000	87.000	38.000	6	10.020	●
10.030	10.000	133.000	87.000	38.000	6	10.030	●
10.040	10.000	133.000	87.000	38.000	6	10.040	●
10.050	10.000	133.000	87.000	38.000	6	10.050	●
11.970	12.000	151.000	105.000	44.000	6	11.970	●
11.980	12.000	151.000	105.000	44.000	6	11.980	●
11.990	12.000	151.000	105.000	44.000	6	11.990	●
12.000	12.000	151.000	105.000	44.000	6	12.000	●
12.010	12.000	151.000	105.000	44.000	6	12.010	●
12.020	12.000	151.000	105.000	44.000	6	12.020	●
12.030	12.000	151.000	105.000	44.000	6	12.030	●
12.040	12.000	151.000	105.000	44.000	6	12.040	●
12.050	12.000	151.000	105.000	44.000	6	12.050	●



NC machine reamers



P	•	• $\varnothing > 3.75$ mm with extremely unequal flute spacing
M	•	• $\leq \varnothing 5.50$ mm: 0.000/+0.004
K	•	• $> \varnothing 5.50$ mm: 0.000/+0.005
N		
S	•	
H	52	

GUHRING NAVIGATOR

Cutting data page 252

Tool material

Solid carbide

Surface

a

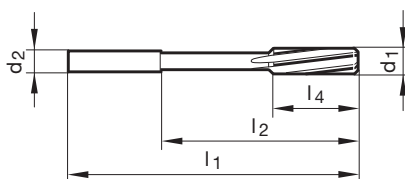
Form

B

Shank form

HA

SL



Article no.

6018

Discount group

154

d1	d2 h6	l1	l2	l4	Z	Code no.	Availability
mm	mm	mm	mm	mm			
0.980	4.000	50.000	20.500	6.000	3	0.980	•
0.990	4.000	50.000	20.500	6.000	3	0.990	•
1.000	4.000	50.000	20.500	6.000	3	1.000	•
1.010	4.000	50.000	20.500	6.000	3	1.010	•
1.020	4.000	50.000	20.500	6.000	3	1.020	•
1.030	4.000	50.000	20.500	9.000	3	1.030	•
1.480	4.000	50.000	20.700	9.000	3	1.480	•
1.490	4.000	50.000	20.700	9.000	3	1.490	•
1.500	4.000	50.000	20.700	9.000	3	1.500	•
1.510	4.000	50.000	20.700	9.000	3	1.510	•
1.520	4.000	50.000	20.700	9.000	3	1.520	•
1.530	4.000	50.000	20.700	9.000	3	1.530	•
1.980	4.000	50.000	20.900	12.000	4	1.980	•
1.990	4.000	50.000	20.900	12.000	4	1.990	•
2.000	4.000	50.000	20.900	12.000	4	2.000	•
2.010	4.000	50.000	20.900	12.000	4	2.010	•
2.020	4.000	50.000	20.900	12.000	4	2.020	•
2.030	4.000	50.000	20.900	12.000	4	2.030	•
2.480	4.000	60.000	31.200	16.000	4	2.480	•
2.490	4.000	60.000	31.200	16.000	4	2.490	•
2.500	4.000	60.000	31.200	16.000	4	2.500	•
2.510	4.000	60.000	31.200	16.000	4	2.510	•
2.520	4.000	60.000	31.200	16.000	4	2.520	•
2.530	4.000	60.000	31.200	16.000	4	2.530	•
2.970	4.000	64.000	35.400	17.000	6	2.970	•
2.980	4.000	64.000	35.400	17.000	6	2.980	•
2.990	4.000	64.000	35.400	17.000	6	2.990	•
3.000	4.000	64.000	35.400	17.000	6	3.000	•
3.010	4.000	64.000	35.400	17.000	6	3.010	•
3.020	4.000	64.000	35.400	17.000	6	3.020	•
3.030	4.000	64.000	35.400	17.000	6	3.030	•
3.970	4.000	77.000	45.000	21.000	6	3.970	•
3.980	4.000	77.000	45.000	21.000	6	3.980	•
3.990	4.000	77.000	45.000	21.000	6	3.990	•
4.000	4.000	77.000	45.000	21.000	6	4.000	•
4.010	4.000	77.000	45.000	21.000	6	4.010	•

Reamers



Article no.							6018
Discount group							154
d1	d2 h6	l1	l2	l4	Z	Code no.	Availability
mm	mm	mm	mm	mm			
4.020	4.000	77.000	45.000	21.000	6	4.020	●
4.030	4.000	77.000	45.000	21.000	6	4.030	●
4.970	6.000	93.000	59.000	26.000	6	4.970	●
4.980	6.000	93.000	59.000	26.000	6	4.980	●
4.990	6.000	93.000	59.000	26.000	6	4.990	●
5.000	6.000	93.000	59.000	26.000	6	5.000	●
5.010	6.000	93.000	59.000	26.000	6	5.010	●
5.020	6.000	93.000	59.000	26.000	6	5.020	●
5.030	6.000	93.000	59.000	26.000	6	5.030	●
5.970	6.000	93.000	57.000	26.000	6	5.970	●
5.980	6.000	93.000	57.000	26.000	6	5.980	●
5.990	6.000	93.000	57.000	26.000	6	5.990	●
6.000	6.000	93.000	57.000	26.000	6	6.000	●
6.010	6.000	93.000	57.000	26.000	6	6.010	●
6.020	6.000	93.000	57.000	26.000	6	6.020	●
6.030	6.000	93.000	57.000	26.000	6	6.030	●
7.000	8.000	109.000	69.000	31.000	6	7.000	●
7.970	8.000	117.000	75.000	33.000	6	7.970	●
7.980	8.000	117.000	75.000	33.000	6	7.980	●
7.990	8.000	117.000	75.000	33.000	6	7.990	●
8.000	8.000	117.000	75.000	33.000	6	8.000	●
8.010	8.000	117.000	75.000	33.000	6	8.010	●
8.020	8.000	117.000	75.000	33.000	6	8.020	●
8.030	8.000	117.000	75.000	33.000	6	8.030	●
8.040	8.000	117.000	75.000	33.000	6	8.040	●
9.000	10.000	125.000	81.000	36.000	6	9.000	●
9.970	10.000	133.000	87.000	38.000	6	9.970	●
9.980	10.000	133.000	87.000	38.000	6	9.980	●
9.990	10.000	133.000	87.000	38.000	6	9.990	●
10.000	10.000	133.000	87.000	38.000	6	10.000	●
10.010	10.000	133.000	87.000	38.000	6	10.010	●
10.020	10.000	133.000	87.000	38.000	6	10.020	●
10.030	10.000	133.000	87.000	38.000	6	10.030	●
10.040	10.000	133.000	87.000	38.000	6	10.040	●
10.050	10.000	133.000	87.000	38.000	6	10.050	●
11.970	12.000	151.000	105.000	44.000	6	11.970	●
11.980	12.000	151.000	105.000	44.000	6	11.980	●
11.990	12.000	151.000	105.000	44.000	6	11.990	●
12.000	12.000	151.000	105.000	44.000	6	12.000	●
12.010	12.000	151.000	105.000	44.000	6	12.010	●
12.020	12.000	151.000	105.000	44.000	6	12.020	●
12.030	12.000	151.000	105.000	44.000	6	12.030	●
12.040	12.000	151.000	105.000	44.000	6	12.040	●
12.050	12.000	151.000	105.000	44.000	6	12.050	●



High-performance reamers

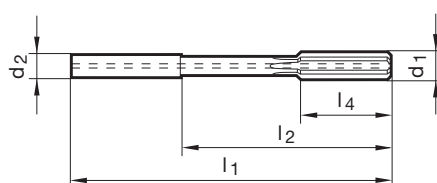


P	•
M	•
K	
N	
S	•
H	63

- with axial coolant duct
- for clamping in hydraulic chucks or shrink fit chucks

Tool material **Solid carbide**Surface **a**

Form

Shank form **HA**Article no. **1685**Discount group **166**

d1	d2 h6	l1	l2	l4	Z	Code no.	Availability
mm	mm	mm	mm	mm			
2.000	4.000	50.000	22.000	8.000	4	2.000	•
2.500	4.000	50.000	22.000	8.000	4	2.500	•
3.000	4.000	68.000	40.000	12.000	4	3.000	•
3.500	4.000	68.000	40.000	12.000	4	3.500	•
4.000	4.000	68.000	40.000	12.000	4	4.000	•
4.500	6.000	76.000	40.000	12.000	4	4.500	•
5.000	6.000	76.000	40.000	12.000	4	5.000	•
5.500	6.000	76.000	40.000	12.000	4	5.500	•
6.000	6.000	76.000	40.000	12.000	4	6.000	•
6.500	8.000	101.000	65.000	16.000	6	6.500	•
7.000	8.000	101.000	65.000	16.000	6	7.000	•
7.500	8.000	101.000	65.000	16.000	6	7.500	•
8.000	8.000	101.000	65.000	16.000	6	8.000	•
8.500	10.000	101.000	61.000	19.000	6	8.500	•
9.000	10.000	101.000	61.000	19.000	6	9.000	•
9.500	10.000	101.000	61.000	19.000	6	9.500	•
10.000	10.000	101.000	61.000	19.000	6	10.000	•
10.500	12.000	130.000	85.000	19.000	6	10.500	•
11.000	12.000	130.000	85.000	19.000	6	11.000	•
11.500	12.000	130.000	85.000	19.000	6	11.500	•
12.000	12.000	130.000	85.000	19.000	6	12.000	•
13.000	14.000	130.000	85.000	22.000	6	13.000	•
14.000	14.000	130.000	85.000	22.000	6	14.000	•
15.000	16.000	150.000	102.000	22.000	6	15.000	•
16.000	16.000	150.000	102.000	22.000	6	16.000	•
17.000	18.000	150.000	102.000	25.000	6	17.000	•
18.000	18.000	150.000	102.000	25.000	6	18.000	•
19.000	20.000	150.000	100.000	25.000	6	19.000	•
20.000	20.000	150.000	100.000	25.000	6	20.000	•



High-performance reamers

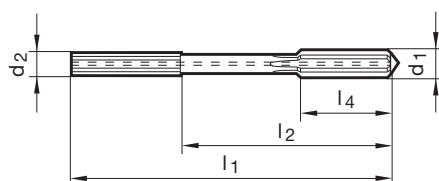


P	•
M	•
K	•
N	•
S	•
H	63

- < Ø 2.950 with axial, off-centre coolant ducts through the shank
- ≥ Ø 2.950 with longitudinal flutes on the shank for coolant supply
- for clamping in hydraulic chucks or shrink fit chucks

Tool material **Solid carbide**Surface **a**

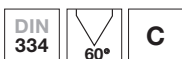
Form

Shank form **HA**Article no. **1686**Discount group **166**

d1	d2 h6	l1	l2	l4	Z	Code no.	Availability
mm	mm	mm	mm	mm			
2.000	4.000	50.000	22.000	8.000	4	2.000	•
2.500	4.000	50.000	22.000	8.000	4	2.500	•
3.000	4.000	68.000	40.000	12.000	4	3.000	•
3.500	4.000	68.000	40.000	12.000	4	3.500	•
4.000	4.000	68.000	40.000	12.000	4	4.000	•
4.500	6.000	76.000	40.000	12.000	4	4.500	•
5.000	6.000	76.000	40.000	12.000	4	5.000	•
5.500	6.000	76.000	40.000	12.000	4	5.500	•
6.000	6.000	76.000	40.000	12.000	4	6.000	•
6.500	8.000	101.000	65.000	16.000	6	6.500	•
7.000	8.000	101.000	65.000	16.000	6	7.000	•
7.500	8.000	101.000	65.000	16.000	6	7.500	•
8.000	8.000	101.000	65.000	16.000	6	8.000	•
8.500	10.000	101.000	61.000	19.000	6	8.500	•
9.000	10.000	101.000	61.000	19.000	6	9.000	•
9.500	10.000	101.000	61.000	19.000	6	9.500	•
10.000	10.000	101.000	61.000	19.000	6	10.000	•
10.500	12.000	130.000	85.000	19.000	6	10.500	•
11.000	12.000	130.000	85.000	19.000	6	11.000	•
11.500	12.000	130.000	85.000	19.000	6	11.500	•
12.000	12.000	130.000	85.000	19.000	6	12.000	•
13.000	14.000	130.000	85.000	22.000	6	13.000	•
14.000	14.000	130.000	85.000	22.000	6	14.000	•
15.000	16.000	150.000	102.000	22.000	6	15.000	•
16.000	16.000	150.000	102.000	22.000	6	16.000	•
17.000	18.000	150.000	102.000	25.000	6	17.000	•
18.000	18.000	150.000	102.000	25.000	6	18.000	•
19.000	20.000	150.000	100.000	25.000	6	19.000	•
20.000	20.000	150.000	100.000	25.000	6	20.000	•



60° Countersinks, spiral-fluted

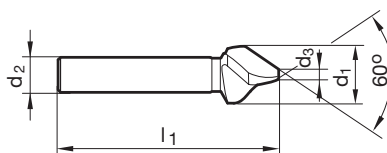
Tool material **HSS**Surface **A**

Shank form cyl.

P	•	• 3 different convex cutting edges
M	•	• low-vibration cutting processes
K	•	• for round and chatter-free countersinking
N	○	• considerably lower feed force required
S	○	• for universal application
H		

SL**GUHRING** NAVIGATOR

Cutting data page 254

Article no. **5670**Discount group **159**

d1	d2	d3	l1	Z	Code no.	Availability
mm	mm	mm	mm			
6.300	5.000	1.600	45.000	3	6.300	•
8.000	6.000	2.000	50.000	3	8.000	•
10.000	6.000	3.200	56.000	3	10.000	•
12.500	8.000	3.200	56.000	3	12.500	•
16.000	10.000	4.000	63.000	3	16.000	•
20.000	10.000	5.000	67.000	3	20.000	•
25.000	10.000	6.300	71.000	3	25.000	•

Countersinks



60° Countersinks, spiral-fluted

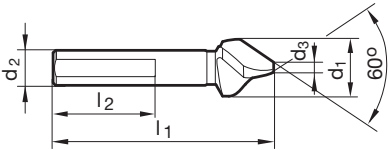


P	•	• 3-flats on shank prevents slipping in the chuck
M	•	• 3 different convex cutting edges
K	•	• perfect for hand drills
N	○	• low-vibration cutting processes
S	○	• for round and chatter-free countersinking
H	○	• considerably lower feed force required
		• for universal application

Tool material	HSS
Surface	A
Shank form	3-flats
	SL

GUHRING NAVIGATOR

Cutting data page 254



Article no.							5671
Discount group							159
d1	d2	d3	l1	l2	Z	Code no.	Availability
mm	mm	mm	mm	mm			
6.300	5.000	1.600	45.000	30.000	3	6.300	•
8.000	6.000	2.000	50.000	30.000	3	8.000	•
10.000	6.000	3.200	56.000	30.000	3	10.000	•
12.500	8.000	3.200	56.000	30.000	3	12.500	•
16.000	10.000	4.000	63.000	30.000	3	16.000	•
20.000	10.000	5.000	67.000	30.000	3	20.000	•
25.000	10.000	6.300	71.000	30.000	3	25.000	•



90° Countersinks, spiral-fluted

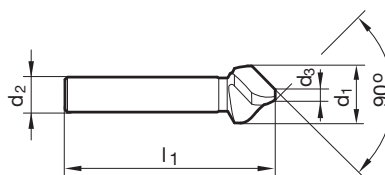
Tool material **HSCO**Surface **A**

Shank form cyl.

P	•	• 3 different convex cutting edges
M	•	• low-vibration cutting processes
K	•	• for round and chatter-free countersinking
N	○	• considerably lower feed force required
S	○	• for universal application
H		

SL**GUHRING** NAVIGATOR

Cutting data page 254

Article no. **5500**Discount group **159**

d1	d2	d3	l1	Z	Code no.	Availability
mm	mm	mm	mm			
6.300	5.000	1.500	45.000	3	6.300	•
8.000	6.000	2.000	50.000	3	8.000	•
8.300	6.000	2.000	50.000	3	8.300	•
10.000	6.000	2.500	50.000	3	10.000	•
10.400	6.000	2.500	50.000	3	10.400	•
11.500	8.000	2.800	56.000	3	11.500	•
12.400	8.000	2.800	56.000	3	12.400	•
15.000	10.000	3.200	60.000	3	15.000	•
16.500	10.000	3.200	60.000	3	16.500	•
19.000	10.000	3.500	63.000	3	19.000	•
20.500	10.000	3.500	63.000	3	20.500	•
23.000	10.000	3.800	67.000	3	23.000	•
25.000	10.000	3.800	67.000	3	25.000	•
31.000	12.000	4.200	71.000	3	31.000	•
40.000	12.000	10.000	75.000	3	40.000	•

Countersinks



90° Countersinks, spiral-fluted

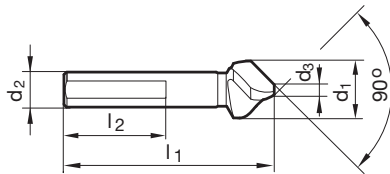


P	•	• 3 different convex cutting edges
M	•	• 3-flats on shank prevents slipping in the chuck
K	•	• perfect for hand drills
N	○	• low-vibration cutting processes
S	○	• for round and chatter-free countersinking
H	○	• considerably lower feed force required
		• for universal application

Tool material	HSCO
Surface	A
Shank form	3-flats
	SL

GUHRING NAVIGATOR

Cutting data page 254



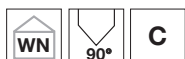
Article no. 5501

Discount group 159

d1	d2	d3	l1	l2	Z	Code no.	Availability
mm	mm	mm	mm	mm			
6.300	5.000	1.500	45.000	30.000	3	6.300	•
8.000	6.000	2.000	50.000	30.000	3	8.000	•
8.300	6.000	2.000	50.000	30.000	3	8.300	•
10.000	6.000	2.500	50.000	30.000	3	10.000	•
10.400	6.000	2.500	50.000	30.000	3	10.400	•
11.500	8.000	2.800	56.000	30.000	3	11.500	•
12.400	8.000	2.800	56.000	30.000	3	12.400	•
15.000	10.000	3.200	60.000	30.000	3	15.000	•
16.500	10.000	3.200	60.000	30.000	3	16.500	•
19.000	10.000	3.500	63.000	30.000	3	19.000	•
20.500	10.000	3.500	63.000	30.000	3	20.500	•
23.000	10.000	3.800	67.000	30.000	3	23.000	•
25.000	10.000	3.800	67.000	30.000	3	25.000	•
31.000	12.000	4.200	71.000	30.000	3	31.000	•
40.000	12.000	10.000	75.000	30.000	3	40.000	•



90° Countersinks, spiral-fluted

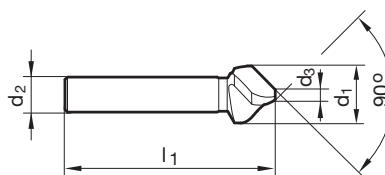
Tool material **HSS**Surface **A**

Shank form cyl.

P	•	• long version for recessed machining points
M	○	• 3 different convex cutting edges
K	•	• low-vibration cutting processes
N	○	• for round and chatter-free countersinking
S	○	• considerably lower feed force required
H		• for universal application

SL**GUHRING** NAVIGATOR

Cutting data page 254

Article no. **5503**Discount group **159**

d1	d2	d3	l1	Z	Code no.	Availability
mm	mm	mm	mm			
6.300	5.000	1.500	104.000	3	6.300	•
8.300	6.000	2.000	105.000	3	8.300	•
10.400	6.000	2.500	107.000	3	10.400	•
12.400	8.000	2.800	108.000	3	12.400	•
16.500	10.000	3.200	111.000	3	16.500	•
20.500	10.000	3.500	114.000	3	20.500	•
25.000	10.000	3.800	118.000	3	25.000	•
31.000	12.000	4.200	140.000	3	31.000	•



60° Countersink sets, spiral-fluted

DIN
334

60°

C

P	•	• consisting of art. no. 5670
M	•	• 3 different convex cutting edges
K	•	• low-vibration cutting processes
N	○	• for round and chatter-free countersinking
S	○	• considerably lower feed force required
H		• for universal application

GUHRING NAVIGATOR

Cutting data page 254

Tool material	HSS
Surface	
Shank form	cyl.

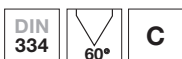


Article no.			5672
Discount group			159
Ø-range	Pieces/set	Code no.	Availability
mm			
6,3/8,0/10,0/12,5/16,0/20,0	6	1.000	•

Countersinks



60° Countersink sets, spiral-fluted



P	•	• consisting of art. no. 5671
M	•	• 3 different convex cutting edges
K	•	• 3-flats on shank prevents slipping in the chuck
N	○	• perfect for hand drills
S	○	• low-vibration cutting processes
H		• for round and chatter-free countersinking
		• considerably lower feed force required
		• for universal application

GUHRING NAVIGATOR

Cutting data page 254

Tool material	HSS
Surface	A
Shank form	3-flats

SLArticle no. **5673**Discount group **159**

Ø-range	Pieces/set	Code no.
mm		
6,3/8,0/10,0/12,5/16,0/20,0	6	1.000

Availability

•

Countersinks



90° Countersink sets, spiral-fluted



P	•	• consisting of art. no. 5500
M	•	• 3 different convex cutting edges
K	•	• low-vibration cutting processes
N	○	• for round and chatter-free countersinking
S	○	• considerably lower feed force required
H		• for universal application

GUHRING NAVIGATOR

Cutting data page 254

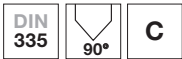
Tool material	HSC0
Surface	A
Shank form	cyl.
	SL



Article no.			5538
Discount group			159
Ø-range	Pieces/set	Code no.	Availability
mm			
6.3/8.3/10.4/12.4/16.5/20.5	6	1.000	•

Countersinks

90° Countersink sets, spiral-fluted



P	•	• consisting of art. no. 5501
M	•	• 3 different convex cutting edges
K	•	• 3-flats on shank prevents slipping in the chuck
N	○	• perfect for hand drills
S	○	• low-vibration cutting processes
H		• for round and chatter-free countersinking
		• considerably lower feed force required
		• for universal application

GUHRING NAVIGATOR

Cutting data page 254

Tool material	HSCO
Surface	A
Shank form	3-flats



Article no.			5539
Discount group			159
Ø-range	Pieces/set	Code no.	Availability
mm			
6.3/8.3/10.4/12.4/16.5/20.5	6	1.000	•

Countersinks

GUHRINGNAVIGATOR

Tools with bold feed column no. are preferred choice.
For blind holes with close diameter tolerances choose straight-fluted reamers.

To select the optimal tool and the recommended machining parameters for your application, please also use the electronic version of the Gühring Navigator on the internet: www.guehring.com.

Article no. 
Standard/DIN
Tool material
Carbide grade
Surface finish
Form/Type
Cooling
Std. range page

Tool Ø mm	Feed column no.						
	71	72	73	74	75	76	77
	f (mm/rev.)						
< 4.00	0.080	0.100	0.125	0.300	0.500	0.800	1.000
4.00	0.100	0.125	0.160	0.300	0.500	1.000	1.200
5.00	0.100	0.125	0.160	0.400	0.600	1.000	1.400
6.30	0.125	0.160	0.200	0.400	0.700	1.200	1.600
8.00	0.160	0.200	0.250	0.600	1.000	1.800	2.400
10.00	0.200	0.250	0.315	0.600	1.200	1.800	2.400
12.50	0.200	0.250	0.315	0.800	1.200	2.000	2.500
16.00	0.250	0.315	0.400	0.800	1.400	2.200	2.600
20.00	0.315	0.400	0.500	0.800	1.400	2.200	2.600
25.00	0.400	0.500	0.630	1.000	1.600	2.500	3.000
31.50	0.400	0.500	0.630	1.000	2.000	3.000	3.600
40.00	0.500	0.630	0.800	1.200	2.000	3.000	3.600
50.00	0.630	0.800	1.000	1.400	2.200	3.200	3.600
> 50.00	0.800	1.000	1.250	1.600	2.200	3.200	3.600

- Coolant:
-  Air
 -  Neat oil
 -  Soluble oil
- Cutting direction:
-  right-hand cutting

Material group	Material examples Figures in bold = material no. to DIN EN 10 027	Tensile strength MPa (N/mm²)	Hardness	Coolant
Common structural steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		  
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		  
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		  
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		  
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		  
Alloyed case hardened steels	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		  
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		  
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		  
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		  
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	  
Hardened steels	–		≤48 HRC ≤66 HRC	  
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤900 ≤1100 ≤1500		 
Cast iron	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	
Spheroidal graphite iron and malleable cast iron	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	
Chilled cast iron	–		≤350 HB	
New cast materials GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	
New cast materials ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		
Ti and Ti alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		
Aluminium and Al alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		
Al cast alloys ≤ 10 % Si ≤ 24 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9 3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500		
Brass, short-chipping long-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2 2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600 ≤600		
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn 2.0790 CuNi18Zn19Pb	≤600 ≤850		
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 ≤1000		
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150		
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		
Kevlar	Kevlar	≤1000		
Glass, carbon concentr. plastics	GFK/CFK	≤1000		

High-performance reamers

6019	6020
212-3	212-3
HSS-E	HSS-E

232
233

6016	5527
Comp. std.	Comp. std.
Solid carb.	Solid carb.




235
237

6017	6018
Comp. std.	Comp. std.
Solid carb.	Solid carb.

R10/R20	R10/R20
a	a
B	B

236
239

1685	1686
Comp. std.	Comp. std.
Solid carb.	Solid carb.

R10/R20	R10/R20
a	a
HR 500 S	HR 500 D

241
242



v_c m/min	Feed col. no.	
16	72	72
12	72	72
12	72	72
10	71	71
14	72	72
12	71	71
10	71	71
10	71	71
8	71	71
16	72	72
10	71	71
8	71	71
10	71	71
8	71	71
14	72	72
10	71	71
10	71	71
6	72	72
6	72	72
4	72	72
14	71	71
12	71	71
12	71	71
10	71	71
8	71	71
8	71	71
4	71	71
6	71	71
4	71	71
18	73	73
18	73	73
20	72	72
18	72	72
20	72	72
18	72	72
18	72	72
16	72	72
20	72	72
18	72	72
18	72	72
14	72	72
12	73	73
14	73	73

V _c m/min	Feed col. no.	
18	72	72
16	72	72
18	72	72
16	72	72
18	71	71
16	72	72
14	71	71
14	71	71
12	71	71
18	71	71
14	71	71
12	71	71
14	71	71
12	71	71
12	71	71
10	71	71
10	71	71
6	71	71
8	71	71
6	71	71
6	71	71
20	71	71
18	71	71
20	71	71
18	71	71
16	71	71
16	71	71
12	71	71
12	71	71
6	71	71
10	71	71
10	71	71
30	73	73
30	73	73
40	72	72
30	72	72
25	72	72
25	72	72
35	72	72
30	72	72
35	72	72
30	72	72
30	72	72
25	72	72
20	73	73
20	73	73

V _c m/min	Feed col. no.	
20	73	73
18	73	73
20	73	73
18	73	73
20	72	72
18	72	72
15	72	72
15	72	72
13	71	71
20	73	73
15	72	72
13	72	72
15	71	71
13	71	71
13	71	71
11	71	71
11	71	71
11	71	71
9	71	71
7	71	71
7	71	71
22	73	73
20	73	73
22	73	73
20	73	73
4	71	71
16	71	71
16	71	71
7	71	71
11	71	71
11	71	71
28	73	73
28	73	73
39	73	73
33	73	73
39	73	73
33	73	73
33	73	73
28	73	73
22	73	73
22	73	73

V _c m/min	Feed col. no.	
120-250	75-76	75-76
120-250	75-76	75-76
120-250	75-76	75-76
120-250	75-76	75-76
120-250	75-76	75-76
120-250	75-76	75-76
120-250	75-76	75-76
120-250	75-76	75-76
120-250	75-76	75-76
120-250	75-76	75-76
120-250	75-76	75-76
120-250	75-76	75-76
120-250	75-76	75-76
120-250	75-76	75-76
120-250	75-76	75-76
60-120	75-76	75-76
30-60	73-74	73-74
40-60	73-74	73-74
30-60	73-74	73-74
60-120	74-75	74-75
40-80	74-75	74-75
60-120	74-75	74-75
60-140	75-76	75-76
60-140	75-76	75-76
120-250	74-75	74-75
60-120	74-75	74-75
30-50	74-75	74-75
80	75-76	75-76
80	75-76	75-76
40-60	74-75	74-75
40-60	74	74
40-60	74	74
80-160	75-76	75-76
100-250	75-76	75-76
100-250	75-76	75-76
100-250	75-76	75-76
80-200	75-76	75-76
80-200	75-76	75-76
80	71	71
80	71	71



GUHRINGNAVIGATOR

Tools with bold feed column no. are preferred choice.

To select the optimal tool and the recommended machining parameters for your application, please also use the electronic version of the Gühring Navigator on the internet: www.guehring.com.

Article no.



Standard/DIN

Tool material

Surface finish

Countersink angle

Shank form

Std. range page

Tool Ø mm	Feed column no.					
	81	82	83	84	85	86
	f (mm/rev.)					
2.00	0.03	0.04	0.06	0.08	0.10	0.13
2.50	0.03	0.05	0.07	0.10	0.13	0.16
3.15	0.03	0.05	0.08	0.11	0.15	0.20
4.00	0.04	0.06	0.09	0.13	0.17	0.22
5.00	0.04	0.07	0.10	0.14	0.18	0.23
6.30	0.04	0.07	0.12	0.15	0.19	0.24
8.00	0.05	0.08	0.13	0.16	0.20	0.25
10.00	0.06	0.09	0.14	0.17	0.22	0.26
12.50	0.06	0.10	0.15	0.19	0.23	0.28
16.00	0.07	0.11	0.17	0.21	0.26	0.31
20.00	0.08	0.13	0.18	0.23	0.28	0.33
25.00	0.09	0.15	0.21	0.26	0.30	0.38
31.50	0.12	0.17	0.24	0.30	0.36	0.42
40.00	0.14	0.21	0.28	0.34	0.40	0.46

Coolant:

○ Air

● Neat oil

● Soluble oil

Material group	Material examples Figures in bold = material no. to DIN EN 10 027	Tensile strength MPa (N/mm ²)	Hardness	Coolant
Common structural steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		○
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		○
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		○
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		○
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		○
Alloyed case hardened steels	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		○
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		○
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		○
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		○
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	○
Hardened steels	–		≤48 HRC ≤66 HRC	○
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤900		○
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤1100		○
martensitic	1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤1500		○
Cast iron	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	○
Spheroidal graphite iron and malleable cast iron	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	○
Chilled cast iron	–		≤350 HB	○
New cast materials GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	○
New cast materials ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		○
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		○
Ti and Ti alloys	3.7024 Ti99.5, 3.7114 TiAl5Sn2.5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2.5, - TiAl8Mo1V1	≤850 ≤1400		○
Aluminium and Al alloys	3.0255 Al99.5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		○
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1.5	≤650		○
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		○
≤ 24 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		○
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		○
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPB	≤500		○
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		○
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0.5	≤600		○
Bronze, short-chipping	2.1090 CuSn7ZnPB, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		○
	2.0790 CuNi18Zn19Pb	≤850		○
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		○
	2.0980 CuAl11Ni, 2.1247 CuBe2	≤1000		○
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150		○
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		○
Kevlar	Kevlar	≤1000		○
Glass, carbon concentr. plastics	GFK/CFK	≤1000		○



90° Countersinks, spiral-fluted

5500
DIN 335
HSCO
A
90°
cyl.
245

5501
DIN 335
HSCO
A
90°
3-surface
246

5503
Company standard
HSS
A
90°
cyl.
247

60° Countersinks, spiral-fluted

5670
DIN 334
HSS
A
60°
cyl.
243

5671
DIN 334
HSS
A
60°
3-surface
244



V _c m/min	Feed col. no.
41	83
39	82
41	83
39	82
41	83
39	83
25	82
19	83
15	82
32	83
19	83
13	82
19	82
15	81
22	82
19	81
19	81
13	81
20	82
15	81
18	81
32	83
20	83
28	83
25	83
10	81
28	83
18	83
10	81
19	82
13	81
114	84
89	84
51	83
39	83
127	84
76	84
101	84
64	84
39	84
33	84
31	84
25	84
39	84
51	84

V _c m/min	Feed col. no.
41	83
39	82
41	83
39	82
41	83
39	83
25	82
19	83
15	82
32	83
19	83
13	82
19	82
15	81
22	82
19	81
19	81
13	81
20	82
15	81
18	81
32	83
20	83
28	83
25	83
10	81
28	83
18	83
10	81
19	82
13	81
114	84
89	84
51	83
39	83
127	84
76	84
101	84
64	84
39	84
33	84
31	84
25	84
39	84
51	84

V _c m/min	Feed col. no.
37	83
35	82
37	83
35	82
37	83
35	83
23	82
17	83
14	82
29	83
17	83
12	82
17	82
14	81
20	82
17	81
17	81
12	81
18	82
14	81
16	81
29	83
18	83
25	83
23	83
9	81
25	83
16	83
9	81
17	82
12	81
104	84
81	84
46	83
35	83
115	84
69	84
92	84
58	84
35	84
30	84
28	84
23	84
35	84
46	84

V _c m/min	Feed col. no.
37	83
35	82
37	83
35	82
37	83
35	83
23	82
17	83
14	82
29	83
17	83
12	82
17	82
14	81
20	82
17	81
17	81
12	81
18	82
14	81
16	81
29	83
18	83
25	83
23	83
9	81
25	83
16	83
9	81
17	82
12	81
104	84
81	84
46	83
35	83
115	84
69	84
92	84
58	84
35	84
30	84
28	84
23	84
35	84
46	84

V _c m/min	Feed col. no.
37	83
35	82
37	83
35	82
37	83
35	83
23	82
17	83
14	82
29	83
17	83
12	82
17	82
14	81
20	82
17	81
17	81
12	81
18	82
14	81
16	81
29	83
18	83
25	83
23	83
9	81
25	83
16	83
9	81
17	82
12	81
104	84
81	84
46	83
35	83
115	84
69	84
92	84
58	84
35	84
30	84
28	84
23	84
35	84
46	84



TOOL HOLDERS

HSK-A hydraulic chucks

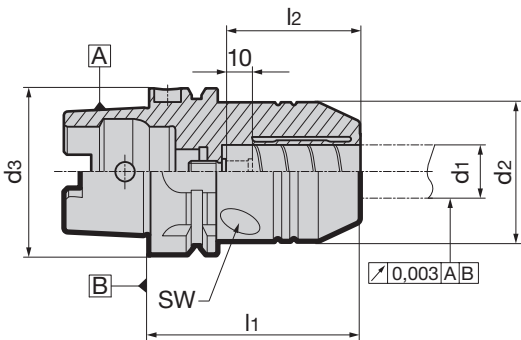


Product information:

- HSK-A to ISO 12164-1 / DIN 69893-1
- axial length adjustment
- for tool shank tolerance h6
- Balance quality values G2.5 / 25.000 U/min or U < 1 gmm

Scope of delivery:

- incl. setting screw art. no. 4900
- incl. clamping key art. no. 4912
- order coolant supply set, article no. 4949, separately



Article no.								4662
Discount group								158
HSK-A	d1	d2	l1	l2		SW	Code no.	Availability
d3	mm	mm	mm	mm	kg	mm		
HSK-A 63	20.00	52.50	80.00	51.00	1.310	5.0	20.063	●

ISO taper hydraulic chucks

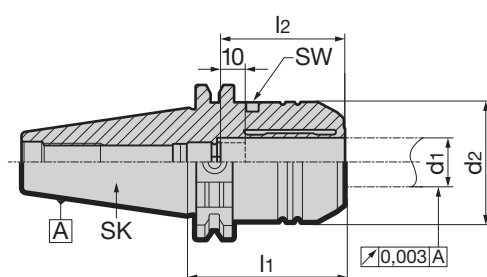


Product information:

- SK to DIN ISO 7388-1 form AD/AF
- axial length adjustment
- for tool shank tolerance h6
- Balance quality values G2.5 / 25.000 U/min or U < 1 gmm

Scope of delivery:

- incl. setting screw art. no. 4900
- incl. clamping key art. no. 4912
- for SK order pull studs art. no. 4925, 4926 separately



Article no. **4663**

Discount group **158**

SK	d1	d2	l1	l2		SW	Code no.
	mm	mm	mm	mm	kg	mm	
SK 40	20.00	49.30	64.50	51.00	1.250	5.0	20.040

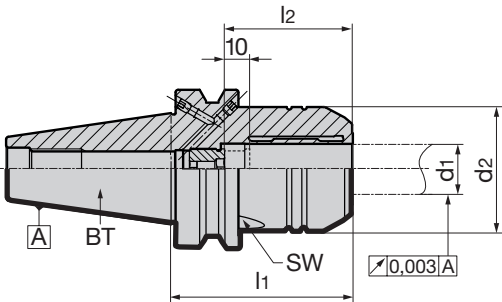
Availability
●

Tool holders

MAS/BT hydraulic chucks



- Product information:**
 - MAS/BT to DIN ISO 7388-2 Form JD/JF
 - axial length adjustment
 - for tool shank tolerance h6
 - Balance quality values G2.5/25.000 U/min or U < 1 gmm
- Scope of delivery:**
 - incl. setting screw art. no. 4900
 - incl. clamping key art. no. 4912
 - for MAS/BT order pull studs art. no. 4927, 4928 separately



Article no.								4664
Discount group								158
BT	d1	d2	l1	l2		SW	Code no.	Availability
	mm	mm	mm	mm	kg	mm		
BT 40	20.00	49.30	72.50	51.00	1.250	5.0	20.040	●



Tool holders

HPC chucks



Hydraulic chucks

Art. no.	Clamping chucks		Description	Clamping diameter range
4299		★	HSK-A hydraulic chuck with increased clamping force	6 - 32 mm
4296		★	HSK-A hydraulic chuck with radial length setting	6 - 32 mm
4267		★	HSK-C hydraulic chuck with increased clamping force	6 - 32 mm
4295		★	HSK-C hydraulic chuck	6 - 32 mm
4213		★	ISO taper hydraulic chuck DIN 69871 AD/B with increased clamping force	6 - 32 mm
4221		★	MAS/BT hydraulic chuck with increased clamping force	6 - 32 mm
4368		★	Reduction bushes for hydraulic chucks without peripheral cooling	3 - 25 mm
4369		★	Reduction bushes for hydraulic chucks with peripheral cooling	3 - 25 mm

HPC chucks

4300		★	HSK precision clamping chuck	3 - 20 mm
4301		★	ISO taper clamping chuck DIN 69871 AD	3 - 20 mm
4302		★	Clamping sleeves for precision clamping chucks without peripheral cooling	3 - 20 mm
4235		★	Clamping sleeves for precision clamping chucks with peripheral cooling	3 - 20 mm



Shrink fit chucks

Art. no.	Clamping chucks	Description	Clamping diameter range
4755	 	GÜHROJet HSK-A shrink fit chuck with peripheral cooling	6 - 20 mm
4729	 	GÜHROJet ISO taper shrink fit chuck DIN 69871 AD/B	6 - 20 mm
4736	 	HSK-A shrink fit chuck	6 - 32 mm
4758	 	HSK-C shrink fit chuck	6 - 32 mm
4737	 	HSK-E shrink fit chuck	3 - 32 mm
4738	 	ISO taper shrink fit chuck DIN 69871 AD	3 - 32 mm
4739	 	MAS/BT shrink fit chuck	3 - 32 mm
4719	 	Shrink fit extension	3 - 20 mm

Tool holders

4232	 	GÜHROJet Side lock holder Weldon HSK-A	6 - 32 mm
4317	 	GÜHROJet Side lock holder Weldon SK	6 - 32 mm
4234	 	GÜHROJet Side lock holder Weldon MAS/BT	6 - 32 mm



Application-specific selection of tool holders

	Shrink fit chucks/ shrink fit extensions	Hydraulic chucks/ HMC 3000/reduction bushes	GÜHROSYNC Hydraulic synchro tapping chucks
			
Main feature	For applications requiring slim interference contours and precision with good clamping force and rigidity at a moderate price.	Easy handling when stiffness and damping are required.	Combines the advantages of hydraulic expansion and synchro-clamping technology, compensates deviations of the machine optimally.
Main application	HSC – universal Drilling, countersinking, milling, reaming	Reaming and drilling Countersinking, HSC application, light milling	Synchronized thread cutting and thread forming
Characteristics	- highest concentricity accuracy thanks to patented damping screw - high stiffness and clamping force - modularly extendable	- high damping with high concentricity accuracy - simple handling - flexible use thanks to reducing bushes also with GÜHROJet	- perfect combination of hydraulic expansion chuck and synchro tapping chuck - simple handling - flexible use thanks to reducing bushes also with GÜHROJet - long-lasting axial and radial balancing
Interfaces	      	    	   
Clamping diameter range	3 - 32 mm	3 - 32 mm	Holder Ø 12: M2 - M12 (Mt max.: 26 Nm) Holder Ø 20: M4.5 - M20 (Mt max.: 90 Nm)
Concentricity	< 3 µm	< 3 µm	< 50 µm
Balance quality	G 2.5 with 25,000 1/min or U < 1 gmm	G 2.5 with 25,000 1/min or U < 1 gmm	G 6.3 with 15,000 1/min
Concentricity with 5xD	< 5 µm	< 5 µm	-
Clamping force	very high	very high	very high
Rigidity	very high	high	medium
Dampening	low	very high	very high
Interference contour	small/minimal	medium	medium
Handling	good	very good/very flexible	very good/very flexible
Actuation	Shrink fit device e.g. GSS 2000 article no. 4742	Hexagon key e.g. article no. 4912	Hexagon key e.g. article no. 4912



HPC precision power chucks / clamping sleeves	Collet chucks ER	Straight shank holders "Weldon" / "Whistle-Notch"
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Main feature	Provides extreme clamping force and rigidity to compensate lateral forces acting on the tool during HPC milling.	All-rounder for universal use in the low accuracy range.	Simple handling with safe clamping for applications involving large machining volumes.
Main application	HPC milling heavy HPC and fast, accurate HSC milling, drilling, universal application	Flexible – universal light machining, centering, chamfering, drilling, threading; intermediate shank dimensions	Roughing Milling, drilling
Characteristics	- extreme clamping force and stability thanks to mechanical clamping transmission - high precision and balancing quality - flexible use thanks to reducing bushes also with GÜHROJet	- flexible chuck for various shank dimensions and tolerances - for conventional machining operations	- robust, low cost chuck - for heavy machining in the lower speed and accuracy range
Interfaces			
Clamping diameter range	3-32 mm 1-6 mm (HPC extensions)	ER 11: 0.5-7.0 mm ER 16: 0.5-10.0 mm ER 20: 0.5-13.0 mm ER 25: 0.5-16.0 mm ER 32: 1.0-20.0 mm ER 40: 3.0-26.0 mm	6-40 mm
Concentricity	< 3 µm	< 10 µm	< 10 µm
Balance quality	G 2.5 with 20,000 1/min or U < 1.2 gmm	G 2.5 with 25,000 1/min or U < 1 gmm	G 6.3 with 15,000 1/min
Concentricity with 5xD	< 8 µm	< 20 µm	< 25 µm
Clamping force	extremely high	medium	very safe thanks to threaded pin
Rigidity	extremely high	medium	very high
Dampening	high	high	low
Interference contour	medium	large	large
Handling	very good/very flexible	good	good
Actuation	Hexagon key/torque wrench e.g. article no. 4987 + 4916 Type D	Hook spanner max. torque: information at GM 300 catalogue at clamping screw article no. 4903	Hexagon key max. torque: information at GM 300 catalogue at clamping screw article no. 4903





TOOL DISPENSING SYSTEMS



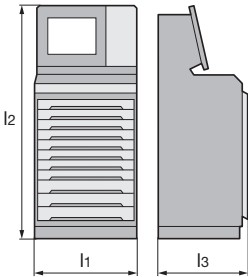
Tool dispensing systems

THE CORRECT SYSTEM FOR ANY APPLICATION.

Tool dispensing system TM 226



- TM 226 a starter model with an excellent price-performance ratio
- 11 drawers: 8 x 75 mm (partition set) and 3 x 100 mm (partition set)
- electronically locked dispensing system
- partition material per drawer 75 mm height:
 - 18 transverse partitions 50 mm and 8 transverse partitions 100 mm, 9 longitudinal partitions
- partition material per drawer 100 mm height:
 - 18 transverse partitions 50 mm and 8 transverse partitions 100 mm, 9 longitudinal partitions
- standard colours Gühring, RAL 7016 (housing), RAL 9006 (drawers), RAL 1003 (G-Pad and power supply channel)
- manually operated drawers with full pull-out (load capacity per drawer max. 200 kg)
- 21.5" HD touchscreen monitor
- PC with current WIN version 10, 64 Bit
- Gühring TM-Software GTMS Basic
- delivery at short notice from stock (subject to prior sale)
- plus installation and transport
- illustration similar
- barcode scanner, card reader and additional accessories available on request



Article no. 506920

l1	l2	l3		Availability
mm	mm	mm	kg	
800	1700	750	320	●

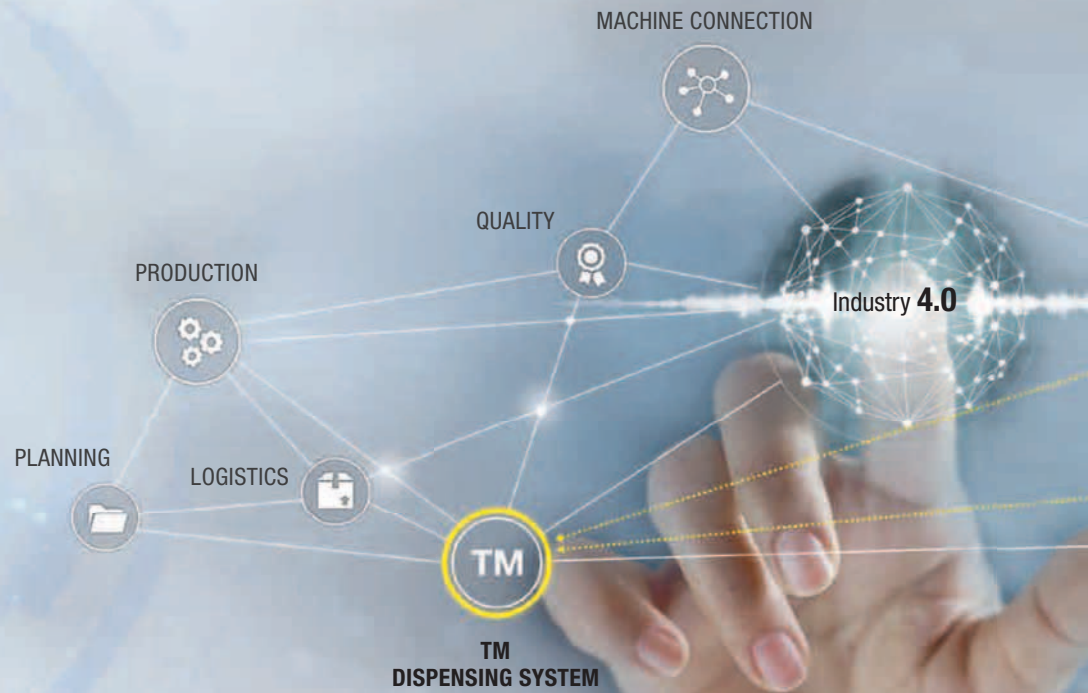


Gühring Tool Management Software

GTMS

Everything in view

Process optimisation in a whole new dimension



Tool Management
Powered by
GUHRING



GÜHRING **DIGITAL SERVICES**



➤➤➤➤➤ Reduce costs

➤➤➤➤➤ Identify areas with improvement potential

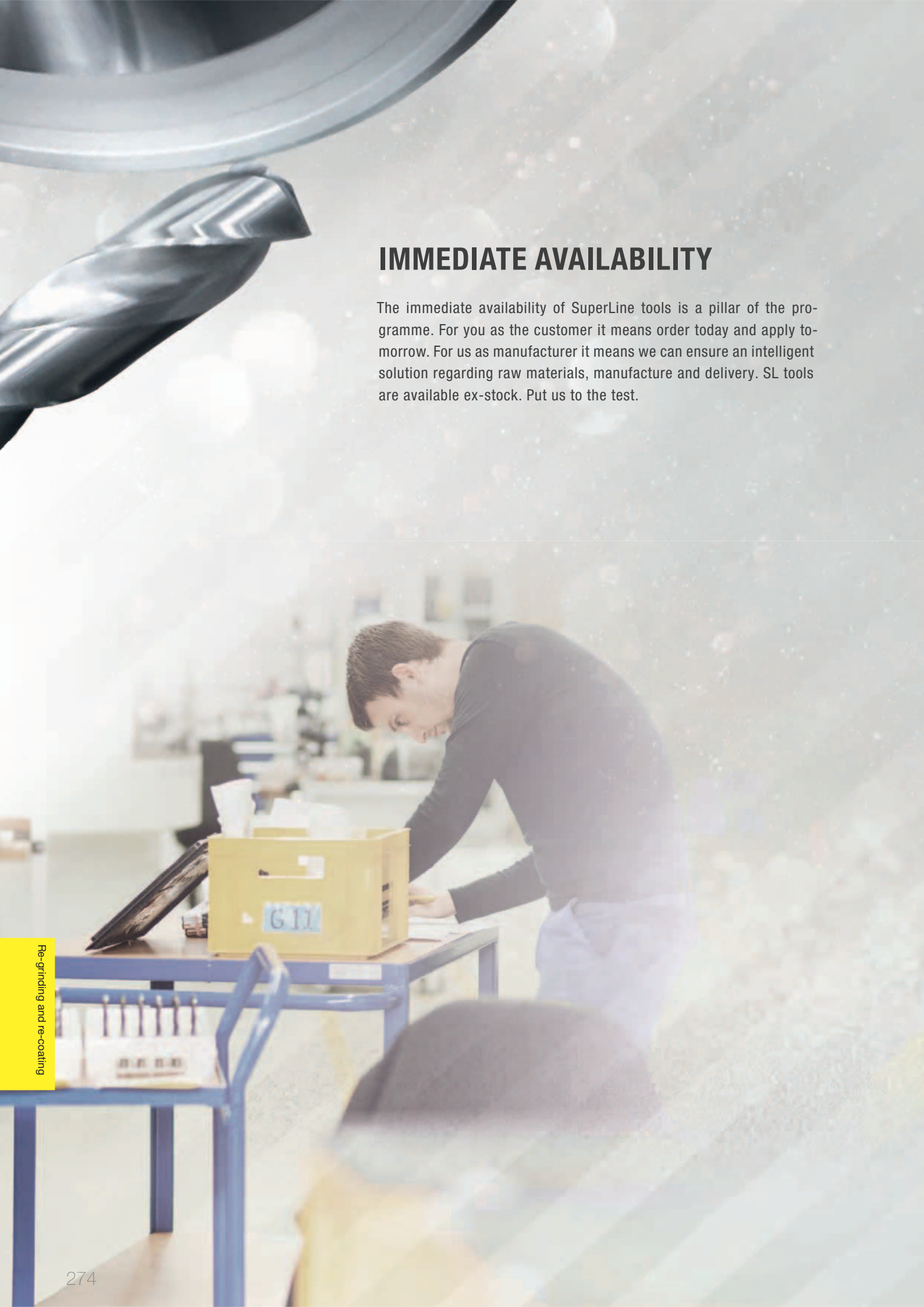
➤➤➤➤➤ Perfect your tools and processes

➤➤➤➤➤ Transparency in real time





RE-GRINDING AND RE-COATING

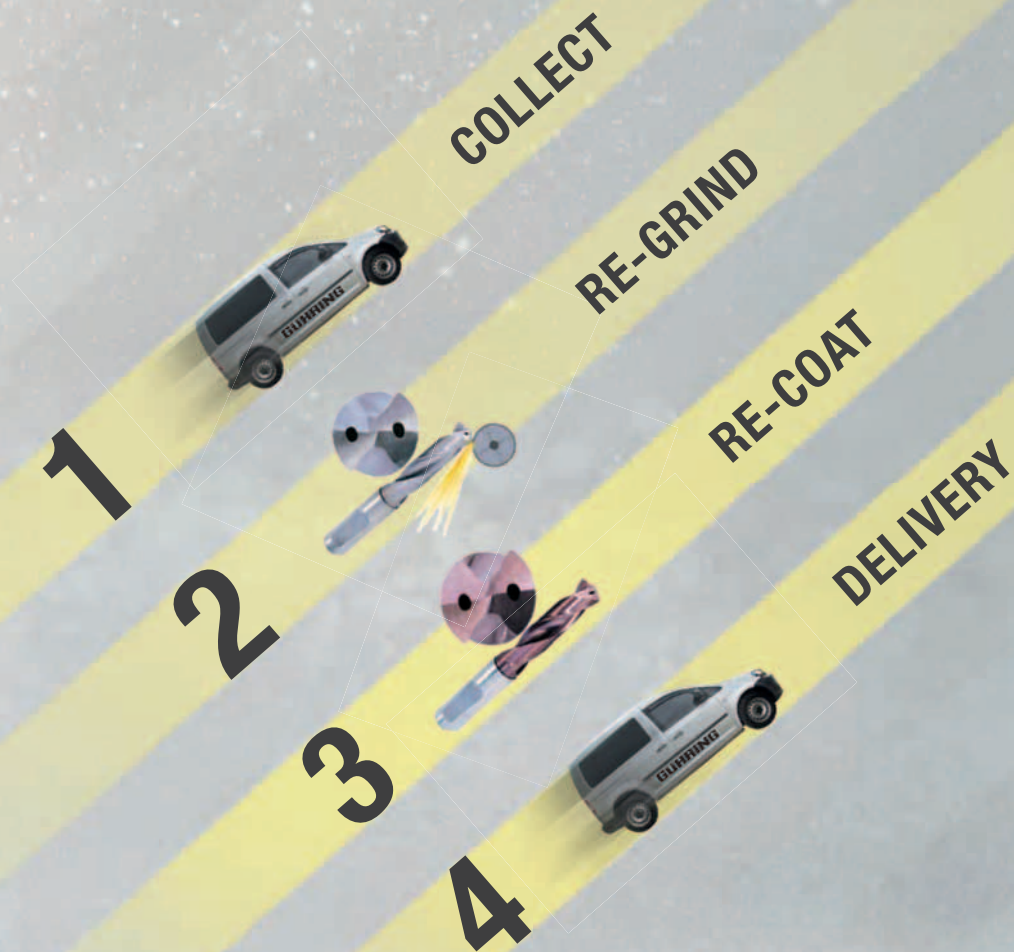


IMMEDIATE AVAILABILITY

The immediate availability of SuperLine tools is a pillar of the programme. For you as the customer it means order today and apply tomorrow. For us as manufacturer it means we can ensure an intelligent solution regarding raw materials, manufacture and delivery. SL tools are available ex-stock. Put us to the test.

MAXIMUM EFFICIENCY

Gühring provides a re-grind and re-coating service to ensure a long tool life of SuperLine tools. Reprocessing in original quality restores the original performance. There are more than 50 service centers available worldwide for this. Each of them has its own pick-up and delivery service for on-time logistics.



SL Re-grind service

	SL Drilling tools			SL Reamers		SL Threading tools		
	Solid carbide ratio drills up to 12xD*	Solid carbide NC spotting drills	HSS/HSCO/HSS-E twist drills	Solid carbide reamers		HSS-E/HSS-E-PM taps	Solid carbide taps	Solid carbide thread milling cutters
Diameter	€/ piece	€/ piece	€/ piece	€/ piece	Diameter	€/ piece	€/ piece	€/ piece
2 - 6	●	●	-	●	up to 10	●	●	●
> 6 - 8	●	●	-	●	> 10 - 14	●	●	●
> 8 - 10	●	●	●	●	> 14 - 20	●	●	●
> 10 - 12	●	●	●	●	> 20 - 24	●	●	●
> 12 - 14	●	●	●	●	> 24 - 30	●	●	●
> 14 - 16	●	●	●	●	> 30 - 36	●	●	on request
> 16 - 18	●	●	●	●	> 36 - 40	●	●	on request
> 18 - 20	●	●	●	●	> 40 - 70	on request	on request	on request
> 20 - 30	●	-	●	●				

*RT 100 U, RT 100 VA, RT 150 GG, FT 200 & solid carbide twist drills

SL Re-grind service

	SL Milling tools				SL Milling tools surcharge		
	Solid carbide end mills up to 4 cutting edges	Solid carbide ratio end mills RF 100 up to 4 cutting edges	Solid carbide ball nose milling cutters	Solid carbide chamfering milling cutters	from 5 cutting edges	Solid carbide roughing milling	Neck clearance
Diameter	€/ piece	€/ piece	€/ piece	€/ piece	€/ piece	€/ piece	€/ piece
6 - 8	●	●	●	●	●	●	●
> 8 - 10	●	●	●	●	●	●	●
> 10 - 12	●	●	●	●	●	●	●
> 12 - 14	●	●	●	●	●	●	●
> 14 - 16	●	●	●	●	●	●	●
> 16 - 18	●	●	●	●	●	●	●
> 18 - 20	●	●	●	●	●	●	●
> 20 - 25	●	●	●	-	●	●	●
> 25 - 40	●	●	●	-	●	●	-

SL Re-coating service

	Pre- and post treatment		Coating	
	De-coating	Polishing	Standard coatings**	Head coatings up to 12xD**
Diameter	€/ piece	€/ piece	€/ piece	€/ piece
up to 6	●	●	●	●
> 6 - 8	●	●	●	●
> 8 - 10	●	●	●	●
> 10 - 12	●	●	●	●
> 12 - 14	●	●	●	●
> 14 - 16	●	●	●	●
> 16 - 18	●	●	●	●
> 18 - 20	●	●	●	●
> 20 - 30	●	●	●	-
> 30 - 40	●	●	●	-
> 40 - 50	●	●	●	-
> 50 - 60	on request	on request	on request	-
> 60 - 80	on request	on request	on request	-
> 80 - 100	on request	on request	on request	-

** TiN, TiCN, TiAlN, FIRE, nanoFIRE, SuperA, nanoA

Further information can be found in our brochure „Re-grinding and re-coating service“.

Re-grind and
re-coating centres

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Re-grind and
re-coating centres

AMERICA AND AFRICA



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ARTICLE NO. INDEX

Article no.	Page	Drilling depth	Standard	Description	Tool material	Type	Form
12	138	~5xD	DIN 338	Twist drill sets	HSCO	GU 500 DZ	
234	139	~5xD	DIN 338	Twist drill sets	HSS	N	
391	171		~DIN 371/~DIN 376	Taps for UNC threads	HSS-E	VA R45	C
392	173		~DIN 371/~DIN 374	Taps for UNF threads	HSS-E	VA R45	C
393	167	3xD	DIN 371/DIN 376	Taps for ISO metric threads	HSS-E	VA R45	C
394	169	3xD	DIN 374	Taps for ISO metric fine threads	HSS-E	VA R45	C
395	175	3xD	DIN 5156	Taps for BSP threads	HSS-E	VA R45	C
1685	241		Company std.	High-performance reamers	Solid carbide	HR 500 S	
1686	242		Company std.	High-performance reamers	Solid carbide	HR 500 D	
4002	181	2.5xD	Company std.	Micro thread milling cutters	Solid carbide	MTMH3-Z	
4107	72	3xD	Company std.	Tool holders for interchangeable inserts HT 800		HT 800 WP	
4108	75	5xD	Company std.	Tool holders for interchangeable inserts HT 800		HT 800 WP	
4109	78	7xD	Company std.	Tool holders for interchangeable inserts HT 800		HT 800 WP	
4112	80		Company std.	Interchangeable inserts HT 800	Solid carbide	HT 800 WP	
4113	83		Company std.	Interchangeable inserts HT 800	Solid carbide	HT 800 WP	
4115	86		Company std.	Interchangeable inserts HT 800	Solid carbide	HT 800 WP	
4218	168	3xD	DIN 371/DIN 376	Taps for ISO metric threads	HSS-E	VA	B
4219	170	1.5xD	DIN 374	Taps for ISO metric fine threads	HSS-E	VA	B
4220	176	1.5xD	DIN 5156	Taps for BSP threads	HSS-E	VA	B
4226	180	3xD	Company std.	Micro thread milling cutters	Solid carbide	MTM3 SP	
4487	179		~DIN 371/~DIN 376	Fluteless taps for ISO metric threads	HSS-E-PM	N	C
4642	172		~DIN 371/~DIN 376	Taps for UNC threads	HSS-E	VA	B
4643	174		~DIN 371/~DIN 374	Taps for UNF threads	HSS-E	VA	B
4662	258		DIN 69882-7	HSK-A hydraulic chucks			
4663	259		Company std.	ISO taper hydraulic chucks			
4664	260		Company std.	MAS/BT hydraulic chucks			
5498	40	5xD	DIN 6537L	Ratio drills with coolant ducts	Solid carbide	RT 100 XF	
5499	47	7xD	Company std.	Ratio drills with coolant ducts	Solid carbide	RT 100 XF	
5500	245		DIN 335	90° Countersinks, spiral-fluted	HSCO		C
5501	246		DIN 335	90° Countersinks, spiral-fluted	HSCO		C
5503	247		Company std.	90° Countersinks, spiral-fluted	HSS		C
5504	205		DIN 6527L	Roughing end mills GS 100 U (fine teeth)	Solid carbide	NRf	B
5505	202		DIN 6527K	Slot drills GH 100 U (3-fluted)	Solid carbide	NH	A
5506	203		DIN 6527L	Slot drills GH 100 U (3-fluted)	Solid carbide	NH	A
5507	212		DIN 6527L	Slot drills (3-fluted)	Solid carbide	N	A
5510	22	3xD	DIN 6537K	Ratio drills with coolant ducts	Solid carbide	RT 100 U	
5511	32	5xD	DIN 6537L	Ratio drills with coolant ducts	Solid carbide	RT 100 U	
5512	44	7xD	Company std.	Ratio drills with coolant ducts	Solid carbide	RT 100 U	
5513	51	10xD	Company std.	Ratio drills with coolant ducts	Solid carbide	RT 150 GG	
5514	66	3xD	DIN 6537K	Ratio drills without coolant ducts	Solid carbide	RT 100 U	
5515	69	5xD	DIN 6537L	Ratio drills without coolant ducts	Solid carbide	RT 100 U	
5516	109	~3xD	DIN 6539	Stub drills	Solid carbide	N	
5517	117	~5xD	Company std.	Jobber drills	Solid carbide	N	
5518	99	5xD	DIN 6537L	3-flute Ratio drills	Solid carbide	FT 200	
5519	119	~5xD	DIN 338	Jobber drills	HSCO	GU 500 DZ	
5520	111	~3xD	DIN 1897	Stub drills	HSCO	GU 500 DZ	
5521	114	~3xD	DIN 1897	Stub drills	HSS-E-PM	GT 500 DZ	
5522	122	~5xD	DIN 338	Jobber drills	HSS-E-PM	GT 500 DZ	
5523	119	~5xD	DIN 338	Jobber drills	HSCO	GU 500 DZ	
5524	111	~3xD	DIN 1897	Stub drills	HSCO	GU 500 DZ	
5525	53	12xD	Company std.	Ratio drills with coolant ducts	Solid carbide	RT 100 U	
5526	25	3xD	DIN 6537K	Ratio drills with coolant ducts	Solid carbide	RT 100 VA	
5527	237		Company std.	NC machine reamers	Solid carbide		B
5528	25	3xD	DIN 6537K	Ratio drills with coolant ducts	Solid carbide	RT 100 VA	
5530	209		DIN 6527L	Slot drills (2-fluted)	Solid carbide	N	B
5531	212		DIN 6527L	Slot drills (3-fluted)	Solid carbide	N	B
5532	214		DIN 6527L	End mills (4-fluted)	Solid carbide	N	B
5533	216		DIN 6527L	Ball nose slot drills (2-fluted)	Solid carbide	N	B
5534	192		DIN 6527K	Standard Ratio end mills RF 100 U	Solid carbide	N	B
5535	193		DIN 6527L	Standard Ratio end mills RF 100 U	Solid carbide	N	B
5536	129	~10xD	DIN 340	Long series twist drills	HSCO	GU 500 DZ	
5537	129	~10xD	DIN 340	Long series twist drills	HSCO	GU 500 DZ	
5538	250		DIN 335	90° Countersink sets, spiral-fluted	HSCO		C
5539	251		DIN 335	90° Countersink sets, spiral-fluted	HSCO		C
5543	211		DIN 6527L	Al slot drills (2-fluted)	Solid carbide	W	B
5545	207		Company std.	Multi-tooth end mills GH 100 U	Solid carbide	NH	B
5546	203		DIN 6527L	Slot drills GH 100 U (3-fluted)	Solid carbide	NH	B
5547	182	2xD	Company std.	Thread milling cutters without chamfer for ISO metric threads	Solid carbide	TM SP	
5548	182	2xD	Company std.	Thread milling cutters without chamfer for ISO metric threads	Solid carbide	TM SP	
5549	210		Company std.	XL slot drills (2-fluted)	Solid carbide	N	A
5550	166	3xD	DIN 371/DIN 376	Taps for ISO metric threads	HSS-E	GG	C
5551	159	3xD	DIN 371/DIN 376	Taps for ISO metric threads	HSS-E	Al R45	C

Article no.	Page	Drilling depth	Standard	Description	Tool material	Type	Form
5552	157	3xD	DIN 371/DIN 376	Taps for ISO metric threads	HSS-E	H R40	C
5553	158	3xD	DIN 371/DIN 376	Taps for ISO metric threads	HSS-E	VA R40	C
5555	156	3xD	DIN 371/DIN 376	Taps for ISO metric threads	HSS-E	N R40	C
5556	215		Company std.	XL end mills (4-fluted)	Solid carbide	N	A
5557	165	3xD	DIN 371/DIN 376	Taps for ISO metric threads	HSS-E	AI	B
5558	162	3xD	DIN 371/DIN 376	Taps for ISO metric threads	HSS-E	H	B
5559	164	3xD	DIN 371	Taps for ISO metric threads	HSS-E-PM	VA	B
5561	161	3xD	DIN 371/DIN 376	Taps for ISO metric threads	HSS-E	N	B
5573	213		Company std.	Mini slot drills (3-fluted)	Solid carbide	N	
5574	204		Company std.	Mini slot drills (3-fluted)	Solid carbide	NH	
5578	219		Company std.	Chamfering milling cutters 90°	Solid carbide	N	
5579	219		Company std.	Chamfering milling cutters 90°	Solid carbide	N	
5580	36	5xD	DIN 6537L	Ratio drills with coolant ducts	Solid carbide	RT 100 VA	
5581	36	5xD	DIN 6537L	Ratio drills with coolant ducts	Solid carbide	RT 100 VA	
5582	194		Company std.	Standard Ratio end mills RF 100 U	Solid carbide	NH	
5583	206		DIN 6527L	Hard roughing end mills GS 100 H (fine teeth)	Solid carbide	HR	B
5584	217		DIN 6527L	Ball nose end mills (4-fluted)	Solid carbide	N	B
5585	216		DIN 6527L	Ball nose slot drills (2-fluted)	Solid carbide	N	A
5586	161	3xD	DIN 371/DIN 376	Taps for ISO metric threads	HSS-E	N	B
5587	162	3xD	DIN 371/DIN 376	Taps for ISO metric threads	HSS-E	H	B
5588	163	3xD	DIN 371/DIN 376	Taps for ISO metric threads	HSS-E	VA	B
5591	157	3xD	DIN 371/DIN 376	Taps for ISO metric threads	HSS-E	H R40	C
5593	160	3xD	DIN 371/DIN 376	Taps for ISO metric threads	Solid carbide	H	C
5594	156	3xD	DIN 371/DIN 376	Taps for ISO metric threads	HSS-E	N R40	C
5595	166	3xD	DIN 371/DIN 376	Taps for ISO metric threads	HSS-E	GG	C
5596	158	3xD	DIN 371/DIN 376	Taps for ISO metric threads	HSS-E	VA R40	C
5597	163		DIN 371/DIN 376	Taps for ISO metric threads	HSS-E	VA	B
5598	177	3xD	~DIN 371	Fluteless taps for ISO metric threads	HSS-E	N	C
5599	178	3xD	~DIN 376	Fluteless taps for ISO metric threads	HSS-E	N	C
5610	22	3xD	DIN 6537K	Ratio drills with coolant ducts	Solid carbide	RT 100 U	
5611	32	5xD	DIN 6537L	Ratio drills with coolant ducts	Solid carbide	RT 100 U	
5612	44	7xD	Company std.	Ratio drills with coolant ducts	Solid carbide	RT 100 U	
5614	66	3xD	DIN 6537K	Ratio drills without coolant ducts	Solid carbide	RT 100 U	
5615	69	5xD	DIN 6537L	Ratio drills without coolant ducts	Solid carbide	RT 100 U	
5635	222		DIN 6527L	Ratio end mill sets RF 100 U	Solid carbide	N	B
5650	32	5xD	DIN 6537L	Ratio drills with coolant ducts	Solid carbide	RT 100 U	
5651	69	5xD	DIN 6537L	Ratio drills without coolant ducts	Solid carbide	RT 100 U	
5652	89		Company std.	Solid carbide micro-precision drills without coolant ducts	Solid carbide	N	
5653	200		DIN 6527L	Ratio end mills RF 100 VA	Solid carbide	N	A
5654	200		DIN 6527L	Ratio end mills RF 100 VA	Solid carbide	N	B
5655	201		Company std.	Ratio end mills Alu RF 100 A	Solid carbide	W	
5670	243		DIN 334	60° Countersinks, spiral-fluted	HSS		C
5671	244		DIN 334	60° Countersinks, spiral-fluted	HSS		C
5672	248		DIN 334	60° Countersink sets, spiral-fluted	HSS		C
5673	249		DIN 334	60° Countersink sets, spiral-fluted	HSS		C
5678	132		Company std.	90° NC spotting drills	HSCO	N	
5679	134		Company std.	120° NC spotting drills	HSCO	N	
5680	137		DIN 333	Centre drills without flat	HSCO	N	A
5729	208		Company std.	Multi-tooth end mills GH 100 U	Solid carbide	NH	
5730	209		DIN 6527L	Slot drills (2-fluted)	Solid carbide	N	A
5735	193		DIN 6527L	Standard Ratio end mills RF 100 U	Solid carbide	N	A
5745	207		Company std.	Multi-tooth end mills GH 100 U	Solid carbide	NH	
5768	28	5xD	DIN 6537L	Ratio drills with coolant ducts	Solid carbide	RT 100 AI	
6005	101	~3xD	Company std.	Twist drills with reinforced straight shank	HSS-E-PM	GU 500 PM	
6006	105	~5xD	Company std.	Twist drills with reinforced straight shank	HSS-E-PM	GU 500 PM	
6010	201		Company std.	Ratio end mills Alu RF 100 A	Solid carbide	W	
6011	218		Company std.	Chamfering milling cutters 60°	Solid carbide	N	
6012	218		Company std.	Chamfering milling cutters 60°	Solid carbide	N	
6013	221		Company std.	Front/back deburrer 90°, sets	Solid carbide	EW 100 VR	
6014	220		Company std.	Chamfering milling cutters 120°	Solid carbide	N	
6015	220		Company std.	Chamfering milling cutters 120°	Solid carbide	N	
6016	235		Company std.	NC machine reamers	Solid carbide		B
6017	236		Company std.	NC machine reamers	Solid carbide		B
6018	239		Company std.	NC machine reamers	Solid carbide		B
6019	232		DIN 212-3	NC machine reamers	HSS-E		B
6020	233		DIN 212-3	NC machine reamers	HSS-E		B
6023	22	3xD	DIN 6537K	Ratio drills with coolant ducts	Solid carbide	RT 100 U	
6024	25	3xD	DIN 6537K	Ratio drills with coolant ducts	Solid carbide	RT 100 VA	
6025	36	5xD	DIN 6537L	Ratio drills with coolant ducts	Solid carbide	RT 100 VA	
6026	66	3xD	DIN 6537K	Ratio drills without coolant ducts	Solid carbide	RT 100 U	
6027	133		Company std.	90° NC spotting drills	Solid carbide	N	
6028	135		Company std.	120° NC spotting drills	Solid carbide	N	

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ISO codes

P	Steel, high-alloyed steel
M	Stainless steel
K	Grey cast iron, spheroidal graphite iron and malleable cast iron
N	Aluminium and other non-ferrous metals
S	Special, super and titanium alloys
H	Hardened steel and chilled cast iron

On the programme pages you will find for every tool recommendations regarding suitability for the application groups and details of max. tensile strength and hardness.

- optimal suitability
- limited suitability

Surfaces

- bright
- Sirius
- TiN
- Carbo
- TiAlN
- nickel-plated
- steam tempered
- TiAlN nanoA
- FIRE/nanoFIRE
- TiAlN SuperA
- nitrided
- TiCN
- Signum
- TiSiN

Pictograms

Tool material	HSS	HSS-E	HSCO	HSS-E-PM	VHM									
	High-speed steel				Solid carbide									
Machining depth	3xD	4xD	5xD	7xD	8xD	10xD	12xD	15xD	20xD	25xD	30xD	~3xD	~5xD	~10xD
Tolerance on Ø	m7	h6	h7	H7	h8	6HX	ISO2/6H	≤Ø5,5=+0,004 >Ø5,5=+0,005						
Shank form	HA	HB	HE	Cyl		3								
	to DIN 6535			cylindrical		3-flats on shank								
Standard	DIN 333	DIN 338	DIN 340	DIN 371	DIN 376	DIN 371/376	DIN 1897	DIN 6527 K	DIN 6527 L	DIN 6537 K	DIN 6537 L	DIN 6539	~DIN 371	...
	to DIN													
	to Gühring Standard													
Type	N	H	W	AI	NH	RT 100 U	RT 100 T	RT 100 VA	RT 100 XF	RT 150 GG	FT 200	GU 500 DZ	GT 500 DZ	HT 800 WP
	N R40	AI R45	H R40	VA R40	TM SP	GG	NRf	HR	HR 500 S	HR 500 D	...			
Internal coolant														
	with internal coolant			without internal coolant										
Cutting direction														
	right-hand													
Hole type														
	Through-hole threads			Blind-hole threads		Through-hole and blind-hole threads								
Form	B	C												
Application														
	Slotting	Roughing	Ramping	Helix	Drilling	Finishing	Copying							
Length														
	short (DIN)	long (DIN)	medium length	extra length										
No. of cutting edges														
	No. of major cutting edges													
Helix angle									...					
	Size of helix angle/no. of different helix angles													
Rake angle														
	Rake angle of circumference cutting edges													
Cutting edge form											...			
	Corner chamfer	Radius with tolerance	Chamfer end mill angles				Point angle							
Feed														
	for lateral feed			for lateral feed and oblique plunging			for lateral feed, oblique plunging and drilling							
Hardness	48 HRC	55 HRC												
	workable material hardness in HRC													

SuperLine



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