

# 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

# *Super***Line**

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HIGH-TECH TOOLS AT A  
**SUPER PRICE**

**SL**

Convincing **price-performance-ratio.**

Exceptional **quality.**

100 % **ex-stock availability.**

## Ratio drills with coolant ducts

		3xD		RT100 U	DIN 6537K	VHM	F	3.000 - 20.000	5510	22
		3xD		RT100 U	DIN 6537K	VHM	F	3.000 - 20.000	5610	22
		3xD		RT100 U	DIN 6537K	VHM	F	3.000 - 20.000	6023	22
		3xD		RT100 VA	DIN 6537K	VHM	a	3.000 - 20.000	5526	25
		3xD		RT100 VA	DIN 6537K	VHM	a	3.000 - 20.000	5528	25
		3xD		RT100 VA	DIN 6537K	VHM	a	3.000 - 20.000	6024	25
		5xD		RT100 AI	DIN 6537L	VHM	○	3.000 - 20.000	5768	28
		5xD		RT100 U	DIN 6537L	VHM	F	2.500 - 20.000	5511	32
		5xD		RT100 U	DIN 6537L	VHM	F	3.000 - 20.000	5611	32
		5xD		RT100 U	DIN 6537L	VHM	F	3.000 - 20.000	5650	32
		5xD		RT100 VA	DIN 6537L	VHM	a	3.000 - 20.000	5580	36
		5xD		RT100 VA	DIN 6537L	VHM	a	3.000 - 20.000	5581	36
		5xD		RT100 VA	DIN 6537L	VHM	a	3.000 - 20.000	6025	36
		5xD		RT100 XF	DIN 6537L	VHM	F	3.000 - 20.000	5498	40
		7xD		RT100 U	WN	VHM	F	3.000 - 20.000	5512	44
		7xD		RT100 U	WN	VHM	F	3.000 - 20.000	5612	44
		7xD		RT100 XF	WN	VHM	F	3.000 - 20.000	5499	47
		10xD		RT150 GG	WN	VHM	○	3.000 - 16.000	5513	51
		12xD		RT100 U	WN	VHM	F	3.000 - 20.000	5525	53
		15xD		RT100 T	WN	VHM	A	3.000 - 16.000	6509	56
		20xD		RT100 T	WN	VHM	A	3.000 - 16.000	6511	58
		25xD		RT100 T	WN	VHM	A	3.000 - 16.000	6512	60
		30xD		RT100 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
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## Ratio drills without coolant ducts

			3xD		RT100 U	DIN 6537K	VHM	F	3.000 - 20.000	5514	66
			3xD		RT100 U	DIN 6537K	VHM	F	3.000 - 20.000	5614	66
			3xD		RT100 U	DIN 6537K	VHM	F	3.000 - 20.000	6026	66
			5xD		RT100 U	DIN 6537L	VHM	F	2.500 - 20.000	5515	69
			5xD		RT100 U	DIN 6537L	VHM	F	3.000 - 20.000	5615	69
			5xD		RT100 U	DIN 6537L	VHM	F	3.000 - 20.000	5651	69

## Tool holders for interchangeable inserts HT 800

			3xD		HT800 WP			Ni		4107	72
			5xD		HT800 WP			Ni		4108	75
			7xD		HT800 WP			Ni		4109	78

## Interchangeable inserts HT 800

			HT 800 WP		VHM	F	11.000 - 40.000		4112	80
			HT 800 WP		VHM	Y	11.000 - 40.000		4113	83
			HT 800 WP		VHM	a	11.000 - 40.000		4115	86

## Solid carbide micro-precision drills without coolant ducts

			Cyl	N		VHM	A	0.100 - 3.000	5652	89
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## ExclusiveLine micro-precision drills without coolant ducts

			4xD		N		VHM	A	0.500 - 3.000	6400	90
			7xD		N		VHM	A	0.500 - 3.000	6401	92

## ExclusiveLine micro-precision drills with coolant ducts

			5xD		N		VHM	A	1.000 - 3.000	6405	94
			8xD		N		VHM	A	1.000 - 3.000	6408	96
			15xD		N		VHM	A	1.000 - 3.000	6412	98

## 3-flute Ratio drills

			5xD		FT200	DIN 6537L	VHM		3.000 - 20.000	5518	99
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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 drills with reinforced straight shank

									1.000 - 20.000	6005	101
									2.000 - 20.000	6006	105

## Stub drills

									1.500 - 12.000	5516	109
									1.000 - 14.000	5524	111
									1.000 - 14.000	5520	111
									1.000 - 14.000	5521	114

## Jobber drills

									2.000 - 12.000	5517	117
									1.000 - 14.000	5523	119
									1.000 - 14.000	5519	119
									1.000 - 14.000	5522	122
									1.000 - 16.000	9651	125

## Long series twist drills

									1.000 - 14.000	5536	129
									1.000 - 14.000	5537	129

## 90° NC spotting drills

									3.000 - 25.400	5678	132
									4.000 - 20.000	6027	133

## 120° NC spotting drills

									3.000 - 25.400	5679	134
									3.000 - 20.000	6028	135

## 142° NC spotting drills

									1.000 - 20.000	6029	136
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## Centre drills without flat

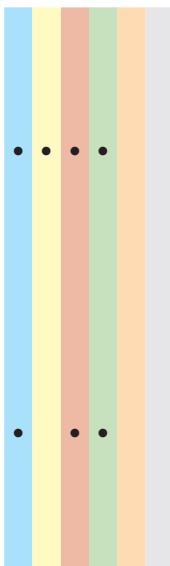
									0.500 - 4.000	5680	137
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P M K N S H

Tool illustration

Drilling depth  
Shank form  
Type  
Standard  
Tool material  
Sur-face  
d1/mm  
Article no.  
Page

## Twist drill sets

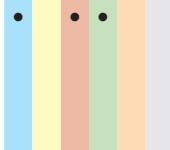


SL



~5xD Cyl GU500 DZ DIN 338 HSCO ○

12 138



SL



~5xD Cyl N DIN 338 HSS S

234 139

P M K N S H

Tool illustration

Shank form	Standard	Form	Cutting direction	Tool material	Surf-	d1/mm	Article no.	Page
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## NC machine reamers

									1.500 - 20.000	<b>6019</b>	232
									1.000 - 12.030	<b>6020</b>	233
									3.000 - 20.000	<b>6016</b>	235
									3.000 - 20.000	<b>6017</b>	236
									0.980 - 12.050	<b>5527</b>	237
									0.980 - 12.050	<b>6018</b>	239

## High-performance reamers

								2.000 - 20.000	<b>1685</b>	241
								2.000 - 20.000	<b>1686</b>	242

## 60° Countersinks, spiral-fluted

									6.300 - 25.000	<b>5670</b>	243
									6.300 - 25.000	<b>5671</b>	244

## 90° Countersinks, spiral-fluted

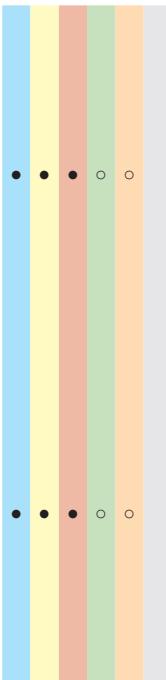
									6.300 - 40.000	<b>5500</b>	245
									6.300 - 40.000	<b>5501</b>	246
									6.300 - 31.000	<b>5503</b>	247

P M K N S H

Tool illustration

Shank form Standard Form Cutting direction Tool material Surface d1/mm Article no. Page

## 60° Countersink sets, spiral-fluted

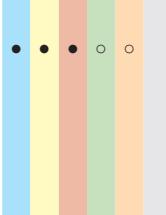


SL



Cyl DIN 334 C R HSS A

5672 248



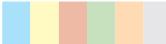
SL



3 DIN 334 C R HSS A

5673 249

## 90° Countersink sets, spiral-fluted



SL



Cyl DIN 335 C R HSCO A

5538 250



SL



3 DIN 335 C R HSCO A

5539 251

## HSK-A hydraulic chucks

**4662**

258

## ISO taper hydraulic chucks

**4663**

259

## MAS/BT hydraulic chucks

**4664**

260

## Tool dispensing system TM 226

**506920**

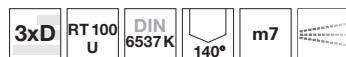
269



# 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** ○ structural and case hardened steels • free-cutting steels, heat-treatable steels • steels (alloyed/unalloyed) up to 1200 N/mm<sup>2</sup> • cast materials • bronze, brass • high-alloyed AlSi alloys

**H** ○

Tool material

Surface

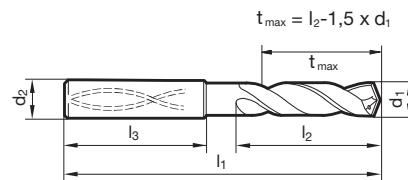
Shank form

Solid carbide

**F****F****F****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	●	●	●	



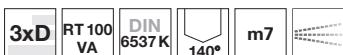
						Article no.	5510	5610	6023	
						Discount group	155	155	155	
						Cutting direction	(R)	(R)	(R)	
d1		d2 h6	I1	I2	I3					Availability
mm	inch	mm	mm	mm	mm					
5.600		6.00	66.00	28.00	36.00		●	●	●	
5.700		6.00	66.00	28.00	36.00		●	●	●	
5.800		6.00	66.00	28.00	36.00		●	●	●	
5.900		6.00	66.00	28.00	36.00		●	●	●	
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		I1	I2	I3	Availability		
mm	inch	mm	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



Tool material	Solid carbide		
	Surface a	Shank form HA	Shank form HE
	a	SL	SL
	a	SL	SL
	a	SL	SL

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

M •

K

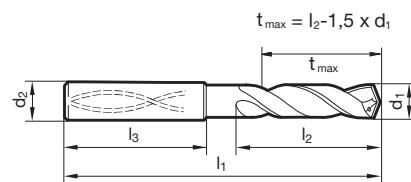
N stainless/acid-/heat-resistant steels • Titanium and Titanium alloys

S • Inconel, Hastelloy, Monel

H

## GÜHRING NAVIGATOR

Cutting data page 140



d1		d2 h6	l1	l2	l3	Article no.	5526	5528	6024
						Discount group	155	155	155
						Cutting direction	(R)	(R)	(R)
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	I1	I2	I3			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	I1	I2	I3					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



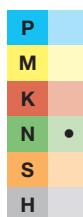
Tool material

Solid carbide

Surface



Shank form



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

M

K

N

S

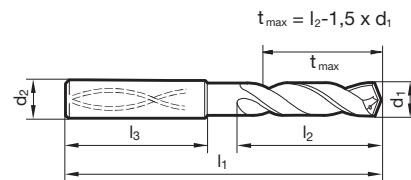
H

aluminium and Al alloys • Al materials with high Si-content



## GÜHRING NAVIGATOR

Cutting data page 140



Article no.

5768

Discount group

155

Cutting direction



d1 mm	d2 h6 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Availability
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	Drilling tools
Discount group						155	
Cutting direction						(R)	
d1		d2 h6	I1	I2	I3	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	I1	I2	I3		
mm	inch	mm	mm	mm	mm		
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		●
10.800		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		●
12.100		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		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		●
13.300		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		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		●
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		●

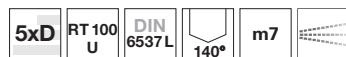


						Article no.	5768	
						Discount group	155	
						Cutting direction	(R)	
d1		d2 h6	I1	I2	I3			
mm	inch	mm	mm	mm	mm			
18.900		20.00	153.00	101.00	50.00		●	
19.000		20.00	153.00	101.00	50.00		●	
19.050	3/4	20.00	153.00	101.00	50.00		●	
19.300		20.00	153.00	101.00	50.00		●	
19.500		20.00	153.00	101.00	50.00		●	
20.000		20.00	153.00	101.00	50.00		●	

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** ○ structural and case hardened steels • free-cutting steels, heat-treatable steels • steels (alloyed/unalloyed) up to 1200 N/mm<sup>2</sup> • cast materials • bronze, brass • high-alloyed AlSi alloys

**H** ○

Tool material

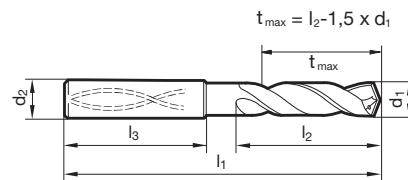
Surface

Shank form

Solid carbide

**F****F****F****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				
mm	inch	mm	mm	mm	mm				
2.500		4.00	57.00	20.00	31.70		●		
2.800		4.00	57.00	22.00	29.90		●		
2.900		4.00	57.00	23.00	29.00		●		
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		●	●	●

Availability



Article no.						5511	5611	5650	Drilling tools
Discount group						155	155	155	
Cutting direction						(R)	(R)	(R)	
d1		d2 h6	I1	I2	I3				
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	●	●	●	
6.600		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	●			



						Article no.	5511	5611	5650
						Discount group	155	155	155
						Cutting direction	(R)	(R)	(R)
d1		d2 h6	I1	I2	I3			Availability	
mm	inch	mm	mm	mm	mm				
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			●	●
10.800		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			●	●
12.100		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		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			●	●
13.300		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		16.00	133.00	83.00	48.00			●	●
14.290	9/16	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			●	



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

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**

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

Tool material

Solid carbide

Surface

**a**

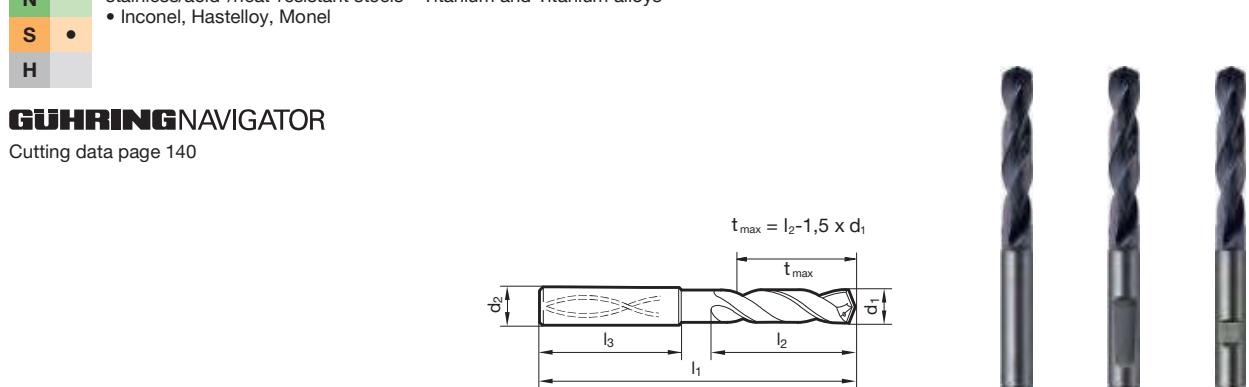
Shank form

**a****SL****SL****SL**

HA

HE

HB



	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	
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	I1	I2	I3					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		I1	I2	I3	Availability		
mm	inch	mm	mm	mm	mm	mm	(R)	(R)	(R)
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		●	●	●

# RT 100 XF

TOUGH. EXTREME. POWERFUL.



## Ratio drills with coolant ducts



Tool material

Solid carbide

Surface



Shank form



**P** • web thinning  $\geq \varnothing 3.000$  • relieved cone • main cutting edge form concave • optimised cutting geometry • maximum performance

**M****K****N****S****H**

**M** ○ structural and case hardened steels • free-cutting steels, heat-treatable steels • steels (alloyed/unalloyed) up to 1400 N/mm<sup>2</sup>

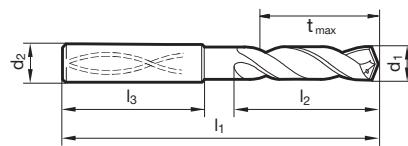
**K****N****S****H**

**N** ○ structural and case hardened steels • free-cutting steels, heat-treatable steels • steels (alloyed/unalloyed) up to 1400 N/mm<sup>2</sup>

**GÜHRING NAVIGATOR**

Cutting data page 140

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



Article no.

5498

Discount group

255

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	●
4.040		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	Drilling tools
Discount group						255	
Cutting direction						(R)	
d1		d2 h6	I1	I2	I3	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	I1	I2	I3		
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	Drilling tools
Discount group						255	
Cutting direction						(R)	
d1		d2 h6	I1	I2	I3	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** ○ structural and case hardened steels • free-cutting steels, heat-treatable steels • steels (alloyed/unalloyed) up to 1200 N/mm<sup>2</sup> • cast materials • bronze, brass • high-alloyed AlSi alloys

**H** ○

Tool material

Surface

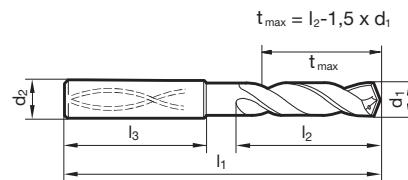
Shank form

Solid carbide

**F****F****SL****SL**

## GÜHRING NAVIGATOR

Cutting data page 140



						Article no.	5512	5612
						Discount group	155	155
						Cutting direction	(R)	(R)
d1		d2 h6	l1	l2	l3			
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	(R)	(R)	
d1		d2 h6	I1	I2	I3	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	(R)	(R)
d1		d2 h6	I1	I2	I3			
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

Shank form



HA



Drilling tools

**P** • web thinning  $\geq \varnothing 3.000$  • relieved cone • main cutting edge form concave • optimised cutting geometry • maximum performance

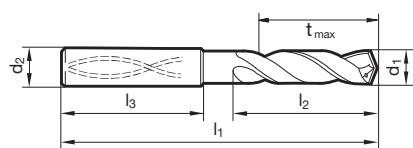
**M** ○**K** ○**N** ○**S** ○**H** ○

structural and case hardened steels • free-cutting steels, heat-treatable steels • steels (alloyed/unalloyed) up to 1400 N/mm<sup>2</sup>

**GÜHRING NAVIGATOR**

Cutting data page 140

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



Article no.

**5499**

Discount group

**255**

Cutting direction



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	I1	I2	I3		
mm	inch	mm	mm	mm	mm		
5.500		6.00	97.00	57.00	36.00		●
5.550		6.00	97.00	57.00	36.00		●
5.560	7/32	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		6.00	97.00	57.00	36.00		●
5.950	15/64	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		8.00	106.00	66.00	36.00		●
6.750	17/64	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	19/64	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		●
7.900		8.00	116.00	76.00	36.00		●
7.940	5/16	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	11/32	10.00	131.00	87.00	40.00		●
8.800		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	23/64	10.00	139.00	95.00	40.00		●
9.200		10.00	139.00	95.00	40.00		●
9.250		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	3/8	10.00	139.00	95.00	40.00		●
9.600		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	Drilling tools
Discount group						255	
Cutting direction						(R)	
d1		d2 h6	I1	I2	I3	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	●	



						Article no.	5499
						Discount group	255
						Cutting direction	(R)
d1		d2 h6	I1	I2	I3		
mm	inch	mm	mm	mm	mm		Availability
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  
• very good surface quality of hole • observe coolant pressure

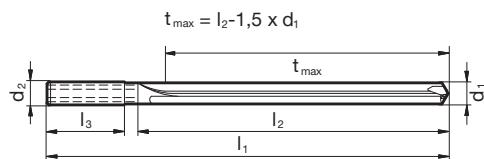
**M****K** •**N** •**S****H**

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

Drilling tools

## GÜHRING NAVIGATOR

Cutting data page 142



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	●
3.970	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	●
12.000		12.00	209.00	159.00	45.00	●



						Article no.	5513
						Discount group	155
						Cutting direction	(R)
d1		d2 h6	I1	I2	I3		
mm	inch	mm	mm	mm	mm		Availability
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



Tool material

Solid carbide

Surface



Shank form



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

**M****K** •**N** ○

**S** ○ structural and case hardened steels • free-cutting steels, heat-treatable steels • alloyed steels up to 1200 N/mm<sup>2</sup> • cast materials

• bronze, brass • high-alloyed AlSi alloys

**H** ○

Drilling tools





						Article no.	5525
						Discount group	155
						Cutting direction	(R)
d1		d2 h6	I1	I2	I3		
mm	inch	mm	mm	mm	mm		
6.200		8.00	146.00	108.00	36.00		●
6.300		8.00	146.00	108.00	36.00		●
6.350	1/4	8.00	146.00	108.00	36.00		●
6.400		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		8.00	146.00	108.00	36.00		●
6.750	17/64	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		10.00	162.00	120.00	40.00		●
9.520	3/8	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		14.00	230.00	182.00	45.00		●
12.700	1/2	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	I1	I2	I3			
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

&lt;/



Article no.						6509	Drilling tools
Discount group						165	
Cutting direction						(R)	
d1		d2 h6	I1	I2	I3	Availability	
mm	inch	mm	mm	mm	mm		
7.500		8.00	183.00	143.00	36.00	●	
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



Article no.						6511	Drilling tools
Discount group						165	
Cutting direction						(R)	
d1		d2 h6	I1	I2	I3	Availability	
mm	inch	mm	mm	mm	mm		
7.540	19/64	8.00	223.00	183.00	36.00	●	
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



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



Article no.						6512	Drilling tools
Discount group						165	
Cutting direction						(R)	
d1		d2 h6	I1	I2	I3	Availability	
mm	inch	mm	mm	mm	mm		
7.540	19/64	8.00	263.00	223.00	36.00	●	
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

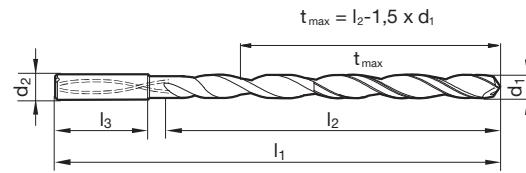


**P** • web thinning  $\geq \varnothing 3.000$  • main cutting edge form concave • optimised flute design • maximum diameter of coolant ducts • observe coolant pressure

**M****K****N****S****H**

## GÜHRING 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	●
4.100		6.00	208.00	168.00	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	●



Article no.						6513	Drilling tools
Discount group						165	
Cutting direction						(R)	
d1		d2 h6	I1	I2	I3		Availability
mm	inch	mm	mm	mm	mm		
8.500		10.00	339.00	295.00	40.00		●
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 80:**  
**THE CONVENTIONAL**

Brazed single-fluted gun drills



**EB 100 M:**  
**THE ROBUST**

Solid carbide single-fluted  
gun drills

## **EB 800:** THE FLEXIBLE

Modular single-fluted gun drill



Drilling tools

## **ZB 80:** THE SPECIALIST FOR CAST IRON

Brazed two-fluted gun drills

# CONVENTIONAL DEEP HOLE DRILLS

THE RIGHT TOOL  
FOR EVERY APPLICATION.



## 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** ○ structural and case hardened steels • free-cutting steels, heat-treatable steels • steels (alloyed/unalloyed) up to 1200 N/mm<sup>2</sup> • cast materials • bronze, brass • high-alloyed AlSi alloys

**S** ○

**H** ○

Tool material

Surface

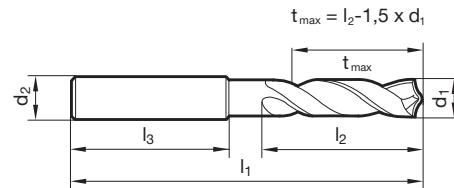
Shank form

Solid carbide

**F****F****F****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	●	●	●	



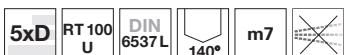
Article no.						5514	5614	6026	Drilling tools	
Discount group						155	155	155		
Cutting direction						(R)	(R)	(R)		
d1		d2 h6	I1	I2	I3	Availability				
mm	inch	mm	mm	mm	mm	●	●	●		
5.600		6.00	66.00	28.00	36.00	●	●	●		
5.700		6.00	66.00	28.00	36.00	●	●	●		
5.800		6.00	66.00	28.00	36.00	●	●	●		
5.900		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	(R)	(R)	(R)
d1		d2 h6		I1	I2	I3	Availability		
mm	inch	mm	mm	mm	mm	mm	(R)	(R)	(R)
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



Tool material

Solid carbide

Surface

F

Shank form

F

HA

F

HE

HB

F

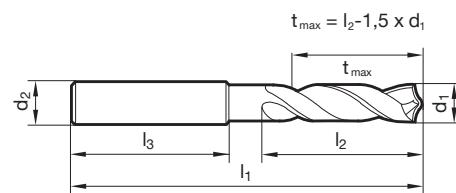
Drilling tools

**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/mm<sup>2</sup> • cast materials • bronze, brass • high-alloyed AlSi alloys

## GÜHRING NAVIGATOR

Cutting data page 140



						Article no.	5515	5615	5651
						Discount group	155	155	155
						Cutting direction	(R)	(R)	(R)
d1		d2 h6	l1	l2	l3				
mm	inch	mm	mm	mm	mm				
2.500		4.00	57.00	20.00	31.70		●		
2.800		4.00	57.00	22.00	29.90		●		
2.900		4.00	57.00	23.00	29.00		●		
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		●	●	●



						Article no.	5515	5615	5651
						Discount group	155	155	155
						Cutting direction	(R)	(R)	(R)
d1		d2 h6	I1	I2	I3			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			●	●
6.600		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			●	●



Article no.						5515	5615	5651	Drilling tools
Discount group						155	155	155	
Cutting direction						(R)	(R)	(R)	
d1	d2 h6	I1	I2	I3	Availability				
mm	inch	mm	mm	mm					
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	●	●	●	
10.800		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	●	●	●	



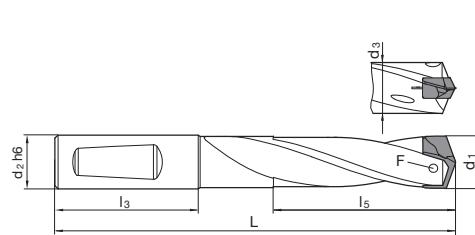
## Tool holders for interchangeable inserts HT 800



Surface  
Shank form

(Ni)  
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



d1	d2 h6	d3	L	l3	l5	F	Code no.	Availability
	mm	mm	mm	mm	mm			
11.00-11.49	12.000	10.70	101.00	45.00	36.60	4071 2.200	11.000	●
11.00-11.49	12.700	10.70	101.00	45.00	36.60	4071 2.200	11.005	●
11.50-11.99	12.000	11.20	103.00	45.00	38.10	4071 2.200	11.500	●
11.50-11.99	12.700	11.20	103.00	45.00	38.10	4071 2.200	11.505	●
12.00-12.49	12.000	11.70	106.00	45.00	39.70	4071 2.201	12.000	●
12.00-12.49	12.700	11.70	106.00	45.00	39.70	4071 2.201	12.005	●
12.50-12.99	14.000	12.20	108.00	45.00	41.30	4071 2.201	12.500	●
12.50-12.99	15.875	12.20	108.00	45.00	41.30	4071 2.201	12.505	●
13.00-13.49	14.000	12.70	110.00	45.00	42.90	4071 2.500	13.000	●
13.00-13.49	15.875	12.70	110.00	45.00	42.90	4071 2.500	13.005	●
13.50-13.99	14.000	13.20	113.00	45.00	44.60	4071 2.500	13.500	●
13.50-13.99	15.875	13.20	113.00	45.00	44.60	4071 2.500	13.505	●
14.00-14.49	14.000	13.70	115.00	45.00	46.20	4071 3.000	14.000	●
14.00-14.49	15.875	13.70	115.00	45.00	46.20	4071 3.000	14.005	●
14.50-14.99	15.875	14.20	120.00	48.00	47.80	4071 3.000	14.505	●
14.50-14.99	16.000	14.20	120.00	48.00	47.80	4071 3.000	14.500	●
15.00-15.49	15.875	14.70	123.00	48.00	49.30	4071 3.001	15.005	●
15.00-15.49	16.000	14.70	123.00	48.00	49.30	4071 3.001	15.000	●
15.50-15.99	15.875	15.20	125.00	48.00	50.90	4071 3.001	15.505	●
15.50-15.99	16.000	15.20	125.00	48.00	50.90	4071 3.001	15.500	●
16.00-16.49	15.875	15.70	127.00	48.00	52.90	4071 3.500	16.005	●
16.00-16.49	16.000	15.70	127.00	48.00	52.90	4071 3.500	16.000	●
16.50-16.99	18.000	16.20	130.00	48.00	54.10	4071 3.500	16.500	●
16.50-16.99	19.050	16.20	130.00	48.00	54.10	4071 3.500	16.505	●
17.00-17.49	18.000	16.70	132.00	48.00	55.80	4071 3.500	17.000	●
17.00-17.49	19.050	16.70	132.00	48.00	55.80	4071 3.500	17.005	●
17.50-17.99	18.000	17.20	134.00	48.00	57.40	4071 3.500	17.500	●
17.50-17.99	19.050	17.20	134.00	48.00	57.40	4071 3.500	17.505	●
18.00-18.49	18.000	17.70	137.00	48.00	58.90	4071 4.000	18.000	●
18.00-18.49	19.050	17.70	137.00	48.00	58.90	4071 4.000	18.005	●
18.50-18.99	19.050	18.20	141.00	50.00	60.50	4071 4.000	18.505	●
18.50-18.99	20.000	18.20	141.00	50.00	60.50	4071 4.000	18.500	●
19.00-19.49	19.050	18.70	143.00	50.00	62.10	4071 4.000	19.005	●
19.00-19.49	20.000	18.70	143.00	50.00	62.10	4071 4.000	19.000	●
19.50-19.99	19.050	19.20	146.00	50.00	63.70	4071 4.000	19.505	●
19.50-19.99	20.000	19.20	146.00	50.00	63.70	4071 4.000	19.500	●



Article no.								4107	Drilling tools
Discount group								140	
Cutting direction								(R)	
d1	d2 h6	d3	L	l3	l5	F	Code no.	Availability	
	mm	mm	mm	mm	mm				
20.00-20.49	19.050	19.70	148.00	50.00	65.30	4071 4.500	20.005	●	
20.00-20.49	20.000	19.70	148.00	50.00	65.30	4071 4.500	20.000	●	
20.50-20.99	25.000	20.20	159.00	56.00	67.00	4071 4.500	20.500	●	
20.50-20.99	25.400	20.20	159.00	56.00	67.00	4071 4.500	20.505	●	
21.00-21.49	25.000	20.70	161.00	56.00	68.60	4071 4.500	21.000	●	
21.00-21.49	25.400	20.70	161.00	56.00	68.60	4071 4.500	21.005	●	
21.50-21.99	25.000	21.20	163.00	56.00	70.10	4071 4.500	21.500	●	
21.50-21.99	25.400	21.20	163.00	56.00	70.10	4071 4.500	21.505	●	
22.00-22.49	25.000	21.70	165.00	56.00	71.70	4071 5.000	22.000	●	
22.00-22.49	25.400	21.70	165.00	56.00	71.70	4071 5.000	22.005	●	
22.50-22.99	25.000	22.20	168.00	56.00	73.30	4071 5.000	22.500	●	
22.50-22.99	25.400	22.20	168.00	56.00	73.30	4071 5.000	22.505	●	
23.00-23.49	25.000	22.70	170.00	56.00	74.90	4071 5.000	23.000	●	
23.00-23.49	25.400	22.70	170.00	56.00	74.90	4071 5.000	23.005	●	
23.50-23.99	25.000	23.20	173.00	56.00	76.50	4071 5.000	23.500	●	
23.50-23.99	25.400	23.20	173.00	56.00	76.50	4071 5.000	23.505	●	
24.00-24.49	25.000	23.70	175.00	56.00	78.10	4071 5.001	24.000	●	
24.00-24.49	25.400	23.70	175.00	56.00	78.10	4071 5.001	24.005	●	
24.50-24.99	25.000	24.20	177.00	56.00	79.70	4071 5.001	24.500	●	
24.50-24.99	25.400	24.20	177.00	56.00	79.70	4071 5.001	24.505	●	
25.00-25.49	25.000	24.70	180.00	56.00	81.30	4071 5.001	25.000	●	
25.00-25.49	25.400	24.70	180.00	56.00	81.30	4071 5.001	25.005	●	
25.50-25.99	31.750	25.20	187.00	60.00	82.90	4071 5.001	25.505	●	
25.50-25.99	32.000	25.20	187.00	60.00	82.90	4071 5.001	25.500	●	
26.00-26.49	31.750	25.70	191.00	60.00	84.00	4071 5.003	26.005	●	
26.00-26.49	32.000	25.70	191.00	60.00	84.00	4071 5.003	26.000	●	
26.50-26.99	31.750	26.20	193.00	60.00	86.10	4071 5.003	26.505	●	
26.50-26.99	32.000	26.20	193.00	60.00	86.10	4071 5.003	26.500	●	
27.00-27.49	31.750	26.70	196.00	60.00	87.20	4071 5.003	27.005	●	
27.00-27.49	32.000	26.70	196.00	60.00	87.20	4071 5.003	27.000	●	
27.50-27.99	31.750	27.20	198.00	60.00	88.90	4071 5.003	27.505	●	
27.50-27.99	32.000	27.20	198.00	60.00	88.90	4071 5.003	27.500	●	
28.00-28.49	31.750	27.70	200.00	60.00	90.40	4071 5.003	28.005	●	
28.00-28.49	32.000	27.70	200.00	60.00	90.40	4071 5.003	28.000	●	
28.50-28.99	31.750	28.20	202.00	60.00	92.50	4071 5.003	28.505	●	
28.50-28.99	32.000	28.20	202.00	60.00	92.50	4071 5.003	28.500	●	
29.00-29.49	31.750	28.70	205.00	60.00	94.60	4071 5.003	29.005	●	
29.00-29.49	32.000	28.70	205.00	60.00	94.60	4071 5.003	29.000	●	
29.50-29.99	31.750	29.20	207.00	60.00	95.10	4071 5.003	29.505	●	
29.50-29.99	32.000	29.20	207.00	60.00	95.10	4071 5.003	29.500	●	
30.00-30.49	31.750	29.70	210.00	60.00	96.70	4071 6.000	30.005	●	
30.00-30.49	32.000	29.70	210.00	60.00	96.70	4071 6.000	30.000	●	
30.50-30.99	31.750	30.20	212.00	60.00	98.30	4071 6.000	30.505	●	
30.50-30.99	32.000	30.20	212.00	60.00	98.30	4071 6.000	30.500	●	
31.00-31.49	31.750	30.70	214.00	60.00	99.80	4071 6.000	31.005	●	
31.00-31.49	32.000	30.70	214.00	60.00	99.80	4071 6.000	31.000	●	
31.50-31.99	31.750	31.20	216.00	60.00	101.40	4071 6.000	31.505	●	
31.50-31.99	32.000	31.20	216.00	60.00	101.40	4071 6.000	31.500	●	
32.00-32.99	31.750	31.70	221.00	60.00	104.60	4071 6.001	32.005	●	
32.00-32.99	32.000	31.70	221.00	60.00	104.60	4071 6.001	32.000	●	
33.00-33.99	31.750	32.70	226.00	60.00	107.80	4071 6.001	33.005	●	
33.00-33.99	32.000	32.70	226.00	60.00	107.80	4071 6.001	33.000	●	
34.00-34.99	31.750	33.70	230.00	60.00	111.00	4071 6.001	34.005	●	
34.00-34.99	32.000	33.70	230.00	60.00	111.00	4071 6.001	34.000	●	
35.00-35.99	31.750	34.70	235.00	60.00	114.20	4071 6.001	35.005	●	
35.00-35.99	32.000	34.70	235.00	60.00	114.20	4071 6.001	35.000	●	
36.00-36.99	31.750	35.70	240.00	60.00	117.30	4071 6.002	36.005	●	
36.00-36.99	32.000	35.70	240.00	60.00	117.30	4071 6.002	36.000	●	
37.00-37.99	31.750	36.70	245.00	60.00	120.50	4071 6.002	37.005	●	
37.00-37.99	32.000	36.70	245.00	60.00	120.50	4071 6.002	37.000	●	



	Article no. 4107							
	Discount group 140							
	Cutting direction <input checked="" type="checkbox"/> R							
d1	d2 h6	d3	L	l3	l5	F	Code no.	Availability
	mm	mm	mm	mm	mm			
38.00-38.99	31.750	37.70	249.00	60.00	123.70	4071 6.002	38.005	●
38.00-38.99	32.000	37.70	249.00	60.00	123.70	4071 6.002	38.000	●
39.00-40.00	31.750	38.70	254.00	60.00	126.90	4071 6.002	39.005	●
39.00-40.00	32.000	38.70	254.00	60.00	126.90	4071 6.002	39.000	●

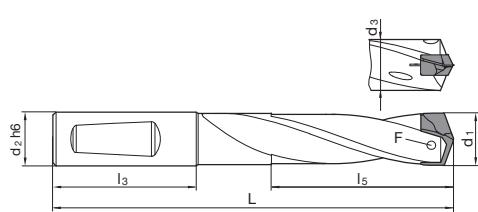


## Tool holders for interchangeable inserts HT 800

Surface  
Shank form(Ni)  
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
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	Discount group	140
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	Cutting direction	(R)
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d1	d2 h6	d3	L	l3	l5	F	Code no.	Availability
	mm	mm	mm	mm	mm			
11.00-11.49	12.000	10.70	124.00	45.00	59.60	4071 2.200	11.000	●
11.00-11.49	12.700	10.70	124.00	45.00	59.60	4071 2.200	11.005	●
11.50-11.99	12.000	11.20	127.00	45.00	62.10	4071 2.200	11.500	●
11.50-11.99	12.700	11.20	127.00	45.00	62.10	4071 2.200	11.505	●
12.00-12.49	12.000	11.70	131.00	45.00	64.70	4071 2.201	12.000	●
12.00-12.49	12.700	11.70	131.00	45.00	64.70	4071 2.201	12.005	●
12.50-12.99	14.000	12.20	134.00	45.00	67.30	4071 2.201	12.500	●
12.50-12.99	15.875	12.20	134.00	45.00	67.30	4071 2.201	12.505	●
13.00-13.49	14.000	12.70	137.00	45.00	69.90	4071 2.500	13.000	●
13.00-13.49	15.875	12.70	137.00	45.00	69.90	4071 2.500	13.005	●
13.50-13.99	14.000	13.20	141.00	45.00	72.60	4071 2.500	13.500	●
13.50-13.99	15.875	13.20	141.00	45.00	72.60	4071 2.500	13.505	●
14.00-14.49	14.000	13.70	144.00	45.00	75.20	4071 3.000	14.000	●
14.00-14.49	15.875	13.70	144.00	45.00	75.20	4071 3.000	14.005	●
14.50-14.99	15.875	14.20	150.00	48.00	77.80	4071 3.000	14.505	●
14.50-14.99	16.000	14.20	150.00	48.00	77.80	4071 3.000	14.500	●
15.00-15.49	15.875	14.70	154.00	48.00	80.30	4071 3.001	15.005	●
15.00-15.49	16.000	14.70	154.00	48.00	80.30	4071 3.001	15.000	●
15.50-15.99	15.875	15.20	157.00	48.00	82.90	4071 3.001	15.505	●
15.50-15.99	16.000	15.20	157.00	48.00	82.90	4071 3.001	15.500	●
16.00-16.49	15.875	15.70	160.00	48.00	85.90	4071 3.500	16.005	●
16.00-16.49	16.000	15.70	160.00	48.00	85.90	4071 3.500	16.000	●
16.50-16.99	18.000	16.20	164.00	48.00	88.10	4071 3.500	16.500	●
16.50-16.99	19.050	16.20	164.00	48.00	88.10	4071 3.500	16.505	●
17.00-17.49	18.000	16.70	167.00	48.00	90.80	4071 3.500	17.000	●
17.00-17.49	19.050	16.70	167.00	48.00	90.80	4071 3.500	17.005	●
17.50-17.99	18.000	17.20	170.00	48.00	93.40	4071 3.500	17.500	●
17.50-17.99	19.050	17.20	170.00	48.00	93.40	4071 3.500	17.505	●
18.00-18.49	18.000	17.70	174.00	48.00	95.90	4071 4.000	18.000	●
18.00-18.49	19.050	17.70	174.00	48.00	95.90	4071 4.000	18.005	●
18.50-18.99	19.050	18.20	179.00	50.00	98.50	4071 4.000	18.505	●
18.50-18.99	20.000	18.20	179.00	50.00	98.50	4071 4.000	18.500	●
19.00-19.49	19.050	18.70	182.00	50.00	101.10	4071 4.000	19.005	●
19.00-19.49	20.000	18.70	182.00	50.00	101.10	4071 4.000	19.000	●
19.50-19.99	19.050	19.20	186.00	50.00	103.70	4071 4.000	19.505	●
19.50-19.99	20.000	19.20	186.00	50.00	103.70	4071 4.000	19.500	●



	Article no.								4108
	Discount group								140
	Cutting direction								(R)
d1	d2 h6	d3	L	l3	l5	F	Code no.		Availability
	mm	mm	mm	mm	mm				
20.00-20.49	19.050	19.70	189.00	50.00	106.30	4071 4.500	20.005		●
20.00-20.49	20.000	19.70	189.00	50.00	106.30	4071 4.500	20.000		●
20.50-20.99	25.000	20.20	201.00	56.00	109.00	4071 4.500	20.500		●
20.50-20.99	25.400	20.20	201.00	56.00	109.00	4071 4.500	20.505		●
21.00-21.49	25.000	20.70	204.00	56.00	111.60	4071 4.500	21.000		●
21.00-21.49	25.400	20.70	204.00	56.00	111.60	4071 4.500	21.005		●
21.50-21.99	25.000	21.20	207.00	56.00	114.10	4071 4.500	21.500		●
21.50-21.99	25.400	21.20	207.00	56.00	114.10	4071 4.500	21.505		●
22.00-22.49	25.000	21.70	210.00	56.00	116.70	4071 5.000	22.000		●
22.00-22.49	25.400	21.70	210.00	56.00	116.70	4071 5.000	22.005		●
22.50-22.99	25.000	22.20	214.00	56.00	119.30	4071 5.000	22.500		●
22.50-22.99	25.400	22.20	214.00	56.00	119.30	4071 5.000	22.505		●
23.00-23.49	25.000	22.70	217.00	56.00	121.90	4071 5.000	23.000		●
23.00-23.49	25.400	22.70	217.00	56.00	121.90	4071 5.000	23.005		●
23.50-23.99	25.000	23.20	221.00	56.00	124.50	4071 5.000	23.500		●
23.50-23.99	25.400	23.20	221.00	56.00	124.50	4071 5.000	23.505		●
24.00-24.49	25.000	23.70	224.00	56.00	127.10	4071 5.001	24.000		●
24.00-24.49	25.400	23.70	224.00	56.00	127.10	4071 5.001	24.005		●
24.50-24.99	25.000	24.20	227.00	56.00	129.70	4071 5.001	24.500		●
24.50-24.99	25.400	24.20	227.00	56.00	129.70	4071 5.001	24.505		●
25.00-25.49	25.000	24.70	231.00	56.00	132.30	4071 5.001	25.000		●
25.00-25.49	25.400	24.70	231.00	56.00	132.30	4071 5.001	25.005		●
25.50-25.99	31.750	25.20	239.00	60.00	134.90	4071 5.001	25.505		●
25.50-25.99	32.000	25.20	239.00	60.00	134.90	4071 5.001	25.500		●
26.00-26.49	31.750	25.70	244.00	60.00	137.00	4071 5.003	26.005		●
26.00-26.49	32.000	25.70	244.00	60.00	137.00	4071 5.003	26.000		●
26.50-26.99	31.750	26.20	247.00	60.00	140.00	4071 5.003	26.505		●
26.50-26.99	32.000	26.20	247.00	60.00	140.00	4071 5.003	26.500		●
27.00-27.49	31.750	26.70	251.00	60.00	142.20	4071 5.003	27.005		●
27.00-27.49	32.000	26.70	251.00	60.00	142.20	4071 5.003	27.000		●
27.50-27.99	31.750	27.20	254.00	60.00	144.80	4071 5.003	27.505		●
27.50-27.99	32.000	27.20	254.00	60.00	144.80	4071 5.003	27.500		●
28.00-28.49	31.750	27.70	257.00	60.00	147.40	4071 5.003	28.005		●
28.00-28.49	32.000	27.70	257.00	60.00	147.40	4071 5.003	28.000		●
28.50-28.99	31.750	28.20	260.00	60.00	150.40	4071 5.003	28.505		●
28.50-28.99	32.000	28.20	260.00	60.00	150.40	4071 5.003	28.500		●
29.00-29.49	31.750	28.70	264.00	60.00	153.50	4071 5.003	29.005		●
29.00-29.49	32.000	28.70	264.00	60.00	153.50	4071 5.003	29.000		●
29.50-29.99	31.750	29.20	267.00	60.00	155.10	4071 5.003	29.505		●
29.50-29.99	32.000	29.20	267.00	60.00	155.10	4071 5.003	29.500		●
30.00-30.49	31.750	29.70	271.00	60.00	157.60	4071 6.000	30.005		●
30.00-30.49	32.000	29.70	271.00	60.00	157.60	4071 6.000	30.000		●
30.50-30.99	31.750	30.20	274.00	60.00	160.20	4071 6.000	30.505		●
30.50-30.99	32.000	30.20	274.00	60.00	160.20	4071 6.000	30.500		●
31.00-31.49	31.750	30.70	277.00	60.00	162.80	4071 6.000	31.005		●
31.00-31.49	32.000	30.70	277.00	60.00	162.80	4071 6.000	31.000		●
31.50-31.99	31.750	31.20	280.00	60.00	165.40	4071 6.000	31.505		●
31.50-31.99	32.000	31.20	280.00	60.00	165.40	4071 6.000	31.500		●
32.00-32.99	31.750	31.70	287.00	60.00	170.60	4071 6.001	32.005		●
32.00-32.99	32.000	31.70	287.00	60.00	170.60	4071 6.001	32.000		●
33.00-33.99	31.750	32.70	294.00	60.00	175.80	4071 6.001	33.005		●
33.00-33.99	32.000	32.70	294.00	60.00	175.80	4071 6.001	33.000		●
34.00-34.99	31.750	33.70	300.00	60.00	181.00	4071 6.001	34.005		●
34.00-34.99	32.000	33.70	300.00	60.00	181.00	4071 6.001	34.000		●
35.00-35.99	31.750	34.70	307.00	60.00	186.20	4071 6.001	35.005		●
35.00-35.99	32.000	34.70	307.00	60.00	186.20	4071 6.001	35.000		●
36.00-36.99	31.750	35.70	314.00	60.00	191.30	4071 6.002	36.005		●
36.00-36.99	32.000	35.70	314.00	60.00	191.30	4071 6.002	36.000		●
37.00-37.99	31.750	36.70	321.00	60.00	196.50	4071 6.002	37.005		●
37.00-37.99	32.000	36.70	321.00	60.00	196.50	4071 6.002	37.000		●



Article no.								4108
Discount group								140
Cutting direction								(R)
d1	d2 h6	d3	L	l3	l5	F	Code no.	Availability
		mm	mm	mm	mm			
38.00-38.99	31.750	37.70	327.00	60.00	201.70	4071 6.002	38.005	●
38.00-38.99	32.000	37.70	327.00	60.00	201.70	4071 6.002	38.000	●
39.00-40.00	31.750	38.70	334.00	60.00	206.90	4071 6.002	39.005	●
39.00-40.00	32.000	38.70	334.00	60.00	206.90	4071 6.002	39.000	●



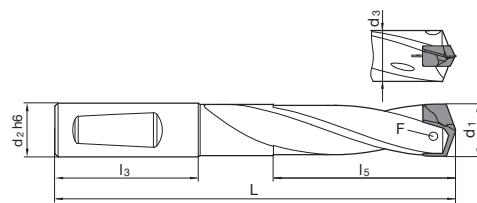
## Tool holders for interchangeable inserts HT 800



Surface  
Shank form

(Ni)  
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



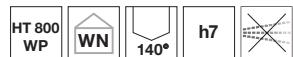
Article no.								4109
Discount group								140
Cutting direction								(R)
d1	d2 h6	d3	L	l3	l5	F	Code no.	Availability
	mm	mm	mm	mm	mm			
11.00-11.49	12.000	10.70	147.00	45.00	82.60	4071 2.200	11.000	●
11.00-11.49	12.700	10.70	147.00	45.00	82.60	4071 2.200	11.005	●
11.50-11.99	12.000	11.20	151.00	45.00	86.10	4071 2.200	11.500	●
11.50-11.99	12.700	11.20	151.00	45.00	86.10	4071 2.200	11.505	●
12.00-12.49	12.000	11.70	156.00	45.00	89.70	4071 2.201	12.000	●
12.00-12.49	12.700	11.70	156.00	45.00	89.70	4071 2.201	12.005	●
12.50-12.99	14.000	12.20	160.00	45.00	93.30	4071 2.201	12.500	●
12.50-12.99	15.875	12.20	160.00	45.00	93.30	4071 2.201	12.505	●
13.00-13.49	14.000	12.70	164.00	45.00	96.90	4071 2.500	13.000	●
13.00-13.49	15.875	12.70	164.00	45.00	96.90	4071 2.500	13.005	●
13.50-13.99	14.000	13.20	169.00	45.00	100.60	4071 2.500	13.500	●
13.50-13.99	15.875	13.20	169.00	45.00	100.60	4071 2.500	13.505	●
14.00-14.49	14.000	13.70	173.00	45.00	104.20	4071 3.000	14.000	●
14.00-14.49	15.875	13.70	173.00	45.00	104.20	4071 3.000	14.005	●
14.50-14.99	15.875	14.20	180.00	48.00	107.80	4071 3.000	14.505	●
14.50-14.99	16.000	14.20	180.00	48.00	107.80	4071 3.000	14.500	●
15.00-15.49	15.875	14.70	185.00	48.00	111.30	4071 3.001	15.005	●
15.00-15.49	16.000	14.70	185.00	48.00	111.30	4071 3.001	15.000	●
15.50-15.99	15.875	15.20	189.00	48.00	114.90	4071 3.001	15.505	●
15.50-15.99	16.000	15.20	189.00	48.00	114.90	4071 3.001	15.500	●
16.00-16.49	15.875	15.70	193.00	48.00	118.90	4071 3.500	16.005	●
16.00-16.49	16.000	15.70	193.00	48.00	118.90	4071 3.500	16.000	●
16.50-16.99	18.000	16.20	198.00	48.00	122.10	4071 3.500	16.500	●
16.50-16.99	19.050	16.20	198.00	48.00	122.10	4071 3.500	16.505	●
17.00-17.49	18.000	16.70	202.00	48.00	125.80	4071 3.500	17.000	●
17.00-17.49	19.050	16.70	202.00	48.00	125.80	4071 3.500	17.005	●
17.50-17.99	18.000	17.20	206.00	48.00	129.40	4071 3.500	17.500	●
17.50-17.99	19.050	17.20	206.00	48.00	129.40	4071 3.500	17.505	●
18.00-18.49	18.000	17.70	211.00	48.00	132.90	4071 4.000	18.000	●
18.00-18.49	19.050	17.70	211.00	48.00	132.90	4071 4.000	18.005	●
18.50-18.99	19.050	18.20	217.00	50.00	136.50	4071 4.000	18.505	●
18.50-18.99	20.000	18.20	217.00	50.00	136.50	4071 4.000	18.500	●
19.00-19.49	19.050	18.70	221.00	50.00	140.10	4071 4.000	19.005	●
19.00-19.49	20.000	18.70	221.00	50.00	140.10	4071 4.000	19.000	●
19.50-19.99	19.050	19.20	226.00	50.00	143.70	4071 4.000	19.505	●
19.50-19.99	20.000	19.20	226.00	50.00	143.70	4071 4.000	19.500	●



Article no.								4109	Drilling tools
Discount group								140	
Cutting direction								(R)	
d1	d2 h6	d3	L	l3	l5	F	Code no.	Availability	
	mm	mm	mm	mm	mm				
20.00-20.49	19.050	19.70	230.00	50.00	147.30	4071 4.500	20.005	●	
20.00-20.49	20.000	19.70	230.00	50.00	147.30	4071 4.500	20.000	●	
20.50-20.99	25.000	20.20	243.00	56.00	151.00	4071 4.500	20.500	●	
20.50-20.99	25.400	20.20	243.00	56.00	151.00	4071 4.500	20.505	●	
21.00-21.49	25.000	20.70	247.00	56.00	154.60	4071 4.500	21.000	●	
21.00-21.49	25.400	20.70	247.00	56.00	154.60	4071 4.500	21.005	●	
21.50-21.99	25.000	21.20	251.00	56.00	158.10	4071 4.500	21.500	●	
21.50-21.99	25.400	21.20	251.00	56.00	158.10	4071 4.500	21.505	●	
22.00-22.49	25.000	21.70	255.00	56.00	161.70	4071 5.000	22.000	●	
22.00-22.49	25.400	21.70	255.00	56.00	161.70	4071 5.000	22.005	●	
22.50-22.99	25.000	22.20	260.00	56.00	165.30	4071 5.000	22.500	●	
22.50-22.99	25.400	22.20	260.00	56.00	165.30	4071 5.000	22.505	●	
23.00-23.49	25.000	22.70	264.00	56.00	168.90	4071 5.000	23.000	●	
23.00-23.49	25.400	22.70	264.00	56.00	168.90	4071 5.000	23.005	●	
23.50-23.99	25.000	23.20	269.00	56.00	172.50	4071 5.000	23.500	●	
23.50-23.99	25.400	23.20	269.00	56.00	172.50	4071 5.000	23.505	●	
24.00-24.49	25.000	23.70	273.00	56.00	176.10	4071 5.001	24.000	●	
24.00-24.49	25.400	23.70	273.00	56.00	176.10	4071 5.001	24.005	●	
24.50-24.99	25.000	24.20	277.00	56.00	179.70	4071 5.001	24.500	●	
24.50-24.99	25.400	24.20	277.00	56.00	179.70	4071 5.001	24.505	●	
25.00-25.49	25.000	24.70	282.00	56.00	183.30	4071 5.001	25.000	●	
25.00-25.49	25.400	24.70	282.00	56.00	183.30	4071 5.001	25.005	●	
25.50-25.99	31.750	25.20	291.00	60.00	186.90	4071 5.001	25.505	●	
25.50-25.99	32.000	25.20	291.00	60.00	186.90	4071 5.001	25.500	●	
26.00-26.49	31.750	25.70	297.00	60.00	190.00	4071 5.003	26.005	●	
26.00-26.49	32.000	25.70	297.00	60.00	190.00	4071 5.003	26.000	●	
26.50-26.99	31.750	26.20	301.00	60.00	194.00	4071 5.003	26.505	●	
26.50-26.99	32.000	26.20	301.00	60.00	194.00	4071 5.003	26.500	●	
27.00-27.49	31.750	26.70	306.00	60.00	197.20	4071 5.003	27.005	●	
27.00-27.49	32.000	26.70	306.00	60.00	197.20	4071 5.003	27.000	●	
27.50-27.99	31.750	27.20	310.00	60.00	200.80	4071 5.003	27.505	●	
27.50-27.99	32.000	27.20	310.00	60.00	200.80	4071 5.003	27.500	●	
28.00-28.49	31.750	27.70	314.00	60.00	204.40	4071 5.003	28.005	●	
28.00-28.49	32.000	27.70	314.00	60.00	204.40	4071 5.003	28.000	●	
28.50-28.99	31.750	28.20	318.00	60.00	208.40	4071 5.003	28.505	●	
28.50-28.99	32.000	28.20	318.00	60.00	208.40	4071 5.003	28.500	●	
29.00-29.49	31.750	28.70	323.00	60.00	212.50	4071 5.003	29.005	●	
29.00-29.49	32.000	28.70	323.00	60.00	212.50	4071 5.003	29.000	●	
29.50-29.99	31.750	29.20	327.00	60.00	215.10	4071 5.003	29.505	●	
29.50-29.99	32.000	29.20	327.00	60.00	215.10	4071 5.003	29.500	●	
30.00-30.49	31.750	29.70	332.00	60.00	218.60	4071 6.000	30.005	●	
30.00-30.49	32.000	29.70	332.00	60.00	218.60	4071 6.000	30.000	●	
30.50-30.99	31.750	30.20	336.00	60.00	222.20	4071 6.000	30.505	●	
30.50-30.99	32.000	30.20	336.00	60.00	222.20	4071 6.000	30.500	●	
31.00-31.49	31.750	30.70	340.00	60.00	225.80	4071 6.000	31.005	●	
31.00-31.49	32.000	30.70	340.00	60.00	225.80	4071 6.000	31.000	●	
31.50-31.99	31.750	31.20	344.00	60.00	229.40	4071 6.000	31.505	●	
31.50-31.99	32.000	31.20	344.00	60.00	229.40	4071 6.000	31.500	●	
33.00-33.99	32.000	32.70	362.00	60.00	244.60	4071 6.001	33.000	●	
36.00-36.99	32.000	35.70	387.00	60.00	265.80	4071 6.002	36.000	●	
39.00-40.00	32.000	38.70	413.00	60.00	287.40	4071 6.002	39.000	●	



## Interchangeable inserts HT 800



Tool material

Solid carbide

Surface

R

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****S****H**

**M** ○ free-cutting steels, heat-treatable steels • structural and case hardened steels • alloyed steels up to 1200 N/mm<sup>2</sup>

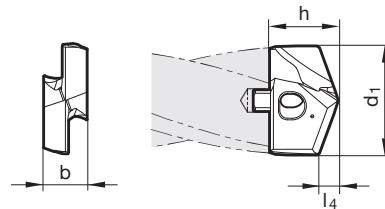
**K****N****S****H**

**N** ○ hardened steels • alloyed steels up to 1200 N/mm<sup>2</sup>

**S****H**

## GÜHRING NAVIGATOR

Cutting data page 144



Article no.

4112

Discount group

141

Cutting direction

R

d1		l4	b	h	Code no.	Availability
mm	inch	mm	mm	mm		
11.00		2.10	4.50	7.50	11.000	●
11.20		2.10	4.50	7.50	11.200	●
11.50		2.10	4.50	7.50	11.500	●
11.51	29/64	2.10	4.50	7.50	11.510	●
11.70		2.20	4.50	7.50	11.700	●
11.80		2.20	4.50	7.50	11.800	●
11.91	15/32	2.20	4.50	7.50	11.910	●
12.00		2.20	5.00	7.70	12.000	●
12.10		2.30	5.00	7.70	12.100	●
12.20		2.30	5.00	7.70	12.200	●
12.30	31/64	2.30	5.00	7.70	12.300	●
12.50		2.30	5.00	7.70	12.500	●
12.60		2.30	5.00	7.70	12.600	●
12.70	1/2	2.40	5.00	7.70	12.700	●
12.80		2.40	5.00	7.70	12.800	●
12.90		2.40	5.00	7.70	12.900	●
13.00		2.40	5.50	8.50	13.000	●
13.10	33/64	2.40	5.50	8.50	13.100	●
13.30		2.50	5.50	8.50	13.300	●
13.49	17/32	2.50	5.50	8.50	13.490	●
13.50		2.50	5.50	8.50	13.500	●
13.60		2.50	5.50	8.50	13.600	●
13.70		2.50	5.50	8.50	13.700	●
13.80		2.60	5.50	8.50	13.800	●
13.89	35/64	2.60	5.50	8.50	13.890	●
14.00		2.60	6.00	9.60	14.000	●
14.10		2.60	6.00	9.60	14.100	●
14.29	9/16	2.70	6.00	9.60	14.290	●
14.40		2.70	6.00	9.60	14.400	●
14.50		2.70	6.00	9.60	14.500	●
14.60		2.70	6.00	9.60	14.600	●
14.68	37/64	2.70	6.00	9.60	14.680	●
14.70		2.70	6.00	9.60	14.700	●
14.80		2.70	6.00	9.60	14.800	●
15.00		2.80	6.00	9.80	15.000	●
15.08	19/32	2.80	6.00	9.80	15.080	●



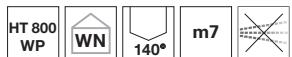
Article no.						4112	Drilling tools
Discount group						141	
Cutting direction						(R)	
d1		l4	b	h	Code no.	Availability	
mm	inch	mm	mm	mm			
15.10		2.80	6.00	9.80	15.100	●	
15.20		2.80	6.00	9.80	15.200	●	
15.30		2.80	6.00	9.80	15.300	●	
15.48	39/64	2.90	6.00	9.80	15.480	●	
15.50		2.90	6.00	9.80	15.500	●	
15.60		2.90	6.00	9.80	15.600	●	
15.70		2.90	6.00	9.80	15.700	●	
15.80		2.90	6.00	9.80	15.800	●	
15.87	5/8	2.90	6.00	9.80	15.870	●	
16.00		3.00	7.00	11.00	16.000	●	
16.27	41/64	3.00	7.00	11.00	16.270	●	
16.50		3.10	7.00	11.00	16.500	●	
16.67	21/32	3.10	7.00	11.00	16.670	●	
17.00		3.10	7.00	11.00	17.000	●	
17.07	43/64	3.20	7.00	11.00	17.070	●	
17.25		3.20	7.00	11.00	17.250	●	
17.30		3.20	7.00	11.00	17.300	●	
17.46	11/16	3.20	7.00	11.00	17.460	●	
17.50		3.20	7.00	11.00	17.500	●	
17.60		3.30	7.00	11.00	17.600	●	
17.86	45/64	3.30	7.00	11.00	17.860	●	
18.00		3.30	8.00	12.60	18.000	●	
18.26	23/32	3.40	8.00	12.60	18.260	●	
18.50		3.40	8.00	12.60	18.500	●	
18.65	47/64	3.40	8.00	12.60	18.650	●	
18.90		3.50	8.00	12.60	18.900	●	
19.00		3.50	8.00	12.60	19.000	●	
19.05	3/4	3.50	8.00	12.60	19.050	●	
19.25		3.60	8.00	12.60	19.250	●	
19.30		3.60	8.00	12.60	19.300	●	
19.45	49/64	3.60	8.00	12.60	19.450	●	
19.50		3.60	8.00	12.60	19.500	●	
19.60		3.60	8.00	12.60	19.600	●	
19.84	25/32	3.70	8.00	12.60	19.840	●	
20.00		3.70	9.00	13.90	20.000	●	
20.24	51/64	3.70	9.00	13.90	20.240	●	
20.50		3.80	9.00	13.90	20.500	●	
20.64	13/16	3.80	9.00	13.90	20.640	●	
20.90		3.90	9.00	13.90	20.900	●	
21.00		3.90	9.00	13.90	21.000	●	
21.03	53/64	3.90	9.00	13.90	21.030	●	
21.10		3.90	9.00	13.90	21.100	●	
21.43	27/32	3.90	9.00	13.90	21.430	●	
21.50		4.00	9.00	13.90	21.500	●	
21.70		4.00	9.00	13.90	21.700	●	
21.83	55/64	4.00	9.00	13.90	21.830	●	
22.00		4.10	10.00	15.30	22.000	●	
22.22	7/8	4.10	10.00	15.30	22.220	●	
22.50		4.10	10.00	15.30	22.500	●	
22.62	57/64	4.20	10.00	15.30	22.620	●	
22.70		4.20	10.00	15.30	22.700	●	
23.00		4.20	10.00	15.30	23.000	●	
23.02	29/32	4.20	10.00	15.30	23.020	●	
23.42	59/64	4.30	10.00	15.30	23.420	●	
23.50		4.30	10.00	15.30	23.500	●	
23.70		4.40	10.00	15.30	23.700	●	
23.81	15/16	4.40	10.00	15.30	23.810	●	
24.00		4.40	11.00	15.80	24.000	●	
24.10		4.40	11.00	15.80	24.100	●	
24.21	61/64	4.50	11.00	15.80	24.210	●	



Article no.						4112
Discount group						141
Cutting direction						(R)
d1		l4	b	h	Code no.	Availability
mm	inch	mm	mm	mm		
24.50		4.50	11.00	15.80	24.500	●
24.61	31/32	4.50	11.00	15.80	24.610	●
25.00	63/64	4.60	11.00	15.80	25.000	●
25.25		4.60	11.00	15.80	25.250	●
25.40	1	4.70	11.00	15.80	25.400	●
25.50		4.70	11.00	15.80	25.500	●
25.65		4.70	11.00	15.80	25.650	●
25.67		4.70	11.00	15.80	25.670	●
25.70		4.70	11.00	15.80	25.700	●
25.81		4.70	11.00	15.80	25.810	●
26.00		4.80	12.00	20.00	26.000	●
26.19	1 1/32	4.80	12.00	20.00	26.190	●
26.50		4.90	12.00	20.00	26.500	●
26.59	1 3/64	4.90	12.00	20.00	26.590	●
27.00		5.00	12.00	20.00	27.000	●
27.50		5.10	12.00	20.00	27.500	●
27.70		5.10	12.00	20.00	27.700	●
27.78	1 3/32	5.10	12.00	20.00	27.780	●
28.00		5.10	13.00	20.70	28.000	●
28.18	1 7/64	5.20	13.00	20.70	28.180	●
28.50		5.20	13.00	20.70	28.500	●
28.58		5.30	13.00	20.70	28.580	●
29.00		5.30	13.00	20.70	29.000	●
29.37	1 5/32	5.40	13.00	20.70	29.370	●
29.50		5.40	13.00	20.70	29.500	●
29.60		5.40	13.00	20.70	29.600	●
29.77	1 11/64	5.50	13.00	20.70	29.770	●
30.00		5.50	14.00	22.30	30.000	●
30.16	1 3/16	5.50	14.00	22.30	30.160	●
30.50		5.60	14.00	22.30	30.500	●
30.96	1 7/32	5.70	14.00	22.30	30.960	●
31.00		5.70	14.00	22.30	31.000	●
31.50		5.80	14.00	22.30	31.500	●
31.75	1 1/4	5.80	14.00	22.30	31.750	●
32.00		5.90	15.00	23.10	32.000	●
32.50		6.00	15.00	23.10	32.500	●
32.54	1 9/32	6.00	15.00	23.10	32.540	●
32.94	1 19/64	6.00	15.00	23.10	32.940	●
33.00		6.10	15.00	23.10	33.000	●
33.34	1 5/16	6.10	15.00	23.10	33.340	●
33.50		6.10	15.00	23.10	33.500	●
34.00		6.20	15.00	23.10	34.000	●
34.13	1 11/32	6.30	15.00	23.10	34.130	●
34.50		6.30	15.00	23.10	34.500	●
34.93		6.40	15.00	23.10	34.930	●
35.00		6.40	15.00	23.10	35.000	●
35.50		6.50	15.00	23.10	35.500	●
35.72	1 13/32	6.60	15.00	23.10	35.720	●
36.00		6.60	16.00	23.90	36.000	●
36.50		6.70	16.00	23.90	36.500	●
36.51	1 7/16	6.70	16.00	23.90	36.510	●
37.00		6.80	16.00	23.90	37.000	●
37.31	1 15/32	6.80	16.00	23.90	37.310	●
37.50		6.90	16.00	23.90	37.500	●
38.00		7.00	16.00	23.90	38.000	●
38.10	1 1/2	7.00	16.00	23.90	38.100	●
38.50	1 33/64	7.10	16.00	23.90	38.500	●
39.00		7.10	16.00	23.90	39.000	●
39.50		7.20	16.00	23.90	39.500	●
40.00		7.30	16.00	23.90	40.000	●



## Interchangeable inserts HT 800



Tool material  
Surface  
Type

Solid carbide  
Y  
HT 800 WP

P o 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 GGV • grey cast iron, malleable and spheroidal iron

S

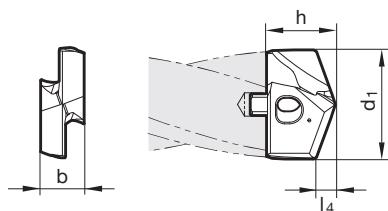
H

Drilling tools



## GÜHRING NAVIGATOR

Cutting data page 144



Article no. 4113					
Discount group 141					
Cutting direction (R)					
d1		l4	b	h	Code no.
mm	inch	mm	mm	mm	
11.00		2.60	4.50	7.50	11.000
11.20		2.60	4.50	7.50	11.200
11.50		2.70	4.50	7.50	11.500
11.51	29/64	2.70	4.50	7.50	11.510
11.70		2.70	4.50	7.50	11.700
11.80		2.70	4.50	7.50	11.800
11.91	15/32	2.70	4.50	7.50	11.910
12.00		2.90	5.00	7.70	12.000
12.10		2.90	5.00	7.70	12.100
12.20		2.90	5.00	7.70	12.200
12.30	31/64	2.90	5.00	7.70	12.300
12.50		3.00	5.00	7.70	12.500
12.60		3.00	5.00	7.70	12.600
12.70	1/2	3.00	5.00	7.70	12.700
12.80		3.00	5.00	7.70	12.800
12.90		3.00	5.00	7.70	12.900
13.00		3.10	5.50	8.50	13.000
13.10	33/64	3.10	5.50	8.50	13.100
13.30		3.10	5.50	8.50	13.300
13.49	17/32	3.10	5.50	8.50	13.490
13.50		3.30	5.50	8.50	13.500
13.60		3.30	5.50	8.50	13.600
13.70		3.30	5.50	8.50	13.700
13.80		3.30	5.50	8.50	13.800
13.89	35/64	3.30	5.50	8.50	13.890
14.00		3.40	6.00	9.60	14.000
14.10		3.40	6.00	9.60	14.100
14.29	9/16	3.40	6.00	9.60	14.290
14.40		3.40	6.00	9.60	14.400
14.50		3.50	6.00	9.60	14.500
14.60		3.50	6.00	9.60	14.600
14.68	37/64	3.50	6.00	9.60	14.680
14.70		3.50	6.00	9.60	14.700
14.80		3.50	6.00	9.60	14.800
15.00		3.60	6.00	9.80	15.000
15.08	19/32	3.60	6.00	9.80	15.080



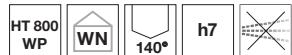
Article no.						4113
Discount group						141
Cutting direction						(R)
d1		l4	b	h	Code no.	Availability
mm	inch	mm	mm	mm		
15.10		3.60	6.00	9.80	15.100	●
15.20		3.60	6.00	9.80	15.200	●
15.30		3.60	6.00	9.80	15.300	●
15.48	39/64	3.60	6.00	9.80	15.480	●
15.50		3.80	6.00	9.80	15.500	●
15.60		3.80	6.00	9.80	15.600	●
15.70		3.80	6.00	9.80	15.700	●
15.80		3.80	6.00	9.80	15.800	●
15.87	5/8	3.80	6.00	9.80	15.870	●
16.00		3.80	7.00	11.00	16.000	●
16.27	41/64	3.80	7.00	11.00	16.270	●
16.50		4.00	7.00	11.00	16.500	●
16.67	21/32	4.00	7.00	11.00	16.670	●
17.00		4.10	7.00	11.00	17.000	●
17.07	43/64	4.10	7.00	11.00	17.070	●
17.30		4.10	7.00	11.00	17.300	●
17.46	11/16	4.10	7.00	11.00	17.460	●
17.50		4.20	7.00	11.00	17.500	●
17.60		4.20	7.00	11.00	17.600	●
17.86	45/64	4.20	7.00	11.00	17.860	●
18.00		4.30	8.00	12.60	18.000	●
18.26	23/32	4.30	8.00	12.60	18.260	●
18.50		4.40	8.00	12.60	18.500	●
18.65	47/64	4.40	8.00	12.60	18.650	●
18.90		4.40	8.00	12.60	18.900	●
19.00		4.60	8.00	12.60	19.000	●
19.05	3/4	4.60	8.00	12.60	19.050	●
19.25		4.60	8.00	12.60	19.250	●
19.30		4.60	8.00	12.60	19.300	●
19.45	49/64	4.60	8.00	12.60	19.450	●
19.50		4.70	8.00	12.60	19.500	●
19.60		4.70	8.00	12.60	19.600	●
19.84	25/32	4.70	8.00	12.60	19.840	●
20.00		4.80	9.00	13.90	20.000	●
20.24	51/64	4.80	9.00	13.90	20.240	●
20.50		5.00	9.00	13.90	20.500	●
20.64	13/16	5.00	9.00	13.90	20.640	●
20.90		5.00	9.00	13.90	20.900	●
21.00		5.10	9.00	13.90	21.000	●
21.03	53/64	5.10	9.00	13.90	21.030	●
21.10		5.10	9.00	13.90	21.100	●
21.43	27/32	5.10	9.00	13.90	21.430	●
21.50		5.20	9.00	13.90	21.500	●
21.70		5.20	9.00	13.90	21.700	●
21.83	55/64	5.20	9.00	13.90	21.830	●
22.00		5.30	10.00	15.30	22.000	●
22.22	7/8	5.30	10.00	15.30	22.220	●
22.50		5.40	10.00	15.30	22.500	●
22.62	57/64	5.40	10.00	15.30	22.620	●
22.70		5.40	10.00	15.30	22.700	●
23.00		5.60	10.00	15.30	23.000	●
23.02	29/32	5.60	10.00	15.30	23.020	●
23.42	59/64	5.60	10.00	15.30	23.420	●
23.50		5.70	10.00	15.30	23.500	●
23.70		5.70	10.00	15.30	23.700	●
23.81	15/16	5.70	10.00	15.30	23.810	●
24.00		5.80	11.00	15.80	24.000	●
24.10		5.80	11.00	15.80	24.100	●
24.21	61/64	5.80	11.00	15.80	24.210	●
24.50		6.00	11.00	15.80	24.500	●



Article no.						4113	Drilling tools
Discount group						141	
Cutting direction						(R)	
d1		l4	b	h	Code no.	Availability	
mm	inch	mm	mm	mm			
24.61	31/32	6.00	11.00	15.80	24.610	●	
25.00	63/64	6.10	11.00	15.80	25.000	●	
25.40	1	6.10	11.00	15.80	25.400	●	
25.50		6.20	11.00	15.80	25.500	●	
25.67		6.20	11.00	15.80	25.670	●	
25.70		6.20	11.00	15.80	25.700	●	
25.81		6.20	11.00	15.80	25.810	●	
26.00		6.00	12.00	20.00	26.000	●	
26.19	1 1/32	6.00	12.00	20.00	26.190	●	
26.50		6.10	12.00	20.00	26.500	●	
26.59	1 3/64	6.10	12.00	20.00	26.590	●	
27.00		6.30	12.00	20.00	27.000	●	
27.50		6.40	12.00	20.00	27.500	●	
27.70		6.40	12.00	20.00	27.700	●	
27.78	1 3/32	6.40	12.00	20.00	27.780	●	
28.00		6.60	13.00	20.70	28.000	●	
28.18	1 7/64	6.60	13.00	20.70	28.180	●	
28.50		6.70	13.00	20.70	28.500	●	
28.58		6.70	13.00	20.70	28.580	●	
29.00		6.90	13.00	20.70	29.000	●	
29.37	1 5/32	6.90	13.00	20.70	29.370	●	
29.50		7.00	13.00	20.70	29.500	●	
29.77	1 11/64	7.00	13.00	20.70	29.770	●	
30.00		6.90	14.00	22.30	30.000	●	
30.16	1 3/16	6.90	14.00	22.30	30.160	●	
30.50		7.00	14.00	22.30	30.500	●	
30.96	1 7/32	7.00	14.00	22.30	30.960	●	
31.00		7.20	14.00	22.30	31.000	●	
31.50		7.30	14.00	22.30	31.500	●	
31.75	1 1/4	7.30	14.00	22.30	31.750	●	
32.00		7.50	15.00	23.10	32.000	●	
32.50		7.60	15.00	23.10	32.500	●	
32.54	1 9/32	7.60	15.00	23.10	32.540	●	
32.94	1 19/64	7.60	15.00	23.10	32.940	●	
33.00		7.80	15.00	23.10	33.000	●	
33.34	1 5/16	7.80	15.00	23.10	33.340	●	
33.50		7.90	15.00	23.10	33.500	●	
34.00		8.10	15.00	23.10	34.000	●	
34.13	1 11/32	8.10	15.00	23.10	34.130	●	
34.50		8.20	15.00	23.10	34.500	●	
34.93		8.20	15.00	23.10	34.930	●	
35.00		8.30	15.00	23.10	35.000	●	
35.50		8.40	15.00	23.10	35.500	●	
35.72	1 13/32	8.40	15.00	23.10	35.720	●	
36.00		8.50	16.00	23.90	36.000	●	
36.50		8.60	16.00	23.90	36.500	●	
36.51	1 7/16	8.60	16.00	23.90	36.510	●	
37.00		8.80	16.00	23.90	37.000	●	
37.31	1 15/32	8.80	16.00	23.90	37.310	●	
37.50		8.90	16.00	23.90	37.500	●	
38.00		9.00	16.00	23.90	38.000	●	
38.10	1 1/2	9.00	16.00	23.90	38.100	●	
38.50	1 33/64	9.10	16.00	23.90	38.500	●	
39.00		9.30	16.00	23.90	39.000	●	
39.50		9.40	16.00	23.90	39.500	●	
40.00		9.40	16.00	23.90	40.000	●	



## Interchangeable inserts HT 800



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

M •

K

N

S o

H o

stainless steels

Tool material

**Solid carbide**

Surface

HT 800 WP

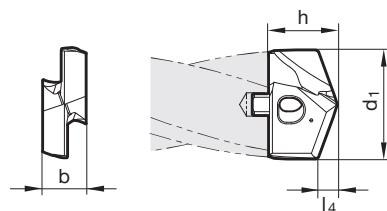
Type

a



## GÜHRING NAVIGATOR

Cutting data page 144



Article no.

**4115**

Discount group

**141**

Cutting direction

(R)

d1		l4	b	h	Code no.	Availability
mm	inch	mm	mm	mm		
11.00		2.10	4.50	7.50	11.000	●
11.20		2.10	4.50	7.50	11.200	●
11.50		2.10	4.50	7.50	11.500	●
11.51	29/64	2.10	4.50	7.50	11.510	●
11.70		2.20	4.50	7.50	11.700	●
11.80		2.20	4.50	7.50	11.800	●
11.91	15/32	2.20	4.50	7.50	11.910	●
12.00		2.20	5.00	7.70	12.000	●
12.10		2.30	5.00	7.70	12.100	●
12.20		2.30	5.00	7.70	12.200	●
12.30	31/64	2.30	5.00	7.70	12.300	●
12.50		2.30	5.00	7.70	12.500	●
12.60		2.30	5.00	7.70	12.600	●
12.70	1/2	2.40	5.00	7.70	12.700	●
12.80		2.40	5.00	7.70	12.800	●
12.90		2.40	5.00	7.70	12.900	●
13.00		2.40	5.50	8.50	13.000	●
13.10	33/64	2.40	5.50	8.50	13.100	●
13.49	17/32	2.50	5.50	8.50	13.490	●
13.50		2.50	5.50	8.50	13.500	●
13.60		2.50	5.50	8.50	13.600	●
13.70		2.50	5.50	8.50	13.700	●
13.80		2.60	5.50	8.50	13.800	●
13.89	35/64	2.60	5.50	8.50	13.890	●
14.00		2.60	6.00	9.60	14.000	●
14.10		2.60	6.00	9.60	14.100	●
14.29	9/16	2.70	6.00	9.60	14.290	●
14.40		2.70	6.00	9.60	14.400	●
14.50		2.70	6.00	9.60	14.500	●
14.60		2.70	6.00	9.60	14.600	●
14.68	37/64	2.70	6.00	9.60	14.680	●
14.70		2.70	6.00	9.60	14.700	●
14.80		2.70	6.00	9.60	14.800	●
15.00		2.80	6.00	9.80	15.000	●
15.08	19/32	2.80	6.00	9.80	15.080	●
15.10		2.80	6.00	9.80	15.100	●



Article no.						4115	Drilling tools
Discount group						141	
Cutting direction						(R)	
d1		l4	b	h	Code no.	Availability	
mm	inch	mm	mm	mm			
15.20		2.80	6.00	9.80	15.200	●	
15.30		2.80	6.00	9.80	15.300	●	
15.48	39/64	2.90	6.00	9.80	15.480	●	
15.50		2.90	6.00	9.80	15.500	●	
15.60		2.90	6.00	9.80	15.600	●	
15.70		2.90	6.00	9.80	15.700	●	
15.80		2.90	6.00	9.80	15.800	●	
15.87	5/8	2.90	6.00	9.80	15.870	●	
16.00		3.00	7.00	11.00	16.000	●	
16.27	41/64	3.00	7.00	11.00	16.270	●	
16.50		3.10	7.00	11.00	16.500	●	
16.67	21/32	3.10	7.00	11.00	16.670	●	
17.00		3.10	7.00	11.00	17.000	●	
17.07	43/64	3.20	7.00	11.00	17.070	●	
17.25		3.20	7.00	11.00	17.250	●	
17.46	11/16	3.20	7.00	11.00	17.460	●	
17.50		3.20	7.00	11.00	17.500	●	
17.60		3.30	7.00	11.00	17.600	●	
17.86	45/64	3.30	7.00	11.00	17.860	●	
18.00		3.30	8.00	12.60	18.000	●	
18.26	23/32	3.40	8.00	12.60	18.260	●	
18.50		3.40	8.00	12.60	18.500	●	
18.65	47/64	3.40	8.00	12.60	18.650	●	
19.00		3.50	8.00	12.60	19.000	●	
19.05	3/4	3.50	8.00	12.60	19.050	●	
19.25		3.60	8.00	12.60	19.250	●	
19.45	49/64	3.60	8.00	12.60	19.450	●	
19.50		3.60	8.00	12.60	19.500	●	
19.60		3.60	8.00	12.60	19.600	●	
19.84	25/32	3.70	8.00	12.60	19.840	●	
20.00		3.70	9.00	13.90	20.000	●	
20.24	51/64	3.70	9.00	13.90	20.240	●	
20.50		3.80	9.00	13.90	20.500	●	
20.64	13/16	3.80	9.00	13.90	20.640	●	
21.00		3.90	9.00	13.90	21.000	●	
21.03	53/64	3.90	9.00	13.90	21.030	●	
21.10		3.90	9.00	13.90	21.100	●	
21.43	27/32	3.90	9.00	13.90	21.430	●	
21.50		4.00	9.00	13.90	21.500	●	
21.83	55/64	4.00	9.00	13.90	21.830	●	
22.00		4.10	10.00	15.30	22.000	●	
22.22	7/8	4.10	10.00	15.30	22.220	●	
22.50		4.10	10.00	15.30	22.500	●	
22.62	57/64	4.20	10.00	15.30	22.620	●	
23.00		4.20	10.00	15.30	23.000	●	
23.02	29/32	4.20	10.00	15.30	23.020	●	
23.42	59/64	4.30	10.00	15.30	23.420	●	
23.50		4.30	10.00	15.30	23.500	●	
23.81	15/16	4.40	10.00	15.30	23.810	●	
24.00		4.40	11.00	15.80	24.000	●	
24.10		4.40	11.00	15.80	24.100	●	
24.21	61/64	4.50	11.00	15.80	24.210	●	
24.50		4.50	11.00	15.80	24.500	●	
24.61	31/32	4.50	11.00	15.80	24.610	●	
25.00	63/64	4.60	11.00	15.80	25.000	●	
25.25		4.60	11.00	15.80	25.250	●	
25.40	1	4.70	11.00	15.80	25.400	●	
25.50		4.70	11.00	15.80	25.500	●	
25.65		4.70	11.00	15.80	25.650	●	
25.70		4.70	11.00	15.80	25.700	●	



Article no.						4115
Discount group						141
Cutting direction						(R)
d1		l4	b	h	Code no.	Availability
mm	inch	mm	mm	mm		
26.00		4.80	12.00	20.00	26.000	●
26.19	1 1/32	4.80	12.00	20.00	26.190	●
26.50		4.90	12.00	20.00	26.500	●
26.59	1 3/64	4.90	12.00	20.00	26.590	●
27.00		5.00	12.00	20.00	27.000	●
27.50		5.10	12.00	20.00	27.500	●
27.70		5.10	12.00	20.00	27.700	●
27.78	1 3/32	5.10	12.00	20.00	27.780	●
28.00		5.10	13.00	20.70	28.000	●
28.18	1 7/64	5.20	13.00	20.70	28.180	●
28.50		5.20	13.00	20.70	28.500	●
28.58		5.30	13.00	20.70	28.580	●
29.00		5.30	13.00	20.70	29.000	●
29.37	1 5/32	5.40	13.00	20.70	29.370	●
29.50		5.40	13.00	20.70	29.500	●
29.60		5.40	13.00	20.70	29.600	●
29.77	1 11/64	5.50	13.00	20.70	29.770	●
30.00		5.50	14.00	22.30	30.000	●
30.16	1 3/16	5.50	14.00	22.30	30.160	●
30.50		5.60	14.00	22.30	30.500	●
30.96	1 7/32	5.70	14.00	22.30	30.960	●
31.00		5.70	14.00	22.30	31.000	●
31.50		5.80	14.00	22.30	31.500	●
31.75	1 1/4	5.80	14.00	22.30	31.750	●
32.00		5.90	15.00	23.10	32.000	●
32.50		6.00	15.00	23.10	32.500	●
32.54	1 9/32	6.00	15.00	23.10	32.540	●
32.94	1 19/64	6.00	15.00	23.10	32.940	●
33.00		6.10	15.00	23.10	33.000	●
33.34	1 5/16	6.10	15.00	23.10	33.340	●
33.50		6.10	15.00	23.10	33.500	●
34.00		6.20	15.00	23.10	34.000	●
34.13	1 11/32	6.30	15.00	23.10	34.130	●
34.50		6.30	15.00	23.10	34.500	●
34.93		6.40	15.00	23.10	34.930	●
35.00		6.40	15.00	23.10	35.000	●
35.50		6.50	15.00	23.10	35.500	●
35.72	1 13/32	6.60	15.00	23.10	35.720	●
36.00		6.60	16.00	23.90	36.000	●
36.50		6.70	16.00	23.90	36.500	●
36.51	1 7/16	6.70	16.00	23.90	36.510	●
37.00		6.80	16.00	23.90	37.000	●
37.31	1 15/32	6.80	16.00	23.90	37.310	●
37.50		6.90	16.00	23.90	37.500	●
38.00		7.00	16.00	23.90	38.000	●
38.10	1 1/2	7.00	16.00	23.90	38.100	●
38.50	1 33/64	7.10	16.00	23.90	38.500	●
39.00		7.10	16.00	23.90	39.000	●
39.50		7.20	16.00	23.90	39.500	●
40.00		7.30	16.00	23.90	40.000	●



## Solid carbide micro-precision drills without coolant ducts



Tool material

Solid carbide

Surface



Shank form

cyl.

P • web thinning  $\geq \varnothing 0.800$  • facet point grind

M ○

K •

N ○

structural and case hardened steels • free-cutting steels,  
heat-treatable steels • alloyed steels up to 1200 N/mm<sup>2</sup>  
• cast materials

S ○

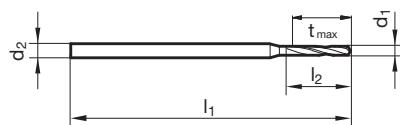
H ○

Drilling tools

**GÜHRING NAVIGATOR**

Cutting data page 146

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



Article no.

5652

Discount group

155

Cutting direction



d1 mm	d2 h6 mm	l1 mm	l2 mm	Availability
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****S****H**

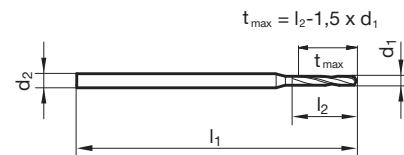
**M** • structural and case hardened steels • free-cutting steels,

heat-treatable steels • alloyed steels up to 1200 N/mm<sup>2</sup>

**N** ○ stainless steels • cast materials

## GÜHRING NAVIGATOR

Cutting data page 146



Article no.

6400

Discount group

164

Cutting direction



d1 mm	d2 mm	l1 mm	l2 mm	Availability
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	(R)	
d1	d2	I1	I2		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****S****H**

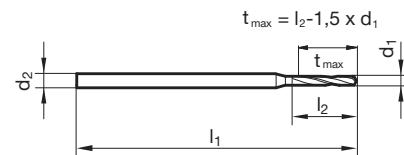
**M** • structural and case hardened steels • free-cutting steels,

heat-treatable steels • alloyed steels up to 1200 N/mm<sup>2</sup>

**S** • stainless steels • cast materials

**GÜHRING NAVIGATOR**

Cutting data page 146



Article no.

6401

Discount group

164

Cutting direction



d1 mm	d2 mm	l1 mm	l2 mm	Availability
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	(R)	
d1	d2	I1	I2		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****S****H**

**M** • structural and case hardened steels • free-cutting steels, heat-treatable steels • alloyed steels up to 1200 N/mm<sup>2</sup>

**K** • stainless steels • cast materials

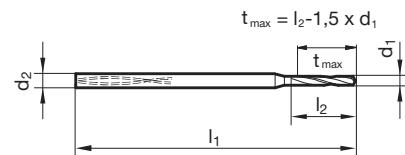
**N** ○ structural and case hardened steels • free-cutting steels, heat-treatable steels • alloyed steels up to 1200 N/mm<sup>2</sup>

**S** ○ stainless steels • cast materials

**H**

## GÜHRING NAVIGATOR

Cutting data page 146



				Article no.	6405
				Discount group	164
				Cutting direction	<input checked="" type="checkbox"/> (R)
d1	d2	l1	l2	Availability	
mm	mm	mm	mm		
1.000	3.000	48.000	8.000	●	
1.020	3.000	48.000	8.500	●	
1.050	3.000	48.000	8.500	●	
1.100	3.000	48.000	9.000	●	
1.150	3.000	48.000	9.500	●	
1.180	3.000	48.000	9.500	●	
1.190	3.000	48.000	10.000	●	
1.200	3.000	48.000	10.000	●	
1.250	3.000	48.000	10.000	●	
1.280	3.000	48.000	10.500	●	
1.300	3.000	48.000	10.500	●	
1.350	3.000	48.000	11.000	●	
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	●	



				Article no.	6405	
				Discount group	164	
				Cutting direction	(R)	
d1	d2	I1	I2		Availability	
mm	mm	mm	mm			
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		●	
3.000	4.000	66.000	24.000		●	



## 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

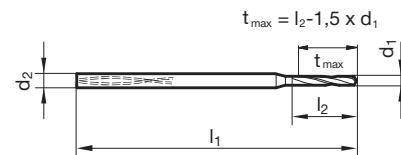
**M****K****N****S****H**

structural and case hardened steels • free-cutting steels, heat-treatable steels • alloyed steels up to 1200 N/mm<sup>2</sup>

• 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	
1.000	3.000	56.000	11.000	●
1.020	3.000	56.000	11.500	●
1.050	3.000	56.000	12.000	●
1.100	3.000	56.000	12.500	●
1.150	3.000	56.000	13.000	●
1.180	3.000	56.000	13.000	●
1.190	3.000	56.000	13.500	●
1.200	3.000	56.000	13.500	●
1.250	3.000	56.000	14.000	●
1.280	3.000	56.000	14.500	●
1.300	3.000	56.000	14.500	●
1.350	3.000	56.000	15.000	●
1.400	4.000	62.000	15.000	●
1.450	4.000	62.000	16.000	●
1.500	4.000	62.000	17.000	●
1.550	4.000	62.000	17.000	●
1.590	4.000	62.000	18.000	●
1.600	4.000	62.000	18.000	●
1.650	4.000	62.000	18.000	●
1.700	4.000	70.000	19.000	●
1.750	4.000	70.000	19.000	●
1.800	4.000	70.000	20.000	●
1.850	4.000	70.000	20.000	●
1.900	4.000	70.000	21.000	●
1.950	4.000	70.000	21.000	●
1.980	4.000	70.000	22.000	●
2.000	4.000	70.000	22.000	●
2.050	4.000	70.000	23.000	●
2.100	4.000	78.000	23.000	●
2.150	4.000	78.000	24.000	●
2.200	4.000	78.000	24.000	●
2.250	4.000	78.000	25.000	●
2.300	4.000	78.000	25.000	●
2.320	4.000	78.000	26.000	●
2.350	4.000	78.000	26.000	●
2.380	4.000	78.000	26.000	●



				Article no.	6408	
				Discount group	164	
				Cutting direction	(R)	
d1	d2	I1	I2		Availability	
mm	mm	mm	mm			
2.400	4.000	78.000	26.000		●	
2.450	4.000	78.000	27.000		●	
2.500	4.000	78.000	28.000		●	
2.550	4.000	78.000	28.000		●	
2.600	4.000	87.000	29.000		●	
2.650	4.000	87.000	29.000		●	
2.700	4.000	87.000	30.000		●	
2.750	4.000	66.000	30.000		●	
2.780	4.000	87.000	31.000		●	
2.800	4.000	87.000	31.000		●	
2.850	4.000	87.000	31.000		●	
2.900	4.000	87.000	32.000		●	
2.950	4.000	87.000	32.000		●	
3.000	4.000	87.000	33.000		●	



## 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****S****H**

**M** • structural and case hardened steels • free-cutting steels, heat-treatable steels • alloyed steels up to 1200 N/mm<sup>2</sup>

**K** • stainless steels • cast materials

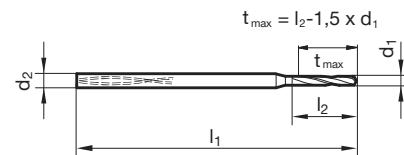
**N** ○ structural and case hardened steels • free-cutting steels, heat-treatable steels • alloyed steels up to 1200 N/mm<sup>2</sup>

**S** ○ stainless steels • cast materials

**H**

## GÜHRING NAVIGATOR

Cutting data page 146



				Article no.	6412
				Discount group	164
				Cutting direction	<input checked="" type="checkbox"/> (R)
d1	d2	l1	l2	Availability	
mm	mm	mm	mm		
1.000	3.000	56.000	18.000	●	
1.020	3.000	56.000	18.500	●	
1.050	3.000	56.000	19.000	●	
1.100	3.000	56.000	20.000	●	
1.150	3.000	56.000	21.000	●	
1.180	3.000	56.000	21.500	●	
1.190	3.000	56.000	21.500	●	
1.200	3.000	56.000	22.000	●	
1.250	3.000	56.000	22.500	●	
1.280	3.000	56.000	23.500	●	
1.300	3.000	56.000	23.500	●	
1.350	3.000	56.000	24.500	●	
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



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

**M****K** •**N** •**S****H**

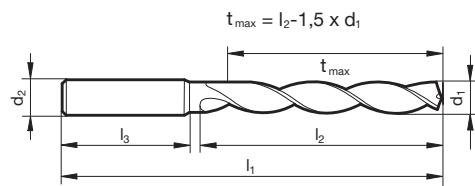
cast iron • long chipping Al alloys • brass, bronzes



Drilling tools

**GÜHRING NAVIGATOR**

Cutting data page 140



Article no.

**5518**

Discount group

**155**

Cutting direction

**(R)**

d1	d2 h6	l1	l2	l3	Availability
mm	inch	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	36.00
8.200	10.00	103.00	61.00	40.00	36.00
8.400	10.00	103.00	61.00	40.00	36.00
8.500	10.00	103.00	61.00	40.00	36.00



						Article no.	5518
						Discount group	155
						Cutting direction	(R)
d1		d2 h6	I1	I2	I3		
mm	inch	mm	mm	mm	mm		Availability
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



Tool material

HSS-E-PM

Surface



HA

Shank form



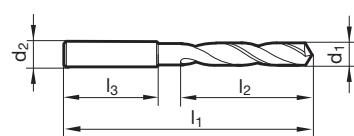
- P** • web thinning  $\geq \varnothing 1.000$  • high-performance twist drills  
**M** • powder metallurgic steel • 4-facet point grind • low feed force required • low torque required • for universal application

**K****N****S****H**

Drilling tools

## GÜHRING 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	I1	I2	I3		
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	(R)	
d1	d2 h6	I1	I2	I3			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			●



d1	d2 h6	l1	l2	l3	Article no.	6005
mm	mm	mm	mm	mm	Discount group	159
					Cutting direction	(R)
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		●
					Availability	



## Twist drills with reinforced straight shank



Tool material

HSS-E-PM

Surface



Shank form

HA



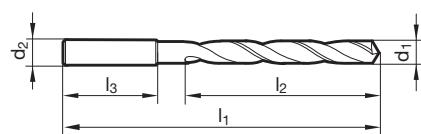
- P** • web thinning  $\geq \varnothing 1.000$  • high-performance twist drills  
**M** • powder metallurgic steel • 4-facet point grind • low feed force required • low torque required • for universal application



Drilling tools

**GÜHRING NAVIGATOR**

Cutting data page 150



					Article no.	6006
					Discount group	159
					Cutting direction	(R)

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	(R)
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	(R)	
d1	d2 h6	I1	I2	I3		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		●	



					Article no.	6006
					Discount group	159
					Cutting direction	
d1	d2 h6	l1	l2	l3		
mm	mm	mm	mm	mm	Availability	
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



Tool material  
Surface  
Shank form

**Solid carbide**  
cyl.  
**SL**

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

**M** ○

**K** ○

**N** ● 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

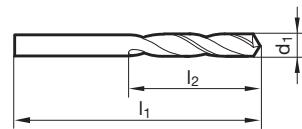
**S** ○

**H**

Drilling tools

**GÜHRING NAVIGATOR**

Cutting data page 150



	Article no.	5516
	Discount group	155
	Cutting direction	<input checked="" type="checkbox"/> (R)

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	<input checked="" type="checkbox"/> R
d1		I1	I2	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



Tool material  
Surface  
Shank form

**HSCO**  
cyl.  
**SL**

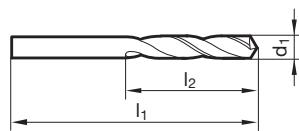
**S**  
cyl.  
**SL**

- 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<sup>2</sup> • cold/hot work steels • antifriction bearing steels • non-ferrous metals • cast materials • stainless steels • plastics
- S** •
- H**

Drilling tools

**GÜHRING NAVIGATOR**

Cutting data page 150



				Article no.	5524	5520
				Discount group	159	159
				Cutting direction	(R)	(R)
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		I1	I2		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	(R)	(R)	
d1		I1	I2				
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		●	●	

Drilling tools



## Stub drills



**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

Tool material

**HSS-E-PM**

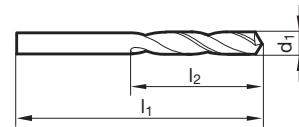
Surface

cyl.

Shank form

**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	(R)	
d1		I1	I2		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		●	



				Article no.	5521
				Discount group	159
				Cutting direction	<input checked="" type="checkbox"/> R
d1		I1	I2	Availability	
mm	inch	mm	mm		
10.200		89.000	43.000	<input checked="" type="checkbox"/>	
10.500		89.000	43.000	<input checked="" type="checkbox"/>	
11.000		95.000	47.000	<input checked="" type="checkbox"/>	
11.110	7/16	95.000	47.000	<input checked="" type="checkbox"/>	
11.500		95.000	47.000	<input checked="" type="checkbox"/>	
12.000		102.000	51.000	<input checked="" type="checkbox"/>	
12.500		102.000	51.000	<input checked="" type="checkbox"/>	
13.000		102.000	51.000	<input checked="" type="checkbox"/>	
13.500		107.000	54.000	<input checked="" type="checkbox"/>	
14.000		107.000	54.000	<input checked="" type="checkbox"/>	



## 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

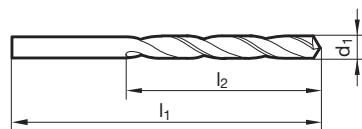
**M** ○**K** ○**N** ● structural and case hardened steels, free-cutting steels, heat-treatable steels • grey cast iron • bronze, brass**S** ○**H**

heat-treatable steels • grey cast iron • bronze, brass  
• aluminium and Al alloys • magnesium and magnesium alloys • plastics and fiber reinforced plastics

Drilling tools

**GÜHRING NAVIGATOR**

Cutting data page 152



		Article no.	5517
		Discount group	155
		Cutting direction	<input checked="" type="checkbox"/> (R)
d1		l1	l2
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	(R)
d1		I1	I2	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



Tool material  
Surface  
Shank form

**HSCO**  
cyl.  
**SL**

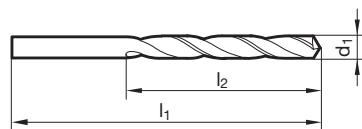


- P** • web thinning  $\geq \varnothing 1.000$  • facet point grind • Co-alloyed high speed steel • low feed force required • low torque required
- M** • for universal application
- K** •
- N** • alloyed/unalloyed steels up to 800 N/mm<sup>2</sup> • cold/hot work steels • antifriction bearing steels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

Drilling tools

**GÜHRING NAVIGATOR**

Cutting data page 150



	Article no.	5523	5519
	Discount group	159	159
	Cutting direction	(R)	(R)

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.	5523	5519
				Discount group	159	159
				Cutting direction	(R)	(R)
d1		I1	I2		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	(R)	(R)	
d1		I1	I2				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



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



				Article no.	5522	
				Discount group	159	
				Cutting direction	(R)	
d1		I1	I2		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		●	



				Article no.	5522
				Discount group	159
				Cutting direction	<input checked="" type="checkbox"/> R
d1		I1	I2	Availability	
mm	inch	mm	mm		
10.200		133.000	87.000	<input checked="" type="checkbox"/>	
10.500		133.000	87.000	<input checked="" type="checkbox"/>	
11.000		142.000	94.000	<input checked="" type="checkbox"/>	
11.110	7/16	142.000	94.000	<input checked="" type="checkbox"/>	
11.500		142.000	94.000	<input checked="" type="checkbox"/>	
12.000		151.000	101.000	<input checked="" type="checkbox"/>	
12.500		151.000	101.000	<input checked="" type="checkbox"/>	
13.000		151.000	101.000	<input checked="" type="checkbox"/>	
13.500		160.000	108.000	<input checked="" type="checkbox"/>	
14.000		160.000	108.000	<input checked="" type="checkbox"/>	



## Jobber drills



Tool material

HSS

Surface

Shank form

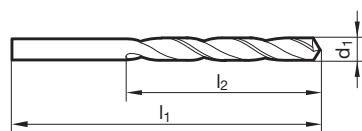
cyl.

P • web thinning  $\geq \varnothing 1.000$  • relieved cone • tip coating

M • alloyed/unalloyed steel and cast steel • grey cast iron, malleable and spheroidal iron • sintered powder metal and graphite

## GÜHRING NAVIGATOR

Cutting data page 152



		Article no.		9651
		Discount group		159
		Cutting direction		<input checked="" type="checkbox"/> (R)
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	(R)
d1		I1	I2	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	(R)	
d1		I1	I2		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		125.000	81.000		●	
9.100		125.000	81.000		●	
9.130	23/64	125.000	81.000		●	
9.200		125.000	81.000		●	
9.300		125.000	81.000		●	
9.400		125.000	81.000		●	
9.500		125.000	81.000		●	
9.520	3/8	133.000	87.000		●	
9.600		133.000	87.000		●	
9.700		133.000	87.000		●	
9.800		133.000	87.000		●	
9.900		133.000	87.000		●	
9.920	25/64	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		●	
10.320	13/32	133.000	87.000		●	
10.400		133.000	87.000		●	
10.500		133.000	87.000		●	
10.600		133.000	87.000		●	
10.700		142.000	94.000		●	
10.720	27/64	142.000	94.000		●	
10.800		142.000	94.000		●	
10.900		142.000	94.000		●	
11.000		142.000	94.000		●	
11.100		142.000	94.000		●	
11.110	7/16	142.000	94.000		●	
11.200		142.000	94.000		●	
11.300		142.000	94.000		●	
11.400		142.000	94.000		●	
11.500		142.000	94.000		●	
11.510	29/64	142.000	94.000		●	
11.600		142.000	94.000		●	
11.700		142.000	94.000		●	
11.800		142.000	94.000		●	
11.900		151.000	101.000		●	
11.910	15/32	151.000	101.000		●	
12.000		151.000	101.000		●	
12.100		151.000	101.000		●	
12.200		151.000	101.000		●	
12.300	31/64	151.000	101.000		●	
12.400		151.000	101.000		●	
12.500		151.000	101.000		●	
12.600		151.000	101.000		●	
12.700	1/2	151.000	101.000		●	
12.800		151.000	101.000		●	
12.900		151.000	101.000		●	
13.000		151.000	101.000		●	
13.100	33/64	151.000	101.000		●	
13.200		151.000	101.000		●	
13.250		160.000	108.000		●	
13.300		160.000	108.000		●	
13.400		160.000	108.000		●	
13.490	17/32	160.000	108.000		●	
13.500		160.000	108.000		●	
13.600		160.000	108.000		●	



				Article no.	9651
				Discount group	159
				Cutting direction	<input checked="" type="checkbox"/> R
d1		I1	I2	Availability	
mm	inch	mm	mm		
13.700		160.000	108.000	<input checked="" type="checkbox"/>	
13.750		160.000	108.000	<input checked="" type="checkbox"/>	
13.800		160.000	108.000	<input checked="" type="checkbox"/>	
13.890	35/64	160.000	108.000	<input checked="" type="checkbox"/>	
13.900		160.000	108.000	<input checked="" type="checkbox"/>	
14.000		160.000	108.000	<input checked="" type="checkbox"/>	
14.250		169.000	114.000	<input checked="" type="checkbox"/>	
14.290	9/16	169.000	114.000	<input checked="" type="checkbox"/>	
14.500		169.000	114.000	<input checked="" type="checkbox"/>	
14.680	37/64	169.000	114.000	<input checked="" type="checkbox"/>	
14.750		169.000	114.000	<input checked="" type="checkbox"/>	
15.000		169.000	114.000	<input checked="" type="checkbox"/>	
15.080	19/32	178.000	120.000	<input checked="" type="checkbox"/>	
15.250		178.000	120.000	<input checked="" type="checkbox"/>	
15.480	39/64	178.000	120.000	<input checked="" type="checkbox"/>	
15.500		178.000	120.000	<input checked="" type="checkbox"/>	
15.750		178.000	120.000	<input checked="" type="checkbox"/>	
16.000		178.000	120.000	<input checked="" type="checkbox"/>	



## 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** • alloyed/unalloyed steels up to 800 N/mm<sup>2</sup> • cold/hot work steels • antifriction bearing steels • non-ferrous metals • cast materials
- K** • stainless steels • plastics

Tool material

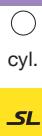
**HSCO**

Surface

**S**

Shank form

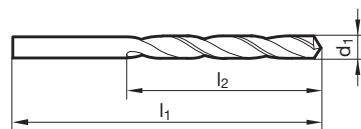
cyl.



Drilling tools

**GÜHRINGNAVIGATOR**

Cutting data page 152



			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	(R)	(R)
d1	I1	I2		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		●	●

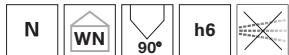


			Article no.	5536	5537
			Discount group	159	159
			Cutting direction	(R)	(R)
d1	I1	I2			
mm	mm	mm			
11.000	195.000	128.000		●	●
11.500	195.000	128.000		●	●
12.000	205.000	134.000		●	●
12.500	205.000	134.000		●	●
13.000	205.000	134.000		●	●
13.500	214.000	140.000		●	●
14.000	214.000	140.000		●	●

Drilling tools



## 90° NC spotting drills



Tool material

HSCO

Surface

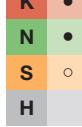


Shank form

B

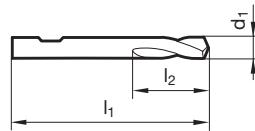


**P** • relieved cone • only suitable for spotting •  $\geq \varnothing 6.0$  mm with driving face to DIN 1835-B • inch dimensions are without clamping surface • Co-alloyed high speed steel • increased wear resistance



## GÜHRING NAVIGATOR

Cutting data page 148



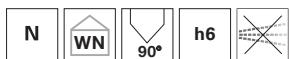
		Article no.	5678
		Discount group	159
		Cutting direction	<input checked="" type="checkbox"/> (R)
d1		l1	l2
mm	inch	mm	mm
3.000		46.000	12.000
4.000		55.000	12.000
5.000		62.000	14.000
6.000		66.000	16.000
6.350	1/4	70.000	17.000
8.000		79.000	21.000
9.520	3/8	89.000	25.000
10.000		89.000	25.000
12.000		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

## Availability





## **90° NC spotting drills**



## Tool material

## Solid carbide



HB

SL

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

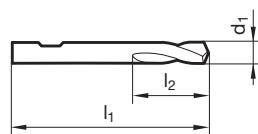
M      o without clamping surface

**N** universal material suitability

2

**GÜHRING NAVIGATOR**

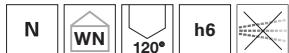
Cutting data page 148



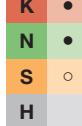
		Article no.		6027
		Discount group		155
		Cutting direction		(R)
d1		l1	l2	
mm	inch	mm	mm	Availability
4.000		55.000	12.000	●
5.000		62.000	14.000	●
6.000		66.000	16.000	●
6.350	1/4	70.000	17.000	●
8.000		79.000	21.000	●
9.520	3/8	89.000	25.000	●
10.000		89.000	25.000	●
12.000		102.000	30.000	●
12.700	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



Tool material

HSCO

Surface



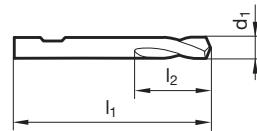
Shank form

B



## GÜHRING NAVIGATOR

Cutting data page 148



Article no.

5679

Discount group

159

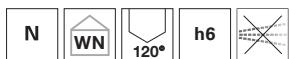
Cutting direction



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



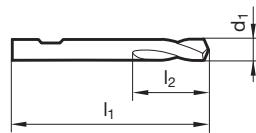
HB



## Drilling tools

**GÜHRING NAVIGATOR**

Cutting data page 148



				Article no.	6028
				Discount group	155
				Cutting direction	(R)
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



Tool material

Solid carbide



Surface

HB

Shank form

SL

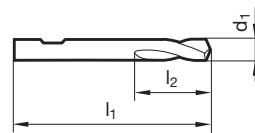
**P** ○ facet point grind • only suitable for spotting •  $\geq \varnothing 6.0$  mm  
**M** ○ with clamping surface shank form HB • inch dimensions are without clamping surface

**K** ○ universal material suitability

**N** ○  
**S** ○  
**H** ○

## GÜHRING NAVIGATOR

Cutting data page 148



		Article no.	6029
		Discount group	155
		Cutting direction	<input checked="" type="checkbox"/> (R)
d1		l1	l2
mm	inch	mm	mm
1.000		50.000	3.000
2.000		50.000	6.000
3.000		50.000	9.000
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

## Availability





## Centre drills without flat



Tool material

**HSCO**

Surface



Shank form

cyl.



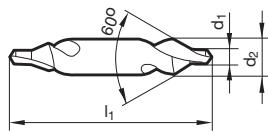
**P** • relieved cone • without protective countersink • for centre holes to DIN 332, part 1, form A •  $d_1 \leq 0.8$  mm: not double ended

**M** •**K** •**N** ○**S** •**H**

Drilling tools

**GÜHRING NAVIGATOR**

Cutting data page 148



			Article no.	5680
			Discount group	159
			Cutting direction	<input checked="" type="checkbox"/> (R)
d1	d2	l1	Availability	
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	●	



## **Twist drill sets**



**P** • web thinning  $\geq \emptyset 1.000$  • 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. • facet point grind

P	•
M	•
K	•
N	•
S	
H	

## Tool material

HSCO



Surface

cyl.



					Article no.	12
					Discount group	159
					Cutting direction	<input checked="" type="checkbox"/>
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** • web thinning  $\geq \varnothing 1.000$  • 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**

Article no.

**234**

Discount group

**159**

Cutting direction

**(R)**

d1	increasing by	supplement. sizes	Pieces/set	Code no.	Availability
mm	mm				
1.0-5.9	0.1		50	6.015	●
6.0-10.0	0.1		41	6.016	●
1.0-10.0	0.5		19	6.013	●
1.0-13.0	0.5		25	6.014	●
1.0-10.5	0.5	3.3/4.2/6.8/10.2	24	6.018	●



## GÜHRINGNAVIGATOR 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/mm²)	Hardness	Coolant
Common structural steels	<b>1.0035</b> S185(S133), <b>1.0486</b> P275N(S1E285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2)	≤500		
	<b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤1000		
Free-cutting steels	<b>1.0718</b> 11SMnPb30 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36)	≤850		
	<b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤1000		
Unalloyed heat-treatable steels	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30)	≤700		
	<b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45)	≤850		
	<b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤1000		
Alloyed heat-treatable steels	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4	≤1000		
	<b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	≤1400		
Unalloyed case hardened steels	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤850		
Alloyed case hardened steels	<b>1.7276</b> 10CrMo11, <b>1.5125</b> 11MnSi6	≤1000		
	<b>1.5752</b> 15NiCr13, <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	≤1400		
Nitriding steels	<b>1.8504</b> 34CrAl6	≤1000		
	<b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≤1400		
Tool steels	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9	≤850		
	<b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WC6, <b>1.2767</b> X45NiCrMo4	≤1400		
High speed steels	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≤1400		
Spring steels	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)	≤350 HB		
Hardened steels	–	≤48 HRC		
		≤66 HRC		
Stainless steels, sulphured austenitic martensitic	<b>1.4005</b> X12CrSi13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9	≤900		
	<b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A)	≤1100		
	<b>1.4057</b> X20CrNi172 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2	≤1500		
Cast iron	<b>0.6010</b> EN-GJL-100 (GG10), <b>0.6020</b> EN-GJL-200 (GG20)	≤240 HB		
	<b>0.6025</b> EN-GJL-250 (GG25), <b>0.6035</b> EN-GJL-350 (GG35)	≤350 HB		
Spheroidal graphite iron and malleable cast iron	<b>0.7050</b> EN-GJS-500-7 (GGG50), <b>0.8035</b> EN-GJMWB-350-4 (GTW35)	≤240 HB		
	<b>0.7070</b> EN-GJS-700-2 (GGG70), <b>0.8170</b> EN-GJMB-700-2 (GTS70)	≤350 HB		
Chilled cast iron	–	≤350 HB		
New cast materials GGV	<b>EN-GJV250</b> (GGV25), <b>EN-GJV350</b> (GGV35)	≤220 HB		
	<b>EN-GJV400</b> (GGV40), <b>EN-GJV500</b> (GGV50), SiMo 6	≤300 HB		
New cast materials ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000)	≤1000		
	<b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	≤1400		
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		
Ti and Ti alloys	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2	≤850		
	<b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		
Aluminium and Al alloys	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400		
Al wrought alloys	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMg3Si, <b>3.4365</b> AlZnMgCu1,5	≤650		
Al cast alloys ≤ 10 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9	≤600		
≤ 24 % Si	<b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		
Magnesium alloys	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5612.05</b> G-MgAl6Zn1	≤400		
Copper, low-alloyed	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤500		
Brass, short-chipping	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2	≤600		
long-chipping	<b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600		
Bronze, short-chipping	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn	≤600		
	<b>2.0790</b> CuNi18Zn19Pb	≤850		
Bronze, long-chipping	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10	≤850		
	<b>2.0980</b> CuAl11Ni1, <b>2.1247</b> CuBe2	≤1000		
Duroplastics	Bakelite, Resopal, Pertinax, Moltopren	≤150		
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		
Kevlar	Kevlar	≤1000		
Glass, carbon concentr. plastics	GFK/CFK	≤1000		



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



$v_c$ m/min	Feed col. no.												
145	7	7	130	7	7			200	8			145	6
120	6	6	110	6	6			200	7			120	5
170	8	8	145	8	8			200	8			170	7
145	8	8	110	7	7			200	8			145	7
130	8	8	120	7	7			180	8			130	7
125	7	7	110	7	7			160	8			125	6
120	7	7	105	7	7			130	8			120	6
120	7	7	105	7	7			120	8			120	6
105	7	7	100	6	6			120	7			105	6
145	8	8	130	8	8			180	8			145	7
120	7	7	120	7	7			120	8			120	6
85	5	5	85	5	5			110	7			85	4
110	7	7	100	6	6			110	7			110	6
105	5	5	90	5	5			100	5			105	4
80	6	6	65	6	6			90	7			80	5
65	5	5	55	5	5			65	6			65	4
60	4	5						60	5			60	4
60	3	3	45	3	3			60	5			60	2
55	3	2	40	1	1			55	3			55	2
35	2	2	20	1	1							35	1
60	5	5	40	2	2	80	5	5	80	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	45	4	50	5	
210	9	9	210	8	8			180	9	195	8	165	9
160	9	9	155	8	8			160	9	80	6	160	8
140	9	9	155	7	7			140	9	80	6	140	8
130	8	8	125	7	7			140	8	70	6	130	7
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
45	4	4	15	1	1	45	4	4	40	4		40	3
40	3	3	15	1	1	40	3	3	35	3		40	2
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			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				



## GÜHRINGNAVIGATOR 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.)								
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/mm²)	Hardness	Coolant
Common structural steels	<b>1.0035</b> S185(S133), <b>1.0486</b> P275N(S1E285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2) <b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤500 ≤1000		
Free-cutting steels	<b>1.0718</b> 11SMnPb30 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36) <b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤850 ≤1000		
Unalloyed heat-treatable steels	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30) <b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45) <b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤700 ≤850 ≤1000		
Alloyed heat-treatable steels	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4 <b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	≤1000 ≤1400		
Unalloyed case hardened steels	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤850		
Alloyed case hardened steels	<b>1.7276</b> 10CrMo11, <b>1.5125</b> 11MnSi6 <b>1.5752</b> 15NiCr13, <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	≤1000 ≤1400		
Nitriding steels	<b>1.8504</b> 34CrAl6 <b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≤1000 ≤1400		
Tool steels	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9 <b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105Cr6, <b>1.2767</b> X45NiCrMo4	≤850 ≤1400 ≤1400		
High speed steels	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≤1400		
Spring steels	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)	≤350 HB		
Hardened steels	–	≤48 HRC ≤66 HRC		
Stainless steels, sulphured austenitic martensitic	<b>1.4005</b> X12CrSi13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9 <b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A) <b>1.4057</b> X20CrNi172 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2	≤900 ≤1100 ≤1500		
Cast iron	<b>0.6010</b> EN-GJL-100 (GG10), <b>0.6020</b> EN-GJL-200 (GG20) <b>0.6025</b> EN-GJL-250 (GG25), <b>0.6035</b> EN-GJL-350 (GG35)	≤240 HB ≤350 HB		
Spheroidal graphite iron and malleable cast iron	<b>0.7050</b> EN-GJS-500-7 (GGG50), <b>0.8035</b> EN-GJMw-350-4 (GTW35) <b>0.7070</b> EN-GJS-700-2 (GGG70), <b>0.8170</b> EN-GJMB-700-2 (GTS70)	≤240 HB ≤350 HB		
Chilled cast iron	–	≤350 HB		
New cast materials GGV	EN-GJV250 (GGV25), <b>EN-GJV350</b> (GGV35) EN-GJV400 (GGV40), <b>EN-GJV500</b> (GGV50), SiMo 6	≤220 HB ≤300 HB		
New cast materials ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000) <b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	≤1000 ≤1400		
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		
Ti and Ti alloys	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2 <b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		
Aluminium and Al alloys	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400		
Al wrought alloys	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMgSi, <b>3.4365</b> AlZnMgCu1,5	≤650		
Al cast alloys ≤ 10 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9	≤600		
≤ 24 % Si	<b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		
Magnesium alloys	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5612.05</b> G-MgAl6Zn1	≤400		
Copper, low-alloyed	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤500		
Brass, short-chipping	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2	≤600		
long-chipping	<b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600		
Bronze, short-chipping	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn	≤600		
	<b>2.0790</b> CuNi18Zn19Pb	≤850		
Bronze, long-chipping	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10	≤850		
	<b>2.0980</b> CuAl11Ni1, <b>2.1247</b> CuBe2	≤1000		
Duroplastics	Bakelite, Resopal, Pertinax, Moltopren	≤150		
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		
Kevlar	Kevlar	≤1000		
Glass, carbon concentr. plastics	GFK/CFK	≤1000		



$\leq 10xD$	$\leq 12xD$	$\leq 15xD$	$\leq 20xD$	$\leq 25xD$	$\leq 30xD$
5513 Comp. std. Solid carb.	5525 Comp. std. Solid carb.	6509 Company std. Solid carbide	6511 Company std. Solid carbide	6512 Company std. Solid carbide	6513 Company std. Solid carbide
K RT 100 GG 51	K/P RT 100 U 53	K/P RT 100 T 56	K/P RT 100 T 58	K/P RT 100 T 60	K/P RT 100 T 62



$v_c$ m/min	Feed col. no.												
		110	6	110	8	110	8	110	8	100	8	80	7
		110	5	110	8	110	8	110	8	100	8	80	7
		110	7	120	8	120	8	120	8	120	8	100	8
		100	7	120	8	120	8	100	8	100	8	100	8
		110	7	110	6	110	6	110	6	110	6	110	6
		110	6	110	8	110	8	100	8	100	8	80	7
		100	6	100	7	100	7	100	7	100	7	80	7
		110	6	110	7	80	7	110	7	80	7	80	7
		105	6	110	6	80	7	110	6	80	7	80	6
		110	7	110	8	110	8	110	8	100	8	80	7
		110	6	110	6	110	8	110	6	100	8	80	6
		85	4	110	6	80	6-7	110	6	80	6-7	80	6
		100	6	100	5	100	5	100	5	80	5	80	5
		80	4	80	5	80	5	80	5	60	5	60	5
		80	5	100	6-7	100	6	90	6	90	6	80	6
		65	4	80	5	80	5	70	4	70	4	70	4
		50	4	50	5	50	5	50	4	50	4	50	4
		50	2	50	5	50	5	50	4	40-50	2-4	40-50	2-4
				40-50	2-4	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	140	8	130	8	120	8
100	6	120	8	100	8	100	8	100	8	90	8	80	8
90	6	100	8	140	8	140	8	140	8	130	8	120	8
80	6	90	7	100	8	100	8	100	8	90	8	80	8
40	2											65	8
				100	6	100	6	100	6	90	6	80	6
				100	6	100	6	100	6	90	6	80	6
				90	8	60	8-9	90	8	60	8-9	70	8
				30	2	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	120	1
280	7	120	7	120	8	120	8	110	8	100	8		
110	6	120	6										
80	5	40	6										
		40	5										

**GÜHRINGNAVIGATOR 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 GühringNavigator on the internet: [www.guehring.com](http://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/mm²)	Hardness	Coolant
Common structural steels	<b>1.0035</b> S185(S133), <b>1.0486</b> P275N(S1E285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2)	≤500		
	<b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤1000		
Free-cutting steels	<b>1.0718</b> 11SMnPb30 (9SMn2Pb28), <b>1.0736</b> 11SMn37 (9SMn36)	≤850		
	<b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤1000		
Unalloyed heat-treatable steels	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30)	≤700		
	<b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45)	≤850		
	<b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤1000		
Alloyed heat-treatable steels	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4	≤1000		
	<b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	≤1400		
Unalloyed case hardened steels	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤850		
Alloyed case hardened steels	<b>1.7276</b> 10CrMo11, <b>1.5125</b> 11MnSi6	≤1000		
	<b>1.5752</b> 15NiCr13, <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	≤1400		
Nitriding steels	<b>1.8504</b> 34CrAl6	≤1000		
	<b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≤1400		
Tool steels	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9	≤850		
	<b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WCr6, <b>1.2767</b> X45NiCrMo4	≤1400		
High speed steels	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≤1400		
Spring steels	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)	≤350 HB		
Hardened steels	–	≤48 HRC		
		≤66 HRC		
Stainless steels, sulphured austenitic martensitic	<b>1.4005</b> X12CrSi13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9	≤900		
	<b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A)	≤1100		
	<b>1.4057</b> X20CrNi172 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2	≤1500		
Cast iron	<b>0.6010</b> EN-GJL-100 (GG10), <b>0.6020</b> EN-GJL-200 (GG20)	≤240 HB	<input type="radio"/>	
	<b>0.6025</b> EN-GJL-250 (GG25), <b>0.6035</b> EN-GJL-350 (GG35)	≤350 HB	<input type="radio"/>	
Spheroidal graphite iron and malleable cast iron	<b>0.7050</b> EN-GJS-500-7 (GGG50), <b>0.8035</b> EN-GJMW-350-4 (GTW35)	≤240 HB	<input type="radio"/>	
	<b>0.7070</b> EN-GJS-700-2 (GGG70), <b>0.8170</b> EN-GJMB-700-2 (GTS70)	≤350 HB	<input type="radio"/>	
Chilled cast iron	–	≤350 HB	<input type="radio"/>	
New cast materials GGV	<b>EN-GJV250</b> (GGV25), <b>EN-GJV350</b> (GGV35)	≤220 HB	<input type="radio"/>	
	<b>EN-GJV400</b> (GGV40), <b>EN-GJV500</b> (GGV50), SiMo 6	≤300 HB	<input type="radio"/>	
New cast materials ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000)	≤1000	<input type="radio"/>	
	<b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	≤1400	<input type="radio"/>	
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000	<input checked="" type="radio"/>	
Ti and Ti alloys	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2	≤850	<input checked="" type="radio"/>	
	<b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400	<input checked="" type="radio"/>	
Aluminium and Al alloys	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400	<input type="radio"/>	
Al wrought alloys	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMgSi, <b>3.4365</b> AlZnMgCu1,5	≤650	<input type="radio"/>	
Al cast alloys ≤ 10 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9	≤600	<input type="radio"/>	
≤ 24 % Si	<b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600	<input type="radio"/>	
Magnesium alloys	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5612.05</b> G-MgAl6Zn1	≤400	<input type="radio"/>	
Copper, low-alloyed	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤500	<input type="radio"/>	
Brass, short-chipping long-chipping	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2	≤600	<input type="radio"/>	
	<b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600	<input type="radio"/>	
Bronze, short-chipping	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn	≤600	<input type="radio"/>	
	<b>2.0790</b> CuNi8Zn19Pb	≤850	<input checked="" type="radio"/>	
Bronze, long-chipping	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10	≤850	<input checked="" type="radio"/>	
	<b>2.0980</b> CuAl11Ni1, <b>2.1247</b> CuBe2	≤1000	<input checked="" type="radio"/>	
Duroplastics	Bakelite, Resopal, Pertinax, Moltopren	≤150	<input type="radio"/>	
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100	<input checked="" type="radio"/>	
Kevlar	Kevlar	≤1000	<input type="radio"/>	
Glass, carbon concentr. plastics	GFK/CFK	≤1000	<input type="radio"/>	



≤3xD	≤3xD	≤3xD	≤5xD	≤5xD	≤5xD	≤7xD	≤7xD	≤7xD
4112	4115	4113	4112	4115	4113	4112	4115	4113
Co. std.	Co. std.	Co. std.	Co. std.	Co. std.	Co. std.	Co. std.	Co. std.	Co. std.
Sol. carb.	Sol. carb.	Sol. carb.	Sol. carb.	Sol. carb.	Sol. carb.	Sol. carb.	Sol. carb.	Sol. carb.
K/P	K/P	K/P	K/P	K/P	K/P	K/P	K/P	K/P
F	a	Y	F	a	Y	F	a	Y
Steel	stainl. st.	Cast iron	Steel	stainl. st.	Cast iron	Steel	stainl. st.	Cast iron
80	86	83	80	86	83	80	86	83



**GÜHRINGNAVIGATOR 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 GühringNavigator on the internet: [www.guehring.com](http://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:

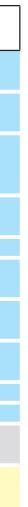
- Air
- Neat oil
- Soluble oil

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	<b>1.0035</b> S185(S13), <b>1.0486</b> P275N(S1E285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2)	≤500			
	<b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤1000			
Free-cutting steels	<b>1.0718</b> 11SMnPb30 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36)	≤850			
	<b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤1000			
Unalloyed heat-treatable steels	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30)	≤700			
	<b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45)	≤850			
	<b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤1000			
Alloyed heat-treatable steels	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4	≤1000			
	<b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	≤1400			
Unalloyed case hardened steels	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤850			
Alloyed case hardened steels	<b>1.7276</b> 10CrMo11, <b>1.5125</b> 11MnSi6	≤1000			
	<b>1.5752</b> 15NiCr13, <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	≤1400			
Nitriding steels	<b>1.8504</b> 34CrAl6	≤1000			
	<b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≤1400			
Tool steels	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9	≤850			
	<b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105Cr6, <b>1.2767</b> X45NiCrMo4	≤1400			
High speed steels	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≤1400			
Spring steels	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)	≤350 HB			
Hardened steels	–	≤48 HRC			
		≤66 HRC			
Stainless steels, sulphured austenitic martensitic	<b>1.4005</b> X12CrSi13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9	≤900			
	<b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A)	≤1100			
	<b>1.4057</b> X20CrNi172 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2	≤1500			
Cast iron	<b>0.6010</b> EN-GJL-100 (GG10), <b>0.6020</b> EN-GJL-200 (GG20)	≤240 HB			
	<b>0.6025</b> EN-GJL-250 (GG25), <b>0.6035</b> EN-GJL-350 (GG35)	≤350 HB			
Spheroidal graphite iron and malleable cast iron	<b>0.7050</b> EN-GJS-500-7 (GGG50), <b>0.8035</b> EN-GJMWB-350-4 (GTW35)	≤240 HB			
	<b>0.7070</b> EN-GJS-700-2 (GGG70), <b>0.8170</b> EN-GJMB-700-2 (GTS70)	≤350 HB			
Chilled cast iron	–	≤350 HB			
New cast materials GGV	<b>EN-GJV250</b> (GGV25), <b>EN-GJV350</b> (GGV35)	≤220 HB			
	<b>EN-GJV400</b> (GGV40), <b>EN-GJV500</b> (GGV50), SiMo 6	≤300 HB			
New cast materials ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000)	≤1000			
	<b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	≤1400			
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000			
Ti and Ti alloys	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2	≤850			
	<b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400			
Aluminium and Al alloys	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400			
Al wrought alloys	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMgSi, <b>3.4365</b> AlZnMgCu1,5	≤650			
Al cast alloys ≤ 10 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9	≤600			
≤ 24 % Si	<b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600			
Magnesium alloys	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5612.05</b> G-MgAl6Zn1	≤400			
Copper, low-alloyed	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤500			
Brass, short-chipping long-chipping	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2	≤600			
	<b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600			
Bronze, short-chipping	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn	≤600			
	<b>2.0790</b> CuNi18Zn19Pb	≤850			
Bronze, long-chipping	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10	≤850			
	<b>2.0980</b> CuAl11Ni1, <b>2.1247</b> CuBe2	≤1000			
Duroplastics	Bakelite, Resopal, Pertinax, Moltopren	≤150			
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100			
Kevlar	Kevlar	≤1000			
Glass, carbon concentr. plastics	GFK/CFK	≤1000			



	$\leq 4xD$	$\leq 7xD$	$\leq 5xD$	$\leq 8xD$	$\leq 15xD$
5652	6400	6401	6405	6408	6412
Company standard					
Solid carbide					
K/P	K/P	K/P	K/P	K/P	K/P
N	N	N	N	N	N
A	A	A	A	A	A
X	X	X	X	X	X
89	90	92	94	96	98



$v_c$ m/min	Feed col. no.	$v_c$ m/min	Feed col. no.	$v_c$ m/min	Feed col. no.
100	62	100	64	62	58
100	62	100	64	62	58
100	62	100	64	62	59
90	61	90	63	61	59
90	62	90	64	62	58
90	62	90	64	62	58
90	61	90	63	61	58
90	61	90	63	61	58
70	60	70	62	60	58
100	61	100	63	61	57
85	61	85	63	61	58
70	60	70	62	60	58
70	60	70	62	60	57
60	60	60	62	60	57
50	60	50	62	60	58
60	60	60	62	60	58
		60	57	57	57
		60	57	57	57
		30	57	57	57
		15	56	56	56
		30	57	57	57
130	66	130	68	66	60
130	66	130	68	66	60
130	66	130	68	66	60
120	65	120	67	65	60
		10	56	56	56
		15	56	56	56
		15	56	56	56
		70	68	68	68
		70	68	68	68
		135	59	59	59
		135	59	59	59

**GÜHRINGNAVIGATOR**

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 GühringNavigator on the internet: [www.guehring.com](http://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/mm²)	Hardness	Coolant
Common structural steels	<b>1.0035</b> S185(S13), <b>1.0486</b> P275N(S1E285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2)	≤500		
	<b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤1000		
Free-cutting steels	<b>1.0718</b> 11SMnPb30 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36)	≤850		
	<b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤1000		
Unalloyed heat-treatable steels	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30)	≤700		
	<b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45)	≤850		
	<b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤1000		
Alloyed heat-treatable steels	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4	≤1000		
	<b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	≤1400		
Unalloyed case hardened steels	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤850		
Alloyed case hardened steels	<b>1.7276</b> 10CrMo11, <b>1.5125</b> 11MnSi6	≤1000		
	<b>1.5752</b> 15NiCr13, <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	≤1400		
Nitriding steels	<b>1.8504</b> 34CrAl6	≤1000		
	<b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≤1400		
Tool steels	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9	≤850		
	<b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WC6, <b>1.2767</b> X45NiCrMo4	≤1400		
High speed steels	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≤1400		
Spring steels	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)	≤350 HB		
Hardened steels	–	≤48 HRC		
		≤66 HRC		
Stainless steels, sulphured austenitic martensitic	<b>1.4005</b> X12CrSi13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9	≤900		
	<b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A)	≤1100		
	<b>1.4057</b> X20CrNi172 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2	≤1500		
Cast iron	<b>0.6010</b> EN-GJL-100 (GG10), <b>0.6020</b> EN-GJL-200 (GG20)	≤240 HB	<input type="radio"/>	
	<b>0.6025</b> EN-GJL-250 (GG25), <b>0.6035</b> EN-GJL-350 (GG35)	≤350 HB	<input type="radio"/>	
Spheroidal graphite iron and malleable cast iron	<b>0.7050</b> EN-GJS-500-7 (GGG50), <b>0.8035</b> EN-GJMW-350-4 (GTW35)	≤240 HB	<input type="radio"/>	
	<b>0.7070</b> EN-GJS-700-2 (GGG70), <b>0.8170</b> EN-GJMB-700-2 (GTS70)	≤350 HB	<input type="radio"/>	
Chilled cast iron	–	≤350 HB	<input type="radio"/>	
New cast materials GGV	EN-GJV250 (GGV25), <b>EN-GJV350</b> (GGV35)	≤220 HB	<input type="radio"/>	
	EN-GJV400 (GGV40), <b>EN-GJV500</b> (GGV50), SiMo 6	≤300 HB	<input type="radio"/>	
New cast materials ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000)	≤1000		
	<b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	≤1400		
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		
Ti and Ti alloys	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2	≤850		
	<b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		
Aluminium and Al alloys	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400		
Al wrought alloys	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMgSi, <b>3.4365</b> AlZnMgCu1,5	≤650		
Al cast alloys ≤ 10 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9	≤600		
≤ 24 % Si	<b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		
Magnesium alloys	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5612.05</b> G-MgAl6Zn1	≤400		
Copper, low-alloyed	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤500		
Brass, short-chipping	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2	≤600		
long-chipping	<b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600		
Bronze, short-chipping	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn	≤600		
	<b>2.0790</b> CuNi18Zn19Pb	≤850	<input type="radio"/>	
Bronze, long-chipping	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10	≤850		
	<b>2.0980</b> CuAl11Ni1, <b>2.1247</b> CuBe2	≤1000	<input type="radio"/>	
Duroplastics	Bakelite, Resopal, Pertinax, Moltopren	≤150	<input type="radio"/>	
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100	<input type="radio"/>	<input type="radio"/>
Kevlar	Kevlar	≤1000	<input type="radio"/>	
Glass, carbon concentr. plastics	GFK/CFK	≤1000	<input type="radio"/>	



NC spotting drills					Centre drills	
5678	6027	5679	6028	6029	5680	333
Comp. std.	Comp. std.	Comp. std.	Comp. std.	Comp. std.	Solid carb.	
HSCO	Solid carb.	HSCO	Solid carb.	K10/K20	HSCO	
N	N	N	N	N	N	
90°	90°	120°	120°	142°		
132	133	134	135	136		137



$v_c$ 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	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	

**GÜHRINGNAVIGATOR 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 GühringNavigator on the internet: [www.guehring.com](http://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/mm²)	Hardness	Coolant
Common structural steels	<b>1.0035</b> S185(S133), <b>1.0486</b> P275N(S1E285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2)	≤500		
	<b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤1000		
Free-cutting steels	<b>1.0718</b> 11SMnPb30 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36)	≤850		
	<b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤1000		
Unalloyed heat-treatable steels	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30)	≤700		
	<b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45)	≤850		
	<b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤1000		
Alloyed heat-treatable steels	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4	≤1000		
	<b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	≤1400		
Unalloyed case hardened steels	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤850		
Alloyed case hardened steels	<b>1.7276</b> 10CrMo11, <b>1.5125</b> 11MnSi6	≤1000		
	<b>1.5752</b> 15NiCr13, <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	≤1400		
Nitriding steels	<b>1.8504</b> 34CrAl6	≤1000		
	<b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≤1400		
Tool steels	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9	≤850		
	<b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WC6, <b>1.2767</b> X45NiCrMo4	≤1400		
High speed steels	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≤1400		
Spring steels	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)	≤350 HB		
Hardened steels	–	≤48 HRC		
		≤66 HRC		
Stainless steels, sulphured austenitic martensitic	<b>1.4005</b> X12CrSi13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9	≤900		
	<b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A)	≤1100		
	<b>1.4057</b> X20CrNi172 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2	≤1500		
Cast iron	<b>0.6010</b> EN-GJL-100 (GG10), <b>0.6020</b> EN-GJL-200 (GG20)	≤240 HB	<input type="radio"/>	
	<b>0.6025</b> EN-GJL-250 (GG25), <b>0.6035</b> EN-GJL-350 (GG35)	≤350 HB	<input type="radio"/>	
Spheroidal graphite iron and malleable cast iron	<b>0.7050</b> EN-GJS-500-7 (GGG50), <b>0.8035</b> EN-GJMWB-350-4 (GTW35)	≤240 HB	<input type="radio"/>	
	<b>0.7070</b> EN-GJS-700-2 (GGG70), <b>0.8170</b> EN-GJMB-700-2 (GTS70)	≤350 HB	<input type="radio"/>	
Chilled cast iron	–	≤350 HB	<input type="radio"/>	
New cast materials GGV	<b>EN-GJV250</b> (GGV25), <b>EN-GJV350</b> (GGV35)	≤220 HB	<input type="radio"/>	
	<b>EN-GJV400</b> (GGV40), <b>EN-GJV500</b> (GGV50), SiMo 6	≤300 HB	<input type="radio"/>	
New cast materials ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000)	≤1000		
	<b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	≤1400	<input type="radio"/>	
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		
Ti and Ti alloys	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Si2,5, <b>3.7124</b> TiCu2	≤850		
	<b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		
Aluminium and Al alloys	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400		
Al wrought alloys	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMg3Si, <b>3.4365</b> AlZnMgCu1,5	≤650		
Al cast alloys ≤ 10 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9	≤600		
≤ 24 % Si	<b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		
Magnesium alloys	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5612.05</b> G-MgAl6Zn1	≤400		
Copper, low-alloyed	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤500		
Brass, short-chipping	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2	≤600		
long-chipping	<b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600		
Bronze, short-chipping	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn	≤600		
	<b>2.0790</b> CuNi18Zn19Pb	≤850	<input type="radio"/>	
Bronze, long-chipping	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10	≤850		
	<b>2.0980</b> CuAl11Ni1, <b>2.1247</b> CuBe2	≤1000	<input type="radio"/>	
Duroplastics	Bakelite, Resopal, Pertinax, Moltopren	≤150	<input type="radio"/>	
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100	<input type="radio"/>	
Kevlar	Kevlar	≤1000	<input type="radio"/>	
Glass, carbon concentr. plastics	GFK/CFK	≤1000	<input type="radio"/>	



$\leq 3xD$	$\leq 5xD$	$\leq 5xD$	$\leq 5xD$				
5524	5520	5521	6005	5516	5523	5519	6006
1897	1897	1897	Co. std.	6539	338	338	Co. std.
HSCO	HSCO	HSS-E-PM	HSS-E-PM	Sol. carb. K10/K20	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.												
35	6	45	6	40	6	47	6	80	4	35	6	45	6
30	5	35	5	32	5	37	5	70	4	30	5	35	5
40	6	50	6	45	6	53	6	80	5	40	6	50	6
30	6	40	6	40	5	42	6	70	4	30	6	40	6
32	6	44	6	42	6	46	6	80	4	32	6	44	6
28	6	44	6	40	5	46	6	70	4	28	6	44	6
20	5	40	5	28	4	42	5	60	4	20	5	40	5
15	4	27	4	25	4	28	4	60	4	15	4	27	4
13	3	22	3	20	3	23	3			13	3	22	3
30	6	44	6	40	4	46	6	80	5	30	6	44	6
16	4	22	4	22	4	23	4	60	4	16	4	22	4
12	3	18	3	18	3	19	3			12	3	18	3
15	4	22	4	20	4	23	4	50	4	15	4	22	4
10	3	16	3	15	3	17	3			10	3	16	3
15	4	20	4	21	4	21	4	50	3	15	4	20	4
10	3	15	3	16	3	16	3			10	3	15	3
10	3	13	2	15	3	14	2			10	3	13	3
		9	2	12	2	9	2	25	2			9	2
						20	2						
14	4	20	4	15	4	21	4	25	2	14	4	20	4
10	4	16	4	10	3	17	4	15	1	10	4	16	4
12	4	18	4	12	3	19	4	25	2	12	4	18	4
36	6	45	6	50	6	47	6	90	4	36	6	45	6
30	6	40	6	40	6	42	6	80	4	30	6	40	6
30	6	40	6	44	6	42	6	80	4	30	6	40	6
22	6	30	6	32	6	32	6	70	4	22	6	30	6
				8	3								
						5	2					5	2
50	7	70	7			74	7	200	7	50	7	70	7
50	7	70	7			74	7	200	7	50	7	70	7
65	7	85	7			89	7	150	6	65	7	85	7
60	6	70	6			74	6	120	6	60	6	70	6
60	6	80	6			84	6	180	6	60	6	80	6
70	5	80	5	80	5	84	5	80	5	70	5	80	5
45	5	77	5			81	5	180	5	45	5	77	5
30	5	44	5	60	5	46	5	180	5	30	5	44	5
36	4	50	4	50	5	53	4	120	5	36	4	50	4
30	4	40	4	45	4	42	4	120	5	30	4	40	4
30	4	32	4	40	4	34	4	70	4	30	4	32	4
25	4	28	4	32	4	29	4	50	3	25	4	28	4
20	4	25	4	25	4	26	4	50	4	20	4	25	4
15	4	27	4			28	4	40	3	15	4	27	4
								80	3				

**GÜHRINGNAVIGATOR Twist drills**

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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/mm²)	Hardness	Coolant
Common structural steels	<b>1.0035</b> S185(S133), <b>1.0486</b> P275N(S1E285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2)	≤500		
	<b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤1000		
Free-cutting steels	<b>1.0718</b> 11SMnPb30 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36)	≤850		
	<b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤1000		
Unalloyed heat-treatable steels	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30)	≤700		
	<b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45)	≤850		
	<b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤1000		
Alloyed heat-treatable steels	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4	≤1000		
	<b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	≤1400		
Unalloyed case hardened steels	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤850		
Alloyed case hardened steels	<b>1.7276</b> 10CrMo11, <b>1.5125</b> 11MnSi6	≤1000		
	<b>1.5752</b> 15NiCr13, <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	≤1400		
Nitriding steels	<b>1.8504</b> 34CrAl6	≤1000		
	<b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≤1400		
Tool steels	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9	≤850		
	<b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WC6, <b>1.2767</b> X45NiCrMo4	≤1400		
High speed steels	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≤1400		
Spring steels	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)	≤350 HB		
Hardened steels	–	≤48 HRC		
		≤66 HRC		
Stainless steels, sulphured austenitic martensitic	<b>1.4005</b> X12CrSi13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9	≤900		
	<b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A)	≤1100		
	<b>1.4057</b> X20CrNi172 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2	≤1500		
Cast iron	<b>0.6010</b> EN-GJL-100 (GG10), <b>0.6020</b> EN-GJL-200 (GG20)	≤240 HB	<input type="radio"/>	
	<b>0.6025</b> EN-GJL-250 (GG25), <b>0.6035</b> EN-GJL-350 (GG35)	≤350 HB	<input type="radio"/>	
Spheroidal graphite iron and malleable cast iron	<b>0.7050</b> EN-GJS-500-7 (GGG50), <b>0.8035</b> EN-GJMWB-350-4 (GTW35)	≤240 HB	<input type="radio"/>	
	<b>0.7070</b> EN-GJS-700-2 (GGG70), <b>0.8170</b> EN-GJMB-700-2 (GTS70)	≤350 HB	<input type="radio"/>	
Chilled cast iron	–	≤350 HB	<input type="radio"/>	
New cast materials GGV	EN-GJV250 (GGV25), <b>EN-GJV350</b> (GGV35)	≤220 HB	<input type="radio"/>	
	EN-GJV400 (GGV40), <b>EN-GJV500</b> (GGV50), SiMo 6	≤300 HB	<input type="radio"/>	
New cast materials ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000)	≤1000		
	<b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	≤1400	<input type="radio"/>	
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		
Ti and Ti alloys	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2	≤850		
	<b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		
Aluminium and Al alloys	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400		
Al wrought alloys	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMgSi, <b>3.4365</b> AlZnMgCu1,5	≤650		
Al cast alloys ≤ 10 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9	≤600		
≤ 24 % Si	<b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		
Magnesium alloys	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5612.05</b> G-MgAl6Zn1	≤400		
Copper, low-alloyed	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤500		
Brass, short-chipping	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2	≤600		
long-chipping	<b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600		
Bronze, short-chipping	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn	≤600		
	<b>2.0790</b> CuNi18Zn19Pb	≤850	<input type="radio"/>	
Bronze, long-chipping	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10	≤850		
	<b>2.0980</b> CuAl11Ni1, <b>2.1247</b> CuBe2	≤1000	<input type="radio"/>	
Duroplastics	Bakelite, Resopal, Pertinax, Moltopren	≤150	<input type="radio"/>	
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100	<input type="radio"/>	
Kevlar	Kevlar	≤1000	<input type="radio"/>	
Glass, carbon concentr. plastics	GFK/CFK	≤1000	<input type="radio"/>	



$\leq 5xD$	$\leq 5xD$	$\leq 5xD$	$\leq 10xD$	$\leq 10xD$
9651	5522	5517 Company standard Solid carbide K10/K20	5536	5537
338	338		340	340
HSS	HSS-E PM		HSCO	HSCO
(S)	(S)	(O)	(O)	(S)
N	GT 500 DZ	N	GU 500 DZ	GU 500 DZ
125	122	117	129	129







Reamers and countersinks

# REAMERS AND COUNTERSINKS



## NC machine reamers

DIN	212-3
	H7

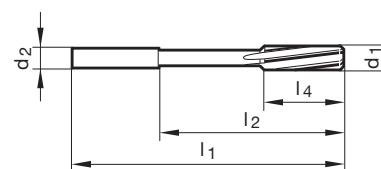
P	•
M	○
K	•
N	•
S	○
H	

- $\leq \varnothing 3.75$  mm with external centres on both ends
- >  $\varnothing 3.75$  mm with internal centres on both ends

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

## GÜHRING NAVIGATOR

Cutting data page 252



Article no.							6019	154
Discount group							Availability	
d1	d2 h6	l1	l2	l4	Z	Code no.		
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**

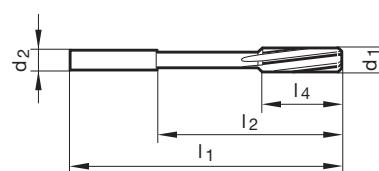
DIN	$\leq \varnothing 5,5 = +0,004$
212-3	$> \varnothing 5,5 = +0,005$

P	•	• $\leq \varnothing 3,75$ mm with external centres on both ends • $> \varnothing 3,75$ mm with internal centres on both ends
M	○	• $\leq \varnothing 5,50$ mm: 0.000/+0.004 • $> \varnothing 5,50$ mm: 0.000/+0.005
K	•	
N	•	
S	○	
H		

Tool material	<b>HSS-E</b>
Surface	○
Form	B
Shank form	HA
	<b>SL</b>

**GÜHRING NAVIGATOR**

Cutting data page 252



Article no.							6020	154
Discount group							Availability	
d1	d2 h6	l1	l2	l4	Z	Code no.		
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	I1	I2	I4	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**

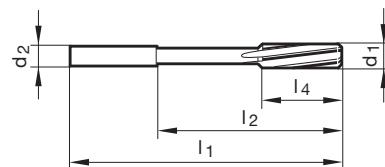
P	•
M	○
K	•
N	•
S	○
H	52

• &gt; Ø 3.75 mm with extremely unequal flute spacing

Tool material	<b>Solid carbide</b>
Surface	○
Form	B
Shank form	HA

**GÜHRING NAVIGATOR**

Cutting data page 252



Article no. 6016							Discount group 154	Availability
d1	d2 h6	l1	l2	l4	Z	Code no.		
mm	mm	mm	mm	mm				
3.000	4.000	64.000	36.000	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	•
M	•
K	•
N	
S	•
H	52

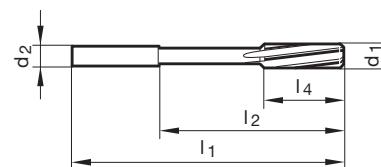
• &gt; Ø 3.75 mm with extremely unequal flute spacing

Tool material	Solid carbide
Surface	a
Form	B
Shank form	HA

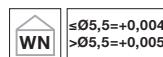


## GÜHRING NAVIGATOR

Cutting data page 252



Article no.							6017	154
Discount group							Availability	
d1	d2 h6	l1	l2	l4	Z	Code no.		
mm	mm	mm	mm	mm				
3.000	4.000	64.000	36.000	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**

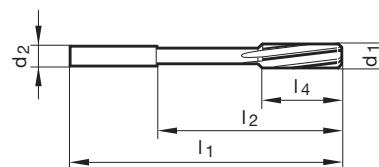
- P** • > Ø 3.75 mm with extremely unequal flute spacing
- ≤ Ø 5.50 mm: 0.000/+0.004
- > Ø 5.50 mm: 0.000/+0.005

<b>M</b>	○
<b>K</b>	•
<b>N</b>	•
<b>S</b>	○
<b>H</b>	52

Tool material	<b>Solid carbide</b>
Surface	○
Form	B
Shank form	HA
	<b>SL</b>

**GÜHRING NAVIGATOR**

Cutting data page 252



Article no.	5527
Discount group	154

d1	d2 h6	l1	l2	l4	Z	Code no.
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

Availability

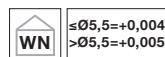
Reamers



Article no.							5527
Discount group							154
d1	d2 h6	I1	I2	I4	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



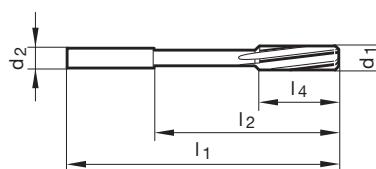
- > Ø 3.75 mm with extremely unequal flute spacing
- ≤ Ø 5.50 mm: 0.000/+0.004
- > Ø 5.50 mm: 0.000/+0.005

P	•
M	•
K	•
N	
S	•
H	52

Tool material	Solid carbide
Surface	a
Form	B
Shank form	HA

## GÜHRING NAVIGATOR

Cutting data page 252



Article no.							6018	Discount group	154
							Availability		
d1	d2 h6	l1	l2	l4	Z	Code no.			
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	●		

Reamers



Article no.							6018
Discount group							154
d1	d2 h6	I1	I2	I4	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

Form

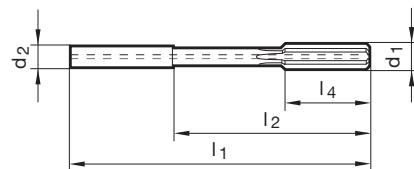
Shank form

HA



## GÜHRING NAVIGATOR

Cutting data page 252



Article no.

1685

Discount group

166

Availability

d1	d2 h6	l1	l2	l4	Z	Code no.	
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	●

Reamers



## 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

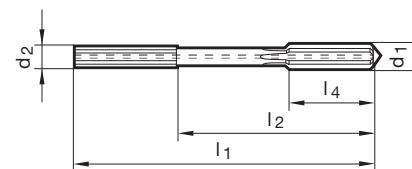
Surface

a

Form

Shank form

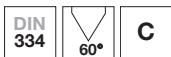
HA



## GÜHRING NAVIGATOR

Cutting data page 252

Article no.							1686	166
Discount group							Availability	
d1	d2 h6	l1	l2	l4	Z	Code no.		
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**

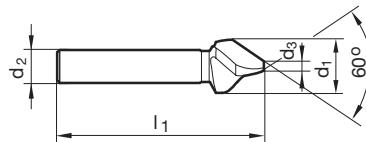
P	•
M	•
K	•
N	○
S	○
H	

- 3 different convex cutting edges
- low-vibration cutting processes
- for round and chatter-free countersinking
- considerably lower feed force required
- for universal application

Tool material	<b>HSS</b>
Surface	<b>A</b>
Shank form	cyl.

**GÜHRING NAVIGATOR**

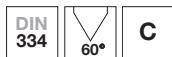
Cutting data page 254



Article no. 5670						Discount group 159	Availability
d1	d2	d3	l1	Z	Code no.		
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		●



## 60° Countersinks, spiral-fluted



60°

C

P	•	• 3-flats on shank prevent 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

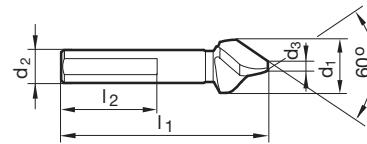
Shank form

3-flats

SL

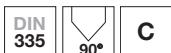
## GÜHRING NAVIGATOR

Cutting data page 254



Countersinks

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**

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

Tool material

**HSCO**

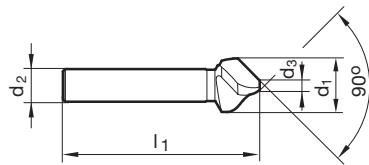
Surface

Shank form

cyl.

**GÜHRING NAVIGATOR**

Cutting data page 254

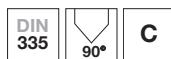


Article no. 5500						Discount group 159	Availability
d1	d2	d3	l1	Z	Code no.		
mm	mm	mm	mm				
6.300	5.000	1.500	45.000	3	6.300		●
8.000	6.000	2.000	50.000	3	8.000		●
8.300	6.000	2.000	50.000	3	8.300		●
10.000	6.000	2.500	50.000	3	10.000		●
10.400	6.000	2.500	50.000	3	10.400		●
11.500	8.000	2.800	56.000	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 prevent 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



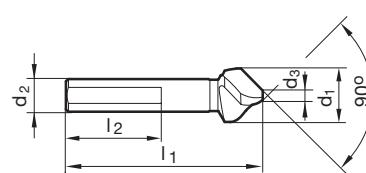
Shank form

3-flats

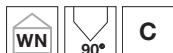


## GÜHRING NAVIGATOR

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	●

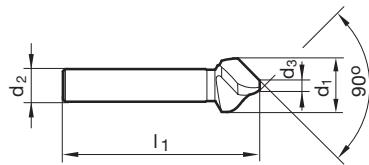
**90° Countersinks, spiral-fluted**

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

Tool material	<b>HSS</b>
Surface	<b>A</b>
Shank form	cyl.

**GÜHRING NAVIGATOR**

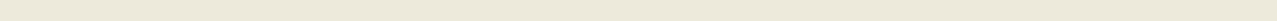
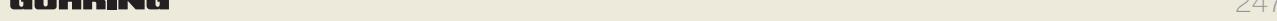
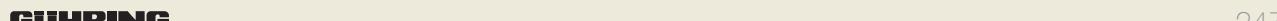
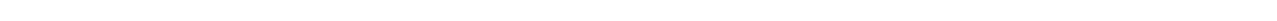
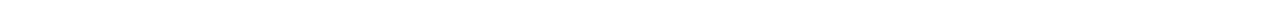
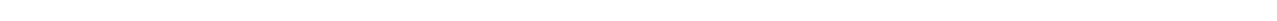
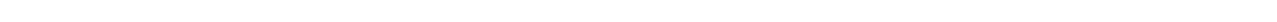
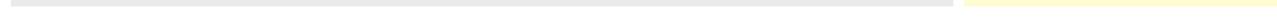
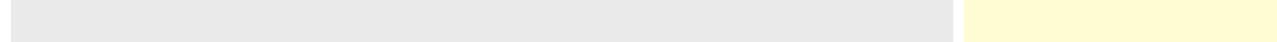
Cutting data page 254

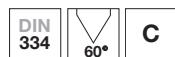


Article no. <b>5503</b>					
Discount group <b>159</b>					
d1	d2	d3	l1	Z	Code no.
mm	mm	mm	mm		
6.300	5.000	1.500	104.000	3	6.300
8.300	6.000	2.000	105.000	3	8.300
10.400	6.000	2.500	107.000	3	10.400
12.400	8.000	2.800	108.000	3	12.400
16.500	10.000	3.200	111.000	3	16.500
20.500	10.000	3.500	114.000	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

Availability

Countersinks



**60° Countersink sets, spiral-fluted**

60°

C

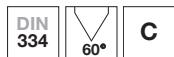
- consisting of art. no. 5670
- 3 different convex cutting edges
- low-vibration cutting processes
- for round and chatter-free countersinking
- considerably lower feed force required
- for universal application

Tool material	HSS
Surface	A
Shank form	cyl.

**GÜHRING NAVIGATOR**

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Article no.	5672
Discount group	159
Ø-range mm	Pieces/set
6.3/8.0/10.0/12.5/16.0/20.0	6
Code no.	1.000
Availability	●

**60° Countersink sets, spiral-fluted**

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

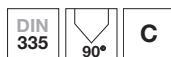
Tool material	<b>HSS</b>
Surface	<b>A</b>
Shank form	3-flats

**GÜHRING NAVIGATOR**

Cutting data page 254



Article no.	<b>5673</b>
Discount group	<b>159</b>
Ø-range mm	Pieces/set
6.3/8.0/10.0/12.5/16.0/20.0	6
	Code no.
	1.000
	Availability
	●

**90° Countersink sets, spiral-fluted**

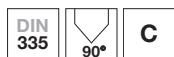
- P** • consisting of art. no. 5500
- M** • 3 different convex cutting edges
- K** • low-vibration cutting processes
- N** ○ for round and chatter-free countersinking
- S** ○ considerably lower feed force required
- H** ○ for universal application

Tool material	<b>HSCO</b>
Surface	<b>A</b>
Shank form	cyl.

**GÜHRING NAVIGATOR**

Cutting data page 254

Article no.	<b>5538</b>
Discount group	<b>159</b>
Ø-range mm	Pieces/set 6
Code no. 1.000	Availability ●

**90° Countersink sets, spiral-fluted**

<b>P</b>	•	<ul style="list-style-type: none"> <li>consisting of art. no. 5501</li> <li>3 different convex cutting edges</li> <li>3-flats on shank prevent slipping in the chuck</li> <li>perfect for hand drills</li> </ul>
<b>M</b>	•	<ul style="list-style-type: none"> <li>low-vibration cutting processes</li> <li>for round and chatter-free countersinking</li> <li>considerably lower feed force required</li> <li>for universal application</li> </ul>
<b>K</b>	•	
<b>N</b>	○	
<b>S</b>	○	
<b>H</b>		

Tool material	<b>HSCO</b>
Surface	<b>A</b>
Shank form	3-flats

**GÜHRING NAVIGATOR**

Cutting data page 254



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

**GÜHRING NAVIGATOR**

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 GühringNavigator on the internet: [www.guehring.com](http://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:  

Material group	Material examples Figures in bold = material no. to DIN EN 10 027	Tensile strength MPa (N/mm²)	Hardness	Coolant
Common structural steels	<b>1.0035</b> S185(S133), <b>1.0486</b> P275N(StE285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2) <b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤500 ≤1000		
Free-cutting steels	<b>1.0718</b> 11SMnPb3 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36) <b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤850 ≤1000		
Unalloyed heat-treatable steels	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30) <b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45) <b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤700 ≤850 ≤1000		
Alloyed heat-treatable steels	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4 <b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	≤1000 ≤1400		
Unalloyed case hardened steels	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤850		
Alloyed case hardened steels	<b>1.7276</b> 10CrMo11, <b>1.5125</b> 11MnSi6 <b>1.5752</b> 15NiCr13, <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	≤1000 ≤1400		
Nitriding steels	<b>1.8504</b> 34CrAl6 <b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≤1000 ≤1400		
Tool steels	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9 <b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WCr6, <b>1.2767</b> X45NiCrMo4	≤850 ≤1400		
High speed steels	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≤1400		
Spring steels	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)	≤350 HB		
Hardened steels	–	≤48 HRC ≤66 HRC		
Stainless steels, sulphured austenitic martensitic	<b>1.4005</b> X12CrS13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9 <b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A) <b>1.4057</b> X20CrNi172 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2	≤900 ≤1100 ≤1500		
Cast iron	<b>0.6010</b> EN-GJL-100 (GG10), <b>0.6020</b> EN-GJL-200 (GG20) <b>0.6025</b> EN-GJL-250 (GG25), <b>0.6035</b> EN-GJL-350 (GG35)	≤240 HB ≤350 HB		
Spheroidal graphite iron and malleable cast iron	<b>0.7050</b> EN-GJS-500-7 (GGG50), <b>0.8035</b> EN-GJMW-350-4 (GTW35) <b>0.7070</b> EN-GJS-700-2 (GGG70), <b>0.8170</b> EN-GJMB-700-2 (GTS70)	≤240 HB ≤350 HB		
Chilled cast iron	–	≤350 HB		
New cast materials GGV	<b>EN-GJV250</b> (GGV25), <b>EN-GJV350</b> (GGV35) <b>EN-GJV400</b> (GGV40), <b>EN-GJV500</b> (GGV50), SiMo 6	≤220 HB ≤300 HB		
New cast materials ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000) <b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	≤1000 ≤1400		
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		
Ti and Ti alloys	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2 <b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		
Aluminium and Al alloys	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400		
Al wrought alloys	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMg3Si, <b>3.4365</b> AlZnMgCu1,5	≤650		
Al cast alloys ≤ 10 % Si ≤ 24 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9 <b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		
Magnesium alloys	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5612.05</b> G-MgAl6Zn1	≤400		
Copper, low-alloyed	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤500		
Brass, short-chipping	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2	≤600		
Brass, long-chipping	<b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600 ≤600		
Bronze, short-chipping	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn	≤600 ≤850		
Bronze, long-chipping	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10 <b>2.0980</b> CuAl11Ni, <b>2.1247</b> CuBe2	≤850 ≤1000		
Duroplastics	Bakelite, Resopal, Pertinax, Moltopen	≤150		
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		
Kevlar	Kevlar	≤1000		
Glass, carbon concentr. plastics	GFK/CFK	≤1000		



## NC machine reamers

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

B      B

232    233

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

K10      K10

B      B

235    237

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

K10/K20      K10/K20

a      a

B      B

236    239

## High-performance reamers

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

K10/K20      K10/K20

a      a

HR 500 S    HR 500 D

axial      axial

241    242



$v_c$ m/min	Feed col. no.										
16	72	72	18	72	72	20	73	73	120-250	75-76	75-76
12	72	72	16	72	72	18	73	73	120-250	75-76	75-76
12	72	72	18	72	72	20	73	73	120-250	75-76	75-76
10	71	71	16	72	72	18	73	73	120-250	75-76	75-76
14	72	72	18	71	71	20	72	72	120-250	75-76	75-76
12	71	71	16	72	72	18	72	72	120-250	75-76	75-76
10	71	71	14	71	71	15	72	72	120-250	75-76	75-76
10	71	71	14	71	71	15	72	72	120-250	75-76	75-76
8	71	71	12	71	71	13	71	71	120-250	75-76	75-76
16	72	72	18	71	71	20	73	73	120-250	75-76	75-76
10	71	71	14	71	71	15	72	72	120-250	75-76	75-76
8	71	71	12	71	71	13	72	72	120-250	75-76	75-76
10	71	71	14	71	71	15	71	71	120-250	75-76	75-76
8	71	71	12	71	71	13	71	71	120-250	75-76	75-76
14	72	72	12	71	71	13	71	71	120-250	75-76	75-76
10	71	71	10	71	71	11	71	71	60-120	75-76	75-76
10	71	71	10	71	71	11	71	71	30-60	73-74	73-74
			6	71	71				40-60	73-74	73-74
6	72	72	8	71	71	9	71	71	30-60	73-74	73-74
6	72	72	6	71	71	7	71	71	60-120	74-75	74-75
4	72	72	6	71	71	7	71	71	40-80	74-75	74-75
14	71	71	20	71	71	22	73	73	60-120	74-75	74-75
12	71	71	18	71	71	20	73	73	60-140	75-76	75-76
12	71	71	20	71	71	22	73	73	120-250	74-75	74-75
10	71	71	18	71	71	20	73	73	60-120	74-75	74-75
8	71	71	16	71	71	16	71	71	30-50	74-75	74-75
			12	71	71				80	75-76	75-76
			12	71	71				80	75-76	75-76
4	71	71	6	71	71	7	71	71	40-60	74-75	74-75
6	71	71	10	71	71	11	71	71	40-60	74	74
4	71	71	10	71	71	11	71	71	40-60	74	74
18	73	73	30	73	73						
18	73	73	30	73	73						
20	72	72	40	72	72						
18	72	72	30	72	72						
20	72	72	25	72	72	28	73	73	80-160	75-76	75-76
18	72	72	25	72	72	28	73	73			
18	72	72	35	72	72	39	73	73	100-250	75-76	75-76
16	72	72	30	72	72	33	73	73			
20	72	72	35	72	72	39	73	73	100-250	75-76	75-76
18	72	72	30	72	72	33	73	73	100-250	75-76	75-76
18	72	72	30	72	72	33	73	73			
14	72	72	25	72	72	28	73	73			
12	73	73	20	73	73	22	73	73	80-200	75-76	75-76
14	73	73	20	73	73	22	73	73	80-200	75-76	75-76
						80	71	71			
						80	71	71			

**GÜHRING NAVIGATOR**

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 GühringNavigator on the internet: [www.guehring.com](http://www.guehring.com).

Article no.	(R)
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/mm²)	Hardness	Coolant
Common structural steels	<b>1.0035</b> S185(S13), <b>1.0486</b> P275N(StE285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2) <b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤500 ≤1000		
Free-cutting steels	<b>1.0718</b> 11SMnPb3 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36) <b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤850 ≤1000		
Unalloyed heat-treatable steels	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30) <b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45) <b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤700 ≤850 ≤1000		
Alloyed heat-treatable steels	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4 <b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	≤1000 ≤1400		
Unalloyed case hardened steels	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤850		
Alloyed case hardened steels	<b>1.7276</b> 10CrMo11, <b>1.5125</b> 11MnSi6 <b>1.5752</b> 15NiCr13, <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	≤1000 ≤1400	●	●
Nitriding steels	<b>1.8504</b> 34CrAl6 <b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≤1000 ≤1400		
Tool steels	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9 <b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WCr6, <b>1.2767</b> X45NiCrMo4	≤850 ≤1400		
High speed steels	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≤1400	●	●
Spring steels	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)	≤350 HB	●	●
Hardened steels	–	≤48 HRC ≤66 HRC	●	●
Stainless steels, sulphured austenitic martensitic	<b>1.4005</b> X12CrS13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9 <b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A) <b>1.4057</b> X20CrNi172 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2	≤900 ≤1100 ≤1500	●	●
Cast iron	<b>0.6010</b> EN-GJL-100 (GG10), <b>0.6020</b> EN-GJL-200 (GG20) <b>0.6025</b> EN-GJL-250 (GG25), <b>0.6035</b> EN-GJL-350 (GG35)	≤240 HB ≤350 HB	●	○
Spheroidal graphite iron and malleable cast iron	<b>0.7050</b> EN-GJS-500-7 (GGG50), <b>0.8035</b> EN-GJMW-350-4 (GTW35) <b>0.7070</b> EN-GJS-700-2 (GGG70), <b>0.8170</b> EN-GJMB-700-2 (GTS70)	≤240 HB ≤350 HB	●	○
Chilled cast iron	–	≤350 HB	●	○
New cast materials GGV	<b>EN-GJV250</b> (GGV25), <b>EN-GJV350</b> (GGV35) <b>EN-GJV400</b> (GGV40), <b>EN-GJV500</b> (GGV50), SiMo 6	≤220 HB ≤300 HB	●	○
New cast materials ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000) <b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	≤1000 ≤1400	●	○
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000	●	●
Ti and Ti alloys	<b>3.7024</b> Ti99.5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2 <b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400	●	●
Aluminium and Al alloys	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400		
Al wrought alloys	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMg3Si, <b>3.4365</b> AlZnMgCu1,5	≤650		
Al cast alloys ≤ 10 % Si ≤ 24 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9 <b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		
Magnesium alloys	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5612.05</b> G-MgAl6Zn1	≤400		
Copper, low-alloyed	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤500		
Brass, short-chipping long-chipping	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2 <b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600 ≤600		
Bronze, short-chipping	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn	≤600	○	●
Bronze, long-chipping	<b>2.0790</b> CuNi18Zn19Pb	≤850	●	●
Bronze, long-chipping	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10 <b>2.0980</b> CuAl11Ni1, <b>2.1247</b> CuBe2	≤850 ≤1000	●	●
Duroplastics	Bakelite, Resopal, Pertinax, Moltopren	≤150	○	○
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100	○	○
Kevlar	Kevlar	≤1000	○	○
Glass, carbon concentr. plastics	GFK/CFK	≤1000	○	○

**90° Countersinks, spiral-fluted**

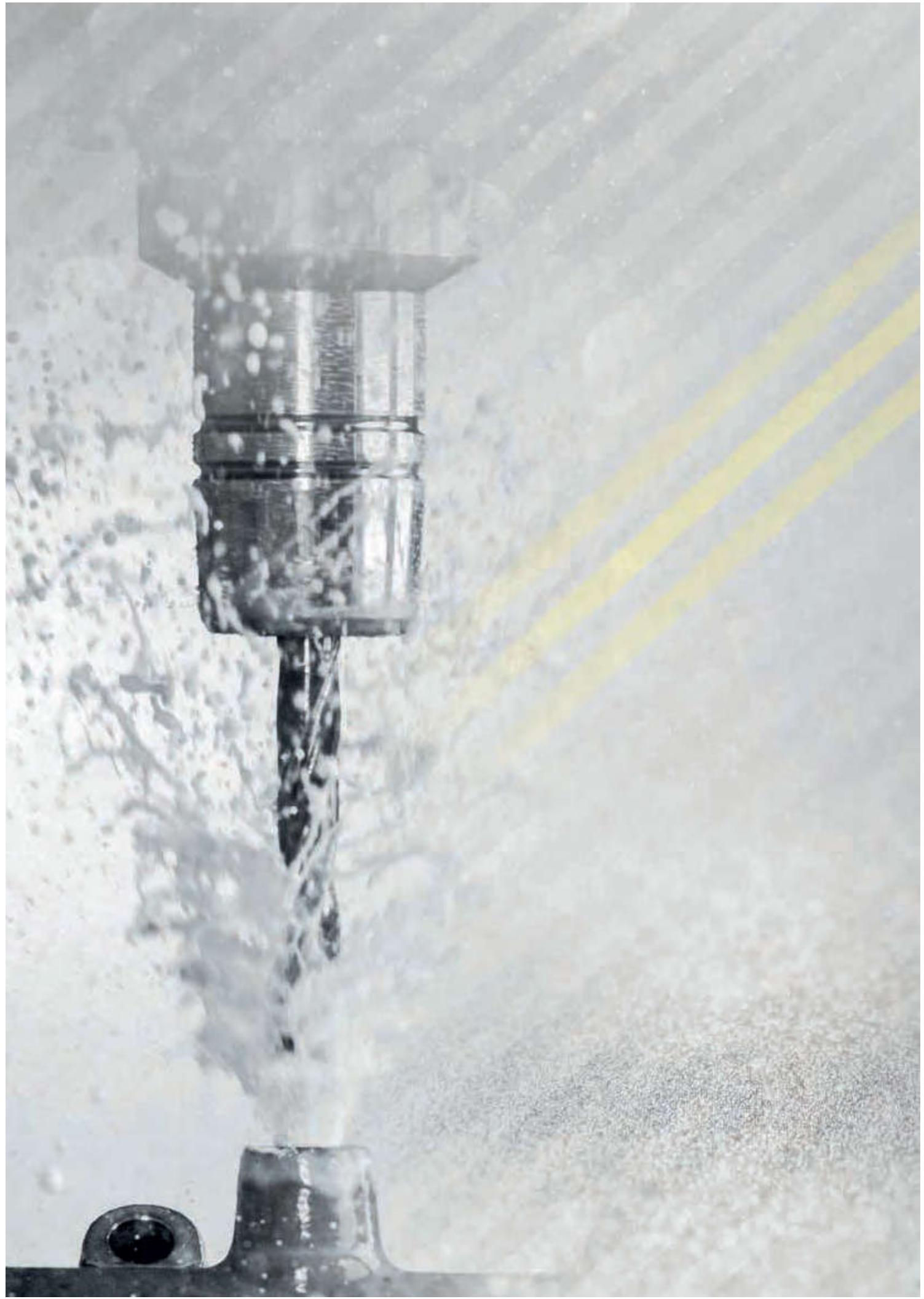
5500	5501	5503
DIN 335	DIN 335	Company standard
HSCO	HSCO	HSS
A	A	A
90°	90°	90°
cyl.	3-surface	cyl.
245	246	247

**60° Countersinks, spiral-fluted**

5670	5671
DIN 334	DIN 334
HSS	HSS
A	A
60°	60°
cyl.	cyl.
243	244



$V_c$ m/min	Feed col. no.								
41	83	41	83	37	83	37	83	37	83
39	82	39	82	35	82	35	82	35	82
41	83	41	83	37	83	37	83	37	83
39	82	39	82	35	82	35	82	35	82
41	83	41	83	37	83	37	83	37	83
39	83	39	83	35	83	35	83	35	83
25	82	25	82	23	82	23	82	23	82
19	83	19	83	17	83	17	83	17	83
15	82	15	82	14	82	14	82	14	82
32	83	32	83	29	83	29	83	29	83
19	83	19	83	17	83	17	83	17	83
13	82	13	82	12	82	12	82	12	82
19	82	19	82	17	82	17	82	17	82
15	81	15	81	14	81	14	81	14	81
22	82	22	82	20	82	20	82	20	82
19	81	19	81	17	81	17	81	17	81
19	81	19	81	17	81	17	81	17	81
13	81	13	81	12	81	12	81	12	81
<hr/>									
20	82	20	82	18	82	18	82	18	82
15	81	15	81	14	81	14	81	14	81
18	81	18	81	16	81	16	81	16	81
32	83	32	83	29	83	29	83	29	83
20	83	20	83	18	83	18	83	18	83
28	83	28	83	25	83	25	83	25	83
25	83	25	83	23	83	23	83	23	83
10	81	10	81	9	81	9	81	9	81
28	83	28	83	25	83	25	83	25	83
18	83	18	83	16	83	16	83	16	83
<hr/>									
10	81	10	81	9	81	9	81	9	81
19	82	19	82	17	82	17	82	17	82
13	81	13	81	12	81	12	81	12	81
114	84	114	84	104	84	104	84	104	84
89	84	89	84	81	84	81	84	81	84
51	83	51	83	46	83	46	83	46	83
39	83	39	83	35	83	35	83	35	83
127	84	127	84	115	84	115	84	115	84
76	84	76	84	69	84	69	84	69	84
101	84	101	84	92	84	92	84	92	84
64	84	64	84	58	84	58	84	58	84
39	84	39	84	35	84	35	84	35	84
33	84	33	84	30	84	30	84	30	84
31	84	31	84	28	84	28	84	28	84
25	84	25	84	23	84	23	84	23	84
39	84	39	84	35	84	35	84	35	84
51	84	51	84	46	84	46	84	46	84





Tool holders

# TOOL HOLDERS



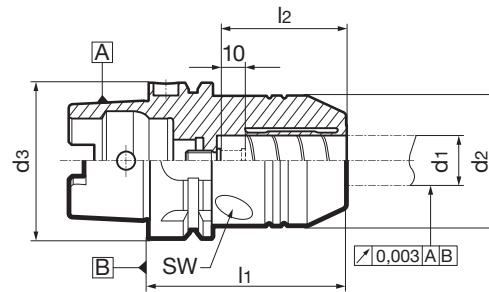
## HSK-A hydraulic chucks

**SL****Product information:**

- HSK-A to ISO 12164-1 / DIN 69893-1
- axial length adjustment
- for tool shank tolerance h6
- balancing quality: G 2.5 / 25,000 rev./min or rev.  
  < 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**

Availability



HSK-A	d1	d2	l1	l2		SW	Code no.
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

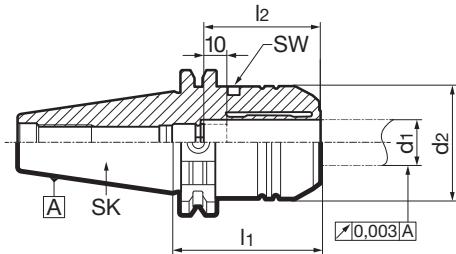
**SL**

## Product information:

- SK to DIN ISO 7388-1 form AD/AF
- axial length adjustment
- for tool shank tolerance h6
- balancing quality: G 2.5 / 25,000 rev./min or rev. < 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 mm	d2 mm	l1 mm	l2 mm		SW mm	Code no.
SK 40	20.00	49.30	64.50	51.00	1.250	5.0	20.040

Availability



Tool holders



## MAS/BT hydraulic chucks

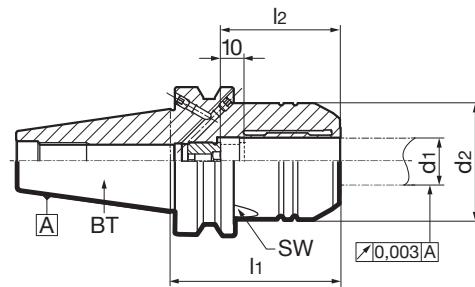
**SL**

## Product information:

- MAS/BT to DIN ISO 7388-2 Form JD/JF
- axial length adjustment
- for tool shank tolerance h6
- balancing quality: G 2.5 / 25,000 rev./min or rev. < 1 gmm

## Scope of delivery:

- incl. setting screw art. no. 4900
- incl. clamping key art. no. 4912
- order pull studs for MAS/BT (art. no. 4927, 4928) separately



Article no.

**4664**

Discount group

**158**

Availability



BT	d1	d2	l1	l2		SW	Code no.
	mm	mm	mm	mm	kg	mm	
BT 40	20.00	49.30	72.50	51.00	1.250	5.0	20.040



## Hydraulic chuck set



**SL**

### Product information:

- HSK-A to ISO 12164-1/DIN 69893
- SK to DIN ISO 7388-1, form AD/AF
- MAS/BT to DIN ISO 7388-2, form JD/JF
- for tool shank tolerance h6
- balance quality values G2.5/25,000 rev./min or rev. < 1 gmm
- axial length adjustment

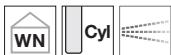
### Scope of delivery:

- 1 Hydraulic chuck + 5 Reduction bushes
- each set contains the clamping key art. no. 4912 and the adjustment screw art. no. 4900
- order coolant supply set for HSK-A (art. no. 4949) separately
- order pull studs for SK (art. no. 4925, 4926) separately
- order pull studs for MAS/BT (art. no. 4927, 4928) separately



Variant	incl. hydraulic chuck			incl. reduction bushes		Code no.	Article no.	Discount group	Availability
	Interface	for shank-Ø (mm)	Article no.	for shank-Ø (mm)	Article no.				
<b>Set 1</b>	HSK-A 63	20.00	4662	6.0 / 8.0 / 10.0 / 12.0 / 16.0	4665	<b>20.063</b>			●
<b>Set 2</b>	SK 40	20.00	4663	6.0 / 8.0 / 10.0 / 12.0 / 16.0	4665	<b>20.040</b>			●
<b>Set 3</b>	MAS/BT 40	20.00	4664	6.0 / 8.0 / 10.0 / 12.0 / 16.0	4665	<b>20.140</b>			●

## Reduction bushes



**SL**

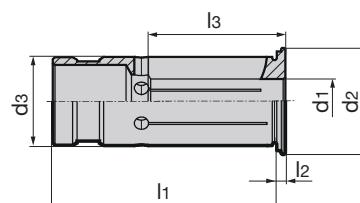
Tool holders

### Product information:

- for clamping smaller shank-Ø in hydraulic chucks
- clamping-Ø for tool shank tolerance h6
- concentricity  $\leq 5 \mu\text{m}$
- coolant-proof

### Scope of delivery:

- special dimensions available on request



d3	for shank-Ø	d2	l1	l3	Code no.	Article no.	Discount group	Availability
mm	mm	mm	mm	mm				
20	6	24	50.5	27.00	6.020			●
20	8	24	50.5	27.00	8.020			●
20	10	24	50.5	31.00	10.020			●
20	12	24	50.5	35.00	12.020			●
20	16	24	50.5	35.00	16.020			●



	Art. no.	Clamping chucks	Description	Clamping diameter range
Hydraulic chucks	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



	Art. no.	Clamping chucks	Description	Clamping diameter range
Shrink fit chucks	4755		<b>GÜHROJet</b> HSK-A shrink fit chuck with peripheral cooling	6 - 20 mm
	4729		<b>GÜHROJet</b> 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		<b>GÜHROJet</b> Side lock holder Weldon HSK-A	6 - 32 mm
	4317		<b>GÜHROJet</b> Side lock holder Weldon SK	6 - 32 mm
	4234		<b>GÜHROJet</b> Side lock holder Weldon MAS/BT	6 - 32 mm



## Application-specific selection of tool holders

Shrink fit chucks/  
shrink fit extensionsHydraulic chucks/  
HMC 3000/reduction bushesGÜHROSYNC  
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	<ul style="list-style-type: none"> <li>highest concentricity accuracy thanks to patented damping screw</li> <li>high stiffness and clamping force</li> <li>modularly extendable</li> </ul>	<ul style="list-style-type: none"> <li>high damping with high concentricity accuracy</li> <li>simple handling</li> <li>flexible use thanks to reducing bushes also with GÜHROJet</li> </ul>	<ul style="list-style-type: none"> <li>perfect combination of hydraulic expansion chuck and synchro tapping chuck</li> <li>simple handling</li> <li>flexible use thanks to reducing bushes also with GÜHROJet</li> <li>long-lasting axial and radial balancing</li> </ul>
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"**


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	<ul style="list-style-type: none"> <li>extreme clamping force and stability thanks to mechanical clamping transmission</li> <li>high precision and balancing quality</li> <li>flexible use thanks to reducing bushes also with <b>GÜHROJet</b></li> </ul>	<ul style="list-style-type: none"> <li>flexible chuck for various shank dimensions and tolerances</li> <li>for conventional machining operations</li> </ul>	<ul style="list-style-type: none"> <li>robust, low cost chuck</li> <li>for heavy machining in the lower speed and accuracy range</li> </ul>
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 holders





Tool dispensing systems

# TOOL DISPENSING SYSTEMS



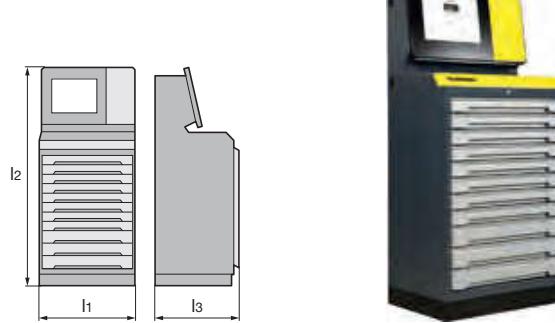
Tool dispensing systems

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

I1	I2	I3		Availability
mm	mm	mm	kg	
800	1700	750	320	●



Gühring Tool Management Software

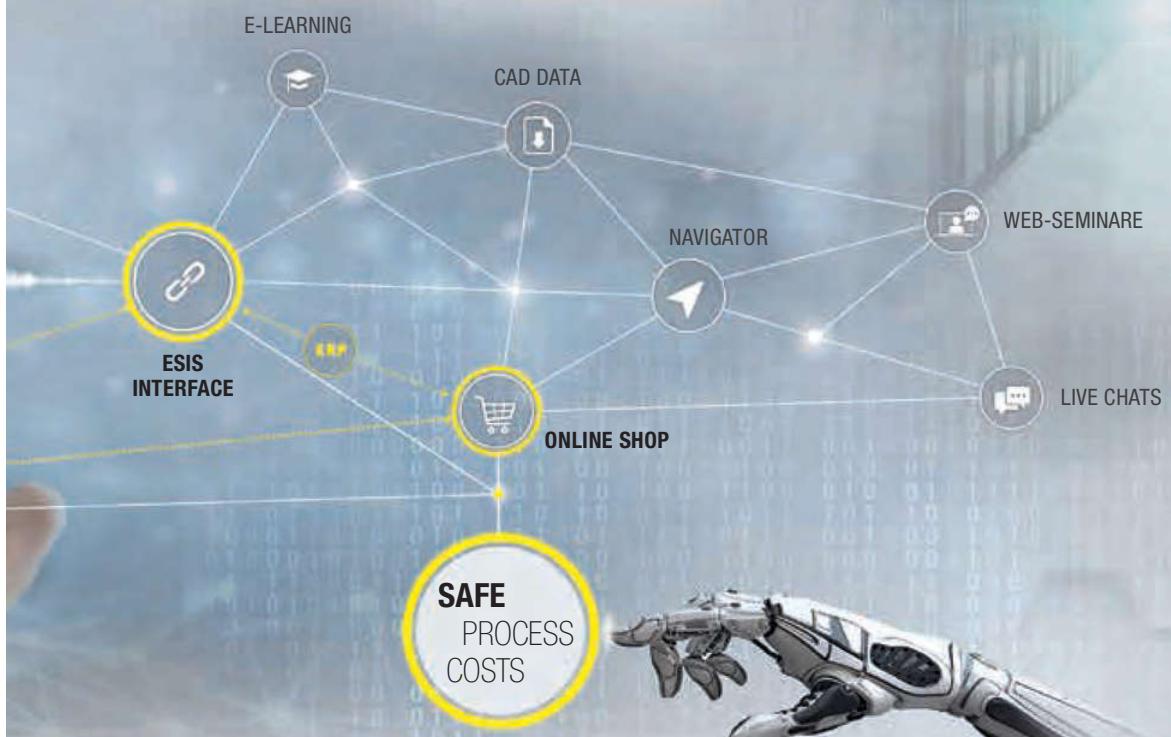
# GTMS

## Everything in view

Process optimisation in a whole new dimension



**GUHRING**  
**DIGITAL** SERVICES



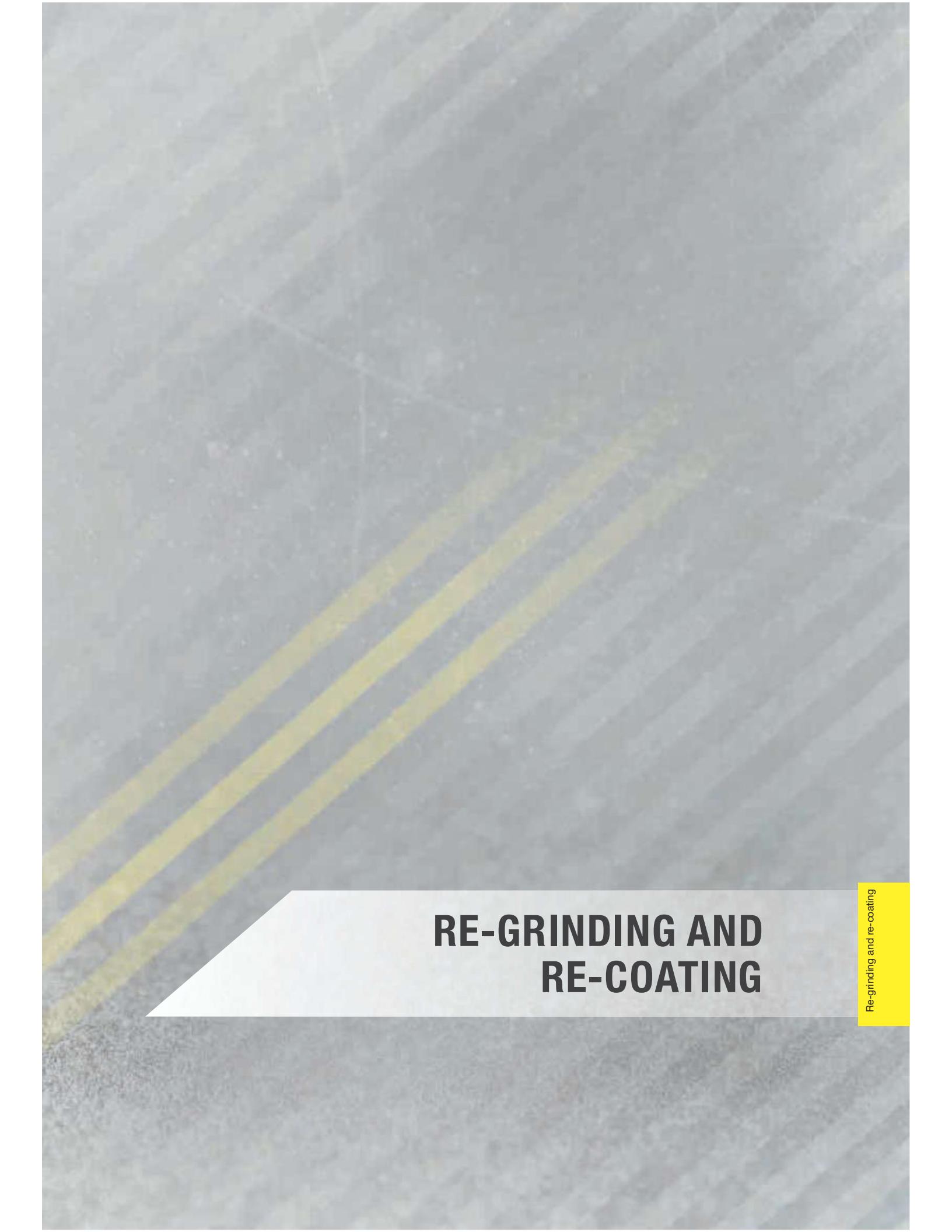
➤➤➤➤➤ Reduce costs

➤➤➤➤➤ Identify areas with improvement potential

➤➤➤➤➤ Perfect your tools and processes

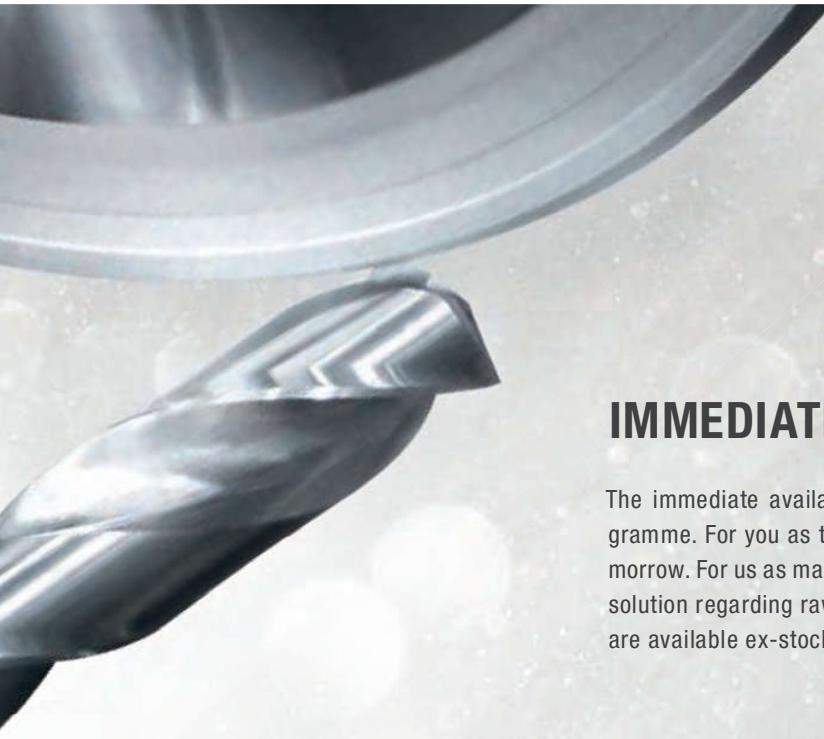
➤➤➤➤➤ Transparency in real time





# **RE-GRINDING AND RE-COATING**

Re-grinding and re-coating



## IMMEDIATE AVAILABILITY

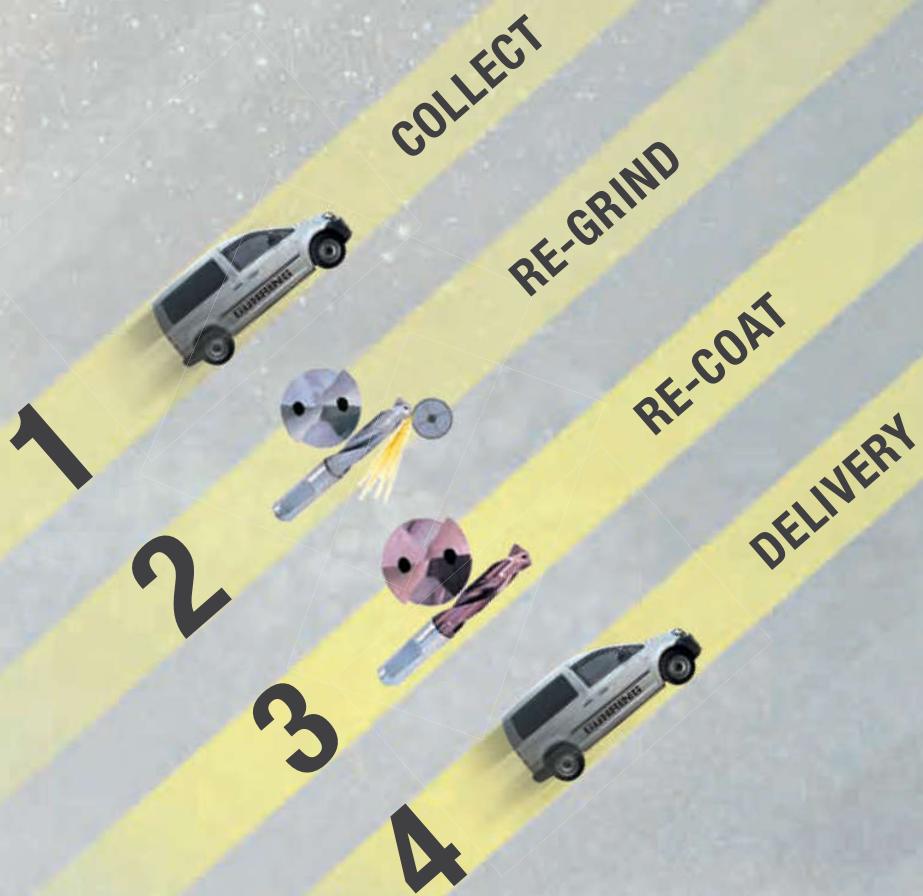
The immediate availability of SuperLine tools is a pillar of the programme. For you as the customer it means order today and apply tomorrow. For us as manufacturer it means we can ensure an intelligent solution regarding raw materials, manufacture and delivery. SL tools are available ex-stock. Put us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



Re-grinding and re-coating

## 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.



Re-grinding and re-coating

**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		HSS-E/ HSS-E-PM taps	Solid carbide taps	Solid carbide thread milling cutters
Diameter	€ / piece	€ / piece	€ / piece	€ / piece	Diameter	€ / 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	●	●
> 16 - 18	●	●	●	●	> 36 - 40	●	on request
> 18 - 20	●	●	●	●	> 40 - 70	on request	on request
> 20 - 30	●	-	●	●			on request

\* RT 100 U, RT 100 VA, RT 150 GG, FT 200 &amp; 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	●	●	on request	on request	●	●	●
> 25 - 40	●	●	on request	on request	●	●	-

**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, TiAIN, FIRE, nanoFIRE, SuperA, nanoA

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

## Re-grind and re-coating centres

# EUROPE

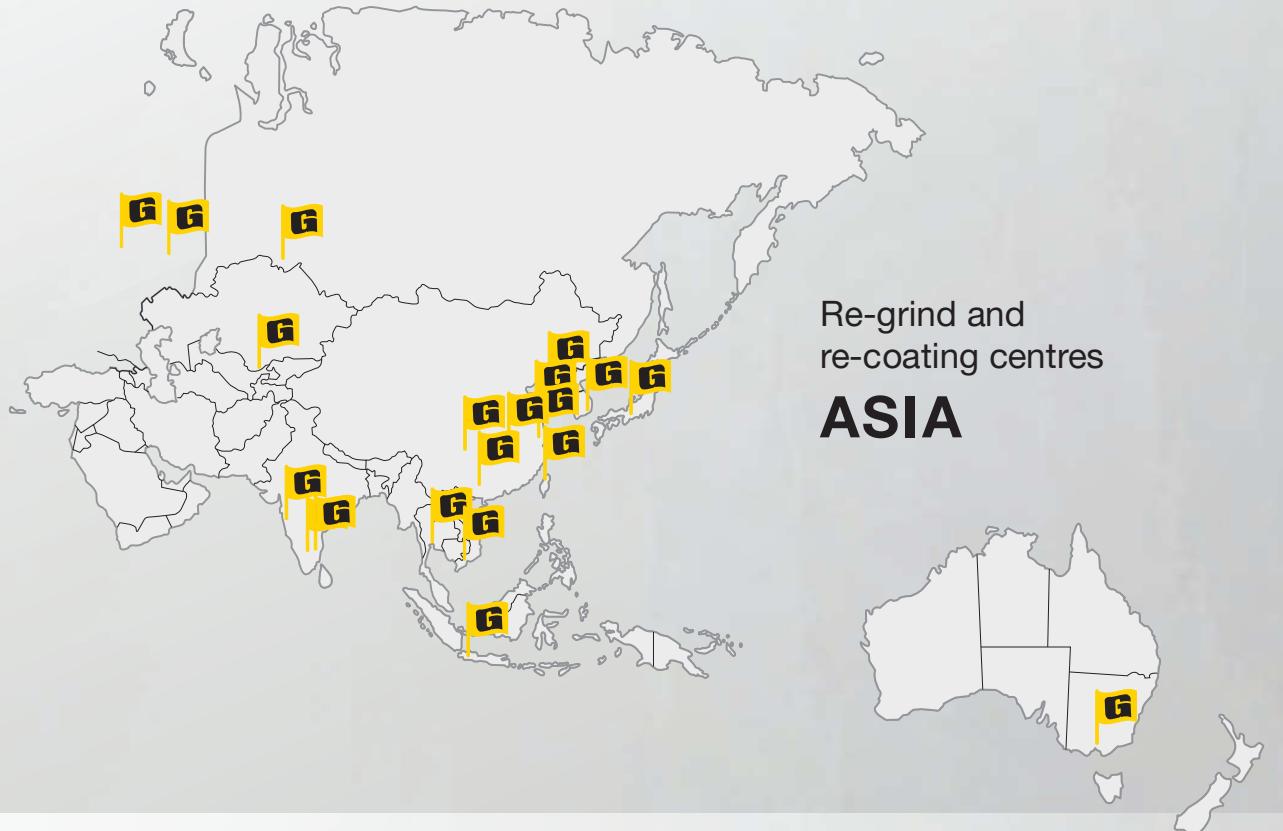


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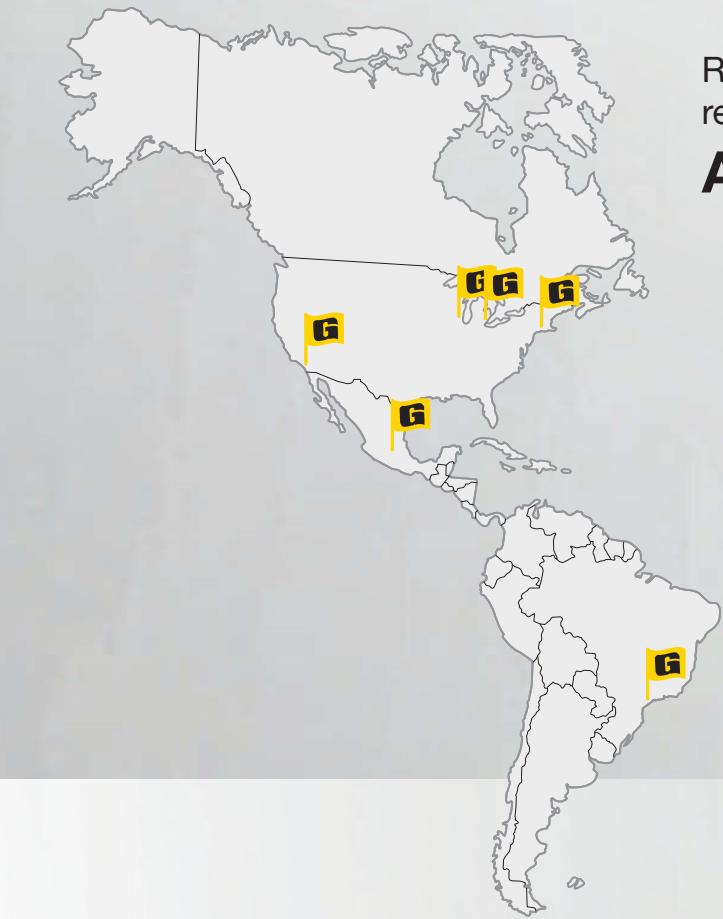
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Re-grinding and re-coating

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Re-grind and  
re-coating centres

## AMERICA AND AFRICA

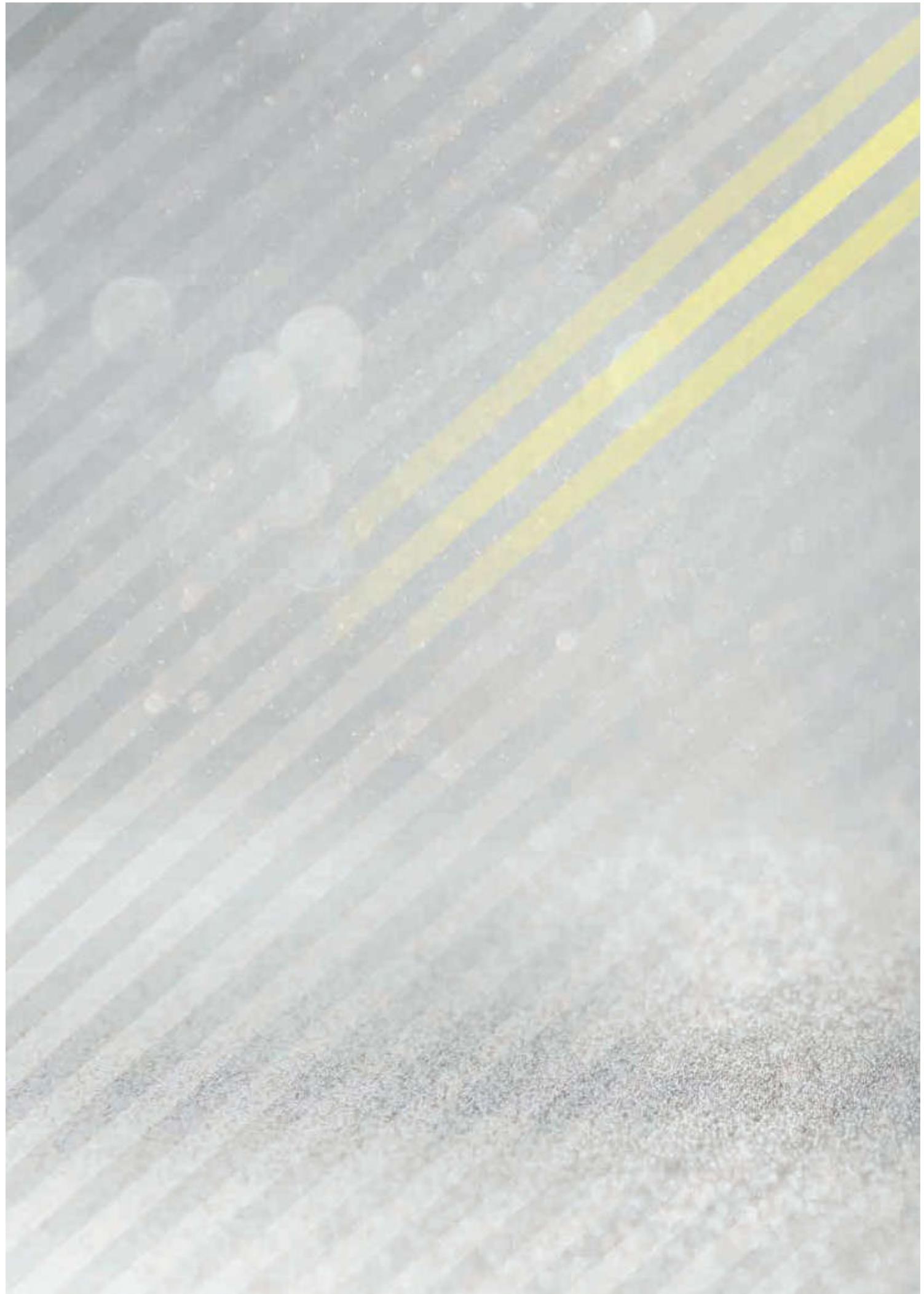


### America

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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	AI 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	AI 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	

Article no.	Page	Drilling depth	Standard	Description	Tool material	Type	Form
6029	136		Company std.	142° NC spotting drills	Solid carbide	N	
6400	90	4xD	Company std.	ExclusiveLine micro-precision drills without coolant ducts	Solid carbide	N	
6401	92	7xD	Company std.	ExclusiveLine micro-precision drills without coolant ducts	Solid carbide	N	
6405	94	5xD	Company std.	ExclusiveLine micro-precision drills with coolant ducts	Solid carbide	N	
6408	96	8xD	Company std.	ExclusiveLine micro-precision drills with coolant ducts	Solid carbide	N	
6412	98	15xD	Company std.	ExclusiveLine micro-precision drills with coolant ducts	Solid carbide	N	
6509	56	15xD	Company std.	Ratio drills with coolant ducts	Solid carbide	RT 100 T	
6511	58	20xD	Company std.	Ratio drills with coolant ducts	Solid carbide	RT 100 T	
6512	60	25xD	Company std.	Ratio drills with coolant ducts	Solid carbide	RT 100 T	
6513	62	30xD	Company std.	Ratio drills with coolant ducts	Solid carbide	RT 100 T	
6736	197		DIN 6527L	Ratio end mills RF 100 Diver	Solid carbide	NH	B
6737	197		DIN 6527L	Ratio end mills RF 100 Diver	Solid carbide	NH	A
6761	195		Company std.	Ratio end mills RF 100 Speed M	Solid carbide	NH	B
6803	196		DIN 6527K	Ratio end mills RF 100 Diver	Solid carbide	N	
6804	196		DIN 6527K	Ratio end mills RF 100 Diver	Solid carbide	N	
6964	198		DIN 6527L	Ratio end mills RF 100 iMill	Solid carbide	N	
6965	198		DIN 6527L	Ratio end mills RF 100 iMill	Solid carbide	N	B
9651	125	~5xD	DIN 338	Jobber drills	HSS	N	
506920	269		Company std.	Tool dispensing system TM 226			

# E-LEARNING



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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

 Carbo

 steam tempered

 FIRE/nanoFIRE

 nitrided

 Signum

 Sirius

 TiAlN

 TiAlN nanoA

 TiAlN SuperA

 TiCN

 TiSiN

 TiN

 nickel-plated

# Pictograms

# Superline



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