



GUHRING

AUSTRALIAN STOCK RANGE
10TH EDITION

GUHRING



FREE CALL : 1800 639 991

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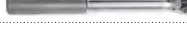





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AUSTRALIAN STOCK RANGE

10TH EDITION | 2026

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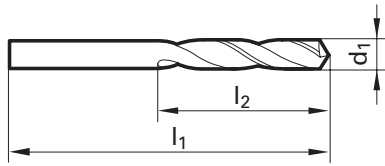
DRILLING



STUB DRILLS

DRILLS








Guhring no.	223	5524	5520	1228	659	5516	2463
Standard	DIN 1897					DIN 6539	
Tool material	HSS	HSCO				Solid carbide	
Surface							
Type	N	GU500DZ	GU500DZ	GT80	GV120	N	N
Cutting direction	right-hand						
Tolerance	h8	h8	h8	h8	h8	h7	h7
Point angle	118°	118°	118°	130°	130°	118°	118°

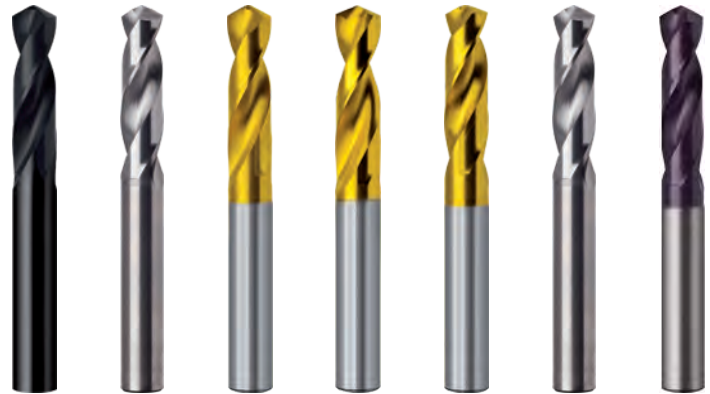
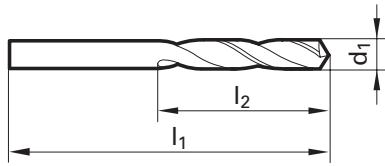


d1		l1	l2	AVAILABILITY						
mm	Inch	mm	mm							
1.000		26.00	6.00	•	•	•		•		•
1.100		28.00	7.00		○	•				•
1.200		30.00	8.00		○	•		•		•
1.300		30.00	8.00		○	•				•
1.400		32.00	9.00		○	•				•
1.500		32.00	9.00	•	•	•		•		•
1.600		34.00	10.00		○	•		•		•
1.700		34.00	10.00		○	•		•		•
1.800		36.00	11.00		○	•				•
1.900		36.00	11.00		○	•				•
2.000		38.00	12.00	•	•	•		•	•	•
2.100		38.00	12.00		○	•		•	•	•
2.200		40.00	13.00		○	•		•	•	•
2.300		40.00	13.00		○	•		•	•	•
2.380	3/32	43.00	14.00	•	○	•		•	•	•
2.400		43.00	14.00		○	•		•	•	•
2.500		43.00	14.00	•	•	•		•	•	•
2.600		43.00	14.00		○	•		•	•	•
2.700		46.00	16.00		○	•		•	•	•
2.780	7/64	46.00	16.00	•	○	•		•	•	○
2.800		46.00	16.00		○	•		•	•	•
2.900		46.00	16.00		○	•		•	•	•
2.950		46.00	16.00		○	•		•		•
3.000		46.00	16.00	•	•	•		•	•	
3.100		49.00	18.00		○	•		•	•	•
3.170	1/8	49.00	18.00	•	○	•		•	•	•
3.200		49.00	18.00		○	•		•	•	•
3.250		49.00	18.00		○	•		•		•
3.300		49.00	18.00	•	○	•		•	•	•
3.400		52.00	20.00		○	•		•	•	•
3.500		52.00	20.00	•	•	•		•	•	•
3.570	9/64	52.00	20.00	•	○	•		•	•	•
3.600		52.00	20.00	•	○	•		•	•	•
3.700		52.00	20.00		○	•		•	•	•
3.800		55.00	22.00		○	•		•	•	•
3.900		55.00	22.00	•	○	•		•	•	•
3.970	5/32	55.00	22.00	•	○	•		•	•	•
4.000		55.00	22.00	•	•	•		•	•	•
4.100		55.00	22.00		○	•		•	•	•

• Australian stock item ○ German stock item



Guhring no.	223	5524	5520	1228	659	5516	2463
Standard	DIN 1897				DIN 6539		
Tool material	HSS	HSCO				Solid carbide	
Surface	 $\geq 0.2,36$						
Type	N	GU500DZ	GU500DZ	GT80	GV120	N	N
Cutting direction	right-hand						
Tolerance	h8	h8	h8	h8	h8	h7	h7
Point angle	118°	118°	118°	130°	130°	118°	118°

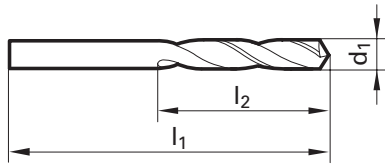


d1		l1	l2	AVAILABILITY							
mm	Inch	mm	mm								
4.200		55.00	22.00	•	○	•	•	•			
4.300		58.00	24.00		○	•	•	•			
4.370	11/64	58.00	24.00	•	○	•	•	•			
4.400		58.00	24.00		○	•	•	•			
4.500		58.00	24.00	•	•	•	•	•			
4.570		58.00	24.00		○	•	•	•			
4.600		58.00	24.00	•	○	•	•	•			
4.700		58.00	24.00		○	•	•	•			
4.760	3/16	62.00	26.00	•	○	•	•	•			
4.800		62.00	26.00		○	•	•	•			
4.900		62.00	26.00		○	•	•	•			
5.000		62.00	26.00	•	•	•	•	•			
5.100		62.00	26.00		○	•	•	•			
5.160	13/64	62.00	26.00	•	○	•	•	•			
5.200		62.00	26.00		○	•	•	•			
5.300		62.00	26.00		○	•	•	•			
5.400		66.00	28.00		○	•	•	•			
5.500		66.00	28.00	•	•	•	•	•			
5.560	7/32	66.00	28.00	•	○	•	•	•			
5.600		66.00	28.00	•	○	•	•	•			
5.700		66.00	28.00		○	•	•	•			
5.800		66.00	28.00	•	○	•	•	•			
5.900		66.00	28.00		○	•	•	•			
5.950	15/64	66.00	28.00	•	○	•	•	•			
6.000		66.00	28.00	•	•	•	•	•			
6.100		70.00	31.00		○	•	•	•			
6.200		70.00	31.00		○	•	•	•			
6.300		70.00	31.00		○	•	•	•			
6.350	1/4	70.00	31.00	•	○	•	•	•			
6.400		70.00	31.00		○	•	•	•			
6.500		70.00	31.00	•	•	•	•	•			
6.600		70.00	31.00		○	•	•	•			
6.700		70.00	31.00		○	•	•	•			
6.800		74.00	34.00	•	○	•	•	•			
6.900		74.00	34.00		○	•	•	•			
7.000		74.00	34.00	•	•	•	•	•			
7.100		74.00	34.00		○	•	•	•			
7.140	9/32	74.00	34.00	•	○	•	•	•			
7.200		74.00	34.00		○	•	•	•			

• Australian stock item ○ German stock item










Guhring no.	223	5524	5520	1228	659	5516	2463
Standard	DIN 1897					DIN 6539	
Tool material	HSS	HSCO				Solid carbide	
Surface							
Type	N	GU500DZ	GU500DZ	GT80	GV120	N	N
Cutting direction	right-hand						
Tolerance	h8	h8	h8	h8	h8	h7	h7
Point angle	118°	118°	118°	130°	130°	118°	118°

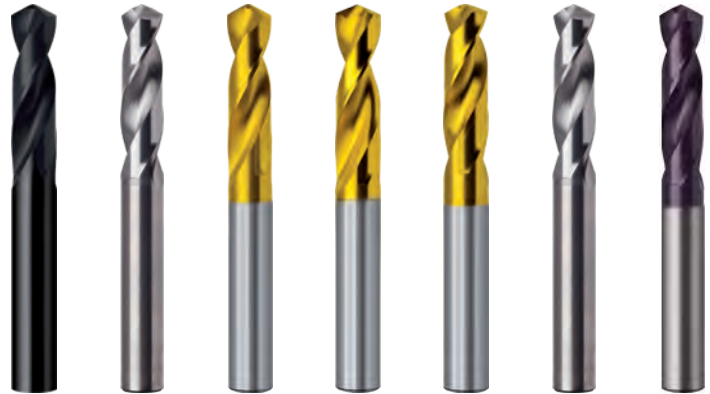
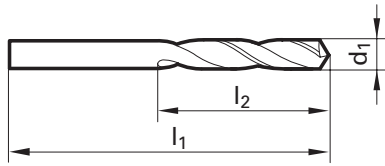


d1		l1	l2	AVAILABILITY					
mm	Inch	mm	mm						
7.300		74.00	34.00		o	•			
7.400		74.00	34.00		o	•			
7.500		74.00	34.00	•	•	•		•	•
7.600		79.00	37.00		o	•			
7.700		79.00	37.00		o	•		•	
7.800		79.00	37.00		o	•			
7.900		79.00	37.00		o	•			
7.940	5/16	79.00	37.00	•	o	•		•	•
8.000		79.00	37.00	•	•	•		•	•
8.100		79.00	37.00		o	•		•	
8.200		79.00	37.00		o	•			
8.300		79.00	37.00		o	•			
8.400		79.00	37.00		o	•			
8.500		79.00	37.00	•	•	•		•	•
8.600		84.00	40.00		o	•		•	•
8.700	11/32	84.00	40.00		o	•			
8.730		84.00	40.00	•	o	•		•	•
8.800		84.00	40.00		o	•		•	•
8.900		84.00	40.00		o	•			
9.000		84.00	40.00	•	•	•		•	•
9.100		84.00	40.00		o	•			
9.200		84.00	40.00		o	•			
9.300		84.00	40.00		o	•			
9.400		84.00	40.00		o	•			
9.500		84.00	40.00	•	•	•		•	•
9.600		89.00	43.00		o	•			
9.700		89.00	43.00		o	•		•	
9.800		89.00	43.00		o	•			
9.900		89.00	43.00		o	•			
10.000		89.00	43.00	•	•	•		•	•
10.200		89.00	43.00	•	o	•		•	
10.300		89.00	43.00		o	•			
10.500		89.00	43.00	•	•	•		•	•
10.720	27/64	95.00	47.00	•	o	•			
10.800		95.00	47.00		o	•			
11.000		95.00	47.00	•	•	•		•	•
11.110	7/16	95.00	47.00		o	•		•	•
11.500		95.00	47.00		•	•		•	•
11.800		95.00	47.00		o	•			

• Australian stock item o German stock item



Guhring no.	223	5524	5520	1228	659	5516	2463
Standard	DIN 1897				DIN 6539		
Tool material	HSS	HSCO			Solid carbide		
Surface	 $\geq \text{Ø} 2,36$						
Type	N	GU500DZ	GU500DZ	GT80	GV120	N	N
Cutting direction	right-hand						
Tolerance	h8	h8	h8	h8	h8	h7	h7
Point angle	118°	118°	118°	130°	130°	118°	118°



d1		l1	l2	AVAILABILITY								
mm	Inch	mm	mm									
11.910	15/32	102.00	51.00		○	•						
12.000		102.00	51.00	•	•	•		•		•		
12.300	31/64	102.00	51.00		○							
12.500		102.00	51.00		•	•			•			
12.700		102.00	51.00	•	○							
12.800		102.00	51.00		○							
13.000		102.00	51.00	•	•	•			•			
13.100	33/64	102.00	51.00		○							
13.500		107.00	54.00		•	•			•			
14.000		107.00	54.00	•	•	•			•			
14.500		111.00	56.00	•			•		•			
15.000		111.00	56.00	•			•		•			
15.500		115.00	58.00						•			
15.870	5/8	115.00	58.00									
16.000		115.00	58.00	•			•					
16.500		119.00	60.00				•					
17.000		119.00	60.00	•			•					
17.500		123.00	62.00				•					
18.000		123.00	62.00	•			•					
18.500		127.00	64.00				•					
19.000		127.00	64.00	•			•					
19.500		131.00	66.00				•					
20.000		131.00	66.00	•			•					

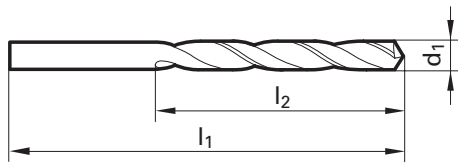
• Australian stock item ○ German stock item



JOBBER DRILLS

DRILLS

Guhring no.	205	9651	5523	5522	658	5517	2464
Standard	DIN 338					Guhring std.	
Tool material	HSS	HSS	HSCO	HSS-E-PM	HSCO	Solid carbide	
Surface							
Type	N	N	GU500DZ	GT500DZ	GT 100	N	N
Cutting direction	right-hand						
Tolerance	h8	h8	h8	h8	h8	h7	h7
Point angle	118°	118°	118°	130°	130°	118°	118°

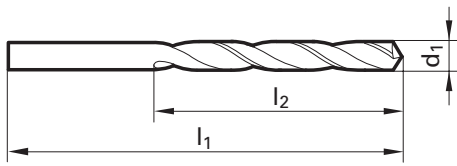


d1		l1	l2	AVAILABILITY							
mm	Inch	mm	mm								
0.400	1/64	20.00	5.00	•							
0.500		22.00	6.00	•							
0.600		24.00	7.00	•							
0.700		28.00	9.00	•							
0.800		30.00	10.00	•							
0.900		32.00	11.00	•							
1.000		34.00	12.00	•	•	•	•	•			•
1.100		36.00	14.00	•	•	•	•	•			•
1.200		38.00	16.00	•	•	•	•	•			•
1.300		38.00	16.00	•	•	•	•	•			•
1.400		40.00	18.00	•	•	•	•	•			•
1.500		40.00	18.00	•	•	•	•	•			•
1.590	1/16	43.00	20.00	•	•						
1.600		43.00	20.00	•	•						
1.700		43.00	20.00	•	•	•	•	•			•
1.800		46.00	22.00	•	•	•	•	•			•
1.900		46.00	22.00	•	•	•	•	•			•
1.980	5/64	49.00	24.00	•	•						
2.000		49.00	24.00	•	•	•	•	•	•	•	•
2.100		49.00	24.00	•	•	•	•	•	•	•	•
2.200		53.00	27.00	•	•	•	•	•	•	•	•
2.300		53.00	27.00	•	•	•	•	•	•	•	•
2.380	3/32	57.00	30.00	•	•						
2.400		57.00	30.00	•	•						
2.500		57.00	30.00	•	•	•	•	•	•	•	•
2.600		57.00	30.00	•	•	•	•	•	•	•	•
2.700		61.00	33.00	•	•	•	•	•	•	•	•
2.780	7/64	61.00	33.00	•	•						
2.800		61.00	33.00	•	•	•	•	•	•	•	•
2.900		61.00	33.00	•	•	•	•	•	•	•	•
3.000		61.00	33.00	•	•	•	•	•	•	•	•
3.100		65.00	36.00	•	•	•	•	•	•	•	•
3.170	1/8	65.00	36.00	•	•	•	•	•	•	•	•
3.200		65.00	36.00	•	•	•	•	•	•	•	•
3.300		65.00	36.00	•	•	•	•	•	•	•	•
3.400		70.00	39.00	•	•	•	•	•	•	•	•
3.500		70.00	39.00	•	•	•	•	•	•	•	•
3.570	9/64	70.00	39.00	•	•	•	•	•	•	•	•
3.600		70.00	39.00	•	•	•	•	•	•	•	•

• Australian stock item ○ German stock item



Guhring no.	205	9651	5523	5522	658	5517	2464
Standard	DIN 338				Guhring std.		
Tool material	HSS	HSS	HSCO	HSS-E-PM	HSCO	Solid carbide	
Surface	$\frac{>\varnothing}{2,36}$						
Type	N	N	GU500DZ	GT500DZ	GT 100	N	N
Cutting direction	right-hand						
Tolerance	h8	h8	h8	h8	h8	h7	h7
Point angle	118°	118°	118°	130°	130°	118°	118°



d1		l1	l2	AVAILABILITY						
mm	Inch	mm	mm							
3.700		70.00	39.00	•	•	•	•	•	•	•
3.800		75.00	43.00	•	•	•	•	•	•	•
3.900		75.00	43.00	•	•	•	•	•	•	•
3.970	5/32	75.00	43.00	•	•	•	•	•	•	•
4.000		75.00	43.00	•	•	•	•	•	•	•
4.100		75.00	43.00	•	•	•	•	•	•	•
4.200		75.00	43.00	•	•	•	•	•	•	•
4.300		80.00	47.00	•	•	•	•	•	•	•
4.370	11/64	80.00	47.00	•	•	•	•	•	•	•
4.400		80.00	47.00	•	•	•	•	•	•	•
4.500		80.00	47.00	•	•	•	•	•	•	•
4.600		80.00	47.00	•	•	•	•	•	•	•
4.700		80.00	47.00	•	•	•	•	•	•	•
4.760	3/16	86.00	52.00	•	•	•	•	•	•	•
4.800		86.00	52.00	•	•	•	•	•	•	•
4.900		86.00	52.00	•	•	•	•	•	•	•
5.000		86.00	52.00	•	•	•	•	•	•	•
5.100		86.00	52.00	•	•	•	•	•	•	•
5.160	13/64	86.00	52.00	•	•	•	•	•	•	•
5.200		86.00	52.00	•	•	•	•	•	•	•
5.300		86.00	52.00	•	•	•	•	•	•	•
5.400		93.00	57.00	•	•	•	•	•	•	•
5.500		93.00	57.00	•	•	•	•	•	•	•
5.560	7/32	93.00	57.00	•	•	•	•	•	•	•
5.600		93.00	57.00	•	•	•	•	•	•	•
5.700		93.00	57.00	•	•	•	•	•	•	•
5.800		93.00	57.00	•	•	•	•	•	•	•
5.900		93.00	57.00	•	•	•	•	•	•	•
5.950	15/64	93.00	57.00	•	•	•	•	•	•	•
6.000		93.00	57.00	•	•	•	•	•	•	•
6.100		101.00	63.00	•	•	•	•	•	•	•
6.200		101.00	63.00	•	•	•	•	•	•	•
6.300		101.00	63.00	•	•	•	•	•	•	•
6.350	1/4	101.00	63.00	•	•	•	•	•	•	•
6.400		101.00	63.00	•	•	•	•	•	•	•
6.500		101.00	63.00	•	•	•	•	•	•	•
6.600		101.00	63.00	•	•	•	•	•	•	•
6.700		101.00	63.00	•	•	•	•	•	•	•
6.750	17/64	109.00	69.00	•	•	•	•	•	•	•

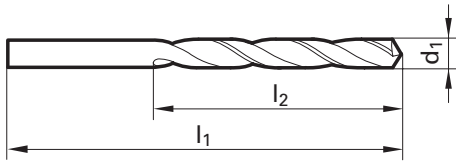
• Australian stock item ◦ German stock item



JOBBER DRILLS

DRILLS

Guhring no.	205	9651	5523	5522	658	5517	2464
Standard	DIN 338				Guhring std.		
Tool material	HSS	HSS	HSCO	HSS-E-PM	HSCO	Solid carbide	
Surface	>Ø 2,36						
Type	N	N	GU500DZ	GT500DZ	GT 100	N	N
Cutting direction	right-hand						
Tolerance	h8	h8	h8	h8	h8	h7	h7
Point angle	118°	118°	118°	130°	130°	118°	118°

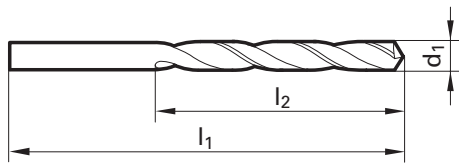


d1		l1	l2	AVAILABILITY						
mm	Inch	mm	mm	•	•	•	•	•	•	•
6.800		109.00	69.00	•	•	•	•	•	•	•
6.900		109.00	69.00	•	•	•	•	•	•	•
7.000		109.00	69.00	•	•	•	•	•	•	•
7.100		109.00	69.00	•	•	•	•	•	•	•
7.140	9/32	109.00	69.00	•	•	•	•	•	•	•
7.200		109.00	69.00	•	•	•	•	•	•	•
7.300		109.00	69.00	•	•	•	•	•	•	•
7.400		109.00	69.00	•	•	•	•	•	•	•
7.500		109.00	69.00	•	•	•	•	•	•	•
7.540	19/64	117.00	75.00	•	•	•	•	•	•	•
7.600		117.00	75.00	•	•	•	•	•	•	•
7.700		117.00	75.00	•	•	•	•	•	•	•
7.800		117.00	75.00	•	•	•	•	•	•	•
7.900		117.00	75.00	•	•	•	•	•	•	•
7.940	5/16	117.00	75.00	•	•	•	•	•	•	•
8.000		117.00	75.00	•	•	•	•	•	•	•
8.100		117.00	75.00	•	•	•	•	•	•	•
8.200		117.00	75.00	•	•	•	•	•	•	•
8.300		117.00	75.00	•	•	•	•	•	•	•
8.330	21/64	117.00	75.00	•	•	•	•	•	•	•
8.400		117.00	75.00	•	•	•	•	•	•	•
8.500		117.00	75.00	•	•	•	•	•	•	•
8.600		125.00	81.00	•	•	•	•	•	•	•
8.700		125.00	81.00	•	•	•	•	•	•	•
8.730	11/32	125.00	81.00	•	•	•	•	•	•	•
8.800		125.00	81.00	•	•	•	•	•	•	•
8.900		125.00	81.00	•	•	•	•	•	•	•
9.000		125.00	81.00	•	•	•	•	•	•	•
9.100		125.00	81.00	•	•	•	•	•	•	•
9.130	23/64	125.00	81.00	•	•	•	•	•	•	•
9.200		125.00	81.00	•	•	•	•	•	•	•
9.300		125.00	81.00	•	•	•	•	•	•	•
9.400		125.00	81.00	•	•	•	•	•	•	•
9.500		125.00	81.00	•	•	•	•	•	•	•
9.520	3/8	133.00	87.00	•	•	•	•	•	•	•
9.600		133.00	87.00	•	•	•	•	•	•	•
9.700		133.00	87.00	•	•	•	•	•	•	•
9.800		133.00	87.00	•	•	•	•	•	•	•
9.900		133.00	87.00	•	•	•	•	•	•	•

• Australian stock item ○ German stock item



Guhring no.	205	9651	5523	5522	658	5517	2464
Standard	DIN 338					Guhring std.	
Tool material	HSS	HSS	HSCO	HSS-E-PM	HSCO	Solid carbide	
Surface							
Type	N	N	GU500DZ	GT500DZ	GT 100	N	N
Cutting direction	right-hand						
Tolerance	h8	h8	h8	h8	h8	h7	h7
Point angle	118°	118°	118°	130°	130°	118°	118°

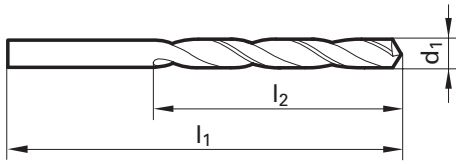


d1		l1	l2	AVAILABILITY							
mm	Inch	mm	mm								
9.920	25/64	133.00	87.00	•	•	•					
10.000		133.00	87.00	•	•	•	•	•	•		
10.100		133.00	87.00	•	•			•			
10.200		133.00	87.00	•	•	•	•	•	•		
10.300		133.00	87.00	•	•			•			
10.320	13/32	133.00	87.00	•	•			•			
10.400		133.00	87.00	•	•			•			
10.500		133.00	87.00	•	•	•	•	•	•		
10.600		133.00	87.00	•				•			
10.700		142.00	94.00	•				•			
10.720	27/64	142.00	94.00	•	•			•			
10.800		142.00	94.00	•	•			•			
10.900		142.00	94.00	•				•			
11.000		142.00	94.00	•	•	•	•	•	•		
11.100		142.00	94.00	•				•			
11.110	7/16	142.00	94.00	•	•		•	•		•	
11.200		142.00	94.00	•				•			
11.300		142.00	94.00	•				•			
11.400		142.00	94.00	•				•			
11.500		142.00	94.00	•	•	•	•	•		•	
11.510	29/64	142.00	94.00	•	•			•			
11.600		142.00	94.00	•				•			
11.700		142.00	94.00	•				•			
11.800		142.00	94.00	•	•			•			
11.900		151.00	101.00	•				•			
11.910	15/32	151.00	101.00	•	•			•			
12.000		151.00	101.00	•	•	•	•	•	•		
12.100		151.00	101.00	•				•			
12.200		151.00	101.00	•				•			
12.300	31/64	151.00	101.00	•	•			•			
12.400		151.00	101.00	•	•			•			
12.500		151.00	101.00	•	•	•	•	•			
12.600		151.00	101.00	•				•			
12.700	1/2	151.00	101.00	•	•			•			
12.800		151.00	101.00	•	•			•			
12.900		151.00	101.00	•				•			
13.000		151.00	101.00	•	•	•	•	•			
13.500		160.00	108.00	•	•	•	•	•			
14.000		160.00	108.00	•	•	•		•			

• Australian stock item ◦ German stock item



Guhring no.	205	9651	5523	5522	658	5517	2464
Standard	DIN 338				Guhring std.		
Tool material	HSS	HSS	HSCO	HSS-E-PM	HSCO	Solid carbide	
Surface							
Type	N	N	GU500DZ	GT500DZ	GT 100	N	N
Cutting direction	right-hand						
Tolerance	h8	h8	h8	h8	h8	h7	h7
Point angle	118°	118°	118°	130°	130°	118°	118°



d1		l1	l2	AVAILABILITY			
mm	Inch	mm	mm				
14.290	9/16	169.00	114.00	•			
14.500		169.00	114.00	•	•		•
15.000		169.00	114.00	•	•		
15.200		178.00	120.00	•			
15.500		178.00	120.00	•	•		
16.000		178.00	120.00	•	•		

• Australian stock item ◦ German stock item

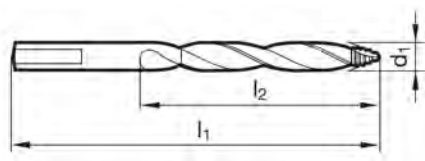


Guhring no.	9500	9502
Standard	DIN 338	
Tool material	HSS	HSCO
Surface		
Type	N	N
Cutting direction	right-hand	
Point angle	118°	118°

Sizes 13.50 - 20.00
also available

For Stainless Steel

*Steps start at Ø2.5



*Imperial sizes available on request

d1	l1	l2	AVAILABILITY	
mm	mm	mm		
1.000	34.00	12.00	•	○
1.500	40.00	18.00	•	○
2.000	49.00	24.00	•	○
2.500	57.00	30.00	•	○
3.000	61.00	33.00	•	○
3.200	65.00	36.00	•	○
3.300	65.00	36.00	•	○
3.500	70.00	39.00	•	○
4.000	75.00	43.00	•	○
4.100	75.00	43.00	•	○
4.200	75.00	43.00	•	○
4.500	80.00	47.00	•	○
4.900	86.00	52.00	•	○
5.000	86.00	52.00	•	○
5.100	86.00	52.00	•	○
5.200	86.00	52.00	•	○
5.500	93.00	57.00	•	○
6.000	93.00	57.00	•	○
6.500	101.00	63.00	•	○
6.800	109.00	69.00	•	○
7.000	109.00	69.00	•	○
7.500	109.00	69.00	•	○
8.000	117.00	75.00	•	○
8.500	117.00	75.00	•	○
9.000	125.00	81.00	•	○
9.500	125.00	81.00	•	○
10.000	133.00	87.00	•	○
10.200	133.00	87.00	•	○
10.500	133.00	87.00	•	○
11.000	142.00	94.00	•	○
11.500	142.00	94.00	•	○
12.000	151.00	101.00	•	○
12.500	151.00	101.00	•	○
13.000	151.00	101.00	•	○

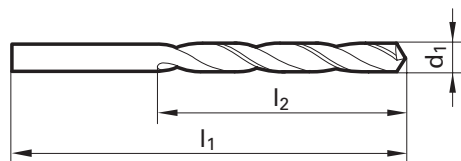
• Australian stock item ○ German stock item



LONG SERIES TWIST DRILLS

DRILLS

Guhring no.	217	5537	336
Standard	DIN 340		
Tool material	HSS	HSCO	
Surface			
Type	N	GU 500 DZ	GT 100
Cutting direction	right-hand		
Point angle	118°	118°	130°

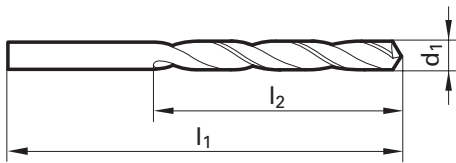


d1		l1	l2	AVAILABILITY		
mm	Inch	mm	mm			
1.000		56.00	33.00	•	○	•
1.500		70.00	45.00	•	○	•
2.000		85.00	56.00	•	○	•
2.500		95.00	62.00	•	○	•
2.700		100.00	66.00	•	○	•
2.800		100.00	66.00	•	○	•
3.000		100.00	66.00	•	○	•
3.170	1/8	106.00	69.00	•	○	•
3.300		106.00	69.00	•	○	•
3.400		112.00	73.00	•	○	•
3.500		112.00	73.00	•	○	•
3.570	9/64	112.00	73.00	•	○	•
3.800		119.00	78.00	○	○	○
3.900		119.00	78.00	○	○	○
3.970	5/32	119.00	78.00	•	○	•
4.000		119.00	78.00	•	○	•
4.200		119.00	78.00	•	○	•
4.300		126.00	82.00	○	○	○
4.370	11/64	126.00	82.00	•	○	•
4.500		126.00	82.00	•	○	•
4.700		126.00	82.00	○	○	○
4.760	3/16	132.00	87.00	○	○	○
4.800		132.00	87.00	○	○	○
4.900		132.00	87.00	○	○	○
5.000		132.00	87.00	•	○	•
5.100		132.00	87.00	○	○	○
5.160	13/64	132.00	87.00	○	○	○
5.200		132.00	87.00	○	○	○
5.300		132.00	87.00	○	○	○
5.400		139.00	91.00	○	○	○
5.500		139.00	91.00	•	○	•
5.560	7/32	139.00	91.00	•	○	•
5.700		139.00	91.00	○	○	○
5.800		139.00	91.00	•	○	•
5.950	15/64	139.00	91.00	•	○	•
6.000		139.00	91.00	•	○	•
6.300		148.00	97.00	○	○	○
6.350	1/4	148.00	97.00	•	○	•
6.500		148.00	97.00	•	○	•

• Australian stock item ○ German stock item



Guhring no.	217	5537	336
Standard	DIN 340		
Tool material	HSS	HSCO	
Surface	>Ø 2,36	S	>Ø 2,36
Type	N	GU 500 DZ	GT 100
Cutting direction	right-hand		
Point angle	118°	118°	130°



d1		l1	l2	AVAILABILITY		
mm	Inch	mm	mm			
6.700		148.00	97.00	○	○	●
6.750	17/64	156.00	102.00	●		●
6.800		156.00	102.00	●		●
6.900		156.00	102.00	○	○	●
7.000		156.00	102.00	●	○	●
7.200		156.00	102.00	○	○	●
7.500		156.00	102.00	●	○	●
7.540	19/64	165.00	109.00	○		●
7.940	5/16	165.00	109.00	●		●
8.000		165.00	109.00	●	○	●
8.100		165.00	109.00	○	○	●
8.500		165.00	109.00	●	○	●
8.700		175.00	115.00	○	○	●
8.730	11/32	175.00	115.00	○		●
9.000		175.00	115.00	●	○	●
9.500		175.00	115.00	●	○	●
9.520	3/8	184.00	121.00	○		●
9.700		184.00	121.00	○	○	●
9.800		184.00	121.00	○	○	●
9.900		184.00	121.00	○	○	●
10.000		184.00	121.00	●	○	●
10.200		184.00	121.00	●	○	●
10.300		184.00	121.00	●	○	
10.500		184.00	121.00	●	○	●
11.000		195.00	128.00	●	○	●
11.500		195.00	128.00	●	○	●
12.000		205.00	134.00	●	○	●
12.500		205.00	134.00	●	○	●
12.700	1/2	205.00	134.00	●		●
13.000		205.00	134.00	●	○	●
13.500		214.00	140.00	●	○	●
14.000		214.00	140.00	●	○	○

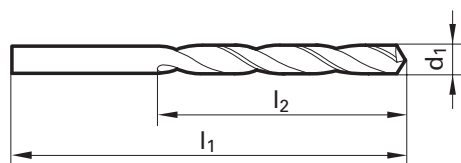
● Australian stock item ○ German stock item



EXTRA LENGTH TWIST DRILLS, SERIES 1

DRILLS

Guhring no.	502	618	9670
Standard	DIN 1869		
Tool material	HSS	HSCO	
Surface			
Type	GT 100	GT 100	GT 100
Cutting direction	right-hand	right-hand	right-hand
Point angle	130°	130°	130°

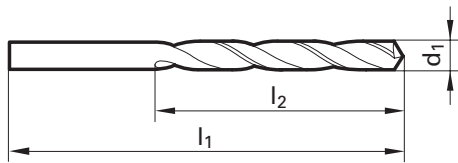


d1		l1	l2	AVAILABILITY		
mm	Inch	mm	mm			
2.000		125.00	85.00	○	○	○
3.000		150.00	100.00	●	○	○
3.170	1/8	155.00	105.00	○	○	○
3.500		165.00	115.00	●	○	○
3.570	9/64	165.00	115.00	○	○	
3.970	5/32	175.00	120.00	○	○	○
4.000		175.00	120.00	●	○	○
4.200		175.00	120.00	●	○	○
4.370	11/64	185.00	125.00	○	○	
4.500		185.00	125.00	●	○	○
4.760	3/16	195.00	135.00	○	○	○
5.000		195.00	135.00	●	○	○
5.160	13/64	195.00	135.00	○	○	
5.500		205.00	140.00	●	○	○
5.560	7/32	205.00	140.00	○	○	
5.950	15/64	205.00	140.00	○		
6.000		205.00	140.00	●	○	○
6.350	1/4	215.00	150.00	○	○	○
6.500		215.00	150.00	●	○	○
6.750	17/64	225.00	155.00	○	○	
6.800		225.00	155.00	●	○	○
7.000		225.00	155.00	●	○	○
7.500		225.00	155.00	●	○	○
7.540	19/64	240.00	165.00	○	○	
7.940	5/16	240.00	165.00	○	○	○
8.000		240.00	165.00	●	○	○
8.500		240.00	165.00	●	○	○
8.730	11/32	250.00	175.00	○	○	○
9.000		250.00	175.00	●	○	○
9.500		250.00	175.00	●	○	○
9.520	3/8	265.00	185.00	○	○	
10.000		265.00	185.00	●	○	○
10.500		265.00	185.00	●		○
11.000		280.00	195.00	●		○
11.500		280.00	195.00	●		○
12.000		295.00	205.00	●		○
12.500		295.00	205.00	●		○
12.700	1/2	295.00	205.00	○		
13.000		295.00	205.00	●		○

● Australian stock item ○ German stock item



Guhring no.	503	619	9671
Standard	DIN 1869		
Tool material	HSS	HSCO	
Surface			
Type	GT 100	GT 100	GT 100
Cutting direction	right-hand	right-hand	right-hand
Point angle	130°	130°	130°



d1		l1	l2	AVAILABILITY		
mm	Inch	mm	mm			
2.000		160.00	110.00	•	○	○
2.300		170.00	115.00	○	○	○
2.500		180.00	120.00	○	○	○
2.800		190.00	130.00	○	○	○
3.000		190.00	130.00	•	○	○
3.170	1/8	200.00	135.00	○	○	○
3.500		210.00	145.00	•	○	○
3.570	9/64	210.00	145.00	○	○	
3.970	5/32	220.00	150.00	○	○	
4.000		220.00	150.00	•	○	○
4.370	11/64	235.00	160.00	○	○	
4.760	3/16	245.00	170.00	○	○	○
5.000		245.00	170.00	•	○	○
5.160	13/64	245.00	170.00	○		
5.500		260.00	180.00	•	○	○
6.000		260.00	180.00	•	○	○
6.350	1/4	275.00	190.00	○	○	○
6.500		275.00	190.00	•	○	○
7.000		290.00	200.00	•	○	○
7.140	9/32	290.00	200.00	○	○	
7.500		290.00	200.00	•	○	○
7.940	5/16	305.00	210.00	○	○	○
8.000		305.00	210.00	•	○	○
8.330	21/64	305.00	210.00	○		
8.730	11/32	320.00	220.00	○	○	○
9.000		320.00	220.00	•	○	○
9.520	3/8	340.00	235.00	○	○	
10.000		340.00	235.00	•	○	○
10.720	27/64	365.00	250.00	○		
11.000		365.00	250.00	•		○
11.110	7/16	365.00	250.00	○		
12.000		375.00	260.00	•		○
12.700	1/2	375.00	260.00	○		
13.000		375.00	260.00	•		○

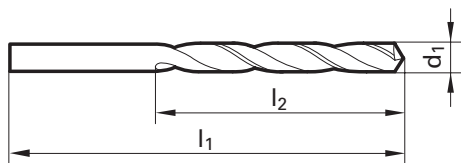
• Australian stock item ○ German stock item



EXTRA LENGTH TWIST DRILLS, SERIES 3

DRILLS

Guhring no.	504	571	9672
Standard	DIN 1869		
Tool material	HSS	HSCO	
Surface			
Type	GT 100	GT 100	GT 100
Cutting direction	right-hand	right-hand	right-hand
Point angle	130°	130°	130°

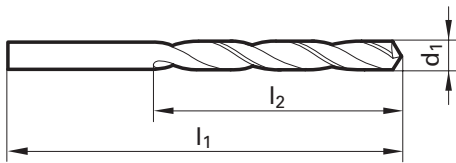


d1		l1	l2	AVAILABILITY		
mm	Inch	mm	mm			
2.500		225.00	150.00	○	○	○
3.000		240.00	160.00	●	○	○
3.170	1/8	250.00	170.00	○	○	○
3.500		265.00	180.00	●	○	○
3.970	5/32	280.00	190.00	○	○	○
4.000		280.00	190.00	●	○	○
4.370	11/64	295.00	200.00	○	○	○
4.760	3/16	315.00	210.00	○	○	○
5.000		315.00	210.00	●	○	○
5.500		330.00	225.00	●	○	○
6.000		330.00	225.00	●	○	○
6.350	1/4	350.00	235.00	○	○	○
6.500		350.00	235.00	●	○	○
6.750	17/64	370.00	250.00	○	○	○
7.000		370.00	250.00	●	○	○
7.140	9/32	370.00	250.00	○	○	○
7.500		370.00	250.00	●	○	○
7.940	5/16	390.00	265.00	○	○	○
8.000		390.00	265.00	●	○	○
8.330	21/64	390.00	265.00	○	○	○
8.730	11/32	410.00	280.00	○	○	○
9.000		410.00	280.00	●	○	○
9.520	3/8	430.00	295.00	○	○	○
10.000		430.00	295.00	●	○	○
10.320	13/32	430.00	295.00	○	○	○
10.500		430.00	295.00	●	○	○
11.000		455.00	310.00	●	○	○
11.110	7/16	455.00	310.00	○	○	○
12.000		480.00	330.00	●	○	○
13.000		480.00	330.00	●	○	○

● Australian stock item ○ German stock item



Guhring no.	242	243	244
Standard	Guhring std.		
Tool material	HSS		
Surface			
Type	GT 100	GT 100	GT 100
Cutting direction	right-hand	right-hand	right-hand
Point angle	130°	130°	130°



d1	l1	l2	AVAILABILITY
mm	mm	mm	
6.000	500.00	400.00	•
8.000	500.00	400.00	•
10.000	600.00	500.00	•
11.000	600.00	500.00	•
12.000	600.00	500.00	•
8.000	750.00	650.00	•
10.000	750.00	650.00	•
11.000	750.00	650.00	•
12.000	750.00	650.00	•
10.000	1000.00	850.00	•
11.000	1000.00	850.00	•
12.000	1000.00	850.00	•

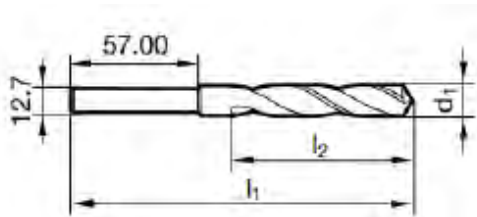
• Australian stock item ◦ German stock item



DRILLS WITH SHANK DIA. 12.7MM

DRILLS

Guhring no.	8908
Standard	Guhring std.
Tool material	HSS
Surface	
Form	A
Cutting direction	right-hand
Point angle	118°



d1		l1	l2	AVAILABILITY
mm	inch	mm	mm	
13.000		156.000	82.000	•
13.500		156.000	82.000	•
14.000		156.000	82.000	•
14.500		157.000	83.000	•
15.000		157.000	83.000	•
15.500		157.000	83.000	•
16.000		157.000	83.000	•
16.500		158.000	84.000	•
17.000		158.000	84.000	•
17.500		158.000	84.000	•
18.000		158.000	84.000	•
19.000		158.000	84.000	•
20.000		159.000	85.000	•
21.000		159.000	85.000	•
22.000		159.000	85.000	•
23.000		159.000	85.000	•
24.000		160.000	86.000	•
25.000	63/64	160.000	86.000	•

• Australian stock item ◦ German stock item



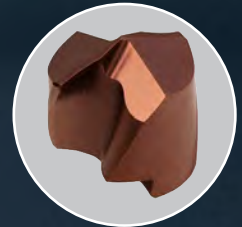
NEW

BT800

Interchangeable head drilling system for quick head changes and high economic efficiency



Pilot drill head with internal cooling for 4-way cooling
Ø range 10.0 – 26.0 mm



Drill head with Persistum coating for steel processing
Ø range 10.0 – 26.0 mm



Precise and secure clamping mechanism thanks to stable centring and contact surfaces to absorb cutting forces



Holder for the drill and pilot head
1.5xD, 3xD, 5xD, 8xD, 12xD;
Ø range 10.0 – 26.0 mm



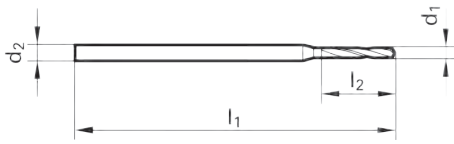
GUHRING



MICRO-PRECISION DRILLS WITHOUT OIL FEED

DRILLS

Guhring no.	301
Standard	DIN 1899
Tool material	HSS-E-PM
Surface	○
Type	N
Cutting direction	right-hand
Tolerance	0/-0,004
Point angle	118°

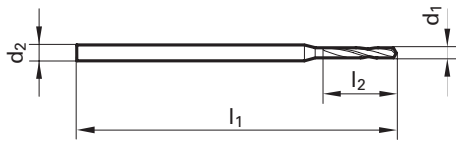


d1	d2	l1	l2	AVAILABILITY
mm	mm	mm	mm	
0.100	1.00	25.00	0.50	•
0.180	1.00	25.00	1.10	•
0.200	1.00	25.00	1.50	•
0.300	1.00	25.00	1.90	•
0.400	1.00	25.00	3.00	•
0.500	1.00	25.00	3.40	•
0.600	1.00	25.00	3.90	•
0.700	1.00	25.00	4.20	•
0.800	1.50	25.00	5.30	•
0.900	1.50	25.00	6.00	•
1.000	1.50	25.00	6.80	•
1.100	1.50	25.00	7.60	•
1.200	1.50	25.00	8.50	•
1.300	1.50	25.00	8.50	•
1.400	1.50	25.00	9.50	•
1.500	2.00	30.00	9.50	•
1.600	2.00	30.00	10.60	•
1.700	2.00	30.00	10.60	•
1.800	2.00	30.00	11.80	•
1.900	2.00	30.00	11.80	•
<i>*Other sizes available</i>				

• Australian stock item ○ German stock item



Guhring no.	5652
Standard	WN
Tool material	Solid Carbide
Surface	A
Type	N
Cutting direction	right-hand
Tolerance	≥1,0 h7
Point angle	140°

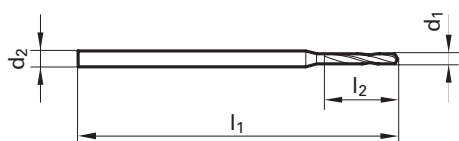


d1	d2	l1	l2	AVAILABILITY
mm	mm	mm	mm	
0.100	3.00	38.00	1.20	•
0.200	3.00	38.00	2.50	•
0.300	3.00	38.00	5.00	•
0.400	3.00	38.00	7.00	•
0.500	3.00	38.00	7.00	•
0.600	3.00	38.00	7.00	•
0.700	3.00	38.00	8.00	•
0.800	3.00	38.00	10.00	•
0.900	3.00	38.00	10.00	•
1.000	3.00	38.00	10.00	•
1.100	3.00	38.00	10.00	•
1.200	3.00	38.00	10.00	•
1.300	3.00	38.00	10.00	•
1.400	3.00	38.00	10.00	•
1.500	3.00	38.00	10.00	•
1.600	3.00	38.00	12.00	•
1.700	3.00	38.00	12.00	•
1.800	3.00	38.00	12.00	•
1.900	3.00	38.00	12.00	•
2.000	3.00	38.00	12.00	•
2.100	3.00	38.00	12.00	○
2.200	3.00	38.00	12.00	○
2.400	3.00	38.00	12.00	○
2.500	3.00	38.00	12.00	○
2.600	3.00	38.00	12.00	○
2.800	3.00	38.00	12.00	○
3.000	3.00	38.00	12.00	○

• Australian stock item ○ German stock item



Guhring no.	6408
Standard	Guhring std.
Tool material	Solid Carbide
Surface	A
Type	N
Drilling depth	8xD
Cutting direction	right-hand
Tolerance	h7
Point anlage	135°



d1	d2	l1	l2
mm	mm	mm	mm
1.400	4.00	52.00	15.00
1.500	4.00	52.00	17.00
1.600	4.00	52.00	18.00
1.700	4.00	56.00	19.00
1.800	4.00	56.00	20.00
1.900	4.00	56.00	21.00
2.000	4.00	56.00	22.00
2.100	4.00	62.00	23.00
2.200	4.00	62.00	24.00
2.300	4.00	62.00	25.00
2.400	4.00	62.00	26.00
2.500	4.00	62.00	28.00
2.600	4.00	66.00	29.00
2.700	4.00	66.00	30.00
2.800	4.00	66.00	31.00
2.900	4.00	66.00	32.00
3.000	4.00	66.00	33.00

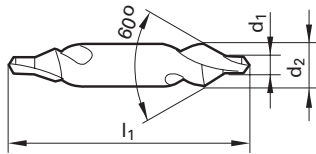
AVAILABILITY	
•	
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<i>*Other sizes available</i>	

• Australian stock item ○ German stock item



Guhring no.	581	736	280
Standard	DIN 333	Guhring std.	Guhring std.
Tool material	HSS	Solid Carbide	HSS
Surface	○	○	○
Form	A	A	A
Cutting direction	right-hand	right-hand	right-hand
Point angle	118°	118°	118°



size	d1	d2	l1	AVAILABILITY	
	mm	mm	mm		
	0.50	3.15	25.00	•	○
	0.80	3.15	25.00	•	○
	1.00	3.15	31.50	•	○
1	1.25	3.15	31.50	•	•
2	1.60	4.00	35.50	•	•
	2.00	5.00	40.00	•	○
3	2.50	6.30	45.00	•	•
4	3.15	8.00	50.00	•	•
5	4.00	10.00	56.00	•	○
	5.00	12.50	63.00	•	○
6	6.30	16.00	71.00	•	
8	8.00	20.00	80.00	•	
	10.00	25.00	100.00	•	
	12.50	31.50	125.00	•	
2	1.00	4.00	120.00		○
	1.60	5.00	120.00		○
	2.00	6.00	120.00		○
3	2.50	8.00	120.00		○
4	3.15	10.00	120.00		○

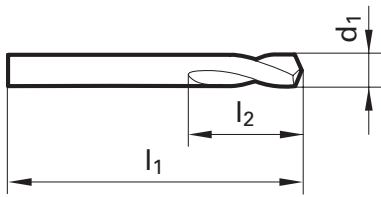
• Australian stock item ○ German stock item



90° NC-SPOTTING DRILLS

DRILLS

Guhring no.	557	568	567	557F	5678	723	6027	5649
Standard	Guhring std.							
Tool material	HSS				HSCO	Solid Carbide		
Surface	○	●S	●S	●F	●F	○	●F	○
Type	N	N	N	N	N	N	N	N
Cutting direction	right-hand							
Tolerance	h6	h6	h5	h6	h6	h6	h6	h6
Point angle	90°	90°	120°	90°	90°	90°	90°	142°



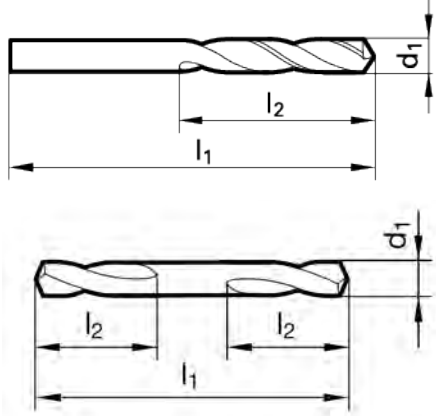
d1		l1	l2
mm	Inch	mm	mm
3.000		46.00	12.00
4.000		55.00	12.00
5.000		62.00	14.00
6.000		66.00	16.00
6.350	1/4	70.00	17.00
8.000		79.00	21.00
9.520	3/8	89.00	25.00
10.000		89.00	25.00
12.000		102.00	30.00
12.700	1/2	102.00	30.00
15.870	5/8	115.00	37.50
16.000		115.00	37.50
19.050	3/4	131.00	45.00
20.000		131.00	45.00
25.000	63/64	151.00	53.00
25.400	1	156.00	53.00

AVAILABILITY								
●	○			○				
●	○	○	●377003383	○	●			○
●	○			○	●			
●	●	●	●377003384	●	●	●	●	●
●	○				○			
●	●	●	●377003385	●	●	●	○	
●	○				●			
●	●	●	●377003380	●	●	●	●	●
●	●	●	●377003381	●	●	●	●	●
●	●				●			
●	●		●377003382	●	●	●	○	
●					●			
●	○			○	●			○
●	○							
●								

● Australian stock item ○ German stock item



Guhring no.	8926	8926F	8910
Standard	In-house std.	In-house std.	In-house std.
Tool material	HSCO	HSCO	HSS
Surface			
Type	N	N	N
Cutting direction	right-hand	right-hand	right-hand
Tolerance	h8	h8	



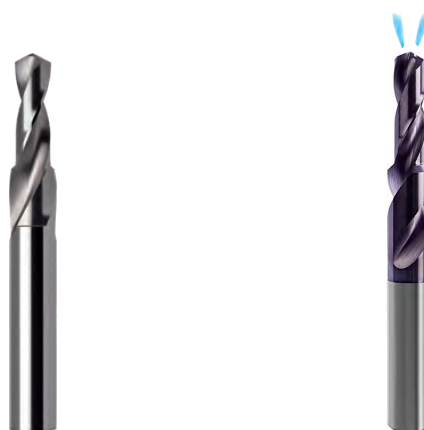
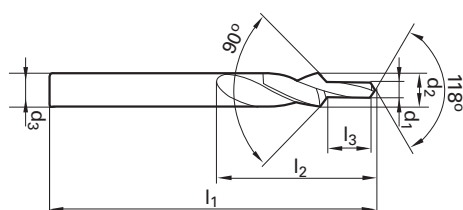
d1	l1	l2	AVAILABILITY	
mm	mm	mm		
6.000	66.000	28.000	•	• 377016775
8.000	79.000	37.000	•	• 377016776
2.000	38.00	7.500		○
2.500	43.000	9.500		○
3.000	46.000	10.600		○
3.200	49.000	11.200		•
3.300	49.000	11.200		•
4.000	55.000	14.000		○
4.100	55.000	14.000		○
4.200	55.000	14.000		○
4.800	62.000	17.000		○
4.900	62.000	17.000		○
5.000	62.000	17.000		○
5.200	62.000	17.000		○
6.000	66.000	19.000		○
8.000	79.000	25.000		○
10.000	89.000	25.000		○

• Australian stock item ○ German stock item



STRAIGHT SHANK SHORT STEP DRILLS

Guhring no.	380	6407
Standard	Guhring std.	
Tool material	HSS	Solid Carbide
Surface	○	● (F)
Type	N	RT 100 U
Form	for tapping size holes	for tapping size holes
Cutting direction	right-hand	right-hand
Point angle	118°	140°

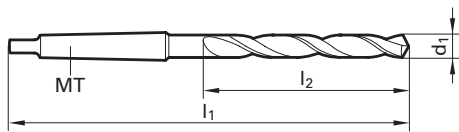


d2	d1	d3	l1	l2	l3	for	AVAILABILITY
mm	mm	mm	mm	mm	mm	thread	
3.400	2.500	3.400	52.00	20.00	8.80	M 3	●
4.500	3.300	4.500	58.00	24.00	11.40	M 4	●
5.500	4.200	5.500	66.00	28.00	13.60	M 5	●
6.600	5.000	6.600	70.00	31.00	16.50	M 6	●
9.000	6.800	9.000	84.00	40.00	21.00	M 8	●
11.000	8.500	11.000	95.00	47.00	25.50	M10	●
13.500	10.200	13.500	107.00	54.00	30.00	M12	●
6.000	3.30	6.000	66.00	28.00	11.40	M4 C	○
6.000	3.70	6.000	66.00	28.00	11.40	M4 F	○
6.000	4.20	6.000	66.00	30.00	13.60	M5 C	○
6.000	4.65	6.000	66.00	30.00	13.60	M5 F	○
8.000	5.00	8.000	79.00	30.00	16.50	M6 C	○
8.000	5.55	8.000	79.00	30.00	16.50	M6 F	○
10.000	6.80	10.000	89.00	47.00	21.00	M8 C	○
10.000	7.40	10.000	89.00	47.00	21.00	M8 F	○
12.000	8.50	12.000	102.00	55.00	25.50	M10 C	○
12.000	9.30	12.000	102.00	55.00	25.50	M10 F	○
14.000	10.20	14.000	107.00	60.00	30.00	M12 C	○
14.000	11.20	14.000	107.00	60.00	30.00	M12 F	○
16.000	12.00	16.000	115.00	65.00	34.50	M14 C	○
16.000	13.10	16.000	115.00	65.00	34.50	M14 F	○
18.000	14.00	18.000	123.00	73.00	38.50	M16 C	○
18.000	15.10	18.000	123.00	73.00	38.50	M16 F	○
C = Cutting tap size							
F = Forming tap size							

● Australian stock item ○ German stock item



Guhring no.	245
Standard	DIN 345
Tool material	HSS
Surface	
Type	N
Cutting direction	right-hand
Tolerance	h8
Point angle	118°



d1		MT	l1	l2	AVAILABILITY
mm	inch				
13.000		1	182.00	101.00	•
13.500		1	189.00	108.00	•
14.000		1	189.00	108.00	•
14.250		2	212.00	114.00	•
14.290	9/16	2	212.00	114.00	•
14.500		2	212.00	114.00	•
15.000		2	212.00	114.00	•
15.080	19/32	2	218.00	120.00	•
15.500		2	218.00	120.00	•
15.750		2	218.00	120.00	•
15.800		2	218.00	120.00	•
15.870	5/8	2	218.00	120.00	•
16.000		2	218.00	120.00	•
16.270	41/64	2	223.00	125.00	•
16.500		2	223.00	125.00	•
16.750		2	223.00	125.00	•
17.000		2	223.00	125.00	•
17.460		2	228.00	130.00	•
17.500		2	228.00	130.00	•
17.860	45/64	2	228.00	130.00	○
18.000		2	228.00	130.00	•
18.250		2	233.00	135.00	•
18.500		2	233.00	135.00	•
18.650	47/64	2	233.00	135.00	•
19.000		2	233.00	135.00	•
19.050	3/4	2	238.00	140.00	•
19.500		2	238.00	140.00	•
19.840	25/32	2	238.00	140.00	○
20.000		2	238.00	140.00	•
20.500		2	243.00	145.00	•
20.640	13/16	2	243.00	145.00	○
21.000		2	243.00	145.00	•
21.430	27/32	2	248.00	150.00	○
21.500		2	248.00	150.00	•
22.000		2	248.00	150.00	•
22.220	7/8	2	248.00	150.00	•
22.250		2	248.00	150.00	•
22.500		2	253.00	155.00	•
23.000		2	253.00	155.00	•

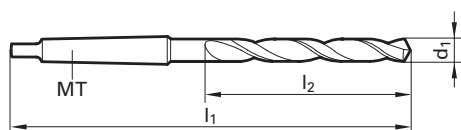
• Australian stock item ○ German stock item



TAPER SHANK TWIST DRILLS

DRILLS

Guhring no.	245
Standard	DIN 345
Tool material	HSS
Surface	
Type	N
Cutting direction	right-hand
Tolerance	h8
Point angle	118°

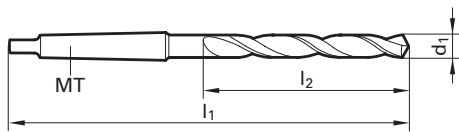


d1		MT	l1	l2	AVAILABILITY
mm	inch				
23.500		3	276.00	155.00	•
23.810	15/16	3	281.00	160.00	○
24.000		3	281.00	160.00	•
24.500		3	281.00	160.00	•
25.000	63/64	3	281.00	160.00	•
25.400	1	3	286.00	165.00	•
25.500		3	286.00	165.00	•
26.000		3	286.00	165.00	•
26.190	1 1/32	3	286.00	165.00	○
26.500		3	286.00	165.00	•
27.000		3	291.00	170.00	•
27.500		3	291.00	170.00	•
28.000		3	291.00	170.00	•
28.500		3	296.00	175.00	•
28.570	1 1/8	3	296.00	175.00	○
29.000		3	296.00	175.00	•
29.500		3	296.00	175.00	•
30.000		3	296.00	175.00	•
30.160	1 3/16	3	301.00	180.00	○
30.500		3	301.00	180.00	•
31.000		3	301.00	180.00	•
31.500		3	301.00	180.00	•
31.750	1 1/4	3	306.00	185.00	•
32.000		4	334.00	185.00	•
33.000		4	334.00	185.00	•
34.000		4	339.00	190.00	•
35.000		4	339.00	190.00	•
36.000		4	344.00	195.00	•
37.310	1 15/32	4	344.00	195.00	○
38.000		4	349.00	200.00	•
38.100	1 1/2	4	349.00	200.00	○
40.000		4	349.00	200.00	•
41.000		4	354.00	205.00	○
42.000		4	354.00	205.00	•
43.000		4	359.00	210.00	•
44.000		4	359.00	210.00	•
45.000		4	359.00	210.00	•
48.000		4	369.00	220.00	•
50.000		4	369.00	220.00	•

• Australian stock item ○ German stock item



Guhring no.	257
Standard	DIN 341
Tool material	HSS
Surface	
Type	N
Cutting direction	right-hand
Tolerance	h8
Point angle	118°



d1	MT	l1	l2	AVAILABILITY
mm		mm	mm	
13.00	1	215.00	134.00	•
13.50	1	223.00	142.00	○
14.00	1	223.00	142.00	•
14.50	2	245.00	147.00	○
15.00	2	245.00	147.00	•
15.50	2	251.00	153.00	○
16.00	2	251.00	153.00	•
16.50	2	257.00	159.00	○
17.00	2	257.00	159.00	•
17.50	2	263.00	165.00	○
18.00	2	263.00	165.00	•
18.50	2	269.00	171.00	○
19.00	2	269.00	171.00	•
19.50	2	275.00	177.00	○
20.00	2	275.00	177.00	•
21.00	2	282.00	184.00	○
22.00	2	289.00	191.00	○
22.22	2	289.00	191.00	○
23.00	2	296.00	198.00	○
24.00	3	327.00	206.00	○
25.00	3	327.00	206.00	○
26.00	3	335.00	214.00	○
27.00	3	343.00	222.00	○
28.00	3	343.00	222.00	○
29.00	3	351.00	230.00	○
30.00	3	351.00	230.00	○
35.00	4	406.00	257.00	○
36.00	4	416.00	267.00	○
38.00	4	426.00	277.00	○
40.00	4	426.00	277.00	○

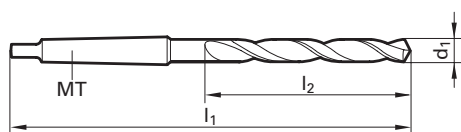
• Australian stock item ○ German stock item



TAPER SHANK EXTRA LENGTH TWIST DRILLS

DRILLS

Guhring no.	526	527	565
Standard	DIN 1870		
Tool material	HSS		
Surface	>Ø 16,0	>Ø 16,0	>Ø 16,0
Type	GT 100	GT 100	GT 100
Cutting direction	right-hand	right-hand	right-hand
Tolerance	h8	h8	h8
Point angle	130°	130°	130°



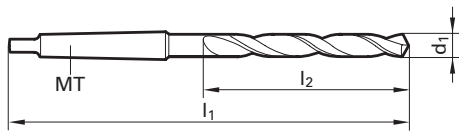
d1	MT	l1	l2	AVAILABILITY
mm		mm	mm	
8.000	1	265.00	165.00	○
9.000	1	275.00	175.00	○
10.000	1	285.00	185.00	○
11.000	1	300.00	195.00	○
12.000	1	310.00	205.00	●
13.000	1	310.00	205.00	●
14.000	1	325.00	220.00	●
15.000	2	340.00	220.00	●
16.000	2	355.00	230.00	●
17.000	2	355.00	230.00	●
18.000	2	370.00	245.00	●
19.000	2	370.00	245.00	●
20.000	2	385.00	260.00	●
8.000	1	330.00	210.00	○
9.000	1	345.00	220.00	○
10.000	1	360.00	235.00	○
11.000	1	375.00	250.00	○
12.000	1	395.00	260.00	●
13.000	1	395.00	260.00	●
14.000	1	410.00	275.00	●
15.000	2	425.00	275.00	●
16.000	2	445.00	295.00	●
17.000	2	445.00	295.00	●
18.000	2	465.00	310.00	●
19.000	2	465.00	310.00	●
20.000	2	490.00	325.00	●
8.000	1	425.00	345.00	○
9.000	1	425.00	345.00	○
10.000	1	425.00	345.00	●
11.000	1	425.00	345.00	●
12.000	1	425.00	345.00	●
13.000	1	425.00	345.00	●
14.000	1	425.00	345.00	●
15.000	2	425.00	325.00	●
16.000	2	425.00	325.00	●
17.000	2	425.00	325.00	●

*In-between & imperial sizes also available

● Australian stock item ○ German stock item



Guhring no.	566	293	298	299
Standard	Guhring std.			
Tool material	HSS			
Surface	>Ø 16,0	>Ø 16,0		
Type	GT 100	GT 100	GT 100	GT 100
Cutting direction	right-hand	right-hand	right-hand	right-hand
Tolerance	h8	h8	h8	h8
Point angle	130°	130°	130°	130°



d1	MT	l1	l2	AVAILABILITY
mm		mm	mm	
8.000	1	500.00	420.00	○
8.500	1	500.00	420.00	○
9.000	1	500.00	420.00	○
9.500	1	500.00	420.00	○
10.000	1	500.00	420.00	○
11.000	1	500.00	420.00	○
12.000	1	500.00	420.00	○
13.000	1	500.00	420.00	○
14.000	1	600.00	500.00	•
15.000	2	600.00	500.00	•
16.000	2	600.00	500.00	•
17.000	2	600.00	500.00	•
18.000	2	600.00	500.00	•
19.000	2	600.00	500.00	•
20.000	2	600.00	500.00	•
21.000	2	600.00	500.00	•
22.000	2	600.00	500.00	•
23.000	2	600.00	500.00	•
24.000	3	600.00	475.00	•
25.000	3	600.00	475.00	•
14.000	1	750.00	650.00	•
15.000	2	750.00	650.00	•
16.000	2	750.00	650.00	•
18.000	2	750.00	650.00	•
14.000	1	1000.00	850.00	•
15.000	2	1000.00	850.00	•
16.000	2	1000.00	850.00	•
18.000	2	1000.00	850.00	•

• Australian stock item ○ German stock item

GUHRING

RT 100 FB

- Reduced process costs as spot-facing is omitted
- Drilling of oblique or curved surfaces up to 45° without deflection
- Exit of the holes is virtually burr-free, thus ideal for cross-drilled holes
- High process reliability due to precise alignment and roundness resulting in excellent surface quality

USAGE TIPS FOR SPOT DRILLING

Spot drilling on inclined surfaces/when exiting from inclined surfaces:



- angle up to 15° = reduce feed rate f in mm/rev by 25 %
- angle up to 30° = reduce feed rate f in mm/rev by 50 %
- angle up to max. 45° = reduce feed rate f in mm/rev by 75 %
- when the flat drill is fully wrapped, the feed rate can be raised to 100 %



Spot drilling on flat surfaces:

PLEASE NOTE: When drilling on flat surfaces, pre-drilling is always required.

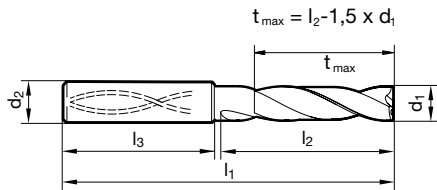


1. Spot drill with a conventional solid carbide drill, e.g. art. 2477 on Ø FB of the following RT 100 FB or on $\text{Ø FB} + 0.20$ mm of the following RT 100 FB to directly apply a chamfer.
2. Insert the RT 100 FB at full feed rate.





Gühring no.	6596	6065
Standard	Gühring std.	
Tool material	Solid carbide	
Carbide grade	K/P	K/P
Surface	F	F
Type	FB	PB
Shank	HA	HA
Cutting direction	right-hand	right-hand



Scan for speeds & feeds



2-flute



3-flute

*Also available in 5xD #6066

d1	d2	l1	l2	l3	AVAILABILITY	
mm	mm	mm	mm	mm		
3.000	6.000	61.000	16.000	36.000	o	
3.500	6.000	61.000	16.000	36.000	o	
4.000	6.000	65.000	18.000	36.000	o	o
4.500	6.000	65.000	21.000	36.000	o	o
5.000	6.000	65.000	26.000	36.000	o	o
5.500	6.000	65.000	26.000	36.000	o	o
6.000	6.000	65.000	26.000	36.000	o	o
6.500	8.000	78.000	31.000	36.000	o	o
7.000	8.000	78.000	31.000	36.000	o	o
7.500	8.000	78.000	35.000	36.000	o	o
8.000	8.000	78.000	35.000	36.000	o	o
8.500	10.000	87.000	43.000	40.000	o	o
9.000	10.000	87.000	43.000	40.000	o	o
9.500	10.000	87.000	43.000	40.000	o	o
10.000	10.000	87.000	43.000	40.000	o	o
10.500	12.000	100.000	52.000	45.000	o	o
11.000	12.000	100.000	52.000	45.000	o	o
11.500	12.000	100.000	52.000	45.000	o	o
12.000	12.000	100.000	52.000	45.000	o	o
12.500	14.000	104.000	57.000	45.000	o	o
13.000	14.000	104.000	57.000	45.000	o	o
13.500	14.000	104.000	57.000	45.000	o	o
14.000	14.000	104.000	57.000	45.000	o	o
14.500	16.000	112.000	62.000	48.000	o	o
15.000	16.000	112.000	62.000	48.000	o	o
15.500	16.000	112.000	62.000	48.000	o	o
16.000	16.000	112.000	62.000	48.000	o	o
16.500	18.000	120.000	70.000	48.000	o	o
17.000	18.000	120.000	70.000	48.000	o	o
17.500	18.000	120.000	70.000	48.000	o	o
18.000	18.000	120.000	70.000	48.000	o	o
18.500	20.000	128.000	76.000	50.000	o	o
19.000	20.000	128.000	76.000	50.000	o	o
19.500	20.000	128.000	76.000	50.000	o	o
20.000	20.000	128.000	76.000	50.000	o	o

Available in 0.1 mm increments

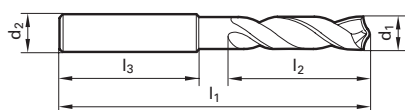
• Australian stock item o German stock item



HIGH-PERFORMANCE RATIO DRILLS, 3 X D

DRILLS

Guhring no.	5514	5510	5526	6498	6062
Standard	DIN 6537 K				
Tool material	Solid carbide				
Surface	F	F	a	F	○
Type	RT 100 U	RT 100 U	RT 100 VA	RT 100 XF	RT 100 AI
Cutting direction	right-hand	right-hand	right-hand	right-hand	right-hand
Tolerance	m7	m7	m7	m7	m7
Drilling depth	3 x D	3 x D	3 x D	3 x D	3 x D
Point angle	140°	140°	140°	140°	140°



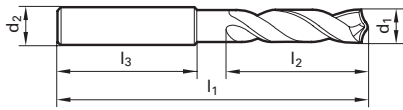
d1		d2	l1	l2	l3	AVAILABILITY				
mm	inch	mm	mm	mm	mm					
3.000		6.000	62.00	20.00	36.00	•	○	○	○	○
3.100		6.000	62.00	20.00	36.00	•	○	○	○	○
3.170	1/8	6.000	62.00	20.00	36.00	○	○	○	○	○
3.200		6.000	62.00	20.00	36.00	•	○	○	○	○
3.250		6.000	62.00	20.00	36.00	•	○	○	○	○
3.300		6.000	62.00	20.00	36.00	•	•	○	○	○
3.400		6.000	62.00	20.00	36.00	•	•	○	○	○
3.500		6.000	62.00	20.00	36.00	•	•	○	○	○
3.570	9/64	6.000	62.00	20.00	36.00	○	○	○	○	○
3.600		6.000	62.00	20.00	36.00	•	○	○	○	○
3.700		6.000	62.00	20.00	36.00	•	○	○	○	○
3.800		6.000	66.00	24.00	36.00	•	○	○	○	○
3.900		6.000	66.00	24.00	36.00	•	○	○	○	○
3.970	5/32	6.000	66.00	24.00	36.00	○	○	○	○	○
4.000		6.000	66.00	24.00	36.00	•	•	○	○	○
4.100		6.000	66.00	24.00	36.00	•	○	○	○	○
4.200		6.000	66.00	24.00	36.00	•	○	○	○	○
4.300		6.000	66.00	24.00	36.00	•	○	○	○	○
4.370	11/64	6.000	66.00	24.00	36.00	○	○	○	○	○
4.400		6.000	66.00	24.00	36.00	•	•	○	○	○
4.500		6.000	66.00	24.00	36.00	•	○	○	○	○
4.600		6.000	66.00	24.00	36.00	•	○	○	○	○
4.650		6.000	66.00	24.00	36.00	•	○	○	○	○
4.700		6.000	66.00	24.00	36.00	•	○	○	○	○
4.760	3/16	6.000	66.00	28.00	36.00	○	○	○	○	○
4.800		6.000	66.00	28.00	36.00	•	○	○	○	○
4.900		6.000	66.00	28.00	36.00	•	○	○	○	○
5.000		6.000	66.00	28.00	36.00	•	•	○	○	○
5.100		6.000	66.00	28.00	36.00	•	○	○	○	○
5.160	13/64	6.000	66.00	28.00	36.00	○	○	○	○	○
5.200		6.000	66.00	28.00	36.00	•	○	○	○	○
5.300		6.000	66.00	28.00	36.00	•	○	○	○	○
5.400		6.000	66.00	28.00	36.00	•	○	○	○	○
5.500		6.000	66.00	28.00	36.00	•	•	○	○	○
5.550		6.000	66.00	28.00	36.00	•	•	○	○	○
5.560	7/32	6.000	66.00	28.00	36.00	○	○	○	○	○
5.600		6.000	66.00	28.00	36.00	•	○	○	○	○

• Australian stock item ○ German stock item

U = Universal **VA** = Stainless steel **XF** = Steel **AI** = Aluminium



Guhring no.	5514	5510	5526	6498	6062
Standard	DIN 6537 K				
Tool material	Solid carbide				
Surface	F	F	a	F	○
Type	RT 100 U	RT 100 U	RT 100 VA	RT 100 XF	RT 100 AI
Cutting direction	right-hand	right-hand	right-hand	right-hand	right-hand
Tolerance	m7	m7	m7	m7	m7
Drilling depth	3 x D	3 x D	3 x D	3 x D	3 x D
Point angle	140°	140°	140°	140°	140°



d1		d2	l1	l2	l3	AVAILABILITY				
mm	inch	mm	mm	mm	mm					
5.700		6.000	66.00	28.00	36.00	•	•	○	○	○
5.800		6.000	66.00	28.00	36.00	•	•	○	○	○
5.900		6.000	66.00	28.00	36.00	•	○	○	○	○
5.950	15/64	6.000	66.00	28.00	36.00	○	○	○	○	○
6.000		6.000	66.00	28.00	36.00	•	•	○	○	○
6.100		8.000	79.00	34.00	36.00	•	○	○	○	○
6.200		8.000	79.00	34.00	36.00	•	○	○	○	○
6.300		8.000	79.00	34.00	36.00	•	•	○	○	○
6.350	1/4	8.000	79.00	34.00	36.00	○	○	○	○	○
6.400		8.000	79.00	34.00	36.00	•	•	○	○	○
6.500		8.000	79.00	34.00	36.00	•	•	○	○	○
6.600		8.000	79.00	34.00	36.00	•	○	○	○	○
6.700		8.000	79.00	34.00	36.00	•	○	○	○	○
6.750	17/64	8.000	79.00	34.00	36.00	○	○	○	○	○
6.800		8.000	79.00	34.00	36.00	•	○	○	○	○
6.900		8.000	79.00	34.00	36.00	•	○	○	○	○
7.000		8.000	79.00	34.00	36.00	•	•	○	○	○
7.100		8.000	79.00	41.00	36.00	•	○	○	○	○
7.140	9/32	8.000	79.00	41.00	36.00	○	○	○	○	○
7.200		8.000	79.00	41.00	36.00	•	○	○	○	○
7.300		8.000	79.00	41.00	36.00	•	○	○	○	○
7.400		8.000	79.00	41.00	36.00	•	•	○	○	○
7.500		8.000	79.00	41.00	36.00	•	○	○	○	○
7.540	19/64	8.000	79.00	41.00	36.00	○	○	○	○	○
7.600		8.000	79.00	41.00	36.00	•	○	○	○	○
7.700		8.000	79.00	41.00	36.00	•	○	○	○	○
7.800		8.000	79.00	41.00	36.00	•	○	○	○	○
7.900		8.000	79.00	41.00	36.00	•	○	○	○	○
7.940	5/16	8.000	79.00	41.00	36.00	○	○	○	○	○
8.000		8.000	79.00	41.00	36.00	•	•	○	○	○
8.100		10.000	89.00	47.00	40.00	•	○	○	○	○
8.200		10.000	89.00	47.00	40.00	•	•	○	○	○
8.300		10.000	89.00	47.00	40.00	•	○	○	○	○
8.330	21/64	10.000	89.00	47.00	40.00	○	○	○	○	○
8.400		10.000	89.00	47.00	40.00	•	○	○	○	○
8.500		10.000	89.00	47.00	40.00	•	•	○	○	○
8.600		10.000	89.00	47.00	40.00	•	•	○	○	○

• Australian stock item ○ German stock item

U = Universal **VA** = Stainless steel **XF** = Steel **AI** = Aluminium

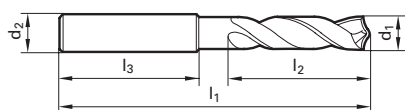
○ bright ● steam tempered ◐ nitrided lands ● TiN ● TiAlN ● TiCN ● FIRE/nanoFIRE ● TiAlN NanoA



HIGH-PERFORMANCE RATIO DRILLS, 3 X D

DRILLS

Guhring no.	5514	5510	5526	6498	6062
Standard	DIN 6537 K				
Tool material	Solid carbide				
Surface	F	F	a	F	○
Type	RT 100 U	RT 100 U	RT 100 VA	RT 100 XF	RT 100 AI
Cutting direction	right-hand	right-hand	right-hand	right-hand	right-hand
Tolerance	m7	m7	m7	m7	m7
Drilling depth	3 x D	3 x D	3 x D	3 x D	3 x D
Point angle	140°	140°	140°	140°	140°



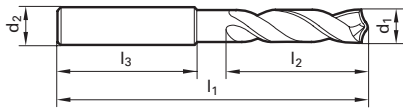
d1		d2	l1	l2	l3	AVAILABILITY				
mm	inch	mm	mm	mm	mm					
8.700		10.000	89.00	47.00	40.00	•	○	○	○	○
8.730	11/32	10.000	89.00	47.00	40.00	○	○	○	○	○
8.800		10.000	89.00	47.00	40.00	•	•	○	○	○
8.900		10.000	89.00	47.00	40.00	•	•	○	○	○
9.000		10.000	89.00	47.00	40.00	•	•	○	○	○
9.100		10.000	89.00	47.00	40.00	•	○	○	○	○
9.130	23/64	10.000	89.00	47.00	40.00	○	○	○	○	○
9.200		10.000	89.00	47.00	40.00	•	○	○	○	○
9.250		10.000	89.00	47.00	40.00	•	○	○	○	○
9.300		10.000	89.00	47.00	40.00	•	○	○	○	○
9.400		10.000	89.00	47.00	40.00	•	○	○	○	○
9.500		10.000	89.00	47.00	40.00	•	○	○	○	○
9.520	3/8	10.000	89.00	47.00	40.00	○	○	○	○	○
9.600		10.000	89.00	47.00	40.00	•	○	○	○	○
9.700		10.000	89.00	47.00	40.00	•	○	○	○	○
9.800		10.000	89.00	47.00	40.00	•	•	○	○	○
9.900		10.000	89.00	47.00	40.00	•	○	○	○	○
9.920	25/64	10.000	89.00	47.00	40.00	○	○	○	○	○
10.000		10.000	89.00	47.00	40.00	•	•	○	○	○
10.100		12.000	102.00	55.00	45.00	•	•	○	○	○
10.200		12.000	102.00	55.00	45.00	•	○	○	○	○
10.300		12.000	102.00	55.00	45.00	•	○	○	○	○
10.320	13/32	12.000	102.00	55.00	45.00	○	○	○	○	○
10.400		12.000	102.00	55.00	45.00	•	○	○	○	○
10.500		12.000	102.00	55.00	45.00	•	○	○	○	○
10.600		12.000	102.00	55.00	45.00	•	○	○	○	○
10.700		12.000	102.00	55.00	45.00	○	•	○	○	○
10.800		12.000	102.00	55.00	45.00	•	•	○	○	○
10.900		12.000	102.00	55.00	45.00	○	○	○	○	○
11.000		12.000	102.00	55.00	45.00	•	•	○	○	○
11.100		12.000	102.00	55.00	45.00	•	○	○	○	○
11.110	7/16	12.000	102.00	55.00	45.00	○	○	○	○	○
11.200		12.000	102.00	55.00	45.00	•	○	○	○	○
11.300		12.000	102.00	55.00	45.00	•	○	○	○	○
11.400		12.000	102.00	55.00	45.00	•	○	○	○	○
11.500		12.000	102.00	55.00	45.00	•	○	○	○	○
11.600		12.000	102.00	55.00	45.00	○	○	○	○	○

• Australian stock item ○ German stock item

U = Universal **VA** = Stainless steel **XF** = Steel **AI** = Aluminium



Guhring no.	5514	5510	5526	6498	6062
Standard	DIN 6537 K				
Tool material	Solid carbide				
Surface	F	F	a	F	○
Type	RT 100 U	RT 100 U	RT 100 VA	RT 100 XF	RT 100 AI
Cutting direction	right-hand	right-hand	right-hand	right-hand	right-hand
Tolerance	m7	m7	m7	m7	m7
Drilling depth	3 x D	3 x D	3 x D	3 x D	3 x D
Point angle	140°	140°	140°	140°	140°



d1		d2	l1	l2	l3	AVAILABILITY				
mm	inch	mm	mm	mm	mm					
11.700		12.000	102.00	55.00	45.00	•	•	○	○	○
11.800		12.000	102.00	55.00	45.00	•	○	○	○	○
11.900		12.000	102.00	55.00	45.00	•	○	○	○	○
11.910	15/32	12.000	102.00	55.00	45.00	○	○	○	○	○
12.000		12.000	102.00	55.00	45.00	•	•	○	○	○
12.200		14.000	107.00	60.00	45.00	•	○	○	○	○
12.500		14.000	107.00	60.00	45.00	•	○	○	○	○
12.700	1/2	14.000	107.00	60.00	45.00	○	○	○	○	○
12.800		14.000	107.00	60.00	45.00	•	○	○	○	○
13.000		14.000	107.00	60.00	45.00	•	•	○	○	○
13.500		14.000	107.00	60.00	45.00	•	○	○	○	○
13.700		14.000	107.00	60.00	45.00	○	○	○	○	○
14.000		14.000	107.00	60.00	45.00	•	•	○	○	○
14.200		16.000	115.00	65.00	48.00	○	○	○	○	○
14.290	9/16	16.000	115.00	65.00	48.00	○	○	○	○	○
14.500		16.000	115.00	65.00	48.00	•	○	○	○	○
14.700		16.000	115.00	65.00	48.00	○	○	○	○	○
15.000		16.000	115.00	65.00	48.00	•	•	○	○	○
15.100		16.000	115.00	65.00	48.00	•	○	○	○	○
15.200		16.000	115.00	65.00	48.00	•	○	○	○	○
15.500		16.000	115.00	65.00	48.00	•	○	○	○	○
15.700		16.000	115.00	65.00	48.00	○	○	○	○	○
15.870		16.000	115.00	65.00	48.00	•	•	○	○	○
16.000		16.000	115.00	65.00	48.00	•	•	○	○	○
16.100		18.000	123.00	73.00	48.00	○	•	○	○	○
16.500		18.000	123.00	73.00	48.00	○	○	○	○	○
16.900		18.000	123.00	73.00	48.00	○	•	○	○	○
17.000		18.000	123.00	73.00	48.00	○	•	○	○	○
17.500		18.000	123.00	73.00	48.00	○	○	○	○	○
18.000		18.000	123.00	73.00	48.00	○	•	○	○	○
18.500		20.000	131.00	79.00	50.00	○	○	○	○	○
19.000		20.000	131.00	79.00	50.00	○	•	○	○	○
19.500		20.000	131.00	79.00	50.00	○	○	○	○	○
20.000		20.000	131.00	79.00	50.00	○	•	○	○	○

• Australian stock item ○ German stock item

U = Universal **VA** = Stainless steel **XF** = Steel **AI** = Aluminium

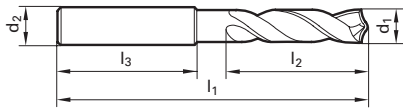
○ bright ● steam tempered ◐ nitrided lands ● TiN ● TiAlN ● TiCN ● FIRE/nanoFIRE ● TiAlN NanoA



HIGH-PERFORMANCE RATIO DRILLS, 5 X D

DRILLS

Guhring no.	5515	5511	5580	5498	5768
Standard	DIN 6537 L				
Tool material	Solid carbide				
Surface	F	F	a	F	○
Type	RT 100 U	RT 100 U	RT 100 VA	RT 100 XF	RT 100 AI
Cutting direction	right-hand	right-hand	right-hand	right-hand	right-hand
Tolerance	m7	m7	m7	m7	m7
Drilling depth	5 x D	5 x D	5 x D	5 x D	5 x D
Point angle	140°	140°	140°	140°	140°



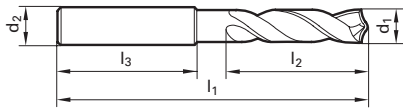
d1		d2	l1	l2	l3	AVAILABILITY				
mm	inch	mm	mm	mm	mm					
2.500		2.500	57.00	20.00	25.00	•	•			
2.800		2.800	57.00	22.00	27.00	•	•			
2.900		2.900	57.00	23.00	28.00	•	•			
3.000		6.000	66.00	28.00	36.00	•	•	•	•	○
3.100		6.000	66.00	28.00	36.00	•	•	○	○	○
3.170	1/8	6.000	66.00	28.00	36.00	○	○	○	•	○
3.200		6.000	66.00	28.00	36.00	•	•	•	○	○
3.250		6.000	66.00	28.00	36.00	○	○	○	○	○
3.300		6.000	66.00	28.00	36.00	•	•	○	○	○
3.400		6.000	66.00	28.00	36.00	•	•	○	○	○
3.500		6.000	66.00	28.00	36.00	•	•	•	•	○
3.570	9/64	6.000	66.00	28.00	36.00	○	○	○	○	○
3.600		6.000	66.00	28.00	36.00	○	•	○	○	○
3.700		6.000	66.00	28.00	36.00	•	•	○	○	○
3.800		6.000	74.00	36.000	36.00	•	•	•	○	○
3.900		6.000	74.00	36.000	36.00	•	•	○	○	○
3.970	5/32	6.000	74.00	36.000	36.00	○	○	○	○	○
4.000		6.000	74.00	36.000	36.00	•	•	•	•	○
4.100		6.000	74.00	36.000	36.00	○	•	○	○	○
4.200		6.000	74.00	36.000	36.00	•	•	•	•	○
4.300		6.000	74.00	36.000	36.00	•	•	○	○	○
4.370	11/64	6.000	74.00	36.000	36.00	○	○	○	○	○
4.400		6.000	74.00	36.000	36.00	○	•	○	○	○
4.500		6.000	74.00	36.000	36.00	•	•	•	•	○
4.600		6.000	74.00	36.000	36.00	•	•	○	○	○
4.650		6.000	74.00	36.000	36.00	○	•	○	○	○
4.700		6.000	74.00	36.000	36.00	•	•	•	•	○
4.760	3/16	6.000	82.00	44.00	36.00	○	○	○	•	○
4.800		6.000	82.00	44.00	36.00	•	•	○	○	○
4.900		6.000	82.00	44.00	36.00	○	•	○	○	○
5.000		6.000	82.00	44.00	36.00	•	•	•	•	○
5.100		6.000	82.00	44.00	36.00	•	•	•	○	○
5.160	13/64	6.000	82.00	44.00	36.00	○	○	•	•	○
5.200		6.000	82.00	44.00	36.00	•	•	○	○	○
5.300		6.000	82.00	44.00	36.00	•	•	○	○	○
5.400		6.000	82.00	44.00	36.00	○	•	○	○	○
5.500		6.000	82.00	44.00	36.00	•	•	•	•	○

• Australian stock item ○ German stock item

U = Universal **VA** = Stainless steel **XF** = Steel **AI** = Aluminium



Guhring no.	5515	5511	5580	5498	5768
Standard	DIN 6537 L				
Tool material	Solid carbide				
Surface	F	F	a	F	○
Type	RT 100 U	RT 100 U	RT 100 VA	RT 100 XF	RT 100 AI
Cutting direction	right-hand	right-hand	right-hand	right-hand	right-hand
Tolerance	m7	m7	m7	m7	m7
Drilling depth	5 x D	5 x D	5 x D	5 x D	5 x D
Point angle	140°	140°	140°	140°	140°



d1	d2	l1	l2	l3	AVAILABILITY					
mm	inch	mm	mm	mm						
5.550		6.000	82.00	44.00	36.00	○	○	○	○	○
5.560	7/32	6.000	82.00	44.00	36.00	○	○	○	○	○
5.600		6.000	82.00	44.00	36.00	○	●	○	○	○
5.700		6.000	82.00	44.00	36.00	○	●	○	○	○
5.800		6.000	82.00	44.00	36.00	●	●	○	○	○
5.900		6.000	82.00	44.00	36.00	○	●	○	○	○
5.950	15/64	6.000	82.00	44.00	36.00	○	○	○	○	○
6.000		6.000	82.00	44.00	36.00	●	●	●	●	○
6.100		8.000	91.00	53.00	36.00	○	●	○	○	○
6.200		8.000	91.00	53.00	36.00	●	●	○	○	○
6.300		8.000	91.00	53.00	36.00	○	●	○	○	○
6.350	1/4	8.000	91.00	53.00	36.00	○	○	○	●	○
6.400		8.000	91.00	53.00	36.00	○	●	○	○	○
6.500		8.000	91.00	53.00	36.00	●	●	●	●	○
6.600		8.000	91.00	53.00	36.00	○	●	●	○	○
6.700		8.000	91.00	53.00	36.00	○	●	○	○	○
6.750	17/64	8.000	91.00	53.00	36.00	○	○	○	○	○
6.800		8.000	91.00	53.00	36.00	●	●	●	●	○
6.900		8.000	91.00	53.00	36.00	○	●	○	○	○
7.000		8.000	91.00	53.00	36.00	●	●	●	●	○
7.100		8.000	91.00	53.00	36.00	○	●	○	○	○
7.140	9/32	8.000	91.00	53.00	36.00	○	○	○	●	○
7.200		8.000	91.00	53.00	36.00	●	●	○	○	○
7.300		8.000	91.00	53.00	36.00	●	●	○	○	○
7.400		8.000	91.00	53.00	36.00	●	●	○	○	○
7.500		8.000	91.00	53.00	36.00	●	●	●	●	○
7.540	19/64	8.000	91.00	53.00	36.00	○	○	○	○	○
7.600		8.000	91.00	53.00	36.00	○	●	○	○	○
7.700		8.000	91.00	53.00	36.00	○	●	●	○	○
7.800		8.000	91.00	53.00	36.00	●	●	○	○	○
7.900		8.000	91.00	53.00	36.00	○	●	○	○	○
7.940	5/16	8.000	91.00	53.00	36.00	○	○	○	●	○
8.000		8.000	91.00	53.00	36.00	●	●	●	●	○
8.100		10.000	103.00	61.00	40.00	○	●	○	○	○
8.200		10.000	103.00	61.00	40.00	○	●	○	○	○
8.300		10.000	103.00	61.00	40.00	○	●	○	○	○
8.330	21/64	10.000	103.00	61.00	40.00	○	○	○	●	○

● Australian stock item ○ German stock item

U = Universal **VA** = Stainless steel **XF** = Steel **AI** = Aluminium

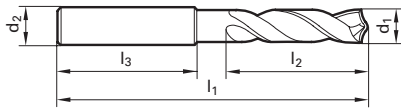
○ bright ● steam tempered ◐ nitrided lands ● TiN ● TiAlN ● TiCN ● FIRE/nanoFIRE ● TiAlN NanoA



HIGH-PERFORMANCE RATIO DRILLS, 5 X D

DRILLS

Guhring no.	5515	5511	5580	5498	5768
Standard	DIN 6537 L				
Tool material	Solid carbide				
Surface	F	F	a	F	○
Type	RT 100 U	RT 100 U	RT 100 VA	RT 100 XF	RT 100 AI
Cutting direction	right-hand	right-hand	right-hand	right-hand	right-hand
Tolerance	m7	m7	m7	m7	m7
Drilling depth	5 x D	5 x D	5 x D	5 x D	5 x D
Point angle	140°	140°	140°	140°	140°



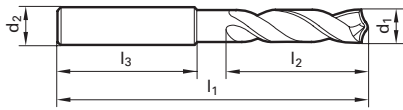
d1		d2	l1	l2	l3	AVAILABILITY				
mm	inch	mm	mm	mm	mm					
8.400		10.000	103.00	61.00	40.00	○	●	○	○	○
8.500		10.000	103.00	61.00	40.00	●	●	●	●	○
8.600		10.000	103.00	61.00	40.00	●	●	○	○	○
8.700	11/32	10.000	103.00	61.00	40.00	●	●	●	○	○
8.730		10.000	103.00	61.00	40.00	○	○	○	●	○
8.800		10.000	103.00	61.00	40.00	●	●	○	○	○
8.900		10.000	103.00	61.00	40.00	○	●	●	○	○
9.000		10.000	103.00	61.00	40.00	●	●	●	●	○
9.100		10.000	103.00	61.00	40.00	○	●	○	○	○
9.130	23/64	10.000	103.00	61.00	40.00	○	○	○	○	○
9.200		10.000	103.00	61.00	40.00	○	●	○	○	○
9.250		10.000	103.00	61.00	40.00	○	●	○	○	○
9.300		10.000	103.00	61.00	40.00	●	●	○	○	○
9.400		10.000	103.00	61.00	40.00	○	●	○	○	○
9.500		10.000	103.00	61.00	40.00	●	●	●	●	○
9.520	3/8	10.000	103.00	61.00	40.00	○	○	○	●	○
9.600		10.000	103.00	61.00	40.00	●	●	○	○	○
9.700		10.000	103.00	61.00	40.00	○	●	○	○	○
9.800		10.000	103.00	61.00	40.00	●	●	○	○	○
9.900		10.000	103.00	61.00	40.00	○	●	○	○	○
9.920	25/64	10.000	103.00	61.00	40.00	○	○	○	○	○
10.000		10.000	103.00	61.00	40.00	●	●	●	●	○
10.100		12.000	118.00	71.00	45.00	○	●	○	○	○
10.200		12.000	118.00	71.00	45.00	●	●	○	●	○
10.300		12.000	118.00	71.00	45.00	○	●	●	○	○
10.320	13/32	12.000	118.00	71.00	45.00	○	○	○	○	○
10.400		12.000	118.00	71.00	45.00	○	●	○	○	○
10.500		12.000	118.00	71.00	45.00	●	●	●	●	○
10.600		12.000	118.00	71.00	45.00	○	●	○	○	○
10.700		12.000	118.00	71.00	45.00	○	●	○	○	○
10.800		12.000	118.00	71.00	45.00	●	●	○	○	○
10.900		12.000	118.00	71.00	45.00	○	●	○	○	○
11.000		12.000	118.00	71.00	45.00	●	●	○	●	○
11.100		12.000	118.00	71.00	45.00	○	●	○	○	○
11.110	7/16	12.000	118.00	71.00	45.00	○	○	○	●	○
11.200		12.000	118.00	71.00	45.00	●	●	○	○	○
11.300		12.000	118.00	71.00	45.00	○	●	○	○	○

● Australian stock item ○ German stock item

U = Universal **VA** = Stainless steel **XF** = Steel **AI** = Aluminium



Guhring no.	5515	5511	5580	5498	5768
Standard	DIN 6537 L				
Tool material	Solid carbide				
Surface	F	F	a	F	○
Type	RT 100 U	RT 100 U	RT 100 VA	RT 100 XF	RT 100 AI
Cutting direction	right-hand	right-hand	right-hand	right-hand	right-hand
Tolerance	m7	m7	m7	m7	m7
Drilling depth	5 x D	5 x D	5 x D	5 x D	5 x D
Point angle	140°	140°	140°	140°	140°



d1		d2	l1	l2	l3	AVAILABILITY				
mm	inch	mm	mm	mm	mm					
11.400		12.000	118.00	71.00	45.00	○	●	○	○	○
11.500		12.000	118.00	71.00	45.00	●	●	○	●	○
11.600		12.000	118.00	71.00	45.00	○	●	○	○	○
11.700		12.000	118.00	71.00	45.00	○	●	○	○	○
11.800		12.000	118.00	71.00	45.00	●	●	●	○	○
11.900		12.000	118.00	71.00	45.00	○	●	○	○	○
11.910	15/32	12.000	118.00	71.00	45.00	○	○	○	○	○
12.000		12.000	118.00	71.00	45.00	●	●	●	●	○
12.100		14.000	124.00	77.00	45.00	●	○	●	○	○
12.200		14.000	124.00	77.00	45.00	○	●	○	○	○
12.500		14.000	124.00	77.00	45.00	●	●	○	●	○
12.700	1/2	14.000	124.00	77.00	45.00	○	○	○	●	○
13.000		14.000	124.00	77.00	45.00	●	●	○	●	○
13.500		14.000	124.00	77.00	45.00	●	●	○	○	○
13.700		14.000	124.00	77.00	45.00	○	●	○	○	○
14.000		14.000	124.00	77.00	45.00	●	●	○	●	○
14.200		16.000	133.00	83.00	48.00	○	●	○	○	○
14.290	9/16	16.000	133.00	83.00	48.00	○	○	○	○	○
14.500		16.000	133.00	83.00	48.00	●	●	○	●	○
14.700		16.000	133.00	83.00	48.00	○	●	○	○	○
14.800		16.000	133.00	83.00	48.00	○	●	○	○	○
15.000		16.000	133.00	83.00	48.00	●	○	○	○	○
15.200		16.000	133.00	83.00	48.00	○	○	○	○	○
15.500		16.000	133.00	83.00	48.00	○	○	○	○	○
15.700		16.000	133.00	83.00	48.00	○	●	○	○	○
16.000		16.000	133.00	83.00	48.00	●	●	○	●	○
16.500		18.000	143.00	93.00	48.00	○	○	○	○	○
17.000		18.000	143.00	93.00	48.00	○	●	○	○	○
17.500		18.000	143.00	93.00	48.00	○	●	○	○	○
18.000		18.000	143.00	93.00	48.00	○	●	○	○	○
18.500		20.000	153.00	101.00	50.00	○	○	○	○	○
19.000		20.000	153.00	101.00	50.00	○	○	○	○	○
19.500		20.000	153.00	101.00	50.00	○	○	○	○	○
20.000		20.000	153.00	101.00	50.00	○	●	○	○	○

● Australian stock item ○ German stock item

U = Universal **VA** = Stainless steel **XF** = Steel **AI** = Aluminium

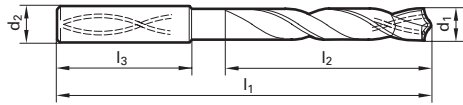
○ bright ● steam tempered ◐ nitrided lands ● TiN ● TiAlN ● TiCN ● FIRE/nanoFIRE ● TiAlN NanoA



HIGH-PERFORMANCE RATIO DRILLS, 7 X D

DRILLS

Gühring no.	5512	8514	6063
Standard	Gühring std.	Gühring std.	Gühring std.
Tool Material	Solid carbide	Solid carbide	Solid carbide
Surface	F	X	○
Type	RT 100 U	RT 100 Inox Pro	RT 100 AI
Cutting Direction	right-hand	right-hand	right-hand
Tolerance	m7	m7	m7
Drilling depth	7 x D	7 x D	7 x D
Point angle	140°	140°	140°



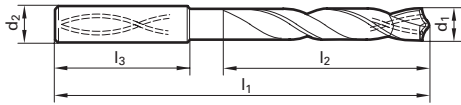
d1		d2	l1	l2	l3	AVAILABILITY		
mm	inch	mm	mm	mm	mm			
3.000		6.000	70.00	30.00	36.00	•	○	○
3.300		6.000	70.00	30.00	36.00	•	○	○
4.000		6.000	75.00	37.50	36.00	•	○	○
4.600		6.000	85.00	45.00	36.00	•	○	○
5.000		6.000	90.00	50.00	36.00	•	○	○
5.200		6.000	90.00	50.00	36.00	•	○	○
5.500		6.000	97.00	57.00	36.00	•	○	○
5.560		6.000	97.00	57.00	36.00	•	○	○
5.800		6.000	97.00	57.00	36.00	•	○	○
5.950		6.000	97.00	57.00	36.00	•	○	○
6.000		6.000	97.00	57.00	36.00	•	○	○
6.350	1/4	8.000	106.00	66.00	36.00	•	○	○
6.500		8.000	106.00	66.00	36.00	•	○	○
6.750		8.000	106.00	66.00	36.00	•	○	○
6.800		8.000	106.00	66.00	36.00	•	○	○
7.000		8.000	116.00	76.00	36.00	•	○	○
7.140		8.000	116.00	76.00	36.00	•	○	○
7.500		8.000	116.00	76.00	36.00	•	○	○
7.540		8.000	116.00	76.00	36.00	•	○	○
7.800		8.000	116.00	76.00	36.00	•	○	○
7.940		8.000	116.00	76.00	36.00	•	○	○
8.000		8.000	116.00	76.00	36.00	•	○	○
8.330		10.000	131.00	87.00	40.00	•	○	○
8.500		10.000	131.00	87.00	40.00	•	○	○
8.730		10.000	131.00	87.00	40.00	•	○	○
9.000		10.000	131.00	87.00	40.00	•	○	○
9.130		10.000	131.00	87.00	40.00	•	○	○
9.500		10.000	139.00	95.00	40.00	•	○	○
9.520	3/8	10.000	139.00	95.00	40.00	•	○	○
9.800		10.000	139.00	95.00	40.00	•	○	○
10.000		10.000	139.00	95.00	40.00	•	○	○
10.200		12.000	155.00	106.00	45.00	•	○	○
10.320		12.000	155.00	106.00	45.00	•	○	○
10.500		12.000	155.00	106.00	45.00	•	○	○
11.000		12.000	155.00	106.00	45.00	•	○	○
11.110		12.000	163.00	114.00	45.00	•	○	○
11.500		12.000	163.00	114.00	45.00	•	○	○

• Australian stock item ○ German stock item

U = Universal **VA** = Stainless steel **Inox Pro** = Stainless Steel **AI** = Aluminium



Guhring no.	5512	8514	6063
Standard	Guhring std.	Guhring std.	Guhring std.
Tool material	Solid carbide	Solid carbide	Solid carbide
Surface			
Type	RT 100 U	RT 100 Inox Pro	RT 100 Al
Cutting direction	right-hand	right-hand	right-hand
Tolerance	m7	m7	m7
Drilling depth	7 x D	7 x D	7 x D
Point angle	140°	140°	140°



d1		d2	l1	l2	l3	AVAILABILITY		
mm	inch	mm	mm	mm	mm			
11.910		12.000	163.00	114.00	45.00	•	○	○
12.000		12.000	163.00	114.00	45.00	•	○	○
12.500		14.000	182.00	133.00	45.00	•	○	○
12.700	1/2	14.000	182.00	133.00	45.00	•	○	○
13.000		14.000	182.00	133.00	45.00	•	○	○
13.500		14.000	182.00	133.00	45.00	○	○	○
14.000		14.000	182.00	133.00	45.00	•	○	○
14.200		16.000	204.00	152.00	48.00	○	○	○
14.500		16.000	204.00	152.00	48.00	○	○	○
15.000		16.000	204.00	152.00	48.00	•	○	○
15.500		16.000	204.00	152.00	48.00	○	○	○
16.000		16.000	204.00	152.00	48.00	○	○	○
16.500		18.000	223.00	171.00	48.00	○	○	○
17.000		18.000	223.00	171.00	48.00	○	○	○
17.500		18.000	223.00	171.00	48.00	○	○	○
18.000		18.000	223.00	171.00	48.00	○	○	○
18.500		20.000	244.00	190.00	50.00	○	○	○
19.000		20.000	244.00	190.00	50.00	○	○	○
19.050	3/4	20.000	244.00	190.00	50.00	○	○	○
19.500		20.000	244.00	190.00	50.00	○	○	○
20.000		20.000	244.00	190.00	50.00	○	○	○

• Australian stock item ○ German stock item

U = Universal **VA** = Stainless steel **Inox Pro** = Stainless Steel **Al** = Aluminium

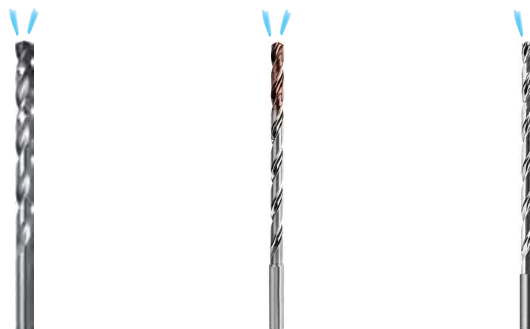
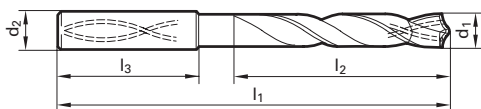
○ bright ● steam tempered ◐ nitrided lands ● TiN ● TiAlN ● TiCN ● FIRE/nanoFIRE ● Perrox



RATIO DRILLS WITH OIL FEED, 12 X D

DRILLS

Guhring no.	5525	8518	6064
Standard	Guhring std.		
Tool material	Solid carbide		
Carbide Grade	K/P	K/P	K/P
Surface			
Type	RT 100 U	RT 100 Inox Pro	RT 100 AL
Shank	HA	HA	HA
Cutting direction	right-hand	right-hand	right-hand
Tolerance	h7	h7	h7
Drilling depth	12 x D	12 x D	12 x D
Point angle	140°	135°	135°



d1	d2	l1	l2	l3	AVAILABILITY		
mm	mm	mm	mm	mm			
3.000	6.000	90.00	50.00	36.00	•	○	○
3.170	6.000	90.00	50.00	36.00	•	○	○
3.200	6.000	90.00	50.00	36.00	•	○	○
3.500	6.000	90.00	50.00	36.00	○	○	○
4.000	6.000	102.00	64.00	36.00	•	○	○
4.500	6.000	102.00	64.00	36.00	○	○	○
5.000	6.000	116.00	78.00	36.00	•	○	○
5.200	6.000	116.00	78.00	36.00	•	○	○
5.500	6.000	116.00	78.00	36.00	○	○	○
6.000	6.000	116.00	78.00	36.00	•	○	○
6.350	8.000	146.00	108.00	36.00	○	○	○
6.500	8.000	146.00	108.00	36.00	○	○	○
6.800	8.000	146.00	108.00	36.00	○	○	○
7.000	8.000	146.00	108.00	36.00	○	○	○
7.500	8.000	146.00	108.00	36.00	○	○	○
8.000	8.000	146.00	108.00	36.00	•	○	○
8.330	8.000	146.00	108.00	36.00	○	○	○
8.500	10.000	162.00	120.00	40.00	○	○	○
9.000	10.000	162.00	120.00	40.00	○	○	○
9.500	10.000	162.00	120.00	40.00	○	○	○
9.520	10.000	162.00	120.00	40.00	○	○	○
10.000	10.000	162.00	120.00	40.00	•	○	○
10.500	12.000	204.00	156.00	45.00	○	○	○
11.000	12.000	204.00	156.00	45.00	○	○	○
11.500	12.000	204.00	156.00	45.00	○	○	○
12.000	12.000	204.00	156.00	45.00	•	○	○
12.500	14.000	230.00	182.00	45.00	○	○	○
12.700	14.000	230.00	182.00	45.00	○	○	○
13.000	14.000	230.00	182.00	45.00	○	○	○
13.500	14.000	230.00	182.00	45.00	○	○	○
14.000	14.000	230.00	182.00	45.00	•	○	○
14.500	16.000	260.00	208.00	48.00	○	○	○
15.000	16.000	260.00	208.00	48.00	○	○	○
15.500	16.000	260.00	208.00	48.00	○	○	○
16.000	16.000	260.00	208.00	48.00	•	○	○

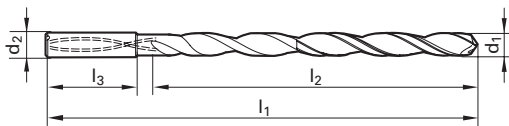
*Other sizes available

• Australian stock item ○ German stock item

U = Universal **VA** = Stainless steel **Inox Pro** = Stainless Steel **AI** = Aluminium



Guhring no.	6511
Standard	Guhring std.
Tool material	Solid carbide
Carbide Grade	K/P
Surface	A
Type	RT 100 T
Shank	HA
Cutting Direction	right-hand
Tolerance	h7
Drilling depth	20 x D
Point angle	135°



d1	d2	l1	l2	l3	AVAILABILITY
mm	mm	mm	mm	mm	
3.000	6.000	110.00	70.00	36.00	•
4.000	6.000	136.00	96.00	36.00	•
4.500	6.000	158.00	118.00	36.00	•
5.000	6.000	158.00	118.00	36.00	•
5.500	6.000	180.00	140.00	36.00	•
6.000	6.000	180.00	140.00	36.00	•
6.500	8.000	202.00	162.00	36.00	•
7.000	8.000	202.00	162.00	36.00	•
7.500	8.000	223.00	183.00	36.00	•
8.000	8.000	223.00	183.00	36.00	•
8.500	10.000	249.00	205.00	40.00	•
8.730	10.000	249.00	205.00	40.00	•
9.000	10.000	249.00	205.00	40.00	•
10.000	10.000	271.00	227.00	40.00	•
14.000	14.000	367.00	318.00	45.00	•

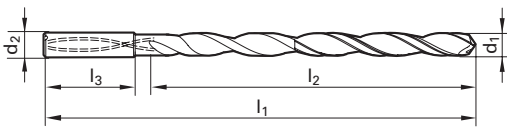
• Australian stock item ◦ German stock item



RATIO DRILLS WITH OIL FEED, 30 X D

DRILLS

Guhring no.	6513
Standard	Guhring std.
Tool material	Solid carbide
Carbide Grade	K/P
Surface	A
Type	RT 100 T
Shank	HA
Cutting Direction	right-hand
Tolerance	h7
Drilling depth	30 x D
Point angle	135°



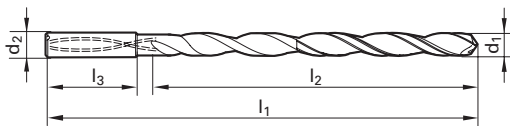
d1	d2	l1	l2	l3
mm	mm	mm	mm	mm
3.000	6.000	140.00	100.00	36.00
3.170	6.000	158.00	118.00	36.00
4.000	6.000	176.00	136.00	36.00
4.500	6.000	208.00	168.00	36.00
5.000	6.000	208.00	168.00	36.00
5.500	6.000	240.00	200.00	36.00
6.000	8.000	240.00	200.00	36.00
6.500	8.000	272.00	232.00	36.00
7.000	8.000	272.00	232.00	36.00
7.500	8.000	303.00	263.00	36.00
8.000	8.000	303.00	263.00	36.00
8.500	10.000	339.00	295.00	40.00
9.000	10.000	339.00	295.00	40.00
9.520	10.000	371.00	327.00	40.00
10.000	10.000	371.00	327.00	40.00

AVAILABILITY	
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• Australian stock item ◦ German stock item



Guhring no.	6514
Standard	Guhring std.
Tool material	Solid carbide
Carbide Grade	K/P
Surface	A
Type	RT 100 T
Shank	HA
Cutting Direction	right-hand
Tolerance	h7
Drilling depth	40 x D
Point angle	135°



d1	d2	l1	l2	l3	AVAILABILITY
mm	mm	mm	mm	mm	
3.000	6.000	170.00	130.00	36.00	•
4.000	6.000	216.00	176.00	36.00	•
5.000	6.000	258.00	218.00	36.00	•
5.500	6.000	280.00	240.00	36.00	•
6.000	6.000	300.00	260.00	36.00	•
6.500	8.000	322.00	282.00	36.00	•
7.000	8.000	342.00	302.00	36.00	•
7.500	8.000	363.00	323.00	36.00	•
8.000	8.000	383.00	343.00	36.00	•

• Australian stock item ◦ German stock item

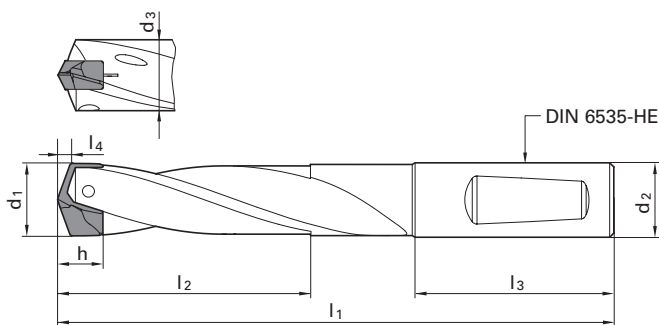


TOOL HOLDERS FOR INTERCHANGEABLE INSERTS HT 800, 3 X D

DRILLS

Guhring no.

4107



Code no.	Holder Size	d1	d2	d3	incl. WP l1*	l2 max	l3	AVAILABILITY
		mm	mm	mm	mm	mm	mm	
11,000	110	11.00 - 11.49	12.00	10.70	101.00	36.60	45.00	•
11,005	110	11.00 - 11.49	12.70	10.70	101.00	36.60	45.00	○
11,500	115	11.50 - 11.99	12.00	11.20	103.00	38.10	45.00	•
11,505	115	11.50 - 11.99	12.70	11.20	103.00	38.10	45.00	○
12,000	120	12.00 - 12.49	12.00	11.70	106.00	39.70	45.00	•
12,005	120	12.00 - 12.49	12.70	11.70	106.00	39.70	45.00	○
12,500	125	12.50 - 12.99	14.00	12.20	108.00	41.30	45.00	•
12,505	125	12.50 - 12.99	15.875	12.20	108.00	41.30	45.00	○
13,000	130	13.00 - 13.49	14.00	12.70	110.00	42.90	45.00	•
13,005	130	13.00 - 13.49	15.875	12.70	110.00	42.90	45.00	○
13,500	135	13.50 - 13.99	14.00	13.20	113.00	44.60	45.00	•
13,505	135	13.50 - 13.99	15.875	13.20	113.00	44.60	45.00	○
14,000	140	14.00 - 14.49	14.00	13.70	115.00	46.20	45.00	•
14,005	140	14.00 - 14.49	15.875	13.70	115.00	46.20	48.00	○
14,500	145	14.50 - 14.99	16.00	14.20	120.00	47.80	48.00	•
14,505	145	14.50 - 14.99	15.875	14.20	120.00	47.80	48.00	○
15,000	150	15.00 - 15.49	16.00	14.70	123.00	49.30	48.00	•
15,005	150	15.00 - 15.49	15.875	14.70	123.00	49.30	48.00	○
15,500	155	15.50 - 15.99	16.00	15.20	125.00	50.90	48.00	•
15,505	155	15.50 - 15.99	15.875	15.20	125.00	50.90	48.00	○
16,000	160	16.00 - 16.49	16.00	15.70	127.00	52.90	48.00	•
16,005	160	16.00 - 16.49	15.875	15.70	127.00	52.90	48.00	○
16,500	165	16.50 - 16.99	18.00	16.20	130.00	54.10	48.00	•
16,505	165	16.50 - 16.99	19.05	16.20	130.00	54.10	48.00	○
17,000	170	17.00 - 17.49	18.00	16.70	132.00	55.80	48.00	•
17,005	170	17.00 - 17.49	19.05	16.70	132.00	55.80	48.00	○
17,500	175	17.50 - 17.99	18.00	17.20	134.00	57.40	48.00	•
17,505	175	17.50 - 17.99	19.05	17.20	134.00	57.40	48.00	○
18,000	180	18.00 - 18.49	18.00	17.70	137.00	58.90	48.00	•
18,005	180	18.00 - 18.49	19.05	17.70	137.00	58.90	48.00	○
18,500	185	18.50 - 18.99	20.00	18.20	141.00	60.50	50.00	•
18,505	185	18.50 - 18.99	19.05	18.20	141.00	60.50	50.00	○
19,000	190	19.00 - 19.49	20.00	18.70	143.00	62.10	50.00	•
19,005	190	19.00 - 19.49	19.05	18.70	143.00	62.10	50.00	○
19,500	195	19.50 - 19.99	20.00	19.20	146.00	63.70	50.00	•
19,505	195	19.50 - 19.99	19.05	19.20	146.00	63.70	50.00	○
20,000	200	20.00 - 20.49	20.00	19.70	148.00	65.30	50.00	•
20,005	200	20.00 - 20.49	19.05	19.70	148.00	65.30	50.00	○
20,500	205	20.50 - 20.99	25.00	20.20	159.00	67.00	56.00	•

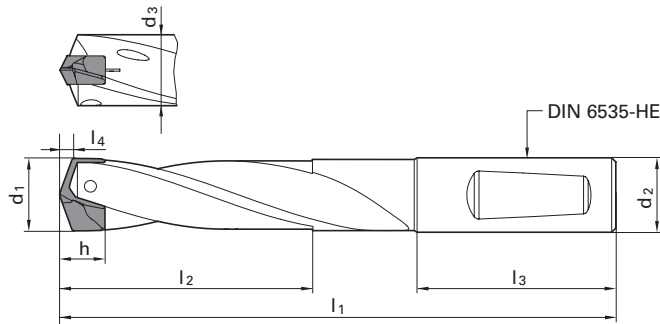
• Australian stock item ○ German stock item



Guhring no.

4107

DRILLS



Code no.	Holder Size	d1	d2	d3	incl. WP l1*	l2 max	l3	AVAILABILITY
		mm	mm	mm	mm	mm	mm	
20,505	205	20.50 - 20.99	25.40	20.20	159.00	67.00	56.00	○
21,000	210	21.00 - 21.49	25.00	20.70	161.00	68.60	56.00	●
21,005	210	21.00 - 21.49	25.40	20.70	161.00	68.60	56.00	○
21,500	215	21.50 - 21.99	25.00	21.20	163.00	70.10	56.00	●
21,505	215	21.50 - 21.99	25.40	21.20	163.00	70.10	56.00	○
22,000	220	22.00 - 22.49	25.00	21.70	165.00	71.70	56.00	●
22,005	220	22.00 - 22.49	25.40	21.70	165.00	71.70	56.00	○
22,500	225	22.50 - 22.99	25.00	22.20	168.00	73.30	56.00	●
22,505	225	22.50 - 22.99	25.40	22.20	168.00	73.30	56.00	○
23,000	230	23.00 - 23.49	25.00	22.70	170.00	74.9	56.00	●
23,005	230	23.00 - 23.49	25.40	22.70	170.00	74.90	56.00	○
23,500	235	23.50 - 23.99	25.00	23.20	173.00	76.50	56.00	●
23,505	235	23.50 - 23.99	25.40	23.20	173.00	76.50	56.00	○
24,000	240	24.00 - 24.49	25.00	23.70	175.00	78.10	56.00	●
24,005	240	24.00 - 24.49	25.40	23.70	175.00	78.10	56.00	○
24,500	245	24.50 - 24.99	25.00	24.20	177.00	79.70	56.00	●
24,505	245	24.50 - 24.99	25.40	24.20	177.00	79.70	56.00	○
25,000	250	25.00 - 25.49	25.00	24.70	180.00	81.30	56.00	●
25,005	250	25.00 - 25.49	25.40	24.70	180.00	81.30	56.00	○
25,500	255	25.50 - 25.99	32.00	25.20	187.00	82.9	60.00	○
25,505	255	25.50 - 25.99	31.75	25.20	187.00	82.90	60.00	○
26,000	260	26.00 - 26.49	32.00	25.70	191.00	84.00	60.00	●
26,005	260	26.00 - 26.49	31.75	25.70	191.00	84.00	60.00	○
26,500	265	26.50 - 26.99	32.00	26.20	193.00	86.10	60.00	○
26,505	265	26.50 - 26.99	31.75	26.20	193.00	86.10	60.00	○
27,000	270	27.00 - 27.49	32.00	26.70	196.00	87.20	60.00	●
27,005	270	27.00 - 27.49	31.75	26.70	196.00	87.20	60.00	○
27,500	275	27.50 - 27.99	32.00	27.20	198.00	88.90	60.00	○
27,505	275	27.50 - 27.99	31.75	27.20	198.00	88.90	60.00	○
28,000	280	28.00 - 28.49	32.00	27.70	200.00	90.40	60.00	●
28,005	280	28.00 - 28.49	31.75	27.70	200.00	90.40	60.00	○
28,500	285	28.50 - 28.99	32.00	28.20	202.00	92.50	60.00	○
28,505	285	28.50 - 28.99	31.75	28.20	202.00	92.50	60.00	○
29,000	290	29.00 - 29.49	32.00	28.70	205.00	94.60	60.00	●
29,005	290	29.00 - 29.49	31.75	28.70	205.00	94.60	60.00	○
29,500	295	29.50 - 29.99	32.00	29.20	207.00	95.10	60.00	○
29,505	295	29.50 - 29.99	31.75	29.20	207.00	95.10	60.00	○
30,000	300	30.00 - 30.49	32.00	29.70	210.00	96.70	60.00	●
30,005	300	30.00 - 30.49	31.75	29.70	210.00	96.70	60.00	○

● Australian stock item ○ German stock item

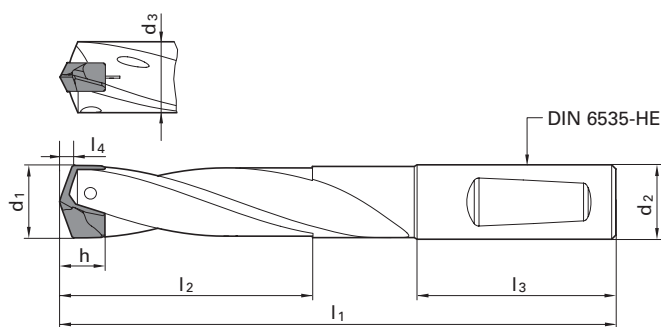


TOOL HOLDERS FOR INTERCHANGEABLE INSERTS HT 800, 3 X D

DRILLS

Guhring no.

4107



Code no.	Holder Size	d1	d2	d3	incl. WP l1*	l2 max	l3	AVAILABILITY
		mm	mm	mm	mm	mm	mm	
30,500	305	30.50 - 30.99	32.00	30.20	212.00	98.30	60.00	○
30,505	305	30.50 - 30.99	31.75	30.20	212.00	98.30	60.00	○
31,000	310	31.00 - 31.49	32.00	30.70	214.00	99.80	60.00	●
31,005	310	31.00 - 31.49	31.75	30.70	214.00	99.80	60.00	○
31,500	315	31.50 - 31.99	32.00	31.20	216.00	101.40	60.00	○
31,505	315	31.50 - 31.99	31.75	31.20	216.00	101.40	60.00	○
32,000	320	32.00 - 32.99	32.00	31.70	221.00	104.60	60.00	●
32,005	320	32.00 - 32.99	31.75	31.70	221.00	104.60	60.00	○
33,000	330	33.00 - 33.99	32.00	32.70	226.00	107.80	60.00	●
33,005	330	33.00 - 33.99	31.75	32.70	226.00	107.80	60.00	○
34,000	340	34.00 - 34.99	32.00	33.70	230.00	111.00	60.00	○
34,005	340	34.00 - 34.99	31.75	33.70	230.00	111.00	60.00	○
35,000	350	35.00 - 35.99	32.00	34.70	235.00	114.20	60.00	○
35,005	350	35.00 - 35.99	31.75	34.70	235.00	114.20	60.00	○
36,000	360	36.00 - 36.99	32.00	35.70	240.00	117.30	60.00	○
36,005	360	36.00 - 36.99	31.75	35.70	240.00	117.30	60.00	○
37,000	370	37.00 - 37.99	32.00	36.70	245.00	120.50	60.00	○
37,005	370	37.00 - 37.99	31.75	36.70	245.00	120.50	60.00	○
38,000	380	38.00 - 38.99	32.00	37.70	249.00	123.70	60.00	○
38,005	380	38.00 - 38.99	31.75	37.70	249.00	123.70	60.00	○
39,000	390	39.00 - 40.00	32.00	38.70	254.00	126.90	60.00	○
39,005	390	39.00 - 40.00	31.75	38.70	254.00	126.90	60.00	○

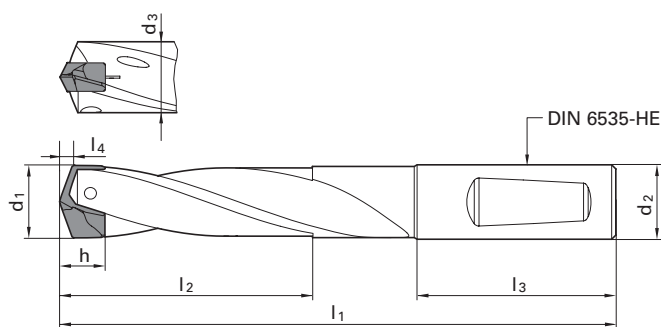
● Australian stock item ○ German stock item



Guhring no.

4108

DRILLS



Code no.	Holder Size	d1	d2	d3	incl. WP l1*	l2 max	l3	AVAILABILITY
		mm	mm	mm	mm	mm	mm	
11,000	110	11.00 - 11.49	12.00	10.70	124.00	59.60	45.00	•
11,005	110	11.00 - 11.49	12.70	10.70	124.00	59.60	45.00	○
11,500	115	11.50 - 11.99	12.00	11.20	127.00	62.10	45.00	•
11,505	115	11.50 - 11.99	12.70	11.20	127.00	62.10	45.00	○
12,000	120	12.00 - 12.49	12.00	11.70	131.00	64.70	45.00	•
12,005	120	12.00 - 12.49	12.70	11.70	131.00	64.70	45.00	○
12,500	125	12.50 - 12.99	14.00	12.20	134.00	67.30	45.00	•
12,505	125	12.50 - 12.99	15.875	12.20	134.00	67.30	45.00	○
13,000	130	13.00 - 13.49	14.00	12.70	137.00	69.90	45.00	•
13,005	130	13.00 - 13.49	15.875	12.70	137.00	69.90	45.00	○
13,500	135	13.50 - 13.99	14.00	13.20	141.00	72.60	45.00	•
13,505	135	13.50 - 13.99	15.875	13.20	141.00	72.60	45.00	○
14,000	140	14.00 - 14.49	14.00	13.70	144.00	75.20	45.00	•
14,005	140	14.00 - 14.49	15.875	13.70	144.00	75.20	45.00	○
14,500	145	14.50 - 14.99	16.00	14.20	150.00	77.80	48.00	•
14,505	145	14.50 - 14.99	15.875	14.20	150.00	77.80	48.00	○
15,000	150	15.00 - 15.49	16.00	14.70	154.00	80.30	48.00	•
15,005	150	15.00 - 15.49	15.875	14.70	154.00	80.30	48.00	○
15,500	155	15.50 - 15.99	16.00	15.20	157.00	82.90	48.00	•
15,505	155	15.50 - 15.99	15.875	15.20	157.00	82.90	48.00	○
16,000	160	16.00 - 16.49	16.00	15.70	160.00	85.90	48.00	•
16,005	160	16.00 - 16.49	15.875	15.70	160.00	85.90	48.00	○
16,500	165	16.50 - 16.99	18.00	16.20	164.00	88.10	48.00	•
16,505	165	16.50 - 16.99	19.05	16.20	164.00	88.10	48.00	○
17,000	170	17.00 - 17.49	18.00	16.70	167.00	90.80	48.00	•
17,005	170	17.00 - 17.49	19.05	16.70	167.00	90.80	48.00	○
17,500	175	17.50 - 17.99	18.00	17.20	170.00	93.40	48.00	•
17,505	175	17.50 - 17.99	19.05	17.20	170.00	93.40	48.00	○
18,000	180	18.00 - 18.49	18.00	17.70	174.00	95.90	48.00	•
18,005	180	18.00 - 18.49	19.05	17.70	174.00	95.90	48.00	○
18,500	185	18.50 - 18.99	20.00	18.20	179.00	98.50	50.00	•
18,505	185	18.50 - 18.99	19.05	18.20	179.00	98.50	50.00	○
19,000	190	19.00 - 19.49	20.00	18.70	182.00	101.10	50.00	•
19,005	190	19.00 - 19.49	19.05	18.70	182.00	101.10	50.00	○
19,500	195	19.50 - 19.99	20.00	19.20	186.00	103.70	50.00	•
19,505	195	19.50 - 19.99	19.05	19.20	186.00	103.70	50.00	○
20,000	200	20.00 - 20.49	20.00	19.70	189.00	106.30	50.00	•
20,005	200	20.00 - 20.49	19.05	19.70	189.00	106.30	50.00	○
20,500	205	20.50 - 20.99	25.00	20.20	201.00	109.00	56.00	•

• Australian stock item ○ German stock item

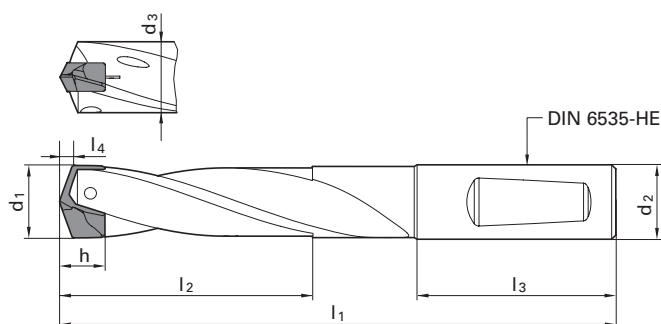


TOOL HOLDERS FOR INTERCHANGEABLE INSERTS HT 800, 5 X D

DRILLS

Guhring no.

4108



Code no.	Holder Size	d1	d2	d3	incl. WP l1*	l2 max	l3	AVAILABILITY
		mm	mm	mm	mm	mm	mm	
20,505	205	20.50 - 20.99	25.40	20.20	201.00	109.00	56.00	○
21,000	210	21.00 - 21.49	25.00	20.70	204.00	111.60	56.00	●
21,005	210	21.00 - 21.49	25.40	20.70	204.00	111.60	56.00	○
21,500	215	21.50 - 21.99	25.00	21.20	207.00	114.10	56.00	●
21,505	215	21.50 - 21.99	25.40	21.20	207.00	114.10	56.00	○
22,000	220	22.00 - 22.49	25.00	21.70	210.00	116.70	56.00	●
22,005	220	22.00 - 22.49	25.40	21.70	210.00	116.70	56.00	○
22,500	225	22.50 - 22.99	25.00	22.20	214.00	119.30	56.00	●
22,505	225	22.50 - 22.99	25.40	22.20	214.00	119.30	56.00	○
23,000	230	23.00 - 23.49	25.00	22.70	217.00	121.90	56.00	●
23,005	230	23.00 - 23.49	25.40	22.70	217.00	121.90	56.00	○
23,500	235	23.50 - 23.99	25.00	23.20	221.00	124.50	56.00	●
23,505	235	23.50 - 23.99	25.40	23.20	221.00	124.50	56.00	○
24,000	240	24.00 - 24.49	25.00	23.70	224.00	127.10	56.00	●
24,005	240	24.00 - 24.49	25.40	23.70	224.00	127.10	56.00	○
24,500	245	24.50 - 24.99	25.00	24.20	227.00	129.70	56.00	●
24,505	245	24.50 - 24.99	25.40	24.20	227.00	129.70	56.00	○
25,000	250	25.00 - 25.49	25.00	24.70	231.00	132.30	56.00	●
25,005	250	25.00 - 25.49	25.40	24.70	231.00	132.30	56.00	○
25,500	255	25.50 - 25.99	32.00	25.20	239.00	134.90	60.00	○
25,505	255	25.50 - 25.99	31.75	25.20	239.00	134.90	60.00	○
26,000	260	26.00 - 26.49	32.00	25.70	244.00	137.00	60.00	●
26,500	265	26.50 - 26.99	32.00	26.20	247.00	140.00	60.00	○
27,000	270	27.00 - 27.49	32.00	26.70	251.00	142.20	60.00	●
27,500	275	27.50 - 27.99	32.00	27.20	254.00	144.80	60.00	○
28,000	280	28.00 - 28.49	32.00	27.70	257.00	147.40	60.00	●
28,500	285	28.50 - 28.99	32.00	28.20	260.00	150.40	60.00	○
29,000	290	29.00 - 29.49	32.00	28.70	264.00	153.50	60.00	●
29,500	295	29.50 - 29.99	32.00	29.20	267.00	155.10	60.00	○
30,000	300	30.00 - 30.49	32.00	29.70	271.00	157.60	60.00	●
30,500	305	30.50 - 30.99	32.00	30.20	274.00	160.20	60.00	○
31,000	310	31.00 - 31.49	32.00	30.70	277.00	162.80	60.00	●
31,500	315	31.50 - 31.99	32.00	31.20	280.00	165.40	60.00	○
32,000	320	32.00 - 32.99	32.00	31.70	287.00	170.60	60.00	●
33,000	330	33.00 - 33.99	32.00	32.70	294.00	175.80	60.00	○
34,000	340	34.00 - 34.99	32.00	33.70	300.00	181.00	60.00	○
35,000	350	35.00 - 35.99	32.00	34.70	307.00	186.20	60.00	○
36,000	360	36.00 - 36.99	32.00	35.70	314.00	191.30	60.00	○
37,000	370	37.00 - 37.99	32.00	36.70	321.00	196.50	60.00	○

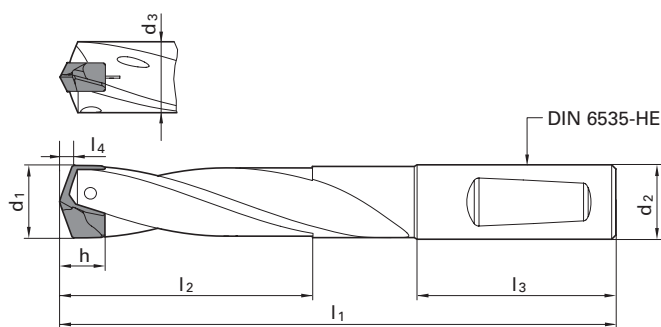
● Australian stock item ○ German stock item



Guhring no.

4108

DRILLS



Code no.	Holder Size	d1	d2	d3	incl. WP l1*	l2 max	l3	AVAILABILITY
		mm	mm	mm	mm	mm	mm	
38,000	380	38.00 - 38.99	32.00	37.70	327.00	201.70	60.00	○
39,000	390	39.00 - 40.00	32.00	38.70	334.00	206.90	60.00	○

• Australian stock item ○ German stock item

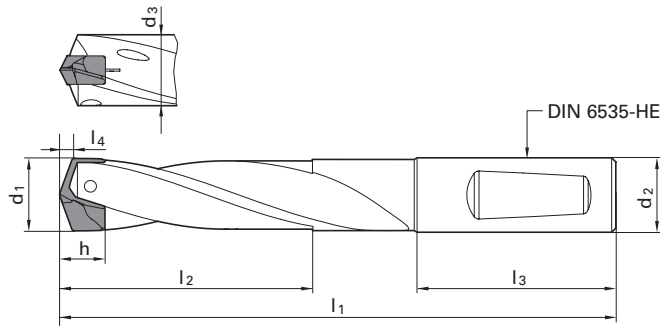


TOOL HOLDERS FOR INTERCHANGEABLE INSERTS HT 800, 7 X D

DRILLS

Guhring no.

4109



Code no.	Holder Size	d1	d2	d3	incl. WP l1*	l2 max	l3	AVAILABILITY
		mm	mm	mm	mm	mm	mm	
11,000	110	11.00 - 11.49	12.00	10.70	147.00	82.60	45.00	•
11,005	110	11.00 - 11.49	12.70	10.70	147.00	82.60	45.00	○
11,500	115	11.50 - 11.99	12.00	11.20	151.00	86.10	45.00	•
11,505	115	11.50 - 11.99	12.70	11.20	151.00	86.10	45.00	○
12,000	120	12.00 - 12.49	12.00	11.70	156.00	89.70	45.00	•
12,005	120	12.00 - 12.49	12.70	11.70	156.00	89.70	45.00	○
12,500	125	12.50 - 12.99	14.00	12.20	160.00	93.30	45.00	•
12,505	125	12.50 - 12.99	15.875	12.20	160.00	93.30	45.00	○
13,000	130	13.00 - 13.49	14.00	12.70	164.00	96.90	45.00	•
13,005	130	13.00 - 13.49	15.875	12.70	164.00	96.90	45.00	○
13,500	135	13.50 - 13.99	14.00	12.70	169.00	100.60	45.00	•
13,505	135	13.50 - 13.99	15.875	13.20	169.00	100.60	45.00	○
14,000	140	14.00 - 14.49	14.00	13.70	173.00	104.20	45.00	•
14,005	140	14.00 - 14.49	15.875	13.70	173.00	104.20	45.00	○
14,500	145	14.50 - 14.99	16.00	14.20	180.00	107.80	48.00	•
14,505	145	14.50 - 14.99	15.875	14.20	180.00	107.80	48.00	○
15,000	150	15.00 - 15.49	16.00	14.70	185.00	111.30	48.00	•
15,005	150	15.00 - 15.49	15.875	14.70	185.00	111.30	48.00	○
15,500	155	15.50 - 15.99	16.00	15.20	189.00	114.90	48.00	•
15,505	155	15.50 - 15.99	15.875	15.20	189.00	114.90	48.00	○
16,000	160	16.00 - 16.49	16.00	15.70	193.00	118.90	48.00	•
16,005	160	16.00 - 16.49	15.875	15.70	193.00	118.90	48.00	○
16,500	165	16.50 - 16.99	18.00	16.20	198.00	122.10	48.00	•
16,505	165	16.50 - 16.99	19.05	16.20	198.00	122.10	48.00	○
17,000	170	17.00 - 17.49	18.00	16.70	202.00	125.80	48.00	•
17,005	170	17.00 - 17.49	19.05	16.70	202.00	125.80	48.00	○
17,500	175	17.50 - 17.99	18.00	17.20	206.00	129.40	48.00	•
17,505	175	17.50 - 17.99	19.05	17.20	206.00	129.40	48.00	○
18,000	180	18.00 - 18.49	18.00	17.70	211.00	132.90	48.00	•
18,005	180	18.00 - 18.49	19.05	17.70	211.00	132.90	48.00	○
18,500	185	18.50 - 18.99	20.00	18.20	217.00	136.50	50.00	•
18,505	185	18.50 - 18.99	19.05	18.20	217.00	136.50	50.00	○
19,000	190	19.00 - 19.49	20.00	18.70	221.00	140.10	50.00	•
19,005	190	19.00 - 19.49	19.05	18.70	222.00	140.10	50.00	○
19,500	195	19.50 - 19.99	20.00	19.20	226.00	143.70	50.00	•
19,505	195	19.50 - 19.99	19.05	19.20	226.00	143.70	50.00	○
20,000	200	20.00 - 20.49	20.00	19.70	230.00	147.30	50.00	•
20,005	200	20.00 - 20.49	19.05	19.70	230.00	147.30	50.00	○
20,500	205	20.50 - 20.99	25.00	20.20	243.00	151.00	56.00	•

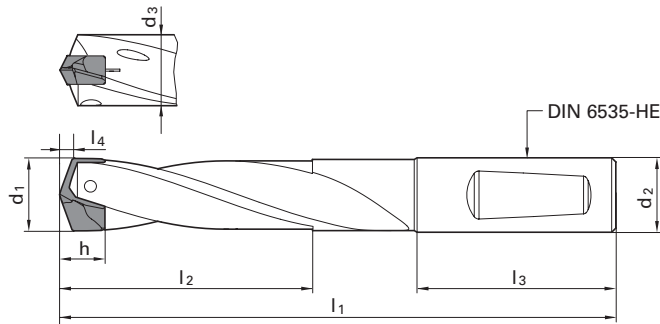
• Australian stock item ○ German stock item



Guhring no.

4109

DRILLS



Code no.	Holder Size	d1	d2	d3	incl. WP l1*	l2 max	l3	AVAILABILITY
		mm	mm	mm	mm	mm	mm	
20,505	205	20.50 - 20.99	25.40	20.20	243.00	151.00	56.00	○
21,000	210	21.00 - 21.49	25.00	20.70	247.00	154.60	56.00	●
21,005	210	21.00 - 21.49	25.40	20.70	247.00	154.60	56.00	○
21,500	215	21.50 - 21.99	25.00	21.20	251.00	158.10	56.00	●
21,505	215	21.50 - 21.99	25.40	21.20	251.00	158.10	56.00	○
22,000	220	22.00 - 22.49	25.00	21.70	255.00	161.70	56.00	●
22,005	220	22.00 - 22.49	25.40	21.70	255.00	161.70	56.00	○
22,500	225	22.50 - 22.99	25.00	22.20	260.00	165.30	56.00	●
22,505	225	22.50 - 22.99	25.40	22.20	260.00	165.30	56.00	○
23,000	230	23.00 - 23.49	25.00	22.70	264.00	168.90	56.00	●
23,005	230	23.00 - 23.49	25.40	22.70	264.00	168.90	56.00	○
23,500	235	23.50 - 23.99	25.00	23.20	269.00	172.50	56.00	●
23,505	235	23.50 - 23.99	25.40	23.20	269.00	172.50	56.00	○
24,000	240	24.00 - 24.49	25.00	23.70	273.00	176.10	56.00	●
24,005	240	24.00 - 24.49	25.40	23.70	273.00	176.10	56.00	○
24,500	245	24.50 - 24.99	25.00	24.20	277.00	179.70	56.00	●
24,505	245	24.50 - 24.99	25.40	24.20	277.00	179.70	56.00	○
25,000	250	25.00 - 25.49	25.00	24.70	282.00	183.30	56.00	●
25,005	250	25.00 - 25.49	25.40	24.70	282.00	183.30	56.00	○
25,500	255	25.50 - 25.99	32.00	25.20	291.00	186.90	60.00	○
25,505	255	25.50 - 25.99	31.75	25.20	291.00	186.90	60.00	○
26,000	260	26.00 - 26.49	32.00	25.70	297.00	190.00	60.00	●
26,005	260	26.00 - 26.49	31.75	25.70	297.00	190.00	60.00	○
26,500	265	26.50 - 26.99	32.00	26.20	301.00	194.00	60.00	○
26,505	265	26.50 - 26.99	31.75	26.20	301.00	194.00	60.00	○
27,000	270	27.00 - 27.49	32.00	26.70	306.00	197.20	60.00	●
27,005	270	27.00 - 27.49	31.75	26.70	306.00	197.20	60.00	○
27,500	275	27.50 - 27.99	32.00	27.20	310.00	200.80	60.00	○
27,505	275	27.50 - 27.99	31.75	27.20	310.00	200.80	60.00	○
28,000	280	28.00 - 28.49	32.00	27.70	314.00	204.40	60.00	●
28,005	280	28.00 - 28.49	31.75	27.70	314.00	204.40	60.00	○
28,500	285	28.50 - 28.99	32.00	28.20	318.00	208.40	60.00	○
28,505	285	28.50 - 28.99	31.75	28.20	318.00	208.40	60.00	○
29,000	290	29.00 - 29.49	32.00	28.70	323.00	212.50	60.00	●
29,005	290	29.00 - 29.49	31.75	28.70	323.00	212.50	60.00	○
29,500	295	29.50 - 29.99	32.00	29.20	327.00	215.10	60.00	○
29,505	295	29.50 - 29.99	31.75	29.20	327.00	215.10	60.00	○
30,000	300	30.00 - 30.49	32.00	29.70	332.00	218.60	60.00	●
30,005	300	30.00 - 30.49	31.75	29.70	332.00	218.60	60.00	○

● Australian stock item ○ German stock item

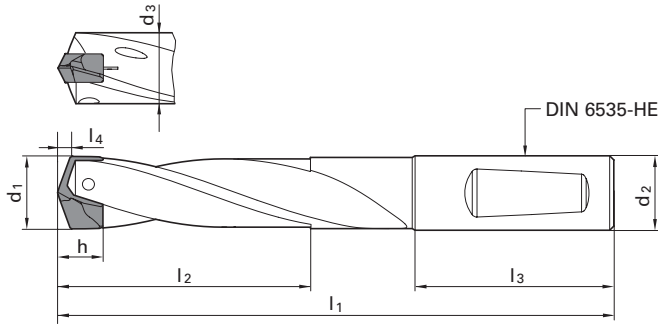


TOOL HOLDERS FOR INTERCHANGEABLE INSERTS HT 800, 7 X D

DRILLS

Guhring no.

4109



Code no.	Holder Size	d1	d2	d3	incl. WP l1*	l2 max	l3	AVAILABILITY
		mm	mm	mm	mm	mm	mm	
30,500	305	30.50 - 30.99	32.00	30.20	336.00	222.20	60.00	o
30,505	305	30.50 - 30.99	31.75	30.20	336.00	222.20	60.00	o
31,000	310	31.00 - 31.49	32.00	30.70	340.00	225.80	60.00	•
31,005	310	31.00 - 31.49	31.75	30.70	340.00	225.80	60.00	o
31,500	315	31.50 - 31.99	32.00	31.20	344.00	229.40	60.00	o
31,505	315	31.50 - 31.99	31.75	31.20	344.00	229.40	60.00	o
33,000	330	33.00 - 33.99	32.00	32.70	362.00	244.60	60.00	o
39,000	390	39.00 - 40.00	32.00	38.70	413.00	287.40	60.00	o

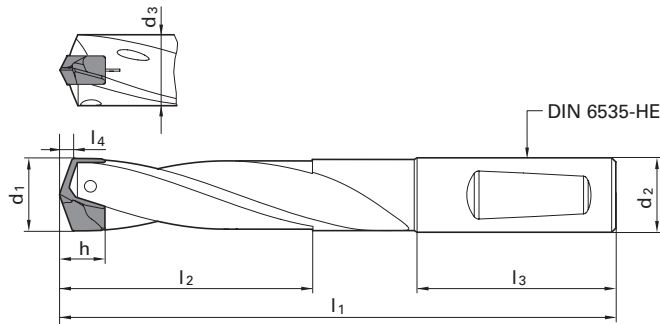
• Australian stock item o German stock item



Guhring no.

4110

DRILLS



Code no.	Holder Size	d1	d2	d3	incl. WP l1*	l2 max	l3	AVAILABILITY
		mm	mm	mm	mm	mm	mm	
11.000	110	11.00 - 11.49	12.00	10.70	182.00	117.10	45.00	•
11.005	110	11.00 - 11.49	12.70	10.70	182.00	117.10	45.00	○
11.500	115	11.50 - 11.99	12.00	11.20	187.00	122.10	45.00	•
11.505	115	11.50 - 11.99	12.70	11.20	187.00	122.10	45.00	○
12.000	120	12.00 - 12.49	12.00	11.70	194.00	127.20	45.00	•
12.005	120	12.00 - 12.49	12.70	11.70	194.00	127.20	45.00	○
12.500	125	12.50 - 12.99	14.00	12.20	199.00	132.30	45.00	•
12.505	125	12.50 - 12.99	15.875	12.20	199.00	132.30	45.00	○
13.000	130	13.00 - 13.49	14.00	12.70	205.00	137.50	45.00	•
13.005	130	13.00 - 13.49	15.875	12.70	205.00	137.50	45.00	○
13.500	135	13.50 - 13.99	14.00	13.20	211.00	142.50	45.00	•
13.505	135	13.50 - 13.99	15.875	13.20	211.00	142.50	45.00	○
14.000	140	14.00 - 14.49	14.00	13.70	217.00	147.70	45.00	•
14.005	140	14.00 - 14.49	15.875	13.70	217.00	147.70	45.00	○
14.500	145	14.50 - 14.99	16.00	14.20	225.00	152.80	48.00	○
14.505	145	14.50 - 14.99	15.875	14.20	225.00	152.80	48.00	○
15.000	150	15.00 - 15.49	16.00	14.70	232.00	157.80	48.00	○
15.005	150	15.00 - 15.49	15.875	14.70	232.00	157.80	48.00	○
15.500	155	15.50 - 15.99	16.00	15.20	237.00	162.90	48.00	○
15.505	155	15.50 - 15.99	15.875	15.20	237.00	162.90	48.00	○
16.000	160	16.00 - 16.49	16.00	15.70	243.00	168.00	48.00	○
16.005	160	16.00 - 16.49	15.875	15.70	243.00	168.00	48.00	○
16.500	165	16.50 - 16.99	18.00	16.20	249.00	173.10	48.00	•
16.505	165	16.50 - 16.99	19.05	16.20	249.00	173.10	48.00	○
17.000	170	17.00 - 17.49	18.00	16.70	255.00	178.30	48.00	○
17.005	170	17.00 - 17.49	19.05	16.70	255.00	178.30	48.00	○
17.500	175	17.50 - 17.99	18.00	17.20	260.00	183.50	48.00	○
17.505	175	17.50 - 17.99	19.05	17.20	260.00	183.50	48.00	○
18.000	180	18.00 - 18.49	18.00	17.70	267.00	188.40	48.00	○
18.005	180	18.00 - 18.49	19.05	17.70	267.00	188.40	48.00	○
18.500	185	18.50 - 18.99	20.00	18.20	274.00	193.50	50.00	○
18.505	185	18.50 - 18.99	19.05	18.20	274.00	193.50	50.00	○
19.000	190	19.00 - 19.49	20.00	18.70	280.00	198.70	50.00	○
19.005	190	19.00 - 19.49	19.05	18.70	280.00	198.70	50.00	○
19.500	195	19.50 - 19.99	20.00	19.20	286.00	203.70	50.00	○
19.505	195	19.50 - 19.99	19.05	19.20	286.00	203.70	50.00	○
20.000	200	20.00 - 20.49	20.00	19.70	292.00	208.90	50.00	○
20.005	200	20.00 - 20.49	19.05	19.70	292.00	208.90	50.00	○
20.500	205	20.50 - 20.99	25.00	20.20	306.00	214.00	56.00	○

• Australian stock item ○ German stock item

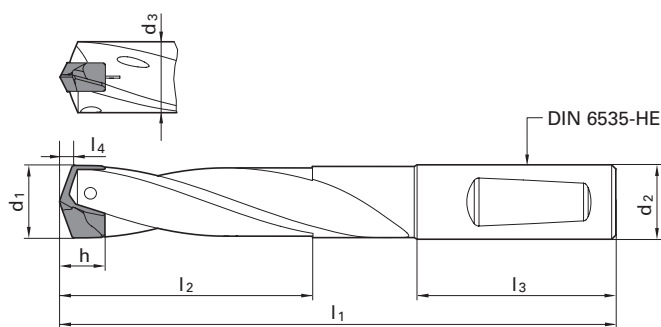


TOOL HOLDERS FOR INTERCHANGEABLE INSERTS HT 800, 10 X D

DRILLS

Guhring no.

4110

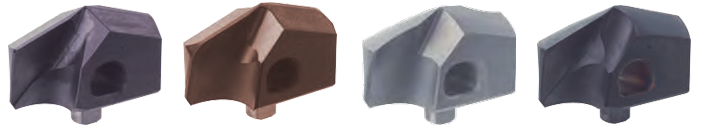
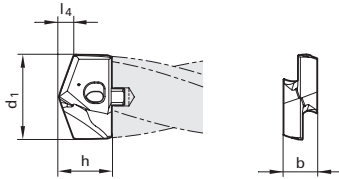


Code no.	Holder Size	d1	d2	d3	incl. WP l1*	l2 max	l3	AVAILABILITY
		mm	mm	mm	mm	mm	mm	
20.505	205	20.50 - 20.99	25.40	20.20	306.00	214.00	56.00	○
21.000	210	21.00 - 21.49	25.00	20.70	312.00	219.10	56.00	○
21.005	210	21.00 - 21.49	25.40	20.70	312.00	219.10	56.00	○
21.500	215	21.50 - 21.99	25.00	21.20	317.00	224.20	56.00	○
21.505	215	21.50 - 21.99	25.40	21.20	317.00	224.20	56.00	○
22.000	220	22.00 - 22.49	25.00	21.70	323.00	229.30	56.00	○
22.005	220	22.00 - 22.49	25.40	21.70	323.00	229.30	56.00	○
22.500	225	22.50 - 22.99	25.00	22.20	329.00	234.40	56.00	○
23.000	230	23.00 - 23.49	25.00	22.70	335.00	239.50	56.00	○
23.500	235	23.50 - 23.99	25.00	23.20	341.00	244.60	56.00	○
24.000	240	24.00 - 24.49	25.00	23.70	347.00	249.70	56.00	○
24.500	245	24.50 - 24.99	25.00	24.20	352.00	254.80	56.00	○
25.000	250	25.00 - 25.49	25.00	24.70	359.00	259.90	56.00	○
25.500	255	25.50 - 25.99	32.00	25.20	369.00	265.00	60.00	○
26.000	260	26.00 - 26.49	32.00	25.70	377.00	270.00	60.00	●
26.500	265	26.50 - 26.99	32.00	26.20	382.00	275.00	60.00	○
27.000	270	27.00 - 27.49	32.00	26.70	388.00	280.10	60.00	●
27.500	275	27.50 - 27.99	32.00	27.20	394.00	285.20	60.00	○
28.000	280	28.00 - 28.49	32.00	27.70	400.00	290.30	60.00	○
28.500	285	28.50 - 28.99	32.00	28.20	405.00	295.40	60.00	○
29.000	290	29.00 - 29.49	32.00	28.70	412.00	300.50	60.00	●
29.500	295	29.50 - 29.99	32.00	29.20	418.00	305.60	60.00	○
30.000	300	30.00 - 30.49	32.00	29.70	424.00	310.60	60.00	●
30.500	305	30.50 - 30.99	32.00	30.20	429.00	315.70	60.00	○
31.000	310	31.00 - 31.49	32.00	30.70	435.00	320.80	60.00	●
31.500	315	31.50 - 31.99	32.00	31.20	441.00	325.90	60.00	○

● Australian stock item ○ German stock item



Guhring no.	4112	4113	4114	4115
Standard	Guhring std.			
Tool material	Solid carbide			
Application	Steel	Cast iron	Aluminium	Stainless Steel
Surface finish	F	Y	○	a
Tolerance	m7	m7	h7	m7
Point angle	140°	140°	140°	140°



Code no.	for drill.	d1	l4	b	h	AVAILABILITY			
	holder size	mm	mm	mm	mm				
11,000	110	11.00	2.10	4.50	7.50	•	○	○	•
11,200	110	11.20	2.10	4.50	7.50	•	○	○	○
11,500	115	11.50	2.10	4.50	7.50	•	○	○	•
11,510	115	11.51	2.10	4.50	7.50	○	○	○	○
11,700	115	11.70	2.10	4.50	7.50	○	○	○	○
11,800	115	11.80	2.10	4.50	7.50	•	○	○	○
11,910	115	11.91	2.20	4.50	7.50	•	○	○	○
12,000	120	12.00	2.20	5.00	7.70	•	○	○	•
12,100	120	12.10	2.20	5.00	7.70	○	○	○	○
12,200	120	12.20	2.20	5.00	7.70	•	○	○	○
12,300	120	12.30	2.20	5.00	7.70	○	○	○	○
12,500	125	12.50	2.30	5.00	7.70	•	○	○	•
12,600	125	12.60	2.30	5.00	7.70	○	○	○	○
12,700	125	12.70	2.30	5.00	7.70	•	○	○	○
12,800	125	12.80	2.30	5.00	7.70	•	○	○	○
12,900	125	12.90	2.30	5.00	7.70	○	○	○	○
13,000	130	13.00	2.40	5.50	8.50	•	○	○	•
13,100	130	13.10	2.40	5.50	8.50	•	○	○	○
13,490	130	13.49	2.40	5.50	8.50	○	○	○	○
13,500	140	13.50	2.40	5.50	8.50	•	○	○	•
13,600	140	13.60	2.40	5.50	8.50	○	○	○	○
13,700	140	13.70	2.40	5.50	8.50	○	○	○	○
13,800	140	13.80	2.50	5.50	8.50	•	○	○	○
13,890	140	13.89	2.50	5.50	8.50	○	○	○	○
14,000	140	14.00	2.50	6.00	9.60	•	○	○	•
14,100	140	14.10	2.50	6.00	9.60	○	○	○	○
14,290	140	14.29	2.60	6.00	9.60	○	○	○	○
14,400	140	14.40	2.60	6.00	9.60	○	○	○	○
14,500	140	14.50	2.60	6.00	9.60	•	○	○	•
14,600	145	14.60	2.70	6.00	9.60	○	○	○	•
14,680	145	14.68	2.70	6.00	9.60	○	○	○	○
14,700	145	14.70	2.70	6.00	9.60	○	○	○	•
14,800	145	14.80	2.70	6.00	9.60	•	○	○	○
15,000	150	15.00	2.70	6.00	9.80	•	○	○	•
15,080	150	15.08	2.70	6.00	9.80	○	○	○	○
15,100	150	15.10	2.70	6.00	9.80	•	○	○	○
15,200	150	15.20	2.80	6.00	9.80	•	○	○	○
15,300	150	15.30	2.80	6.00	9.80	○	○	○	○
15,480	150	15.48	2.80	6.00	9.80	○	○	○	○

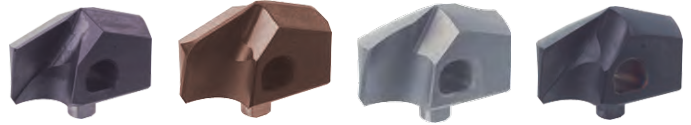
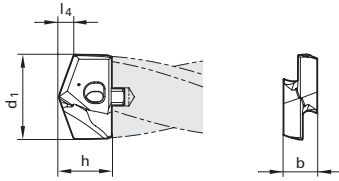
• Australian stock item ○ German stock item



INTERCHANGEABLE INSERTS HT 800

DRILLS

Guhring no.	4112	4113	4114	4115
Standard	Guhring std.			
Tool material	Solid carbide			
Application	Steel	Cast iron	Aluminium	Stainless Steel
Surface finish	F	Y	○	a
Tolerance	m7	m7	h7	m7
Point angle	140°	140°	140°	140°

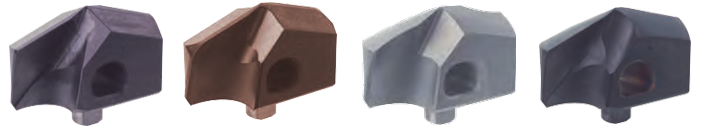
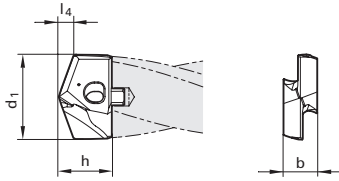


Code no.	for drill.	d1	l4	b	h	AVAILABILITY			
	holder size	mm	mm	mm	mm				
15,500	155	15.50	2.80	6.00	9.80	●	○	○	●
15,600	155	15.60	2.90	6.00	9.80	○	○	○	○
15,700	155	15.70	2.90	6.00	9.80	○	○	○	○
15,800	155	15.80	2.90	6.00	9.80	○	○	○	○
15,870	155	15.87	2.90	6.00	9.80	●	○	○	●
16,000	160	16.00	2.90	7.00	11.00	●	○	○	●
16,270	160	16.27	3.00	7.00	11.00	○	○	○	○
16,500	165	16.50	3.00	7.00	11.00	●	○	○	●
16,670	165	16.67	3.00	7.00	11.00	○	○	○	○
17,000	170	17.00	3.10	7.00	11.00	●	○	○	●
17,070	170	17.07	3.10	7.00	11.00	○	○	○	○
17,460	170	17.46	3.10	7.00	11.00	○	○	○	○
17,500	175	17.50	3.20	7.00	11.00	●	○	○	●
17,600	175	17.60	3.20	7.00	11.00	●	○	○	●
17,860	175	17.86	3.30	7.00	11.00	○	○	○	○
18,000	180	18.00	3.30	8.00	12.60	●	○	○	●
18,260	180	18.26	3.40	8.00	12.60	○	○	○	○
18,500	185	18.50	3.40	8.00	12.60	●	○	○	●
18,650	185	18.65	3.40	8.00	12.60	○	○	○	○
19,000	190	19.00	3.50	8.00	12.60	●	○	○	●
19,050	190	19.05	3.50	8.00	12.60	○	○	○	○
19,250	190	19.25	3.60	8.00	12.60	●	○	○	●
19,450	190	19.45	3.60	8.00	12.60	○	○	○	○
19,500	195	19.50	3.60	8.00	12.60	●	○	○	●
19,600	195	19.60	3.60	8.00	12.60	○	○	○	○
19,840	195	19.84	3.70	8.00	12.60	○	○	○	○
20,000	200	20.00	3.70	9.00	13.90	●	○	○	●
20,240	200	24.24	3.70	9.00	13.90	○	○	○	○
20,500	205	20.50	3.80	9.00	13.90	●	○	○	●
20,640	205	20.64	3.80	9.00	13.90	○	○	○	○
21,000	210	21.00	3.90	9.00	13.90	●	○	○	●
21,030	210	21.03	3.90	9.00	13.90	○	○	○	○
21,100	210	21.10	3.90	9.00	13.90	○	○	○	○
21,430	210	21.43	3.90	9.00	13.90	○	○	○	○
21,500	215	21.50	4.00	9.00	13.90	●	○	○	●
21,830	215	21.83	4.00	9.00	13.90	○	○	○	○
22,000	220	22.00	4.10	10.00	15.30	●	○	○	●
22,220	220	22.22	4.10	10.00	15.30	○	○	○	○
22,500	225	22.50	4.10	10.00	15.30	●	○	○	●

● Australian stock item ○ German stock item



Guhring no.	4112	4113	4114	4115
Standard	Guhring std.			
Tool material	Solid carbide			
Application	Steel	Cast iron	Aluminium	Stainless Steel
Surface finish	F	Y	○	a
Tolerance	m7	m7	h7	m7
Point angle	140°	140°	140°	140°



Code no.	for drill.	d1	l4	b	h	AVAILABILITY			
	holder size	mm	mm	mm	mm				
22,620	225	22.62	4.20	10.00	15.30	○	○	○	○
23,000	230	23.00	4.20	10.00	15.30	●	○	○	●
23,020	230	23.02	4.20	10.00	15.30	○	○	○	○
23,420	230	23.42	4.30	10.00	15.30	○	○	○	○
23,500	235	23.50	4.30	10.00	15.30	●	○	○	●
23,810	235	23.81	4.40	10.00	15.30	○	○	○	○
24,000	240	24.00	4.40	11.00	15.80	●	○	○	●
24,100	240	24.10	4.40	11.00	15.80	○	○	○	○
24,210	240	24.21	4.50	11.00	15.80	○	○	○	○
24,500	245	24.50	4.50	11.00	15.80	●	○	○	●
24,610	245	24.61	4.50	11.00	15.80	○	○	○	○
25,000	250	25.00	4.60	11.00	15.80	●	○	○	●
25,400	250	25.40	4.70	11.00	15.80	●	○	○	●
25,500	255	25.50	4.70	11.00	15.80	○	○	○	○
25,670	255	25.67	4.70	11.00	15.80	○	○	○	○
25,700	255	25.70	4.70	11.00	15.80	○	○	○	○
25,810	255	25.81	4.70	11.00	15.80	○	○	○	○
26,000	260	26.00	4.80	12.00	20.00	●	○	○	●
26,190	260	26.19	4.80	12.00	20.00	○	○	○	○
26,500	260	26.50	4.90	12.00	20.00	○	○	○	○
26,590	260	26.59	4.90	12.00	20.00	○	○	○	○
27,000	270	27.00	5.00	12.00	20.00	●	○	○	●
27,500	270	27.50	5.10	12.00	20.00	○	○	○	○
27,700	270	27.70	5.10	12.00	20.00	○	○	○	○
27,780	270	27.78	5.10	12.00	20.00	○	○	○	○
28,000	280	28.00	5.10	13.00	20.70	●	○	○	●
28,180	280	28.18	5.20	13.00	20.70	○	○	○	○
28,500	280	28.50	5.20	13.00	20.70	○	○	○	○
28,580	280	28.58	5.30	13.00	20.70	○	○	○	○
29,000	290	29.00	5.30	13.00	20.70	●	○	○	○
29,370	290	29.00	5.40	13.00	20.70	○	○	○	●
29,500	290	29.50	5.40	13.00	20.70	○	○	○	●
29,770	290	29.77	5.50	13.00	20.70	○	○	○	○
30,000	300	30.00	5.50	14.00	22.30	●	○	○	●
30,160	300	30.16	5.50	14.00	22.30	○	○	○	○
30,500	300	30.50	5.60	14.00	22.30	○	○	○	○
30,960	300	30.96	5.70	14.00	22.30	○	○	○	○
31,000	310	31.00	5.70	14.00	22.30	●	○	○	○
31,500	310	31.50	5.80	14.00	22.30	●	○	○	○

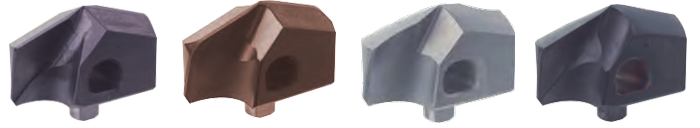
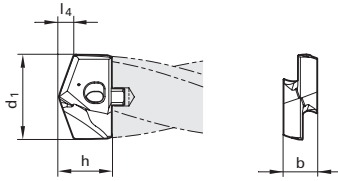
● Australian stock item ○ German stock item



INTERCHANGEABLE INSERTS HT 800

DRILLS

Guhring no.	4112	4113	4114	4115
Standard	Guhring std.			
Tool material	Solid carbide			
Application	Steel	Cast iron	Aluminium	Stainless Steel
Surface finish	F	Y	○	a
Tolerance	m7	m7	h7	m7
Point angle	140°	140°	140°	140°



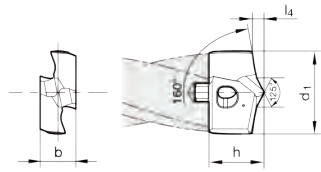
Code no.	for drill. holder size	d1 mm	l4 mm	b mm	h mm	AVAILABILITY
31,750	310	31.75	5.80	14.00	22.30	• ○ ○ ○
32,000	320	32.00	5.90	15.00	23.10	• ○ ○ •
32,500	320	32.50	6.00	15.00	23.10	○ ○ ○ ○
32,540	320	32.54	6.00	15.00	23.10	○ ○ ○ ○
32,940	320	34.94	6.00	15.00	23.10	○ ○ ○ ○
33,000	330	33.00	6.10	15.00	23.10	• ○ ○ ○
33,340	330	33.34	6.10	15.00	23.10	○ ○ ○ ○
33,500	330	33.50	6.10	15.00	23.10	○ ○ ○ ○
34,000	340	34.00	6.20	15.00	23.10	• ○ ○ ○
34,130	340	34.13	6.30	15.00	23.10	○ ○ ○ ○
34,500	340	34.50	6.30	15.00	23.10	○ ○ ○ ○
34,930	340	34.93	6.40	15.00	23.10	○ ○ ○ ○
35,000	350	35.00	6.40	15.00	23.10	○ ○ ○ ○
35,500	350	35.50	6.50	15.00	23.10	○ ○ ○ ○
35,720	350	35.72	6.50	15.00	23.10	○ ○ ○ ○
36,000	360	36.00	6.60	16.00	23.90	• ○ ○ ○
36,500	360	36.50	6.70	16.00	23.90	○ ○ ○ ○
36,510	360	36.51	6.70	16.00	23.90	○ ○ ○ ○
37,000	370	37.00	6.80	16.00	23.90	○ ○ ○ ○
37,310	370	37.31	6.80	16.00	23.90	○ ○ ○ ○
37,500	370	37.50	6.90	16.00	23.90	• ○ ○ ○
38,000	380	38.00	7.00	16.00	23.90	• ○ ○ ○
38,100	380	38.10	7.00	16.00	23.90	○ ○ ○ ○
38,460	380	38.46	7.00	16.00	23.90	○ ○ ○ ○
38,500	380	38.50	7.10	16.00	23.90	○ ○ ○ ○
39,000	390	39.00	7.10	16.00	23.90	○ ○ ○ ○
39,500	390	39.50	7.20	16.00	23.90	○ ○ ○ ○
40,000	390	40.00	7.30	16.00	23.90	• ○ ○ •
Heads for aluminium Cast Iron and 150° available						

• Australian stock item ○ German stock item



Guhring no.	4229
Standard	WN
Tool material	Solid carbide
Application	Steel
Surface finish	F
Tolerance	h7
Point angle	160° 125°

FOR BEAM DRILLING



Code no.	for drill. holder size	for pilot. holder size	d1 mm	l4 mm	b mm	h mm	AVAILABILITY
12,000	120	120	12.00	1.70	5.00	7.50	o
14,000	140	140	14.00	2.00	6.00	9.60	o
16,000	160	160	16.00	2.30	7.00	10.80	o
18,000	180	180	18.00	2.60	8.00	12.30	o
20,000	200	180	20.00	2.90	9.00	13.60	o
21,000	210	210	21.00	3.00	9.00	13.60	o
22,000	220	220	22.00	3.20	10.00	14.90	o
24,000	240	240	24.00	3.50	11.00	15.50	o
25,000	250	250	25.00	3.60	11.00	15.50	o
26,000	260	260	26.00	3.80	12.00	18.50	o
27,000	270	260	27.00	3.90	12.00	18.60	o
28,000	280	280	28.00	4.10	13.00	19.20	o
29,000	290	280	29.00	4.20	13.00	19.60	o
30,000	300	300	30.00	4.40	14.00	19.90	o
32,000	320	320	32.00	4.60	15.00	21.30	o
33,000	330	330	33.00	4.80	15.00	21.90	o
34,000	340	340	34.00	4.90	15.00	22.00	o
36,000	360	360	36.00	5.20	16.00	22.50	o
38,000	380	380	38.00	5.50	16.00	22.70	o
40,000	400	400	40.00	5.80	16.00	23.30	o

• Australian stock item o German stock item

A close-up photograph of a GMD indexable insert drill bit. The bit is shown in a vertical orientation, with the cutting edge pointing downwards. The main body of the drill is a dark, polished metal, and the cutting edge is a lighter, more reflective metal. A small, square-shaped insert is visible on the side of the cutting edge. The background is a blurred, light blue-grey color. In the top right corner, there is a yellow rectangular box containing the word "GUHRING" in bold, black, sans-serif capital letters. At the bottom of the image, the text "GMD" is written in large, bold, white, sans-serif capital letters, and below it, "INDEXABLE INSERT DRILL" is written in smaller, bold, white, sans-serif capital letters.

GUHRING

GMD

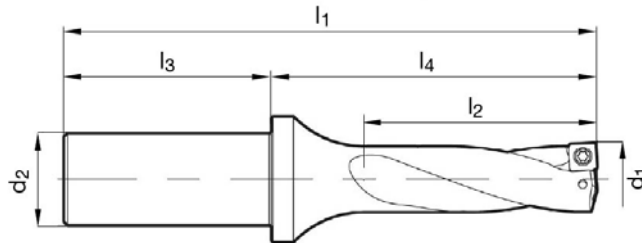
INDEXABLE INSERT DRILL



Guhring no.

28501

DRILLS



Code no.	Size	d1	d2	l1	l2	l3	l4	AVAILABILITY
		mm	mm	mm	mm	mm	mm	
14.000	05	14.00	20.00	114.50	42.00	49.50	65.00	○
14.500	05	14.50	20.00	116.50	43.50	49.50	67.00	○
15.000	05	15.00	20.00	117.50	45.00	49.50	68.00	○
15.500	05	15.50	20.00	119.50	46.50	49.50	70.00	○
16.000	05	16.00	20.00	120.50	48.00	49.50	71.00	○
16.500	06	16.50	25.00	133.50	49.50	55.50	78.00	○
17.000	06	17.00	25.00	134.50	51.00	55.50	79.00	○
17.500	06	17.50	25.00	136.50	52.50	55.50	81.00	○
18.000	06	18.00	25.00	137.50	54.00	55.50	82.00	○
18.500	06	18.50	25.00	139.50	55.50	55.50	84.00	○
19.000	06	19.00	25.00	140.50	57.00	55.50	85.00	○
19.500	06	19.50	25.00	142.50	58.50	55.50	87.00	○
20.000	07	20.00	25.00	143.50	60.00	55.50	88.00	○
20.500	07	20.50	25.00	145.50	61.50	55.50	90.00	○
21.000	07	21.00	25.00	146.50	63.00	55.50	91.00	○
21.500	07	21.50	25.00	148.50	64.50	55.50	93.00	○
22.000	07	22.00	25.00	149.50	66.00	55.50	94.00	○
22.500	07	22.50	25.00	151.50	67.50	55.50	96.00	○
23.000	07	23.00	25.00	152.50	69.00	55.50	97.00	○
23.500	07	23.50	25.00	154.50	70.50	55.50	99.00	○
24.000	09	24.00	32.00	164.50	72.00	59.50	105.00	○
24.500	09	24.50	32.00	166.50	74.00	59.50	107.00	○
25.000	09	25.00	32.00	167.50	75.00	59.50	108.00	○
25.500	09	25.50	32.00	169.50	76.50	59.50	110.00	○
26.000	09	26.00	32.00	170.50	78.00	59.50	111.00	○
26.500	09	26.50	32.00	172.50	79.50	59.50	113.00	○
27.000	09	27.00	32.00	173.50	81.00	59.50	114.00	○
27.500	09	27.50	32.00	175.50	82.50	59.50	116.00	○
28.000	09	28.00	32.00	176.50	74.00	59.50	117.00	○
28.500	09	28.50	32.00	178.50	85.50	59.50	119.00	○
29.000	09	29.00	32.00	179.50	87.00	59.50	120.00	○
29.500	09	29.50	32.00	181.50	88.50	59.50	122.00	○
30.000	11	30.00	32.00	184.50	90.00	59.50	125.00	○
31.000	11	31.00	32.00	187.50	93.00	59.50	128.00	○
32.000	11	32.00	32.00	190.50	96.00	59.50	131.00	○
33.000	11	33.00	32.00	193.50	99.00	59.50	134.00	○
34.000	11	34.00	32.00	196.50	102.00	59.50	137.00	○
35.000	11	35.00	32.00	199.50	105.00	59.50	140.00	○
36.000	13	36.00	40.00	217.50	108.00	69.50	148.00	○

● Australian stock item ○ German stock item

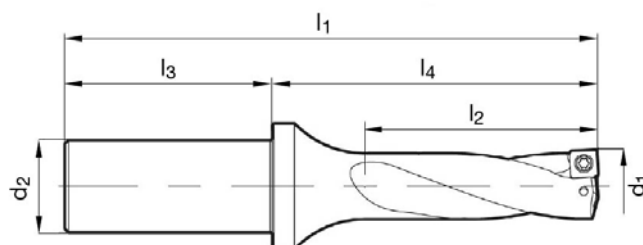


U-DRILL WITH INDEXABLE INSERTS, 3 X D

DRILLS

Guhring no.

28501



Code no.	Size	d1	d2	l1	l2	l3	l4	AVAILABILITY
		mm	mm	mm	mm	mm	mm	
37.000	13	37.00	40.00	220.50	111.00	69.50	151.00	o
38.000	13	38.00	40.00	223.50	114.00	69.50	154.00	o
39.000	13	39.00	40.00	226.50	117.00	69.50	157.00	o
40.000	13	40.00	40.00	229.50	120.00	69.50	160.00	o
41.000	13	41.00	40.00	232.50	123.00	69.50	163.00	o
42.000	13	42.00	40.00	235.50	126.00	69.50	166.00	o
43.000	15	43.00	40.00	238.50	129.00	69.50	169.00	o
44.000	15	44.00	40.00	241.50	132.00	69.50	172.00	o
45.000	15	45.00	40.00	244.50	135.00	69.50	175.00	o
46.000	15	46.00	40.00	247.50	138.00	69.50	178.00	o
47.000	15	57.00	40.00	250.50	141.00	69.50	181.00	o
48.000	15	48.00	40.00	253.50	144.00	69.50	184.00	o
49.000	15	49.00	40.00	256.50	147.00	69.50	187.00	o
50.000	15	50.00	40.00	259.50	150.00	69.50	190.00	o

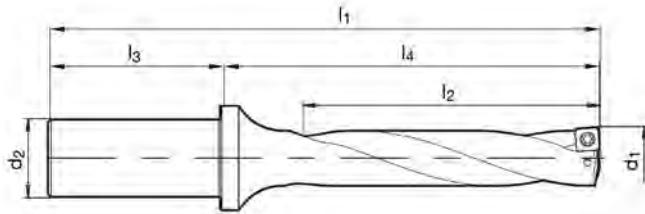
• Australian stock item o German stock item



Guhring no.

28503

DRILLS



Code no.	Size	d1	d2	l1	l2	l3	l4	AVAILABILITY
		mm	mm	mm	mm	mm	mm	
14.000	05	14.00	20.00	137.50	70.00	49.50	88.00	o
14.500	05	14.50	20.00	140.50	72.50	49.50	91.00	o
15.000	05	15.00	20.00	142.50	75.00	49.50	93.00	o
15.500	05	15.50	20.00	145.50	77.50	49.50	96.00	o
16.000	05	16.00	20.00	147.50	80.00	49.50	98.00	o
16.500	06	16.50	25.00	155.50	82.50	55.50	100.00	o
17.000	06	17.00	25.00	163.50	85.00	55.50	108.00	o
17.500	06	17.50	25.00	166.50	87.50	55.50	111.00	o
18.000	06	18.00	25.00	168.50	90.00	55.50	113.00	o
18.500	06	18.50	25.00	171.50	92.50	55.50	116.00	o
19.000	06	19.00	25.00	173.50	95.00	55.50	118.00	o
19.500	06	19.50	25.00	176.50	97.50	55.50	121.00	o
20.000	07	20.00	25.00	178.50	100.00	55.50	123.00	o
20.500	07	20.50	25.00	181.50	102.50	55.50	126.00	o
21.000	07	21.00	25.00	183.50	105.00	55.50	128.00	o
21.500	07	21.50	25.00	186.50	107.50	55.50	131.00	o
22.000	07	22.00	25.00	188.50	110.00	55.50	133.00	o
22.500	07	22.50	25.00	191.50	112.50	55.50	136.00	o
23.000	07	23.00	25.00	193.50	115.00	55.50	138.00	o
23.500	07	23.50	25.00	196.50	117.50	55.50	141.00	o
24.000	09	24.00	32.00	207.50	120.00	59.50	148.00	o
24.500	09	24.50	32.00	210.50	122.50	59.50	151.00	o
25.000	09	25.00	32.00	212.50	125.00	59.50	153.00	o
25.500	09	25.50	32.00	215.50	127.50	59.50	156.00	o
26.000	09	26.00	32.00	217.50	130.00	59.50	158.00	o
26.500	09	26.50	32.00	220.50	132.50	59.50	161.00	o
27.000	09	27.00	32.00	222.50	135.00	59.50	163.00	o
27.500	09	27.50	32.00	225.50	137.50	59.50	166.00	o
28.000	09	28.00	32.00	227.50	140.00	59.50	168.00	o
28.500	09	28.50	32.00	230.50	142.50	59.50	171.00	o
29.000	09	29.00	32.00	232.50	145.00	59.50	173.00	o
29.500	09	29.50	32.00	235.50	147.50	59.50	176.00	o
30.000	11	30.00	32.00	239.50	150.00	59.50	180.00	o
31.000	11	31.00	32.00	244.50	155.00	59.50	185.00	o
32.000	11	32.00	32.00	249.50	160.00	59.50	190.00	o
33.000	11	33.00	32.00	254.50	165.00	59.50	195.00	o
34.000	11	34.00	32.00	259.50	170.00	59.50	200.00	o
35.000	11	35.00	32.00	264.50	175.00	59.50	205.00	o
36.000	13	36.00	40.00	284.50	180.00	69.50	215.00	o

• Australian stock item o German stock item

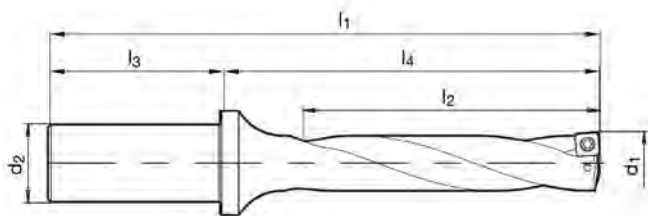


U-DRILL WITH INDEXABLE INSERTS, 5 X D

DRILLS

Guhring no.

28503

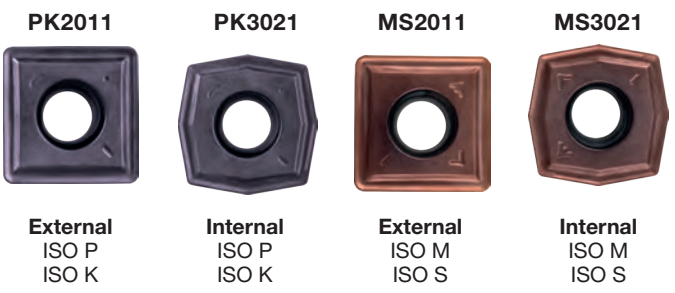
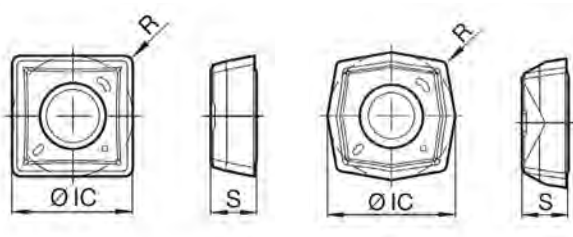


Code no.	Size	d1	d2	l1	l2	l3	l4	AVAILABILITY
		mm	mm	mm	mm	mm	mm	
37.000	13	37.00	40.00	289.50	185.00	69.50	220.00	o
38.000	13	38.00	40.00	294.50	190.00	69.50	225.00	o
39.000	13	39.00	40.00	299.50	195.00	69.50	230.00	o
40.000	13	40.00	40.00	304.50	200.00	69.50	235.00	o
41.000	13	41.00	40.00	309.50	205.00	69.50	240.00	o
42.000	13	42.00	40.00	314.50	210.00	69.50	245.00	o
43.000	15	43.00	40.00	319.50	215.00	69.50	250.00	o
44.000	15	44.00	40.00	324.50	220.00	69.50	255.00	o
45.000	15	45.00	40.00	329.50	225.00	69.50	260.00	o
46.000	15	46.00	40.00	334.50	230.00	69.50	265.00	o
47.000	15	47.00	40.00	339.50	235.00	69.50	270.00	o
48.000	15	48.00	40.00	344.50	240.00	69.50	275.00	o
49.000	15	49.00	40.00	349.50	245.00	69.50	280.00	o
50.000	15	50.00	40.00	354.50	250.00	69.50	285.00	o

• Australian stock item o German stock item



Guhring no.	28504	28505	28508	28509
	Guhring std.			
	Solid carbide			



Code no.	Size	IC	R	S
		mm	mm	mm
5.000	05	5.0	0.4	2.5
6.000	06	6.2	0.5	2.6
7.000	07	7.5	0.8	2.9
9.000	09	9.2	0.8	3.5
11.000	11	11.0	0.8	4.2
13.000	13	13.0	1.0	4.7
15.000	15	15.2	1.0	5.3
5.000	05	5.4	0.4	2.5
6.000	06	6.6	0.4	2.5
7.000	07	7.8	0.5	2.9
9.000	09	9.6	0.5	3.5
11.000	11	11.4	0.6	4.2
13.000	13	13.6	0.6	4.7
15.000	15	15.9	0.8	5.3

AVAILABILITY	
○	○
○	○
○	○
○	○
○	○
○	○
○	○
○	○
○	○
○	○
○	○
○	○
○	○
○	○
○	○

Guhring no.	28900	28901
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Code No.	d1	l1	Size
		mm	mm
6.200	M2	4.30	06IP
6.220	M2.2	5.40	06IP
8.250	M2.5	6.50	08IP
8.300	M3	7.00	08IP
15.350	M3.5	8.00	15IP
15.400	M4	10.00	15IP
20.500	M4	12.50	20IP
6.000			06IP
8.000			08IP
15.000			15IP
20.000			20IP

AVAILABILITY	
●	
●	
●	
●	
●	
●	
●	
●	●
	●
	●
	●

● Australian stock item ○ German stock item



CUTTING SPEED RECOMMENDATION FOR TWIST DRILLS

DRILLS

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



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Guhring Optimising Apple Application

- Coolant:
- Air
 - Neat oil
 - Soluble oil

Material group	Material examples	Tensile strength MPa (N/mm ²)	Hardness	Coolant
Common structural steels	S185, P275N, P235GH, P265GH, Mild steel, Grade 250 plate, Grade 350 plate	≤500		<input type="radio"/>
	E295, E360, P500NH	≤1000		<input type="radio"/>
Free-cutting steels	11SMnPb30, 11SMn37, 1020, S1214, S1213, S12L13, S12L14	≤850		<input type="radio"/>
	46S20, 46SPb20	≤1000		<input type="radio"/>
Unalloyed heat-treatable steels	C22, C30E, 1035, 1045, 1055, 1060, 1025	≤700		<input type="radio"/>
	C45, C45E	≤850		<input type="radio"/>
	C60, C60E	≤1000		<input type="radio"/>
Alloyed heat-treatable steels	50MnSi4, 38Cr2, 28Cr4, 3140, 4130, 4140, 4150, 4340, 6150, EN16, EN26	≤1000		<input type="radio"/>
	36NiCr6, 41Cr4, 42CrMo4	≤1400		<input type="radio"/>
Unalloyed case hardened steels	C10E, 1010, 1015	≤850		<input type="radio"/>
Alloyed case hardened steels	10CrMo11, 11MnSi6, 3310, 3415, 5115, 4615, 4620, 5120, 8617, 8620	≤1000		<input checked="" type="radio"/>
	15NiCr13, 16MnCr5, 20CrMo5, N33, EN36A	≤1400		<input checked="" type="radio"/>
Nitriding steels	34CrAl6	≤1000		<input type="radio"/>
	31CrMoV9, 34CrAlNi7	≤1400		<input checked="" type="radio"/>
Tool steels	C75W, 102Cr6, 29CrMoV9, H11, H13, P20, D2, D3	≤850		<input type="radio"/>
	X210Cr12, X42Cr13, 105WCr6, X45NiCrMo4	≤1400		<input checked="" type="radio"/>
High speed steels	S 6-5-2-5, S 6-5-2, S 6-5-3, M2, M3, M35, M45	≤1400		<input checked="" type="radio"/>
Spring steels	55Si7, 55Cr3, 51CrV4, 5155, 6150, 9255		≤350 HB	<input checked="" type="radio"/>
Stainless steels, sulphured	X12CrS13, X14CrMoS17, X6CrMoS17, X8CrNiS18-9, 410S, 430F, 630	≤900		<input checked="" type="radio"/>
austenitic	X5CrNi18-10, X6CrNiTi18-10, X6CrNiMoTi 17-12-2, 302, 303, 304, 310, 316, 316Ti, 321	≤1100		<input checked="" type="radio"/>
martensitic	X20CrNi172, X39CrMo17-1, X2CrMoTi18-2, 410, 410X, 416, 420, 420C, 431, 440C	≤1500		<input checked="" type="radio"/>
Hardened steels	-		≤48 HRC	<input checked="" type="radio"/>
			≤66 HRC	<input checked="" type="radio"/>
Special alloys	Nimonic, Inconel, Monel, Hastelloy, Bisalloy	≤2000		<input checked="" type="radio"/>
Cast iron	GG10, GG15, GG20		≤240 HB	<input type="radio"/>
	GG25, GG30, GG35 GG40		≤350 HB	<input type="radio"/>
Spheroidal graphite iron and	GGG40, GGG50, GGG60, 32510, GTW35		≤240 HB	<input type="radio"/>
Malleable cast iron	GGG70, GTS70, 50005, Nodular Iron		≤350 HB	<input type="radio"/>
Chilled cast iron	-		≤350 HB	<input type="radio"/>
Ti and Ti-alloys	Ti99,5, TiAl5Sn2,5, TiCu2	≤850		<input checked="" type="radio"/>
	TiAl6Zr5, TiAl6V4, TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		<input checked="" type="radio"/>
Aluminium and Al-alloys	Al99,5, AlMgSi1, AlMg1	≤400		<input type="radio"/>
Al wrought alloys	AlMgSiPb, AlCuMg1, AlMg3Si, AlZnMgCu1,5	≤650		<input type="radio"/>
Al cast alloys ≤ 10 % Si	G-AlSi5Cu1, G-AlSi7Cu3, G-AlSi9	≤600		<input type="radio"/>
≤ 24 % Si	G-AlSi12, G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		<input type="radio"/>
Magnesium alloys	MgMn2, G-MgAl8Zn1, G-MgAl6Zn1	≤400		<input type="radio"/>
Copper, low-alloyed	SE-Cu, CuSn6, G-CuSn5ZnPb	≤500		<input type="radio"/>
Brass, short-chipping	CuZn39Pb2, CuZn39Pb3, CuZn43Pb2	≤600		<input type="radio"/>
long-chipping	CuZn20, CuZn33, CuZn37Pb0,5	≤600		<input type="radio"/>
Bronze, short-chipping	CuSn7ZnPb, CuPb5Sn5, CuPb10Sn	≤600		<input type="radio"/>
	CuNi18Zn19Pb	≤850		<input checked="" type="radio"/>
Bronze, long-chipping	CuAl5, CuAl9Mn, CuSn10	≤850		<input checked="" type="radio"/>
	CuAl11Ni, CuBe2	≤1000		<input checked="" type="radio"/>
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150		<input type="radio"/>
Thermoplastics	Plexiglas, Hostalen, Novodur, Makralon	≤100		<input type="radio"/>
New cast materials CGI	GGV25, GGV35		≤220 HB	<input type="radio"/>
	GGV40, GGV50, SiMo 6		≤300 HB	<input type="radio"/>
New cast materials ADI	ADI800, ADI1000	≤1000		<input type="radio"/>
	ADI1200, ADI1400	≤1400		<input type="radio"/>
Kevlar	Kevlar	≤1000		<input type="radio"/>
Glass, carbon concent. plastics	GRP/CFRP	≤1000		<input type="radio"/>

CUTTING SPEED RECOMMENDATION FOR TWIST DRILLS



DRILLS

≤3XD DRILLING DEPTH

8910 223	557 581
GS 1897	G.S. 333
HSS HSS	HSS HSS

N N N N

≤5XD

380	205 9651 245
G.S.	338 338 345
HSS	HSS

N N N N

≤10XD

217	217
340	340
HSS	HSS

N

>10XD DRILLING DEPTH

502 503 504 242 243 244 526 527 565 293 298 299
1869 1869 1869 G.S. G.S. G.S. 1870 1870 G.S. G.S. G.S.
HSS

GT 100



Vc m/min	Feed col. no.		Vc m/min	Feed col. no.		Vc m/min	Feed col. no.			Vc m/min	Feed col. no.		Feed Column no.																				
27	6	6	32	6	6	32	6	27	6	24	6	22	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
22	5	5	25	5	5	25	5	22	5	20	5	18	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
30	6	6	32	6	6	32	6	30	6	27	6	22	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
30	5	5	25	5	5	25	5	30	5	27	5	18	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
25	5	5	32	5	5	32	5	25	5	22	5	22	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
25	5	5	25	5	5	25	5	25	5	22	5	18	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
30	6	6	32	6	6	32	6	30	6	27	6	22	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
16	4	4	16	4	4	16	4	16	4	14	4	12	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
30	6	6	32	6	6	32	6	30	6	27	6	22	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
30	6	6	25	6	6	25	6	30	6	27	6	18	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
25	6	6	28	6	6	28	6	25	6	22	6	20	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
20	6	6	20	6	6	20	6	20	6	18	6	14	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
50	7	7	63	7	7	63	7	50	7	45	7	45	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
50	6	6	50	6	6	50	6	50	6	45	6	36	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
70	6	6	80	6	6	80	6	70	6	63	6	55	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
60	5	5	32	5	5	32	5	60	5	54	5	22	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
40	5	5	63	5	5	63	5	40	5	36	5	28	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
30	4	4	40	5	5	40	5	30	4	28	4	22	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
25	4	4	32	4	4	32	4	25	4	22	4	20	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
15	4	4	28	4	4	28	4	15	4	22	4	18	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
18	4	4	25	4	4	25	4	18	4	14	4	12	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
28	5	5	16	4	4	16	4	28	5	22	5	18	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4



CUTTING SPEED RECOMMENDATION FOR TWIST DRILLS

DRILLS

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	2,000	2,000



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Guhring Optimising Apple Application

- Coolant:
- Air
 - Neat oil
 - Soluble oil

Material group	Material examples	Tensile strength MPa (N/mm ²)	Hardness	Coolant
Common structural steels	S185, P275N, P235GH, P265GH, Mild steel, Grade 250 plate, Grade 350 plate	≤500		<input type="radio"/>
	E295, E360, P500NH	≤1000		<input type="radio"/>
Free-cutting steels	11SMnPb30, 11SMn37, 1020, S1214, S1213, S12L13, S12L14	≤850		<input type="radio"/>
	46S20, 46SPb20	≤1000		<input type="radio"/>
Unalloyed heat-treatable steels	C22, C30E, 1035, 1045, 1055, 1060, 1025	≤700		<input type="radio"/>
	C45, C45E	≤850		<input type="radio"/>
	C60, C60E	≤1000		<input type="radio"/>
Alloyed heat-treatable steels	50MnSi4, 38Cr2, 28Cr4, 3140, 4130, 4140, 4150, 4340, 6150, EN16, EN26	≤1000		<input type="radio"/>
	36NiCr6, 41Cr4, 42CrMo4	≤1400		<input type="radio"/>
Unalloyed case hardened steels	C10E, 1010, 1015	≤850		<input type="radio"/>
Alloyed case hardened steels	10CrMo11, 11MnSi6, 3310, 3415, 5115, 4615, 4620, 5120, 8617, 8620	≤1000		<input checked="" type="radio"/>
	15NiCr13, 16MnCr5, 20CrMo5, N33, EN36A	≤1400		<input checked="" type="radio"/>
Nitriding steels	34CrAl6	≤1000		<input type="radio"/>
	31CrMoV9, 34CrAlNi7	≤1400		<input checked="" type="radio"/>
Tool steels	C75W, 102Cr6, 29CrMoV9, H11, H13, P20, D2, D3	≤850		<input type="radio"/>
	X210Cr12, X42Cr13, 105WCr6, X45NiCrMo4	≤1400		<input checked="" type="radio"/>
High speed steels	S 6-5-2-5, S 6-5-2, S 6-5-3, M2, M3, M35, M45	≤1400		<input checked="" type="radio"/>
Spring steels	55Si7, 55Cr3, 51CrV4, 5155, 6150, 9255		≤350 HB	<input checked="" type="radio"/>
Stainless steels, sulphured	X12CrS13, X14CrMoS17, X6CrMoS17, X8CrNiS18-9, 410S, 430F, 630	≤900		<input checked="" type="radio"/>
austenitic	X5CrNi18-10, X6CrNiTi18-10, X6CrNiMoTi 17-12-2, 302, 303, 304, 310, 316, 316Ti, 321	≤1100		<input checked="" type="radio"/>
martensitic	X20CrNi172, X39CrMo17-1, X2CrMoTi18-2, 410, 410X, 416, 420, 420C, 431, 440C	≤1500		<input checked="" type="radio"/>
Hardened steels	-		≤48 HRC	<input checked="" type="radio"/>
			≤66 HRC	<input checked="" type="radio"/>
Special alloys	Nimonic, Inconel, Monel, Hastelloy, Bisalloy	≤2000		<input checked="" type="radio"/>
Cast iron	GG10, GG15, GG20		≤240 HB	<input type="radio"/>
	GG25, GG30, GG35 GG40		≤350 HB	<input type="radio"/>
Spheroidal graphite iron and	GGG40, GGG50, GGG60, 32510, GTW35		≤240 HB	<input type="radio"/>
Malleable cast iron	GGG70, GTS70, 50005, Nodular Iron		≤350 HB	<input type="radio"/>
Chilled cast iron	-		≤350 HB	<input type="radio"/>
Ti and Ti-alloys	Ti99,5, TiAl5Sn2,5, TiCu2	≤850		<input checked="" type="radio"/>
	TiAl6Zr5, TiAl6V4, TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		<input checked="" type="radio"/>
Aluminium and Al-alloys	Al99,5, AlMgSi1, AlMg1	≤400		<input type="radio"/>
Al wrought alloys	AlMgSiPb, AlCuMg1, AlMg3Si, AlZnMgCu1,5	≤650		<input type="radio"/>
Al cast alloys ≤ 10 % Si	G-AlSi5Cu1, G-AlSi7Cu3, G-AlSi9	≤600		<input type="radio"/>
≤ 24 % Si	G-AlSi12, G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		<input type="radio"/>
Magnesium alloys	MgMn2, G-MgAl8Zn1, G-MgAl6Zn1	≤400		<input type="radio"/>
Copper, low-alloyed	SE-Cu, CuSn6, G-CuSn5ZnPb	≤500		<input type="radio"/>
Brass, short-chipping	CuZn39Pb2, CuZn39Pb3, CuZn43Pb2	≤600		<input type="radio"/>
long-chipping	CuZn20, CuZn33, CuZn37Pb0,5	≤600		<input type="radio"/>
Bronze, short-chipping	CuSn7ZnPb, CuPb5Sn5, CuPb10Sn	≤600		<input type="radio"/>
	CuNi18Zn19Pb	≤850		<input checked="" type="radio"/>
Bronze, long-chipping	CuAl5, CuAl9Mn, CuSn10	≤850		<input checked="" type="radio"/>
	CuAl11Ni, CuBe2	≤1000		<input checked="" type="radio"/>
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150		<input type="radio"/>
Thermoplastics	Plexiglas, Hostalen, Novodur, Makralon	≤100		<input type="radio"/>
New cast materials CGI	GGV25, GGV35		≤220 HB	<input type="radio"/>
	GGV40, GGV50, SiMo 6		≤300 HB	<input type="radio"/>
New cast materials ADI	ADI800, ADI1000	≤1000		<input type="radio"/>
	ADI1200, ADI1400	≤1400		<input type="radio"/>
Kevlar	Kevlar	≤1000		<input type="radio"/>
Glass, carbon concent. plastics	GRP/CFRP	≤1000		<input type="radio"/>

CUTTING SPEED RECOMMENDATION FOR TWIST DRILLS



DRILLS

≤3XD DRILLING DEPTH				≤5XD DRILLING DEPTH				≤10XD		MICRO-PRECISION DRILLS >10XD		≤4XD		≤8XD	
1228	659	5520	5524	658	5523	5522	336	618 619	301	5652	6408				
1897	1897	1897	1897	338	338	338	340	1869	1899	G.S.	G.S.				
HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	HSS-E-PM	HSCO	HSCO	HSS-E-PM	Carbide	Carbide				
Ⓢ	Ⓢ	Ⓢ	Ⓢ	Ⓢ	○	Ⓢ	○	◐	○	○	○				Ⓐ
GT80	GV120	GU500 DZ	GU500 DZ	GT100	GU500 DZ	GT100	GU500 DZ	GT100	N	N	N				



Vc m/min	Feed col. no.	Vc m/min	Feed col. no.	Vc m/min	Feed col. no.	Vc m/min	Feed col. no.	Vc m/min	Feed col. no.	Vc m/min	Feed col. no.	Vc m/min	Feed col. no.	Vc m/min	Feed col. no.	Vc m/min	Feed col. no.	Vc m/min	Feed col. no.	Vc m/min	Feed col. no.	Vc m/min	Feed col. no.	Vc m/min	Feed col. no.	Vc m/min	Feed col. no.	
38	6	38	5	45	6	35	6	42	6	35	6	40	6	29	6	30	4	21	106	100	62	105	58					
33	5	33	4	35	5	30	5	36	5	30	5	32	5	22	5	25	4	18	105	100	62	100	58					
44	6	44	5	50	6	40	6	48	5	40	6	45	6	32	6	33	4	18	106	100	62	105	59					
38	5	38	5	40	6	30	6	42	5	30	6	40	5	25	6	30	4	16	105	90	61	90	59					
44	6	44	5	42	6	32	6	32	6	32	6	42	6	25	6	33	4	20	105	90	62	95	58					
44	5	44	5	35	6	28	6	48	5	28	6	40	5	22	6	33	4	18	105	90	62	95	58					
38	4	38	4	22	5	20	5	42	4	20	5	28	4	13	5	20	3	14	104	90	61	90	58					
27	4	27	4	18	4	15	4	30	4	15	4	25	4	12	4	14	3	14	104	90	61	90	58					
22	3	22	3	15	3	13	3	34	3	13	3	20	3	11	3	10	2	12	103	70	60	70	58					
44	4	44	4	40	6	30	6	48	4	30	6	40	4	25	6	29	4	18	106	100	61	100	57					
22	4	22	4	20	4	16	4	24	4	16	4	22	4	12	4	14	3	14	104	85	61	85	58					
18	3	18	3	15	3	12	3	20	3	12	3	18	3	11	3	10	2	12	103	70	60	70	58					
22	4	22	4	18	4	15	4	24	4	15	4	20	4	12	4	10	3	14	104	70	60	70	57					
18	3	18	3	12	3	10	3	20	3	10	3	15	3	7	3	8	2	12	103	60	60	60	57					
19	4	19	4	18	4	15	4	21	4	15	4	25	4	12	4	11	3	16	104	50	60	50	58					
14	3	14	3	13	3	10	3	16	3	10	3	15	3	9	3	8	2	14	103	60	60	50	58					
14	3	14	3	13	3	10	3	17	3	10	3	15	3	9	3	8	2	14	103			50	57					
9	2	9	2									12	2			5	1	8	102			50	57					
15	4	20	4	18	4	14	4	22	4	14	4	15	4	12	4	10	3	18	104			70	57					
10	3	15	3	12	4	10	4	10	4	10	4	10	3	7	4	8	2	14	103			60	56					
12	3	18	3	15	4	12	4	20	3	12	4	12	3	11	4	10	2	16	103			70	57					
		4	1													3	1											
		6	2													5	1											
45	6	40	6	45	6	36	6	45	6	36	6	50	6	29	6	20	5	26	106	130	66	150	60					
40	6	35	6	36	6	30	6	40	6	30	6	40	6	23	6	20	5	22	106	130	66	140	60					
33	6	33	6	40	6	30	6	36	6	30	6	45	6	25	6	18	6	22	106	130	66	140	60					
27	6	27	6	28	6	22	6	29	6	22	6	32	6	18	6	16	5	22	106	120	65	130	60					
8	3	12	3									8	3			5	2											
		11	2													6	1											
		7	2													5	1											
				70	7	50	7			50	7			45	7													
				70	7	50	7			50	7			45	7													
				85	7	65	7			65	7			54	7													
				70	6	60	6			60	6			45	6													
				70	6	60	6			60	6			45	6													
88	5			32	5	70	5	96	5	25	5	50	5	21	5	30	4	42	105									
77	5			63	5	45	5			45	5			45	5	45	4											
44	5			40	5	30	5			30	5			25	5	30	4	22	105									
45	5	45	5	50	4	36	4			36	4			31	4	25	4	22	104									
40	4	40	4	35	4	30	4			30	4			22	4	20	4	18	104									
22	4	23	4	32	4	30	4	25	4	30	4	40	4	22	4	16	3	13	104									
17	4	17	4	28	4	25	4	20	4	25	4	32	4	18	4	10	3											
22	4			25	4	20	4	24	4	20	4	25	4	16	4	14	3	16	104									
27	5			15	4	15	4			15	4			11	4	20	3	18	104									



CUTTING SPEED RECOMMENDATION

DRILLS

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



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Guhring Optimising Apple Application

- Coolant:
- Air
 - Neat oil
 - Soluble oil

Material group	Material examples	Tensile strength MPa (N/mm ²)	Hardness	Coolant	
Common structural steels	S185, P275N, P235GH, P265GH, Mild steel, Grade 250 plate, Grade 350 plate	≤500		<input type="radio"/>	
	E295, E360, P500NH	≤1000		<input type="radio"/>	
Free-cutting steels	11SMnPb30, 11SMn37, 1020, S1214, S1213, S12L13, S12L14	≤850		<input type="radio"/>	
	46S20, 46SPb20	≤1000		<input type="radio"/>	
Unalloyed heat-treatable steels	C22, C30E, 1035, 1045, 1055, 1060, 1025	≤700		<input type="radio"/>	
	C45, C45E	≤850		<input type="radio"/>	
	C60, C60E	≤1000		<input type="radio"/>	
Alloyed heat-treatable steels	50MnSi4, 38Cr2, 28Cr4, 3140, 4130, 4140, 4150, 4340, 6150, EN16, EN26	≤1000		<input type="radio"/>	
	36NiCr6, 41Cr4, 42CrMo4	≤1400		<input type="radio"/>	
Unalloyed case hardened steels	C10E, 1010, 1015	≤850		<input type="radio"/>	
Alloyed case hardened steels	10CrMo11, 11MnSi6, 3310, 3415, 5115, 4615, 4620, 5120, 8617, 8620	≤1000		<input checked="" type="radio"/>	
	15NiCr13, 16MnCr5, 20CrMo5, N33, EN36A	≤1400		<input checked="" type="radio"/>	
Nitriding steels	34CrAl6	≤1000		<input type="radio"/>	
	31CrMoV9, 34CrAlNi7	≤1400		<input checked="" type="radio"/>	
Tool steels	C75W, 102Cr6, 29CrMoV9, H11, H13, P20, D2, D3	≤850		<input type="radio"/>	
	X210Cr12, X42Cr13, 105WCr6, X45NiCrMo4	≤1400		<input checked="" type="radio"/>	
High speed steels	S 6-5-2-5, S 6-5-2, S 6-5-3, M2, M3, M35, M45	≤1400		<input checked="" type="radio"/>	
Spring steels	55Si7, 55Cr3, 51CrV4, 5155, 6150, 9255		≤350 HB	<input checked="" type="radio"/>	
Stainless steels, sulphured	X12CrS13, X14CrMoS17, X6CrMoS17, X8CrNiS18-9, 410S, 430F, 630	≤900		<input checked="" type="radio"/>	
	austenitic	X5CrNi18-10, X6CrNiTi18-10, X6CrNiMoTi 17-12-2, 302, 303, 304, 310, 316, 316Ti, 321	≤1100		<input checked="" type="radio"/>
	martensitic	X20CrNi172, X39CrMo17-1, X2CrMoTi18-2, 410, 410X, 416, 420, 420C, 431, 440C	≤1500		<input checked="" type="radio"/>
Hardened steels	-		≤48 HRC	<input checked="" type="radio"/>	
			≤66 HRC	<input checked="" type="radio"/>	
Special alloys	Nimonic, Inconel, Monel, Hastelloy, Bisalloy	≤2000		<input checked="" type="radio"/>	
Cast iron	GG10, GG15, GG20		≤240 HB	<input type="radio"/>	
	GG25, GG30, GG35 GG40		≤350 HB	<input type="radio"/>	
Spheroidal graphite iron and	GGG40, GGG50, GGG60, 32510, GTW35		≤240 HB	<input type="radio"/>	
Malleable cast iron	GGG70, GTS70, 50005, Nodular Iron		≤350 HB	<input type="radio"/>	
Chilled cast iron	-		≤350 HB	<input type="radio"/>	
Ti and Ti-alloys	Ti99,5, TiAl5Sn2,5, TiCu2	≤850		<input checked="" type="radio"/>	
	TiAl6Zr5, TiAl6V4, TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		<input checked="" type="radio"/>	
Aluminium and Al-alloys	Al99,5, AlMgSi1, AlMg1	≤400		<input type="radio"/>	
Al wrought alloys	AlMgSiPb, AlCuMg1, AlMg3Si, AlZnMgCu1,5	≤650		<input type="radio"/>	
Al cast alloys ≤ 10 % Si	G-AlSi5Cu1, G-AlSi7Cu3, G-AlSi9	≤600		<input type="radio"/>	
	≤ 24 % Si	G-AlSi12, G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		<input type="radio"/>
Magnesium alloys	MgMn2, G-MgAl8Zn1, G-MgAl6Zn1	≤400		<input type="radio"/>	
Copper, low-alloyed	SE-Cu, CuSn6, G-CuSn5ZnPb	≤500		<input type="radio"/>	
Brass, short-chipping	CuZn39Pb2, CuZn39Pb3, CuZn43Pb2	≤600		<input type="radio"/>	
	long-chipping	CuZn20, CuZn33, CuZn37Pb0,5	≤600		<input type="radio"/>
Bronze, short-chipping	CuSn7ZnPb, CuPb5Sn5, CuPb10Sn	≤600		<input type="radio"/>	
	CuNi18Zn19Pb	≤850		<input checked="" type="radio"/>	
Bronze, long-chipping	CuAl5, CuAl9Mn, CuSn10	≤850		<input checked="" type="radio"/>	
	CuAl11Ni, CuBe2	≤1000		<input checked="" type="radio"/>	
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150		<input type="radio"/>	
Thermoplastics	Plexiglas, Hostalen, Novodur, Makralon	≤100		<input type="radio"/>	
New cast materials CGI	GGV25, GGV35		≤220 HB	<input type="radio"/>	
	GGV40, GGV50, SiMo 6		≤300 HB	<input type="radio"/>	
New cast materials ADI	ADI800, ADI1000	≤1000		<input type="radio"/>	
	ADI1200, ADI1400	≤1400		<input type="radio"/>	
Kevlar	Kevlar	≤1000		<input type="radio"/>	
Glass, carbon concent. plastics	GRP/CFRP	≤1000		<input type="radio"/>	

CUTTING SPEED RECOMMENDATION



DRILLS

≤3XD DRILLING DEPTH				≤5XD DRILLING DEPTH					≤7XD				
723 5649	2463	5514	5510	6062	2464	5517	5515	5580	5511	5498	5768	5512	6063
G.S.	6539	6537K	6537K	6537K	G.S.	G.S.	6537L	6537L	6537L	6537L	6537L	G.S.	G.S.
Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide
	K/P	K/P	K/P		K/P	K10/ K20	K/P	K10/ K20	K/P	K/P	K/P	K/P	K/P
○	Ⓢ	Ⓢ	Ⓢ	○	Ⓢ	○	Ⓢ	Ⓢ	Ⓢ	Ⓢ	Ⓢ	Ⓢ	○
N	N	N	N	N	N	N	N	N	N	N	N	N	N



Vc	Feed	Vc	Feed	Vc	Feed	Vc	Feed	Vc	Feed	Vc	Feed	Vc	Feed	Vc	Feed	Vc	Feed	Vc	Feed	Vc	Feed	Vc	Feed	Vc	Feed	
m/min	col. no.	m/min	col. no.	m/min	col. no.	m/min	col. no.	m/min	col. no.	m/min	col. no.	m/min	col. no.	m/min	col. no.	m/min	col. no.	m/min	col. no.	m/min	col. no.	m/min	col. no.	m/min	col. no.	
80	4	104	5	130	7	145	7	100	5	80	4	130	7	145	7	200	8	145	6	145	6	145	6	145	6	
70	4	91	5	110	6	120	6	90	5	70	4	110	6	120	6	200	7	120	5	120	5	120	5	120	5	
80	5	104	6	145	8	170	8	100	6	80	5	145	8	170	8	200	8	170	7	170	7	170	7	170	7	
70	4	91	5	110	7	145	8	90	4	70	4	110	7	145	8	200	8	145	7	145	7	145	7	145	7	
80	4	104	5	120	7	130	8	100	5	80	4	120	7	130	8	180	8	130	7	130	7	130	7	130	7	
70	4	91	5	110	7	125	7	90	5	70	4	110	7	125	7	160	8	125	6	125	6	125	6	125	6	
60	4	78	5	105	7	120	7	80	5	60	4	105	7	120	7	130	8	120	6	120	6	120	6	120	6	
60	4	78	5	105	7	120	7	80	5	60	4	105	7	120	7	120	8	120	6	120	6	120	6	120	6	
				100	6	105	7					100	6	105	7	120	7	105	6	105	6	105	6	105	6	
80	5	104	6	130	8	145	8	100	6	80	5	130	8	145	8	180	8	145	7	145	7	145	7	145	7	
60	4	78	5	120	7	120	7	80	5	60	4	120	7	120	7	120	8	120	6	120	6	120	6	120	6	
				85	5	85	5					85	5	85	5	110	7	85	4	85	4	85	4	85	4	
50	4	65	5	100	6	100	7	65	5	50	4	100	6	100	7	110	7	110	6	110	6	110	6	110	6	
				90	5	105	5					90	5	105	5	100	5	105	4	105	4	105	4	105	4	
50	3	65	4	65	6	80	6	65	3	50	3	65	6	80	6	90	7	80	5	80	5	80	5	80	5	
				55	5	65	5					55	5	65	5	65	6	65	4	65	4	65	4	65	4	
				60	5	60	5					60	5	60	5	60	5	60	4	60	4	60	4	60	4	
25	2	32	3	45	3	60	3	30	3	25	2	45	3	60	3	60	5	60	2	60	2	60	2	60	2	
25	4	32	2	55	4	60	5	30	2	25	4	55	4	80	5	60	5	80	4	80	4	80	4	80	4	
25	3	20	1	45	4	55	5	20	1	25	3	45	4	60	2-3	55	5	55	4	55	4	55	4	55	4	
25	3	32	2	45	3	45	5	30	2	25	3	45	3	80	5	45	5	60	4	60	4	60	4	60	4	
20	3	26	4	45	3	55	3	20	2	20	3	45	3			55	3	55	2	55	2	55	2	55	2	
				25	2	35	2					25	2			35	2		35	1						
15	2	20	2	25	4	35	4	20	3	15	2	25	4			35	4	30	3	35	3	35	3	35	3	
90	4	117	5	210	8	210	9	115	5	90	4	210	8	210	9	180	9	210	8	210	8	210	8	210	8	
80	4	104	5	155	8	160	9	100	5	80	4	155	8	160	9	160	9	160	8	160	8	160	8	160	8	
80	4	91	5	145	7	140	9	90	5	70	4	145	7	140	9	140	9	140	8	140	8	140	8	140	8	
70	4	104	5	125	7	130	8	80	5	60	4	125	7	130	8	130	8	130	7	130	7	130	7	130	7	
				35	3	40	3					35	3	40	3	40	3	40	2	40	2	40	2	40	2	
20	3	15	1	40	4	45	4	15	1	20	3	40	4	45	4	40	4	40	3	40	3	40	3	40	3	
15	2	15	1	35	3	40	3	15	1	15	2	35	3	45	4	40	3	35	2	40	2	40	2	40	2	
200	7	260	8	260	9	310	9	240	9	200	7	260	9	310	9	40	3	310	8	310	8	310	8	310	8	
200	7	260	8	260	9	310	9	240	9	200	7	260	9	310	9			310	8	310	8	310	8	310	8	
150	6	195	7	235	8	260	9	220	8	150	6	235	9	260	9	260	9	260	8	260	8	260	8	260	8	
120	6	156	7	170	8	220	9	185	7	120	6	170	8	220	9	220	9	185	7	220	7	220	7	220	7	
180	5	234	6	260	8	280	8	220	7	180	5	260	8	280	8	280	8	280	7	280	7	280	7	280	7	
80	5	104	6	105	7	125	7	160	7	80	5	105	7	125	7	160	7	160	6	160	6	160	6	160	6	
180	5	234	6	270	8	325	8	135	6	180	5	270	8	325	8	325	8	135	6	325	6	325	6	325	6	
180	5	234	6	180	7	220	7	135	6	180	5	180	7	220	7	220	7	135	6	220	6	220	6	220	6	
120	5	156	6	105	6	125	7	130	6	120	5	105	6	125	7	130	6	130	5	130	5	130	5	130	5	
120	5	156	6	85	6	105	6	130	6	120	5	85	6	105	6	130	6	130	5	130	5	130	5	130	5	
70	4	91	5	80	5	90	6	130	6	70	4	90	6	130	6	130	6	130	5	130	5	130	5	130	5	
50	3	65	4	60	5	80	6	130	6	50	3	65	4	80	6			130	5	130	5	130	5	130	5	
40	4	65	5					100	3	40	4	65	5					100	3	100	3	100	3	100	3	
50	3	52	4					100	3	50	3	52	4					100	3	100	3	100	3	100	3	
80	3	104	4					100	2	100	4															



CUTTING SPEED RECOMMENDATION

DRILLS

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



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Guhring Optimising Apple Application

- Coolant:
- Air
 - Neat oil
 - Soluble oil

Material group	Material examples	Tensile strength MPa (N/mm ²)	Hardness	Coolant
Common structural steels	S185, P275N, P235GH, P265GH, Mild steel, Grade 250 plate, Grade 350 plate	≤500		<input type="radio"/>
	E295, E360, P500NH	≤1000		<input type="radio"/>
Free-cutting steels	11SMnPb30, 11SMn37, 1020, S1214, S1213, S12L13, S12L14	≤850		<input type="radio"/>
	46S20, 46SPb20	≤1000		<input type="radio"/>
Unalloyed heat-treatable steels	C22, C30E, 1035, 1045, 1055, 1060, 1025	≤700		<input type="radio"/>
	C45, C45E	≤850		<input type="radio"/>
	C60, C60E	≤1000		<input type="radio"/>
Alloyed heat-treatable steels	50MnSi4, 38Cr2, 28Cr4, 3140, 4130, 4140, 4150, 4340, 6150, EN16, EN26	≤1000		<input type="radio"/>
	36NiCr6, 41Cr4, 42CrMo4	≤1400		<input type="radio"/>
Unalloyed case hardened steels	C10E, 1010, 1015	≤850		<input type="radio"/>
Alloyed case hardened steels	10CrMo11, 11MnSi6, 3310, 3415, 5115, 4615, 4620, 5120, 8617, 8620	≤1000		<input checked="" type="radio"/>
	15NiCr13, 16MnCr5, 20CrMo5, N33, EN36A	≤1400		<input checked="" type="radio"/>
Nitriding steels	34CrAl6	≤1000		<input type="radio"/>
	31CrMoV9, 34CrAlNi7	≤1400		<input checked="" type="radio"/>
Tool steels	C75W, 102Cr6, 29CrMoV9, H11, H13, P20, D2, D3	≤850		<input type="radio"/>
	X210Cr12, X42Cr13, 105WCr6, X45NiCrMo4	≤1400		<input checked="" type="radio"/>
High speed steels	S 6-5-2-5, S 6-5-2, S 6-5-3, M2, M3, M35, M45	≤1400		<input checked="" type="radio"/>
Spring steels	55Si7, 55Cr3, 51CrV4, 5155, 6150, 9255		≤350 HB	<input checked="" type="radio"/>
Stainless steels, sulphured	X12CrS13, X14CrMoS17, X6CrMoS17, X8CrNiS18-9, 410S, 430F, 630	≤900		<input checked="" type="radio"/>
austenitic	X5CrNi18-10, X6CrNiTi18-10, X6CrNiMoTi 17-12-2, 302, 303, 304, 310, 316, 316Ti, 321	≤1100		<input checked="" type="radio"/>
martensitic	X20CrNi172, X39CrMo17-1, X2CrMoTi18-2, 410, 410X, 416, 420, 420C, 431, 440C	≤1500		<input checked="" type="radio"/>
Hardened steels	-		≤48 HRC	<input checked="" type="radio"/>
			≤66 HRC	<input checked="" type="radio"/>
Special alloys	Nimonic, Inconel, Monel, Hastelloy, Bisalloy	≤2000		<input checked="" type="radio"/>
Cast iron	GG10, GG15, GG20		≤240 HB	<input type="radio"/>
	GG25, GG30, GG35 GG40		≤350 HB	<input type="radio"/>
Spheroidal graphite iron and	GGG40, GGG50, GGG60, 32510, GTW35		≤240 HB	<input type="radio"/>
Malleable cast iron	GGG70, GTS70, 50005, Nodular Iron		≤350 HB	<input type="radio"/>
Chilled cast iron	-		≤350 HB	<input type="radio"/>
Ti and Ti-alloys	Ti99,5, TiAl5Sn2,5, TiCu2	≤850		<input checked="" type="radio"/>
	TiAl6Zr5, TiAl6V4, TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		<input checked="" type="radio"/>
Aluminium and Al-alloys	Al99,5, AlMgSi1, AlMg1	≤400		<input type="radio"/>
Al wrought alloys	AlMgSiPb, AlCuMg1, AlMg3Si, AlZnMgCu1,5	≤650		<input type="radio"/>
Al cast alloys ≤ 10 % Si	G-AlSi5Cu1, G-AlSi7Cu3, G-AlSi9	≤600		<input type="radio"/>
≤ 24 % Si	G-AlSi12, G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		<input type="radio"/>
Magnesium alloys	MgMn2, G-MgAl8Zn1, G-MgAl6Zn1	≤400		<input type="radio"/>
Copper, low-alloyed	SE-Cu, CuSn6, G-CuSn5ZnPb	≤500		<input type="radio"/>
Brass, short-chipping	CuZn39Pb2, CuZn39Pb3, CuZn43Pb2	≤600		<input type="radio"/>
long-chipping	CuZn20, CuZn33, CuZn37Pb0,5	≤600		<input type="radio"/>
Bronze, short-chipping	CuSn7ZnPb, CuPb5Sn5, CuPb10Sn	≤600		<input type="radio"/>
	CuNi18Zn19Pb	≤850		<input checked="" type="radio"/>
Bronze, long-chipping	CuAl5, CuAl9Mn, CuSn10	≤850		<input checked="" type="radio"/>
	CuAl11Ni, CuBe2	≤1000		<input checked="" type="radio"/>
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150		<input type="radio"/>
Thermoplastics	Plexiglas, Hostalen, Novodur, Makralon	≤100		<input type="radio"/>
New cast materials CGI	GGV25, GGV35		≤220 HB	<input type="radio"/>
	GGV40, GGV50, SiMo 6		≤300 HB	<input type="radio"/>
New cast materials ADI	ADI800, ADI1000	≤1000		<input type="radio"/>
	ADI1200, ADI1400	≤1400		<input type="radio"/>
Kevlar	Kevlar	≤1000		<input type="radio"/>
Glass, carbon concent. plastics	GRP/CFRP	≤1000		<input type="radio"/>

CUTTING SPEED RECOMMENDATION



DRILLS

≤12XD		≤20XD		≤30XD		≤40XD		HT800WP INTERCHANGEABLE INSERTS							
5525		6511		6513		6514		≤3XD		≤5XD		≤7XD		≤10XD	
G.S.		G.S.		G.S.		G.S.		G.S.		G.S.		G.S.		G.S.	
Carbide		Carbide		Carbide		Carbide		Carbide		Carbide		Carbide		Carbide	
K/P		K/P		K/P		K/P		K/P		K/P		K/P		K/P	
F		A		A		A									
		RT100T		RT100T		RT100T									
Vc	Feed	Vc	Feed	Vc	Feed	Vc	Feed	Vc	Feed	Vc	Feed	Vc	Feed	Vc	Feed
m/min	col. no.	m/min	col. no.	m/min	col. no.	m/min	col. no.	m/min	col. no.	m/min	col. no.	m/min	col. no.	m/min	col. no.
90	6	110	8	80	7	80	7	130	6	125	6	120	5	100	5
80	5	110	8	80	7	80	7	110	5	105	5	105	4	95	4
100	7	120	8	100	8	100	8	130	7	125	7	120	6	100	6
90	7	120	8	100	8	100	8	110	6	105	6	105	5	95	5
90	7	110	6	110	6	110	6	130	6	125	6	120	5	100	5
80	6	110	8	80	7	80	7	125	6	120	6	110	5	95	5
80	6	100	7	80	7	80	7	110	5	105	5	100	4	90	4
80	6	110	7	80	7	80	6-7	110	6	105	6	100	5	90	5
60	6	110	6	80	6	80	6	90	5	85	5	85	4	85	4
90	7	110	8	80	7	80	7	130	7	125	7	120	6	100	6
80	6	110	7	80	6	80	6	110	6	105	6	100	5	90	5
60	4	110	6	80	6	80	6	70	4	70	4	70	4	70	4
60	6	100	5	80	5	80	5	105	5	105	5	105	4	95	4
50	4	80	5	60	5	60	5	70	4	70	4	70	3	70	3
50	5	100	6	80	6	80	6-7	60	5	55	5	55	4	55	4
40	4	80	5	70	4	70	4	55	4	50	4	50	3	50	3
35	4	50	5	50	4	50	4	55	3	55	3	55	2	55	2
35	2	50	5	50	4	50	4	50	2	50	2	50	2	50	2
40	4	100	5	80	5	80	5	55	3	55	3	55	2	55	2
40	4	60	3	60	3	70	2-3	40	3	40	3	40	2	40	2
40	4	100	5	80	5	80	5	35	3	35	3	35	2	35	2
		50	4	50	4	50	4	25	2	25	2	25	1	25	1
														25	1
		30	2	30	2	30	2	25	2	25	2	25	1		
120	8	140	8	120	8	120	8	100	6	100	6	80	6	80	6
120	8	100	8	80	8	80	8	90	6	90	6	70	6	70	6
90	8	140	8	120	8	120	8	120	7	120	7	100	7	100	7
80	7	100	8	80	8	80	8	100	6	100	6	80	6	80	6
								90	6	90	6	70	6	70	6
								40	3	40	3	40	2	40	2
								35	2	35	2	35	1	35	1
								200	7	180	7	180	6	180	6
150	8							180	7	180	7	180	6	180	6
150	8							150	7	140	7	140	6	140	6
120	8							120	7	110	7	110	6	110	6
150	7							180	7	180	7	180	6	180	6
80	6	120	1	120	1	120	1	70	6	70	6	70	5	70	5
120	7	120	8	100	8	100	8	180	7	180	7	180	6	180	6
120	6							120	6	120	6	120	5	120	5
40	6							70	6	70	6	70	5	70	5
								50	6	50	6	50	5	50	5
40	5							45	6	45	6	45	5	45	5
								35	5	35	5	35	4	35	4
		100	6	80	6	80	6								
		100	6	80	6	80	6	80	5	80	5	60	5	60	5
		90	8	70	8	70	8	80	5	80	5	60	5	60	5
								80	5	80	5	60	5	60	5
								80	5	80	5	60	5	60	5





INDEXABLE INSERT DRILLS ISO P & K

DRILLS



Article no.	Factor V_c	Factor f_z
28500 (2xD), 28501 (3xD)	± 0 %	± 0 %
28502 (4xD)	-10 %	-15 %
28503 (5xD)	-15 %	-20 %

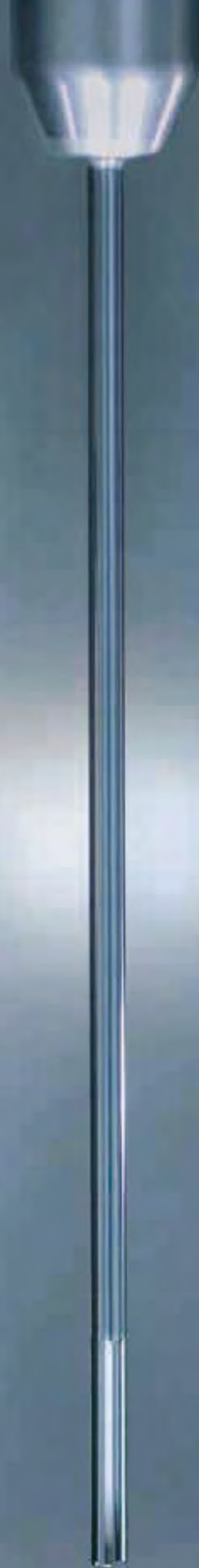
Machining group	v_c (m/min)	f (mm/rev) with nom. ϕ				
		14 – 23.5	24 – 29.5	30 – 42	43 – 50	51 – 60
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB	250	0.10	0.12	0.14	0.18	0.21
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB	250	0.10	0.12	0.14	0.18	0.21
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB	250	0.10	0.12	0.14	0.18	0.21
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB	250	0.10	0.12	0.14	0.18	0.21
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB	225	0.10	0.12	0.14	0.18	0.21
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB	225	0.10	0.12	0.14	0.18	0.21
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB	200	0.10	0.12	0.14	0.18	0.21
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB	220	0.08	0.10	0.11	0.14	0.17
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB	220	0.08	0.10	0.11	0.14	0.17
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB	200	0.08	0.10	0.11	0.14	0.17
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB	200	0.08	0.10	0.11	0.14	0.17
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB	180	0.08	0.10	0.11	0.14	0.17
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB	160	0.08	0.10	0.11	0.14	0.17
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives						
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB						
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB						
M2.1.1 Stainless steel, austenitic, quenched, 180 HB						
M2.2.1 Duplex steel, high-strength stainless steels						
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB	250	0.13	0.17	0.20	0.25	0.29
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB	225	0.13	0.17	0.20	0.25	0.29
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB	250	0.13	0.17	0.20	0.25	0.29
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB	225	0.13	0.17	0.20	0.25	0.29
K1.3.1 Malleable cast iron, ferritic, 130 HB	250	0.13	0.17	0.20	0.25	0.29
K1.3.2 Malleable cast iron, pearlitic, 230 HB	225	0.13	0.17	0.20	0.25	0.29
K2.1.1 Vermicular graphite cast iron (GJV)	200	0.11	0.14	0.17	0.21	0.24
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)	180	0.11	0.14	0.17	0.21	0.24
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB						
N1.1.2 Wrought aluminium alloys, hardened, 100 HB						
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB						
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB						
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB						
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %						
N3.1.2 Copper and copper alloys: CuZn, CuSnZn						
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte						
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics						
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.						
N4.1.3 Non-metallic materials: Graphite						
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB						
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB						
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB						
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB						
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB						
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²						
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²						
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC						
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC						
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC						
H2.1.1 Chilled cast iron, 400 HB						
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC						



Article no.	Factor V_c	Factor f_z
28500 (2xD), 28501 (3xD)	± 0 %	± 0 %
28502 (4xD)	- 10 %	- 15 %
28503 (5xD)	- 15 %	- 20 %

Machining group	v_c (m/min)	f (mm/rev) with nom. Ø				
		14 – 23.5	24 – 29.5	30 – 42	43 – 50	51 – 60
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB						
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB						
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB						
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB						
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB						
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB						
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB						
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB						
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB						
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB						
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB						
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB						
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB						
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives	220	0.10	0.13	0.15	0.19	0.22
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB	200	0.09	0.12	0.14	0.17	0.20
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB	200	0.09	0.12	0.14	0.17	0.20
M2.1.1 Stainless steel, austenitic, quenched, 180 HB	180	0.08	0.10	0.12	0.15	0.18
M2.2.1 Duplex steel, high-strength stainless steels	145	0.06	0.08	0.10	0.12	0.14
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB						
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB						
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB						
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB						
K1.3.1 Malleable cast iron, ferritic, 130 HB						
K1.3.2 Malleable cast iron, pearlitic, 230 HB						
K2.1.1 Vermicular graphite cast iron (GJV)						
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)						
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB						
N1.1.2 Wrought aluminium alloys, hardened, 100 HB						
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB						
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB						
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB						
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %						
N3.1.2 Copper and copper alloys: CuZn, CuSnZn						
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte						
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics						
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.						
N4.1.3 Non-metallic materials: Graphite						
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB	90	0.07	0.09	0.11	0.13	0.15
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB	90	0.07	0.09	0.11	0.13	0.15
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB	90	0.07	0.09	0.11	0.13	0.15
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB	80	0.06	0.08	0.09	0.12	0.14
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB	80	0.06	0.08	0.09	0.12	0.14
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²	60	0.06	0.08	0.09	0.11	0.13
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²	50	0.05	0.06	0.07	0.09	0.11
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC						
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC						
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC						
H2.1.1 Chilled cast iron, 400 HB						
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC						

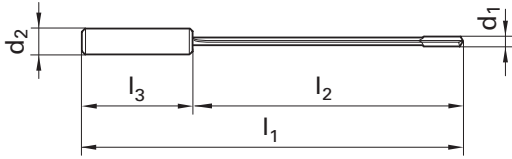
GUN DRILLS





Guhring no.	5639
Standard	Guhring std.
Tool material	Carbide
Surface	C
Drilling depth	20 x D
Cutting direction	right-hand
Tolerance	h5

*Sizes above Ø30.00 mm all uncoated



d1		d2	l1	l2	l3	AVAILABILITY
mm	inch	mm	mm	mm	mm	
3.969	5/32	10.00	150.00	100.00	40.00	○
4.000		12.00	150.00	100.00	40.00	●
5.000		16.00	180.00	130.00	48.00	●
5.159	13/64	16.00	180.00	130.00	48.00	○
6.000		16.00	210.00	160.00	48.00	●
6.350	1/4	16.00	220.00	170.00	48.00	○
7.000		16.00	235.00	185.00	48.00	○
7.938	5/16	16.00	260.00	210.00	48.00	○
8.000		16.00	260.00	210.00	48.00	●
9.000		16.00	280.00	230.00	48.00	●
9.525	3/8	16.00	290.00	240.00	48.00	○
10.000		20.00	320.00	260.00	50.00	●
11.000		20.00	340.00	290.00	50.00	○
11.113	7/16	20.00	340.00	290.00	50.00	○
12.000		20.00	370.00	310.00	50.00	●
12.700	1/2	20.00	385.00	330.00	50.00	○
13.000		25.00	405.00	325.00	70.00	●
13.500		25.00	408.00	338.00	70.00	●
14.000		25.00	420.00	350.00	70.00	●
14.500		25.00	433.00	363.00	70.00	●
15.000		25.00	445.00	375.00	70.00	●
15.500		25.00	458.00	388.00	70.00	●
16.000		25.00	470.00	400.00	70.00	●
17.000		25.00	495.00	425.00	70.00	●
18.000		25.00	520.00	450.00	70.00	●
19.000		25.00	545.00	475.00	70.00	●
20.000		25.00	570.00	500.00	70.00	●
22.000		25.00	620.00	550.00	70.00	●
25.000		25.00	695.00	625.00	70.00	●
30.000		32.00	820.00	750.00	70.00	●
32.000		32.00	870.00	800.00	70.00	●302633296 ●302633297

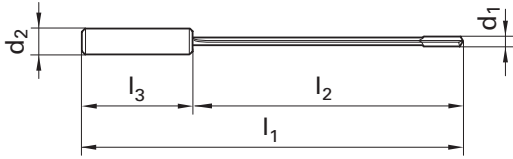
● Australian stock item ○ German stock item



GUN DRILLS EB 80, 30 X D

GUN DRILLS

Guhring no.	5640
Standard	Guhring std.
Tool material	Carbide
Surface	C
Drilling depth	30 x D
Cutting direction	right-hand
Tolerance	h5



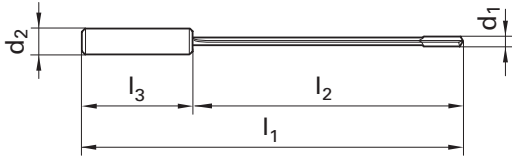
d1		d2	l1	l2	l3	AVAILABILITY
mm	inch	mm	mm	mm	mm	
3.969	5/32	10.00	200.00	155.00	40.00	o
4.000		12.00	200.00	155.00	45.00	o
5.000	3/16	16.00	230.00	182.00	48.00	o
5.159	13/64	16.00	230.00	182.00	48.00	o
6.000	15/64	16.00	260.00	212.00	48.00	o
6.350	1/4	16.00	275.00	227.00	48.00	o
7.000	17/64	16.00	290.00	242.00	48.00	o
7.938	5/16	16.00	320.00	272.00	48.00	o
8.000		16.00	320.00	272.00	48.00	o
9.000	11/32	16.00	350.00	302.00	48.00	o
9.525	3/8	16.00	380.00	330.00	48.00	o
10.000	25/64	20.00	400.00	350.00	50.00	o
11.000	27/64	20.00	430.00	380.00	50.00	o
11.113	7/16	20.00	430.00	380.00	50.00	o
12.000	15/32	20.00	450.00	400.00	50.00	o
12.700	1/2	20.00	500.00	450.00	50.00	o
13.000		20.00	520.00	464.00	50.00	o
13.500	33/64	20.00	530.00	475.00	50.00	o
14.000	35/64	20.00	540.00	485.00	50.00	o
14.500	9/16	25.00	565.00	500.00	56.00	o
15.000	37/64	25.00	580.00	520.00	56.00	o
15.500	39/64	25.00	600.00	535.00	56.00	o
16.000	5/8	25.00	615.00	555.00	56.00	o
17.000	21/32	25.00	645.00	584.00	56.00	o
18.000	45/64	25.00	680.00	619.00	56.00	o
19.000	47/64	25.00	710.00	649.00	56.00	o
20.000	25/32	32.00	750.00	685.00	60.00	o
22.000	55/64	32.00	800.00	735.00	60.00	o
25.000	63/64	32.00	900.00	835.00	60.00	o
25.400	1	32.00	910.00	845.00	60.00	o

• Australian stock item o German stock item



Guhring no.	5641
Standard	Guhring std.
Tool material	Carbide
Surface	C
Drilling depth	40 x D
Cutting direction	right-hand
Tolerance	h5

*Sizes above Ø13 mm all uncoated



d1		d2	l1	l2	l3	AVAILABILITY
mm	inch	mm	mm	mm	mm	
3.969	5/32	10.00	230.00	185.00	40.00	○
4.000		12.00	230.00	185.00	45.00	●
5.000		16.00	280.00	232.00	48.00	●
5.159	13/64	16.00	280.00	232.00	48.00	○
6.000		16.00	320.00	272.00	48.00	●
6.350	1/4	16.00	340.00	292.00	48.00	○
7.000		16.00	370.00	322.00	48.00	●
7.938	5/16	16.00	420.00	372.00	48.00	○
8.000		16.00	420.00	372.00	48.00	●
9.000		16.00	450.00	402.00	48.00	○
9.525	3/8	16.00	480.00	432.00	48.00	○
10.000		20.00	510.00	460.00	50.00	●
11.000		20.00	550.00	500.00	50.00	○
11.113	7/16	20.00	550.00	500.00	50.00	○
12.000		20.00	600.00	550.00	50.00	●
12.700	1/2	20.00	635.00	585.00	50.00	○
13.000		25.00	655.00	585.00	70.00	●
13.500		25.00	678.00	585.00	70.00	●
14.000		25.00	700.00	630.00	70.00	●
14.500		25.00	723.00	653.00	70.00	●
15.000		25.00	745.00	675.00	70.00	●
15.500		25.00	768.00	698.00	70.00	●
16.000		25.00	790.00	720.00	70.00	●
17.000		25.00	835.00	765.00	70.00	●
18.000		25.00	880.00	810.00	70.00	●
19.000		25.00	925.00	855.00	70.00	●
20.000		25.00	970.00	900.00	70.00	●
22.000		25.00	1060.00	990.00	70.00	●
25.000		25.00	1195.00	1125.00	70.00	●
30.000		32.00	1420.00	1350.00	70.00	● 302633304
32.000		32.00	1510.00	1440.00	70.00	● 302633305

● Australian stock item ○ German stock item

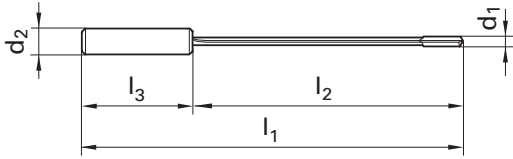


GUN DRILLS EB 80, 80 X D

GUN DRILLS

Guhring no.	5642
Standard	Guhring std.
Tool material	Carbide
Surface	C
Drilling depth	80 x D
Cutting direction	right-hand
Tolerance	h5

*Sizes above Ø15.95 mm all uncoated

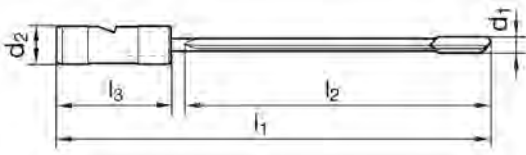


d1		d2	l1	l2	l3	AVAILABILITY
mm	inch	mm	mm	mm	mm	
4.950		16.000	480.00	432.00	48.00	•
5.106		16.000	480.00	432.00	48.00	○
5.950	15/64	16.000	560.00	512.00	48.00	•
6.300		16.000	590.00	542.00	48.00	○
6.950		16.000	650.00	602.00	48.00	○
7.888		16.000	740.00	692.00	48.00	○
7.950		16.000	740.00	692.00	48.00	•
8.950		16.000	820.00	772.00	48.00	○
9.475		16.000	870.00	822.00	48.00	○
9.950		20.000	910.00	860.00	50.00	•
10.950		20.000	995.00	945.00	50.00	○
11.063		20.000	995.00	945.00	50.00	○
11.950		20.000	1080.00	1030.00	50.00	•
12.650		20.000	1140.00	1090.00	50.00	○
12.950		20.000	1170.00	1101.00	50.00	•
13.450		25.000	1215.00	1143.00	70.00	•
13.950		25.000	1255.00	1186.00	70.00	•
14.450		25.000	1300.00	1228.00	70.00	•
14.950		25.000	1340.00	1271.00	70.00	•
15.450		25.000	1383.00	1313.00	70.00	•
15.950		25.000	1425.00	1356.00	70.00	•
16.950		25.000	1510.00	1441.00	70.00	• 302633313
17.950		25.000	1600.00	1526.00	70.00	• 302633314
18.950		25.000	1680.00	1611.00	70.00	• 302633315
19.950		25.000	1765.00	1696.00	70.00	• 302633316
21.950		25.000	1940.00	1866.00	70.00	• 302633317
24.950		25.000	2190.00	2121.00	70.00	• 302633318

• Australian stock item ○ German stock item



Guhring no.	5688	5691	5692	5693	5694
Standard	Guhring std.				
Tool material	Solid carbide				
Surface	S	S	S	S	S
l1	600mm	800mm	1200mm	1600mm	2000mm
Drilling depth (l2)	500mm	700mm	1100mm	1500mm	1900mm
l3	70mm				
cutting direction	right-hand				
Tolerance	h5				



d1	d2 h6	AVAILABILITY				
mm	mm					
4.000	25.00	○			○	○
5.000	25.00	○	○	○	○	○
5.500	25.00				○	○
6.000	25.00	○	○	○	○	○
6.500	25.00				○	○
7.000	25.00	○	○	○	○	○
7.500	25.00				○	○
8.000	25.00	○	○	○	○	○
9.000	25.00	○	○	○	○	○
9.500	25.00				○	○
10.000	25.00	○	○	○	○	○
11.000	25.00	○			○	○
11.500	25.00	○	○	○	○	○
12.000	25.00	○	○	○	○	○
13.000	25.00	○			○	○
14.000	25.00	○			○	○
15.000	25.00	○	○	○	○	○
16.000	25.00	○	○	○	○	○
17.000	25.00	○	○		○	○
18.000	25.00	○	○	○	○	○
19.000	25.00	○	○	○	○	○
20.000	25.00	○	○	○	○	○
21.000	25.00	○	○			
22.000	25.00	○	○	○	○	○
25.000	25.00	○	○			

● Australian stock item ○ German stock item



CUTTING SPEED RECOMMENDATION FOR GUN DRILLS

GUN DRILLS

Drill Ø mm	Feed column no.									
	11	12	13	14	15	16	17	18	19	20
	f (mm/rev.)									
1.50	0.002	0.004	0.006	0.008	0.012	0.020	0.032	0.045	0.045	0.075
2.00	0.003	0.005	0.007	0.010	0.016	0.028	0.046	0.055	0.050	0.100
2.50	0.004	0.006	0.008	0.012	0.018	0.030	0.054	0.070	0.075	0.125
4.00	0.005	0.007	0.010	0.016	0.025	0.043	0.065	0.085	0.120	0.240
6.00	0.007	0.009	0.013	0.024	0.035	0.061	0.085	0.120	0.180	0.360
8.00	0.010	0.014	0.022	0.032	0.045	0.068	0.100	0.150	0.240	0.480
10.00	0.012	0.016	0.028	0.040	0.055	0.075	0.120	0.160	0.300	0.600
14.00	0.020	0.025	0.035	0.050	0.065	0.085	0.130	0.180	0.420	0.700
18.00	0.025	0.030	0.040	0.055	0.070	0.095	0.145	0.200		
20.00	0.026	0.035	0.045	0.060	0.080	0.110	0.180	0.250		
24.00	0.027	0.036	0.047	0.065	0.085	0.130	0.185	0.300		
28.00	0.028	0.038	0.049	0.068	0.090	0.140	0.195	0.350		
30.00	0.030	0.040	0.050	0.070	0.100	0.150	0.200	0.400		
35.00	0.035	0.045	0.055	0.075	0.120	0.180	0.250	0.450		
40.00	0.040	0.050	0.060	0.080	0.150	0.200	0.300	0.500		

*The feed rates always relate to tools with the recommended coating. In some cases the successful application of un-coated tools cannot be guaranteed.



All deep hole drills must have support for the pilot hole. Deep hole drills must never operate at full speed without support in the machine shop.

Coolant:

- Air
- Neat oil
- Soluble oil

Guhring no.
Standard/DIN
Tool material
Carbide grade
Surface finish
Type

≤20XD

5639

G.S.

Carbide

K30/ K40

●

EB80

≤40XD

5641 5642

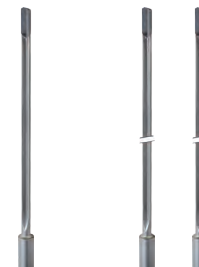
G.S.

Carbide

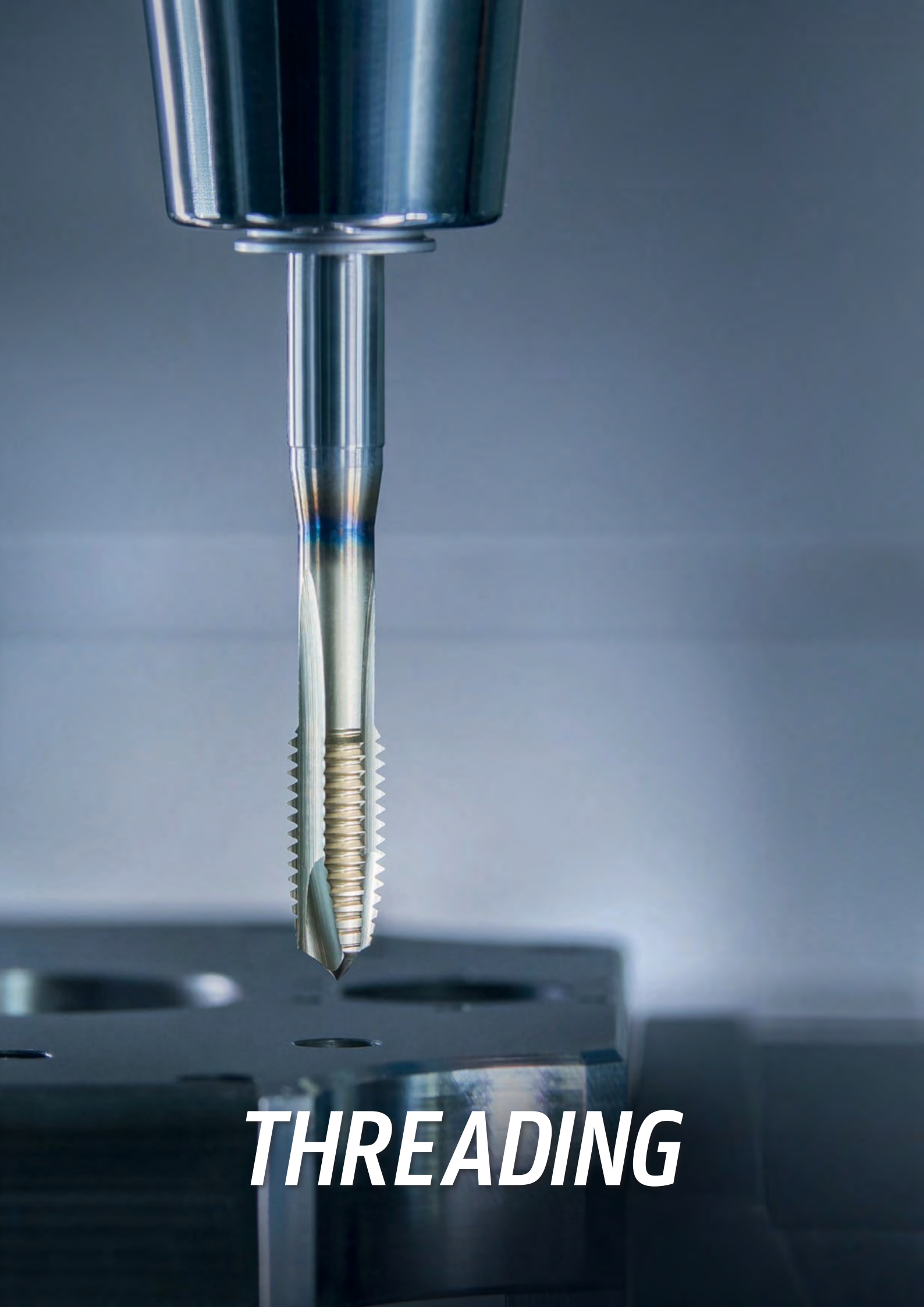
K30/ K40 K30/ K40

● ●

EB80 EB80



Material group	Material examples	Tensile strength MPa (N/mm ²)	Hardness	Coolant	Rec. coating	Vc m/min	Feed col. no.	Vc m/min	Feed col. no.	Feed col. no.
Common structural steels	S185, P275N, P235GH, P265GH, Mild steel,	≤500		○	●	100	14	95	13	13
	Grade 250 plate, Grade 350 plate, E295, E360, P500NH	≤1000		○	●	85	14	80	13	13
Free-cutting steels	11SMnPb30, 11SMn37, 1020, S1214, S1213	≤850		○	●	90	14	85	13	13
	S12L13, S12L14, 46S20, 46SPb20	≤1000		○	●	80	14	75	13	13
Unalloyed heat-treatable steels	C22, C30E, 1035, 1045, 1055, 1060, 1025	≤700		○	●	90	13	85	12	12
	C45, C45E	≤850		○	●	80	13	75	12	12
	C60, C60E	≤1000		○	●	75	13	70	12	12
Alloyed heat-treatable steels	50MnSi4, 38Cr2, 28Cr4, 3140, 4130, 4140, 4150,	≤1000		○	●	75	13	70	12	12
	4340, 6150, EN16, EN26, 36NiCr6, 41Cr4, 42CrMo4	≤1400		○	●	65	13	60	12	12
Unalloyed case hardened steels	C10E, 1010, 1015	≤850		○	●	80	14	75	13	13
Alloyed case hardened steels	10CrMo11, 11MnSi6, 3310, 3415, 5115, 4615, 4620,	≤1000		○	●	75	13	70	12	12
	5120, 8617, 8620, 15NiCr13, 16MnCr5, 20CrMo5, N33	≤1400		○	●	65	13	60	12	12
Nitriding steels	34CrAl6	≤1000		○	●	75	13	70	12	12
	31CrMoV9, 34CrAlNi7	≤1400		○	●	65	13	60	12	12
Tool steels	C75W, 102Cr6, 29CrMoV9, H11, H13, P20, D2, D3	≤850		○	●	75	12	70	11	11
	X210Cr12, X42Cr13, 105WCr6, X45NiCrMo4	≤1400		○	●	65	12	60	11	11
High speed steels	S 6-5-2-5, S 6-5-2, S 6-5-3, M2, M3, M35, M45	≤1400		○	●	55	11	50	11	11
Spring steels	55Si7, 55Cr3, 51CrV4, 5155, 6150, 9255		≤350 HB	○	●	65	12	60	12	12
Stainless steels, sulphured	X12CrS13, X14CrMoS17, X6CrMoS17, X8CrNiS18-9, 410S, 430F, 630	≤900		○	●	55	13	50	12	12
austenitic	X5CrNi18-10, X6CrNiTi18-10, X6CrNiMoTi 17-12-2, 302, 303, 321	≤1100		○	●	45	13	40	12	12
martensitic	X20CrNi172, X39CrMo17-1, X2CrMoTi18-2, 410, 410X, 416, 420,	≤1500		○	●	35	13	35	12	12
Hardened steels	-		≤48 HRC	○	●	30	12	25	11	11
			≤66 HRC	○	●	25	11	20	11	11
Special alloys	Nimonic, Inconel, Monel, Hastelloy, Bisalloy	≤2000		○	●	35	11	30	11	11
Cast iron	GG10, GG15, GG20		≤240 HB	○	●	85	15	80	14	14
	GG25, GG30, GG35 GG40		≤350 HB	○	●	80	15	75	14	14
Spheroidal graphite iron and malleable cast iron	GGG40, GGG50, GGG60, 32510, GTW35		≤240 HB	○	●	80	14	75	13	13
Chilled cast iron	-		≤350 HB	○	●	70	14	65	13	13
Ti and Ti-alloys	Ti99.5, TiAl5Sn2.5, TiCu2	≤850		○	●	35	11	30	11	11
	TiAl6Zr5, TiAl6V4, TiAl4Mo4Sn2.5, - TiAl8Mo1V1	≤1400		○	●	30	11	25	11	11
Aluminium and Al-alloys	Al99.5, AlMgSi1, AlMg1	≤400		○	●	150	16	140	14	14
Al wrought alloys	AlMgSiPb, AlCuMg1, AlMg3Si, AlZnMgCu1.5	≤650		○	●	120	16	115	14	14
Al cast alloys ≤ 10 % Si	G-AlSi5Cu1, G-AlSi7Cu3, G-AlSi9	≤600		○	●	150	17	140	16	16
≤ 24 % Si	G-AlSi12, G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		○	●	130	17	120	16	16
Magnesium alloys	MgMn2, G-MgAl8Zn1, G-MgAl6Zn1	≤400		○	●	110	16	100	15	15
Copper, low-alloyed	SE-Cu, CuSn6, G-CuSn5ZnPb	≤500		○	●	75	14	70	13	13
Brass, short-chipping	CuZn39Pb2, CuZn39Pb3, CuZn43Pb2	≤600		○	●	120	17	115	16	16
long-chipping	CuZn20, CuZn33, CuZn37Pb0.5	≤600		○	●	90	17	85	16	16
Bronze, short-chipping	CuSn7ZnPb, CuPb5Sn5, CuPb10Sn	≤600		○	●	95	16	90	15	15
long-chipping	CuNi18Zn19Pb	≤850		○	●	75	16	70	15	15
	CuAl5, CuAl9Mn, CuSn10	≤850		○	●	70	16	65	15	15
	CuAl11Ni, CuBe2	≤1000		○	●	60	16	55	15	15
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150		○	●	75	14	70	13	13
Thermoplastics	Plexiglas, Hostalen, Novodur, Makralon	≤100		○	●	70	14	65	13	13
New cast materials CGI	GGV25, GGV35		≤220 HB	○	●					
	GGV40, GGV50, SiMo 6		≤300 HB	○	●					
New cast materials ADI	ADI800, ADI1000	≤1000		○	●					
	ADI1200, ADI1400	≤1400		○	●					
Kevlar	Kevlar	≤1000		○	●	60	13	55	12	12
Glass, carbon concent. plastics	GRP/CFRP	≤1000		○	●	50	13	45	12	12



THREADING

RECOMMENDATION CHART FOR TAPS



Colour Ring	Material Groups	Tens Strength Mpa (N/mm ²)	Hardness HB	Cutting Speed Vc m/min *		
				HSS-E	HSS-E-PM	Solid Carbide
	Structural steels - mild steel, 250 and 350 plate	≤ 850	-	10 - 15	15 - 20	30 - 50
	Free cutting steels - 1020, S1214, S1213, S12L13, S12L14	≤ 1000	-	10 - 20	15 - 25	30 - 50
	Unalloyed case hardened steels - 1010, 1015	≤ 750	-	10 - 15	15 - 20	30 - 50
	Un9/9/2008d Heat treatable steels - 1035, 1045, 1055, 1060, 1025	≤ 850	-	10 - 15	15 - 20	30 - 50
	Alloyed case hardened steels - 3310, 3415, 5115, 4615, 4620, 5120, 8617, 8620, N33, EN36A	850 - 1200	-	8 - 12	10 - 15	25 - 40
	Alloyed heat treatable steels - 3140, 4130, 4140, 4150, 4340, 6150, EN16, EN26	850 - 1200	-	8 - 12	10 - 15	25 - 40
	Alloyed tool steels - H11, H13, P20, D2, D3	≤ 1000	-	6 - 10	8 - 12	25 - 40
	High speed tool steels M2, M3, M35, M45	650 - 1000	-	6 - 10	8 - 12	25 - 40
	Stainless and acid resistant steels - Sulphured - 410S, 430F, 630	≤ 850	-	6 - 12	8 - 15	30 - 50
	- Austenitic -302, 303, 304, 310, 316, 316Ti, 321	≤ 850	-	6 - 12	8 - 15	30 - 50
	- Martensitic - 410, 410X, 416, 420, 420C, 431, 440C	≤ 850	-	6 - 12	8 - 15	30 - 50
	Structural steels - mild steel, 250 and 350 plate	≤ 800		10 - 15	15 - 20	30 - 50
	Free cutting steels - 1020, S1214, S1213, S12L13, S12L14	≤ 1000		10 - 20	15 - 25	30 - 50
	Case hardened steels	≤ 1000		10 - 15	15 - 20	30 - 50
	Heat treatable steels	≤ 1200		10 - 15	15 - 20	30 - 50
	Nitriding steels	≤ 1200		10 - 15	15 - 20	30 - 50
	Spheroidal graphite cast iron - GGG40, GGG50, GGG60, GGG70	-	≤ 240	10 - 20	15 - 25	30 - 50
	Aluminium and Al-Alloys	≤ 400	-	15 - 20	20 - 25	30 - 50
	Al wrought alloys	≤ 400	-	15 - 20	20 - 25	30 - 50
	Alcast alloys ≤ 10 % Si	≤ 600	-	15 - 20	20 - 25	30 - 50
	> 10 % Si	≤ 600	-	15 - 20	20 - 25	25 - 40
	Cast iron - GG10, GG15, GG20, GG25, GG30, GG35, GG40	-	≤ 240	15 - 20	20 - 25	30 - 40
	Spheroidal graphite cast iron - GGG40, GGG50, GGG60, GGG70	-	≤ 240	15 - 20	20 - 25	30 - 40
	Malleable cast iron - 32510, 50005, Nodular Iron	-	≤ 240	15 - 20	20 - 25	30 - 40
	Brass short chipping	≤ 600	-	10 - 15	15 - 20	25 - 30
	Brass long chipping	≤ 600	-	10 - 15	15 - 20	25 - 30
	Plastics	-	-	5 - 10	15 - 20	25 - 30
	Magnesium alloys	≤ 450	-	30 - 50		40 - 60
	Titanium and Ti-alloys	≤ 1200			2 - 8	
	Ni alloys				2 - 8	

* With coated tools cutting speed may be increased up to 50%

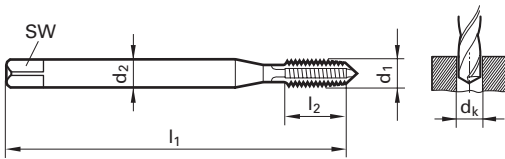
○ bright ● steam tempered ● nitrided ● AICrN ● TiN ● TiCN ● Carbo

●● universal ● general steel ● tool steel ● stainless steel ● Aluminium ● cast materials

TAPS



Guhring no.	5733/5716	803/815	5736	789/790
Standard	DIN 371	DIN 371/376	DIN 371	
Tool material	HSS-E		HSS-E-PM	HSS-E
Surface	○	○	●S	○
Type	N	N	N	N
Form	B	B	B	B
Cutting direction	right-hand			left-hand
Tolerance	ISO 2 / 6H			
Application	●	●	●	●
Cutting speed m/min	10-15	10-15	10-15	10-15



d1	P	d2	SW	dk	l1	l2
mm	mm	mm	mm	mm	mm	mm
M1.4	0.30	2.50	2.10	1.10	40.00	7.00
M1.6	0.35	2.50	2.10	1.25	40.00	8.00
M2	0.40	2.80	2.10	1.60	45.00	8.00
M2.5	0.45	2.80	2.10	2.05	50.00	9.00
M3	0.50	3.50	2.70	2.50	56.00	10.00
M4	0.70	4.50	3.40	3.30	63.00	13.00
M5	0.80	6.00	4.90	4.20	70.00	16.00
M6	1.00	6.00	4.90	5.00	80.00	19.00
M8	1.25	8.00	6.20	6.80	90.00	22.00
M10	1.50	10.00	8.00	8.50	100.00	24.00
M12	1.75	9.00	7.00	10.20	110.00	24.00
M14	2.00	11.00	9.00	12.00	110.00	26.00
M16	2.00	12.00	9.00	14.00	110.00	26.00
M18	2.50	14.00	11.00	15.50	125.00	30.00
M20	2.50	16.00	12.00	17.50	140.00	32.00
M22	2.50	18.00	14.50	19.50	140.00	32.00
M24	3.00	18.00	14.50	21.00	160.00	36.00
M27	3.00	20.00	16.00	24.00	160.00	36.00
M30	3.50	22.00	18.00	26.50	180.00	40.00
M33	3.50	25.00	20.00	29.50	180.00	40.00
M36	4.00	28.00	22.00	32.00	200.00	50.00
M39	4.00	32.00	24.00	35.00	200.00	50.00
M42	4.50	32.00	24.00	37.50	200.00	56.00

AVAILABILITY			
	●803		
	●803		
	●803		
	●803		
●5733	●803	●5736	●789
●5733	●815	●5736	●789
●5733	●815	●5736	●789
●5733	●815	●5736	●789
●5733	●815	●5736	●789
●5733	●815	●5736	●789
●5716	●815	●5736	●790
●5716	●815	●5736	●790
●5716	●815	●5736	●790
●5716	●815	●5736	●790
●5716	●815	●5736	●790
	●815		
	●815		

● Australian stock item ○ German stock item

○ bright ○ steam tempered ● nitrided ○ P AlCrN ● S TiN ○ C TiCN ○ Cb Carbo ● S Sirius

● general steel ● universal ● tool steel ● stainless steel ● Aluminium ● cast materials











804/816	5558	57/58	5559	879	8354	805/5557	8082
DIN 371			DIN 376		DIN 371/376	DIN 371	DIN 371/376
HSS-E		HSS-E-PM			HSS-E		
							
H	H	H	VA	VA	VA	Al	Al
B	B	B	B	B	B	B	B
right-hand							
ISO 2 / 6H							
							
8-12	8-12	8-12	6-12	6-12	10-15	10-15	10-15
							







TAPS

AVAILABILITY

•804					•8354	•805	o8082
•804					•8354	•805	o8082
•804		•57			•8354	•805	o8082
	•5558	•57	•5559		•8354	•5557	o8082
	•5558	•57	•5559		•8354	•5557	o8082
	•5558	•57	•5559		•8354	•5557	o8082
	•5558	•57	•5559		•8354	•5557	o8082
•816	•5558	•58		•879	•8354	•5557	o8082
•816		•58		•879	•8354		o8082
•816	•5558	•58		•879	•8354	•5557	o8082
•816		o58			•8354		
•816	o5558	•58		•879	•8354	•5557	
		o58			o8354		
					•8354		
					o8354		
					•8354		
					o8354		
					o8354		
					o8354		
					o8354		

• Australian stock item o German stock item

 bright
  steam tempered
  nitrided
  AlCrN
  TiN
  TiCN
  Carbo+
  Sirius

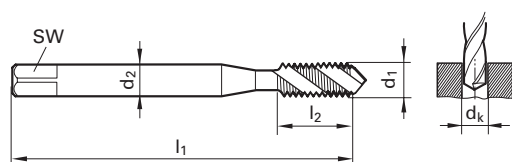
 universal
  general steel
  tool steel
  stainless steel
  Aluminium
  cast materials



METRIC SPIRAL TAPS



Guhring no.	5734/5717	810/822	5722	786/787
Standard	DIN 371	DIN 371/376	DIN 371	DIN 371
Tool material	HSS-E		HSS-E-PM	HSS-E
Surface	○	○	● S	○
Type	N	N	N	N
Form	C	C	C	C
Cutting direction	right-hand			left-hand
Tolerance	ISO 2 / 6H			
Application	●	●	●	●
Cutting speed m/min	10-15	10-15	10-15	10-15



d1	P	d2	SW	dk	l1	l2
mm	mm	mm	mm	mm	mm	mm
M2	0.40	2.80	2.10	1.60	45.00	8.00
M2.5	0.45	2.80	2.10	2.05	50.00	9.00
M3	0.50	3.50	2.70	2.50	56.00	10.00
M4	0.70	4.50	3.40	3.30	63.00	7.50
M5	0.80	6.00	4.90	4.20	70.00	8.50
M6	1.00	6.00	4.90	5.00	80.00	11.00
M8	1.25	8.00	6.20	6.80	90.00	14.00
M10	1.50	10.00	8.00	8.50	100.00	16.00
M12	1.75	9.00	7.00	10.20	110.00	18.50
M14	2.00	11.00	9.00	12.00	110.00	20.00
M16	2.00	12.00	9.00	14.00	110.00	20.00
M18	2.50	14.00	11.00	15.50	125.00	25.00
M20	2.50	16.00	12.00	17.50	140.00	25.00
M22	2.50	18.00	14.50	19.50	140.00	27.00
M24	3.00	18.00	14.50	21.00	160.00	30.00
M27	3.00	20.00	16.00	24.00	160.00	30.00
M30	3.50	22.00	18.00	26.50	180.00	35.00
M33	3.50	25.00	20.00	29.50	180.00	35.00
M36	4.00	28.00	22.00	32.00	200.00	50.00
M39	4.00	32.00	24.00	35.00	200.00	50.00
M42	4.50	32.00	24.00	37.50	20.00	45.00

AVAILABILITY			
	●810		
	●810		
●5734	●810	●5722	●786
●5734	●822	●5722	●786
●5734	●822	●5722	●786
●5734	●822	●5722	●786
●5734	●822	●5722	●786
●5734	●822	●5722	●786
●5717	●822	●5722	●787
	●822	●5722	●787
●5717	●822	●5722	●787
	●822		
	●822		
	●822		

● Australian stock item ○ German stock item

○ bright ○ steam tempered ● nitrided ● AICrN ● S TiN ● C TiCN ● Cb Carbo ● X TiAlN-X

●● universal ●● general steel ●● tool steel ●● stainless steel ●● Aluminium ●● cast materials

811/823	5552	5553	910	59/60	8330	5551/812	8080
DIN 371				DIN 371/376			
HSS-E		HSS-E-PM			HSS-E		
○	●	●	○	● ^S	● ^X	○	○ ^{Cb+}
H	H	VA	VA	VA	VA	Al	Al
C	C	C	C	C	C	C	C
right-hand							
ISO 2 / 6H							
●	●	●	●	●	●	●	●
8-12	8-12	6-12	6-12	6-12	10-15	10-15	10-15

TAPS

AVAILABILITY							
●811					●8330	●812	○8080
●811					●8330	●812	○8080
●811				●59	●8330	●812	○8080
	●5552	●5553		●59	●8330	●5551	○8080
	●5552	●5553		●59	●8330	●5551	○8080
	●5552	●5553		●59	●8330	●5551	○8080
	●5552	●5553		●59	●8330	●5551	○8080
●823	●5552	●5553	●910	●60	●8330	●5551	○8080
●823			●910	●60	●8330		○8080
●823	●5552	●5553	●910	●60	●8330	●5551	○8080
●823	●5552	●5553	●910	●60	●8330	●5551	○8080
●823			●910		○8330		
●823					○8330		
					●8330		
					○8330		
					○8330		
					○8330		
					○8330		

● Australian stock item ○ German stock item

○ bright ● steam tempered ● nitrided ●^P AlCrN ●^S TiN ●^C TiCN ●^{Cb+} Carbo+

●● universal ● general steel ● tool steel ● stainless steel ● Aluminium ● cast materials

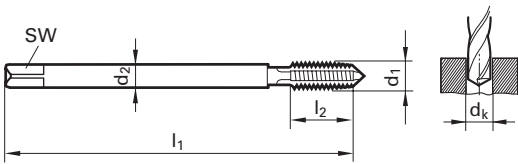


METRIC FINE GUN NOSE TAPS

THROUGH HOLE

TAPS

Guhring no.	5723	827	2871	8363
Standard	DIN 374			
Tool material	HSS-E			
Surface	●	○	●	●S
Type	N	N	N	VA
Form	B	B	B	B
Cutting direction	right-hand	right-hand	right-hand	right-hand
Tolerance	ISO 2 / 6H	ISO 2 / 6H	ISO 2 / 6H	6HX
Application	●	●	●	●
Cutting speed m/min	10-15	10-15	6-12	10-15



d1	P	d2	SW	dk	l1	l2	Code
mm	mm	mm	mm	mm	mm	mm	no.
M3	0.35	2.20		2.65	56.00	7.00	3.002
M4	0.50	2.80	2.10	3.50	63.00	8.00	4.003
M5	0.50	3.50	2.70	4.50	70.00	10.00	5.003
M6	0.50	4.50	3.40	5.50	80.00	13.00	6.003
M6	0.75	4.50	3.40	5.25	80.00	13.00	6.004
M8	0.50	6.00	4.90	7.50	80.00	14.00	8.003
M8	0.75	6.00	4.90	7.25	80.00	14.00	8.004
M8	1.00	6.00	4.90	7.00	90.00	18.00	8.005
M10	0.75	7.00	5.50	9.25	90.00	18.00	10.004
M10	1.00	7.00	5.50	9.00	90.00	18.00	10.005
M10	1.25	7.00	5.50	8.80	100.00	20.00	10.006
M12	1.00	9.00	7.00	11.00	100.00	20.00	12.005
M12	1.25	9.00	7.00	10.80	100.00	20.00	12.006
M12	1.50	9.00	7.00	10.50	100.00	20.00	12.007
M14	1.00	11.00	9.00	13.00	100.00	20.00	14.005
M14	1.25	11.00	9.00	12.80	100.00	20.00	14.006
M14	1.50	11.00	9.00	12.50	100.00	20.00	14.007
M16	1.00	12.00	9.00	15.00	100.00	22.00	16.005
M16	1.50	12.00	9.00	14.50	100.00	22.00	16.007
M18	1.00	14.00	11.00	17.00	110.00	25.00	18.005
M18	1.50	14.00	11.00	16.50	110.00	25.00	18.007
M20	1.00	16.00	12.00	19.00	125.00	25.00	20.005
M20	1.50	16.00	12.00	18.50	125.00	25.00	20.007
M20	2.00	16.00	12.00	18.00	140.00	32.00	20.008
M22	1.50	18.00	14.50	20.50	125.00	25.00	22.007
M22	2.00	18.00	14.50	20.00	140.00	32.00	22.008
M24	1.00	18.00	14.50	23.00	140.00	28.00	24.005
M24	1.50	18.00	14.50	22.50	140.00	28.00	24.007
M24	2.00	18.00	14.50	22.00	140.00	28.00	24.008
M30	1.50	22.00	18.00	28.50	150.00	28.00	30.007
M32	1.50	22.00	18.00	30.50	150.00	28.00	32.007

AVAILABILITY			
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
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●	○	●	○
●	○	●	○

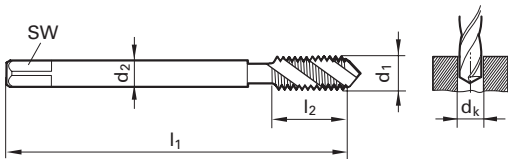
● Australian stock item ○ German stock item

○ bright ● steam tempered ● nitrided ● AlCrN ● S TiN ● TiCN ● Carbo ● S Sirius

●● universal ● general steel ● tool steel ● stainless steel ● Aluminium ● cast materials

Guhring no.	5724	834	2864	8340
Standard	DIN 374			
Tool material	HSS-E			
Surface	●	○	●	⊗
Type	N R40	N	N	VA
Form	C	C	C	C
Cutting direction	right-hand	right-hand	right-hand	right-hand
Tolerance	ISO 2 / 6H	ISO 2 / 6H	ISO 2 / 6H	6HX
Application	●	●	●	●
Cutting speed m/min	10-15	10-15	6-12	10-15

TAPS



d1	P	d2	SW	dk	l1	l2	Code
mm	mm	mm	mm	mm	mm	mm	no.
M4	0.50	2.80	2.10	3.50	63.00	5.00	4.003
M5	0.50	3.50	2.70	4.50	70.00	5.00	5.003
M6	0.50	4.50	3.40	5.50	80.00	5.00	6.003
M6	0.75	4.50	3.40	5.25	80.00	8.00	6.004
M8	0.50	6.00	4.90	7.50	80.00	8.00	8.003
M8	0.75	6.00	4.90	7.25	80.00	8.00	8.004
M8	1.00	6.00	4.90	7.00	90.00	11.00	8.005
M10	1.00	7.00	5.50	9.00	90.00	11.00	10.005
M10	1.25	7.00	5.50	8.80	100.00	14.00	10.006
M12	1.00	9.00	7.00	11.00	100.00	11.00	12.005
M12	1.25	9.00	7.00	10.80	100.00	15.00	12.006
M12	1.50	9.00	7.00	10.50	100.00	15.00	12.007
M14	1.00	11.00	9.00	13.00	100.00	11.00	14.005
M14	1.25	11.00	9.00	12.80	100.00	15.00	14.006
M14	1.50	11.00	9.00	12.50	100.00	15.00	14.007
M16	1.00	12.00	9.00	15.00	100.00	11.00	16.005
M16	1.50	12.00	9.00	14.50	100.00	15.00	16.007
M18	1.00	14.00	11.00	17.00	110.00	12.00	18.005
M18	1.50	14.00	11.00	16.50	110.00	16.00	18.007
M20	1.50	16.00	12.00	18.50	125.00	16.00	20.007
M22	1.50	18.00	14.50	20.50	125.00	16.00	22.007
M24	1.50	18.00	14.50	22.50	140.00	16.00	24.007
M24	2.00	18.00	14.50	22.00	140.00	22.00	24.008
M30	1.50	22.00	18.00	28.50	150.00	20.00	30.007

AVAILABILITY			
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○
●	○	●	○

● Australian stock item ○ German stock item

- bright ● steam tempered ● nitrided ● AlCrN ● TiN ● TiCN ● Carbo ● TiAlN-X
 ● universal ● general steel ● tool steel ● stainless steel ● Aluminium ● cast materials

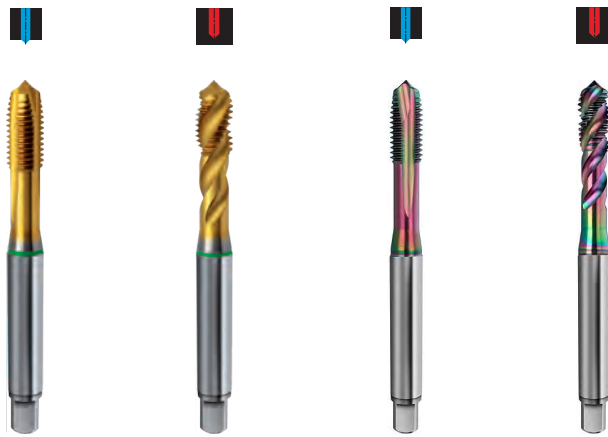
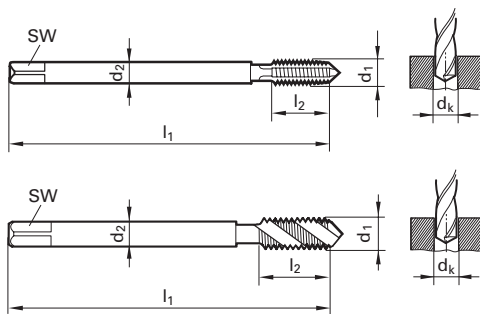


METRIC RECOIL TAPS



TAPS

Guhring no.	1010	1011	6559	6564
Standard	DIN 40435			
Tool material	HSS-E			
Surface	S	S	Cb+	Cb+
Type	N	N	AL	AL
Form	B	C	B	B
Cutting direction	right-hand			
Tolerance	6H	6H	6H	6H
Application	●	●	●	●
Cutting speed m/min	10-15	10-15	10-15	10-15



d1	P	d2	SW	dk	l1	l2	AVAILABILITY	
mm	mm	mm	mm	mm	mm	mm		
M3	0.50	3.50	2.70	3.15	56.00	10.00	•	
M4	0.70	6.00	4.90	4.20	70.00	12.00	•	
M5	0.80	6.00	4.90	5.25	80.00	14.00	•	
M6	1.00	8.00	6.20	6.30	90.00	17.00	•	
M8	1.25	10.00	8.00	8.40	100.00	20.00	•	
M10	1.50	9.00	7.00	10.50	100.00	20.00	•	
M12	1.75	11.00	9.00	12.50	110.00	30.00	•	
M14	2.00	12.00	9.00	14.50	110.00	26.00	•	
M16	2.00	14.00	11.00	16.50	125.00	33.00	•	
M3	0.50	3.50	2.70	3.15	56.00	10.00		•
M4	0.70	6.00	4.90	4.20	70.00	7.50		•
M5	0.80	6.00	4.90	5.25	80.00	8.50		•
M6	1.00	8.00	6.20	6.30	90.00	11.00		•
M8	1.25	10.00	8.00	8.40	100.00	14.00		•
M10	1.50	9.00	7.00	10.50	100.00	16.00		•
M12	1.75	11.00	9.00	12.50	110.00	18.50		•
M14	2.00	12.00	9.00	14.50	110.00	20.00		•
M16	2.00	14.00	11.00	16.50	125.00	20.00		•
M2	0.40	2.80	2.10	2.10	50.00	9.00		○
M2.5	0.45	3.50	2.70	2.65	56.00	10.00		○
M3	0.50	4.50	3.40	3.15	63.00	12.00		○
M4	0.70	6.00	4.90	4.20	70.00	12.00		○
M5	0.80	6.00	4.90	5.25	80.00	14.00		○
M6	1.00	8.00	6.20	6.30	90.00	17.00		○
M8	1.25	10.00	8.00	8.40	100.00	20.00		○
M10	1.50	9.00	7.00	10.50	100.00	20.00		○
M12	1.75	11.00	9.00	12.50	110.00	28.00		○
M14	2.00	12.00	9.00	14.50	110.00	26.00		○
M16	2.00	14.00	11.00	16.50	125.00	33.00		○

• Australian stock item ○ German stock item

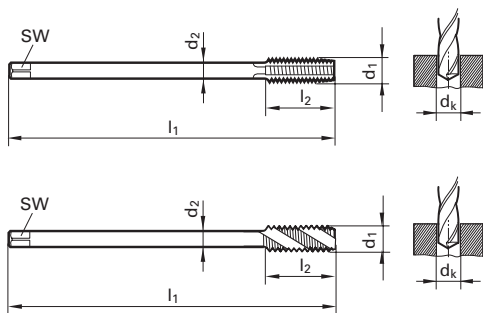
○ bright ● steam tempered ● nitrided ● AlCrN ● S TiN ● C TiCN ● Cb+ Carbo+ ● S Sirius

●● universal ●● general steel ●● tool steel ●● stainless steel ●● Aluminium ●● cast materials



Relieved Shank

Guhring no.	998	5718
Standard	Guhring std.	
Tool material	HSS-E	
Surface	○	Ⓢ
Type	N	N
Form	B	C
Cutting direction	right-hand	right-hand
Tolerance	ISO 2 / 6H	ISO 2 / 6H
Application	●	●
Cutting speed m/min	6-10	6-10



d1	P	d2	SW	dk	l1	l2
mm	mm	mm	mm	mm	mm	mm
M3	0.50	2.20	2.70	2.50	70.00	18.00
M4	0.70	2.80	2.10	3.30	90.00	22.00
M5	0.80	3.50	2.70	4.20	100.00	24.00
M6	1.00	4.50	3.40	5.00	110.00	25.00
M8	1.25	6.00	4.90	6.80	125.00	28.00
M10	1.50	7.00	5.50	8.50	140.00	30.00
M12	1.75	9.00	7.00	10.20	180.00	35.00
M14	2.00	11.00	9.00	12.00	200.00	35.00
M16	2.00	12.00	9.00	14.00	200.00	40.00
M20	2.50	16.00	12.00	17.50	250.00	45.00

M3	0.50	3.50	2.70	2.50	112.00	6.00
M4	0.70	2.80	2.10	3.30	112.00	7.50
M5	0.80	3.50	2.70	4.20	125.00	8.50
M6	1.00	4.50	3.40	5.00	125.00	11.00
M8	1.25	6.00	4.90	6.80	140.00	14.00
M10	1.50	7.00	5.50	8.50	160.00	16.00
M12	1.75	9.00	7.00	10.20	180.00	18.50
M16	2.00	12.00	9.00	14.00	220.00	20.00
M20	2.50	16.00	12.00	17.50	280.00	25.00

AVAILABILITY	
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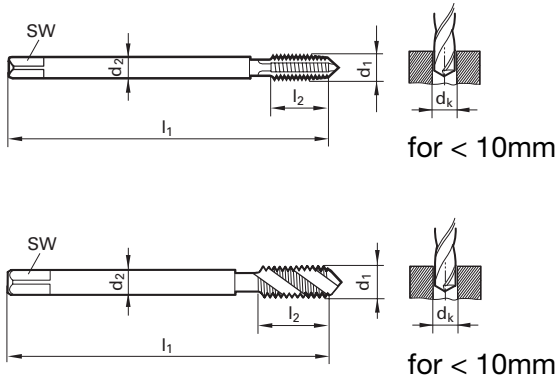
• Australian stock item ◦ German stock item

○ bright ● steam tempered ● nitrided ○ P AlCrN ● S TiN ● C TiCN ● Cb Carbo ● S Sirius

●● universal ● general steel ● tool steel ● stainless steel ● Aluminium ● cast materials

Guhring no.	8356	8333
Standard	Guhring std.	
Tool material	HSS-E	
Surface	S	X
Type	N	N
Form	B	C
Cutting direction	right-hand	right-hand
Tolerance	ISO 2 / 6HX	ISO 2 / 6HX
Application		
Cutting speed m/min	6-10	6-10

***Relieved Shank for sizes above M10**



d1	P	d2	SW	dk	l1	l2
mm	mm	mm	mm	mm	mm	mm
M3	0.50	3.50	2.70	2.50	90.00	10.00
M4	0.70	4.50	3.40	3.30	125.00	12.00
M5	0.80	6.00	4.90	4.20	140.00	14.00
M6	1.00	6.00	4.90	5.00	160.00	16.00
M8	1.25	8.00	6.20	6.80	180.00	17.00
M10	1.50	10.00	8.00	8.50	200.00	20.00
M12	1.75	9.00	7.00	10.20	220.00	24.00
M14	2.00	11.00	9.00	12.00	220.00	26.00
M16	2.00	12.00	9.00	14.00	220.00	26.00
M20	2.50	16.00	12.00	17.50	280.00	32.00
M3	0.50	3.50	2.70	2.50	90.00	6.00
M4	0.70	4.50	3.40	3.30	125.00	7.50
M5	0.80	6.00	1.90	4.20	140.00	8.50
M6	1.00	6.00	4.90	5.00	160.00	11.00
M8	1.25	8.00	6.20	6.80	180.00	14.00
M10	1.50	10.00	8.00	8.50	200.00	16.00
M12	1.75	9.00	7.00	10.20	220.00	18.50
M14	2.00	11.00	9.00	12.00	220.00	20.00
M16	2.00	12.00	9.00	14.00	220.00	20.00
M20	2.50	16.00	12.00	17.50	280.00	25.00

AVAILABILITY	
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*Also available in: MF: 8321 BSP: 8322	*Also available in: MF: 8342 BSP: 8350

• Australian stock item ◦ German stock item

○ bright ● steam tempered ● nitrided ● AlCrN ● TiN ● TiCN ● TiAIN-X ● Sirius

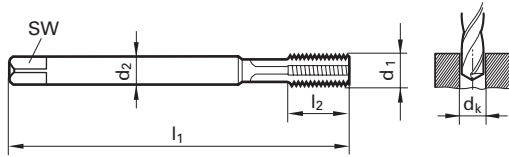
● universal ● general steel ● tool steel ● stainless steel ● Aluminium ● cast materials

TAPS



TAPS

Guhring no.	2944
Standard	Guhring std.
Tool material	Solid carbide
Surface	C
Type	H
Form	D
Cutting direction	right-hand
Tolerance	ISO 2 / 6H
Application	Hardened Materials
Cutting speed m/min	2-4



52-62 HRc

d1	P	d2	SW	dk	l1	l2	AVAILABILITY
mm	mm	mm	mm	mm	mm	mm	
M3	0.50	3.50	2.70	2.60	56.00	12.00	•
M4	0.70	4.50	3.40	3.40	63.00	14.00	•
M5	0.80	6.00	4.90	4.30	70.00	17.00	•
M6	1.00	6.00	4.90	5.10	80.00	20.00	•
M8	1.25	8.00	6.20	6.90	90.00	20.00	•
M10	1.50	10.00	8.00	8.60	100.00	24.00	•
M12	1.75	12.00	9.00	10.40	110.00	28.00	•
M16	2.00	16.00	12.00	14.00	110.00	40.00	◦

Also Available in:

- MF = 1161
- UNC = 8291
- UNF = 8292
- BSP = 4599

• Australian stock item ◦ German stock item

○ bright ● steam tempered ● nitrided ● P AlCrN ● S TiN ● C TiCN ● Cb Carbo ● S Sirius

● universal ● general steel ● tool steel ● stainless steel ● Aluminium ● cast materials

MODULAR FLUTELESS TAP

Modular system for maximum flexibility and economy

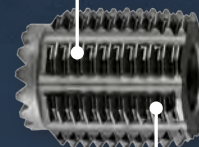


HSS SHANK

Can be used after wear on the threaded part (up to 8 head changes)

ALCRN COATING

Special polygon shape ensures reduced torque and higher tool lives



COMBINEABLE FOR VARIOUS SIZES

M12 – M14
MF12 x 1.5 – M24 x 1.5

MODULAR FLUTELESS TAPS IN ACTION

Scan and discover now!

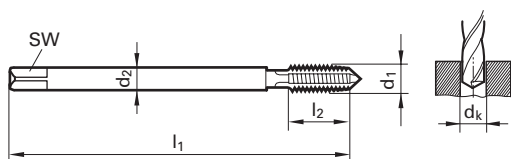


REPLACEABLE CARBIDE THREAD HEAD

For reduced cycle times even under less than ideal conditions



Guhring no.	5725	873/878	8283	8367	3992
Standard	DIN 371	DIN 371/376	WN	DIN 371/376	DIN/ANSI
Tool material	HSS-E				HSS-E-PM
Surface	●	○	●S	●S	●S
Type	N	N	N	VA	N
Form	B	B	B	B	B
Cutting direction	right-hand	right-hand	left-hand	right-hand	right-hand
Tolerance	2B	2B	2BX	2BX	2B
Application	●	●	●	●	●
Cutting speed m/min	10-15	10-15	10-15	10-15	10-15



d1	P	d2	SW	dk	l1	l2	Code
inch	inch	mm	mm	mm	mm	mm	no.
No.2	56	2.80	2.10	1.85	45.00	9.00	2.184
No.3	48	2.80	2.10	2.10	50.00	9.00	2.515
No.4	40	3.50	2.70	2.35	56.00	11.00	2.845
No.5	40	3.50	2.70	2.65	56.00	11.00	3.175
No.6	32	4.00	3.00	2.85	56.00	12.00	3.505
No.8	32	4.50	3.40	3.50	63.00	13.00	4.166
No.10	24	6.00	4.90	3.90	70.00	14.00	4.826
No.12	24	6.00	4.90	4.50	80.00	16.00	5.486
1/4	20	7.00	5.50	5.10	80.00	16.00	6.350
5/16	18	8.00	6.20	6.60	90.00	18.00	7.938
3/8	16	10.00	8.00	8.00	100.00	20.00	9.525
7/16	14	8.00	6.20	9.40	100.00	22.00	11.113
1/2	13	9.00	7.00	10.80	110.00	25.00	12.700
9/16	12	11.00	9.00	12.20	110.00	30.00	14.288
5/8	11	12.00	9.00	13.50	110.00	30.00	15.875
3/4	10	14.00	11.00	16.50	125.00	33.00	19.050
7/8	9	18.00	14.50	19.50	140.00	35.00	22.225
1"	8	18.00	14.50	22.25	160.00	38.00	25.400
1 1/8	7	18.00	18.00	25.00	180.00	44.00	28.575
1 1/4	7	18.00	18.00	28.00	180.00	44.00	31.750
1 1/2	6	28.00	22.00	34.00	200.00	50.00	38.100
1/4	20	6.48	4.85	5.10	80.00	16.00	6.350
5/16	18	8.08	6.05	6.60	90.00	18.00	7.938
3/8	16	9.68	7.26	8.00	100.00	20.00	9.525
7/16	14	8.20	6.15	9.40	100.00	22.00	11.113
1/2	13	9.32	6.99	10.80	110.00	25.00	12.700
9/16	12	10.90	8.18	12.20	110.00	30.00	14.288
5/8	11	12.19	9.14	13.50	110.00	30.00	15.875
3/4	10	14.99	11.23	16.50	125.00	33.00	19.050
7/8	9	17.70	13.28	19.50	140.00	35.00	22.225

AVAILABILITY	
●873	●
●873	●
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*Sizes above 1" available upon request.

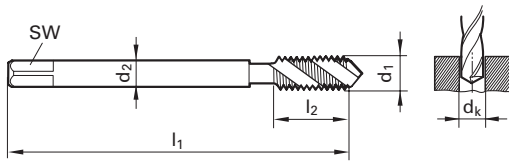
● Australian stock item ○ German stock item

○ bright ● steam tempered ● nitrided ● AlCrN ● S TiN ● C TiCN ● Cb Carbo ● S Sirius

●● universal ● general steel ● tool steel ● stainless steel ● Aluminium ● cast materials



Guhring no.	5726	876/881	8285	8346	3993
Standard	DIN 371	DIN 371/376	WN	DIN 371/376	DIN/ANSI
Tool material	HSS-E				HSS-E-PM
Surface					
Type	N	N	N R40	VA	N
Form	C	C	C	C	C
Cutting direction	right-hand	right-hand	left-hand	right-hand	right-hand
Tolerance	2B	2B	2BX	2BX	2B
Application					
Cutting speed m/min	10-15	10-15	10-15	6-12	6-12



d1	P	d2	SW	dk	l1	l2	Code	AVAILABILITY		
inch	inch	mm	mm	mm	mm	mm	no.			
No.2	56	2.80	2.10	1.85	45.00	8.00	2.184		•876	•
No.3	48	2.80	2.10	2.10	50.00	9.00	2.515			
No.4	40	3.50	2.70	2.35	56.00	6.50	2.845	•	•876	•
No.5	40	3.50	2.70	2.65	56.00	6.50	3.175			
No.6	32	4.00	3.00	2.65	56.00	8.00	3.505	•	•876	•
No.8	32	4.50	3.40	3.50	63.00	8.00	4.166	•	•876	•
No.10	24	6.00	4.90	3.90	70.00	11.00	4.826	•	•876	•
No.12	24	6.00	4.90	4.50	80.00	11.00	5.486		•876	•
1/4	20	7.00	5.10	5.10	80.00	13.00	6.350	•	•876	•
5/16	18	8.00	6.20	6.60	90.00	14.00	7.938	•	•876	•
3/8	16	10.00	7.00	8.00	90.00	16.00	9.525	•	•876	•
7/16	14	8.00	6.20	9.40	100.00	18.00	11.113	•	•881	•
1/2	13	9.00	7.00	10.75	110.00	20.00	12.700	•	•881	•
9/16	12	11.00	9.00	14.00	110.00	21.00	14.288		•881	•
5/8	11	12.00	9.00	13.50	110.00	24.00	15.875	•	•881	•
3/4	10	14.00	11.00	16.50	125.00	25.00	19.050	•	•881	•
7/8	9	18.00	14.50	19.50	140.00	28.00	22.225		•881	•
1"	8	18.00	14.50	22.25	160.00	32.00	25.400		•881	•
1/4	20	6.48	4.85	5.10	80.00	16.00	6.350		○	•
5/16	18	8.08	6.05	6.60	90.00	18.00	7.938		○	•
3/8	16	9.68	7.26	8.00	100.00	20.00	9.525		○	•
7/16	14	8.20	6.15	9.40	100.00	22.00	11.113		○	•
1/2	13	9.32	6.99	10.80	110.00	25.00	12.700		○	•
9/16	12	10.90	8.18	12.20	110.00	30.00	14.288		○	•
5/8	11	12.19	9.14	13.50	110.00	30.00	15.875		○	•
3/4	10	14.99	11.23	16.50	125.00	33.00	19.050			•
7/8	9	17.70	13.28	19.50	140.00	35.00	22.225			•

*Sizes above 1" available upon request.

• Australian stock item ○ German stock item

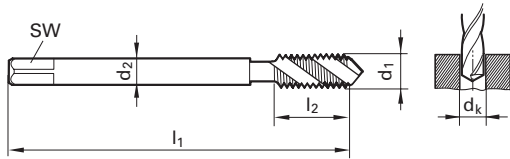
○ bright ● steam tempered ● nitrided ● AICrN ● S TiN ● C TiCN ● Cb Carbo ● X TiAIN-X

●● universal ● general steel ● tool steel ● stainless steel ● Aluminium ● cast materials



Guhring no.	5728	911	8286	8347	3995
Standard	DIN 374		DIN 371/374		DIN/ANSI
Tool material	HSS-E				HSS-E-PM
Surface					
Type	N	N	N R40	VA	N
Form	C	C	C	C	C
Cutting direction	right-hand	right-hand	left-hand	right-hand	right-hand
Tolerance	2B	2B	2BX	2BX	2B
Application					
Cutting speed m/min	10-15	10-15	10-15	6-12	6-12

TAPS



<3/8 DIN 371



d1	P	d2	SW	dk	l1	l2	Code
inch	inch	mm	mm	mm	mm	mm	no.
No.2	64	2.80	2.10	1.85	45.00	5.00	2.184
No.3	56	1.80	1.40	2.15	50.00	5.00	2.515
No.4	48	2.20		2.40	56.00	6.00	2.845
No.5	44	2.50	2.10	2.70	56.00	6.00	3.175
No.6	40	2.50	2.10	2.95	56.00	11.00	3.505
No.8	36	2.80	2.10	3.50	63.00	10.00	4.166
No.10	32	3.50	2.70	4.10	70.00	12.00	4.826
No.12	28	6.00	4.90	4.60	80.00	9.50	5.486
1/4	28	4.50	3.40	5.50	80.00	14.00	6.350
5/16	24	6.00	4.90	6.90	90.00	18.00	7.938
3/8	24	7.00	5.50	8.50	90.00	18.00	9.525
7/16	20	8.00	6.20	9.90	90.00	18.00	11.113
1/2	20	9.00	7.00	11.50	100.00	20.00	12.700
9/16	18	11.00	9.00	12.90	100.00	22.00	14.288
5/8	18	12.00	9.00	14.50	100.00	22.00	15.875
3/4	16	14.00	11.00	17.50	110.00	25.00	19.050
7/8	14	18.00	14.50	20.40	125.00	25.00	22.225
1"	12	18.00	14.50	23.25	140.00	28.00	25.400

AVAILABILITY		
No.2		○
No.3	○	
No.4	•	•
No.5	○	
No.6	•	•
No.8	•	•
No.10	•	•
No.12	○	•
1/4	•	•
5/16	•	•
3/8	•	•
7/16	•	•
1/2	•	•
9/16	•	•
5/8	•	•
3/4	•	•
7/8	•	•
1"	•	○
1/4	○	•
5/16	○	•
3/8	○	•
7/16	○	•
1/2	○	•
9/16	○	•
5/8	○	•
3/4		•
7/8		•

*Sizes above 1" available upon request.

• Australian stock item ○ German stock item

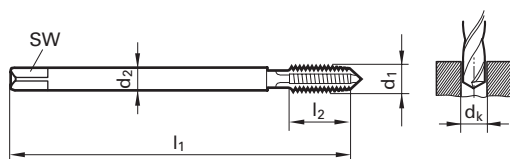
bright
 steam tempered
 nitrided
 AlCrN
 TiN
 TiCN
 Carbo
 TiAlN-X

universal
 general steel
 tool steel
 stainless steel
 Aluminium
 cast materials



TAPS

Guhring no.	5731	962	967	8369
Standard	DIN 5156			
Tool material	HSS-E			
Surface				
Cutting direction	right-hand	right-hand	right-hand	right-hand
Type	N	N	VA	VA
Form	B	B	B	B
Application				
Cutting speed m/min	8-10	10-15	10-15	8-10



d1	P	d2	SW	dk	l1	l2	Code
inch	inch	mm	mm	mm	mm	mm	no.
G1/16	28	6.00	4.90	6.80	90.00	18.00	7.723
G1/8	28	7.00	5.50	8.80	90.00	18.00	9.728
G1/4	19	11.00	9.00	11.80	100.00	20.00	13.157
G3/8	19	12.00	9.00	15.25	100.00	22.00	16.662
G1/2	14	16.00	12.00	19.00	125.00	25.00	20.955
G5/8	14	18.00	14.50	21.00	125.00	25.00	22.911
G3/4	14	20.00	16.00	24.50	140.00	28.00	26.441
G7/8	14	22.00	18.00	28.25	150.00	22.00	30.201
G 1"	11	25.00	20.00	30.75	160.00	30.00	33.249

AVAILABILITY			

Australian stock item German stock item

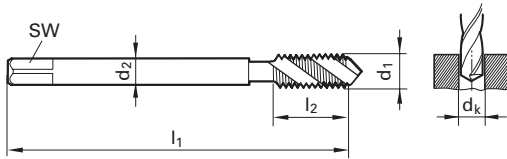
bright steam tempered nitrided AlCrN TiN TiCN Carbo Sirius

universal general steel tool steel stainless steel Aluminium cast materials



Guhring no.	5732	965	968	8348
Standard	DIN 5156			
Tool material	HSS-E			
Surface				
Cutting direction	right-hand	right-hand	right-hand	right-hand
Type	N	N	VA	VA
Form	C	C	C	C
Application				
Cutting speed m/min	8-10	10-15	10-15	8-10

TAPS



d1	P	d2	SW	dk	l1	l2	Code
inch	inch	mm	mm	mm	mm	mm	no.
G1/16	28	6.00	4.90	6.80	90.00	11.00	7.723
G1/8	28	7.00	5.50	8.80	90.00	11.00	9.728
G1/4	19	11.00	9.00	11.80	100.00	14.00	13.157
G3/8	19	12.00	9.00	15.25	100.00	14.00	16.662
G1/2	14	16.00	12.00	19.00	125.00	18.00	20.955
G5/8	14	18.00	14.50	21.00	125.00	18.00	22.911
G3/4	14	20.00	16.00	24.50	140.00	20.00	26.441
G7/8	14	22.00	18.00	28.25	150.00	22.00	30.201
G 1"	11	25.00	20.00	30.75	160.00	24.00	33.249

AVAILABILITY			
		○	●
●	●	○	●
●	●	○	●
●	●	○	●
		○	●
●	●	○	●
		○	○
●	●	○	●

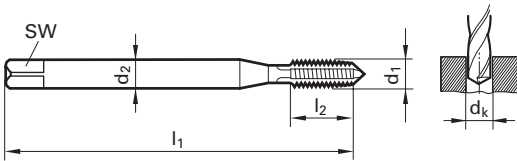
● Australian stock item ○ German stock item

○ bright ● steam tempered ● nitrided ● P AlCrN ● S TiN ● C TiCN ● Cb Carbo ● X TiAlN-X

●● universal ●● general steel ●● tool steel ●● stainless steel ●● Aluminium ●● cast materials



Guhring no.	2892/2893	8371
Standard	DIN 371/DIN 376	DIN 371/376
Tool material	HSS-E	
Surface	●	● S
Type	N	N
Form	B	B
Cutting direction	right-hand	right-hand
Application	●	●
Cutting speed m/min	10-15	10-15



d1	P	d2	SW	dk	l1	l2	Code
inch	inch	mm	mm	mm	mm	mm	no.
W1/8	40	3.50	2.70	2.50	56.00	11.00	3.175
W5/32	32	4.50	3.40	3.20	63.00	13.00	3.969
W3/16	24	6.00	4.90	3.60	70.00	11.00	4.762
W1/4	20	7.00	5.50	5.10	80.00	13.00	6.350
W5/16	18	8.00	6.20	6.50	90.00	14.00	7.938
W3/8	16	10.00	8.00	7.90	100.00	20.00	9.525
W7/16	14	8.00	6.20	9.20	100.00	22.00	11.113
W1/2	12	9.00	7.00	10.50	110.00	25.00	12.700
W9/16	12	11.00	9.00	12.00	110.00	30.00	14.287
W5/8	11	12.00	9.00	13.50	110.00	30.00	15.876
W3/4	10	14.00	11.00	16.25	125.00	33.00	19.051
W7/8	9	18.00	14.50	19.25	140.00	35.00	22.226
W1	8	18.00	14.50	22.00	160.00	38.00	25.401

AVAILABILITY	
●2892	●
●2892	●
●2892	●
●2892	●
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●2893	●
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●2893	●
●2893	●

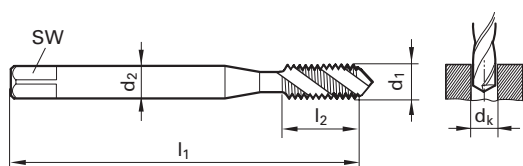
● Australian stock item ○ German stock item

○ bright ● steam tempered ● nitrided ● AICrN ● S TiN ● C TiCN ● Cb Carbo

●● universal ● general steel ● tool steel ● stainless steel ● Aluminium ● cast materials

Guhring no.	2847/2848	8352
Standard	DIN 371/DIN376	
Tool material	HSS-E	
Surface		
Type	N	N
Form	C	C
Cutting direction	right-hand	right-hand
Application		
Cutting speed m/min	10-15	10-15

TAPS



d1	P	d2	SW	dk	l1	l2	Code
inch	inch	mm	mm	mm	mm	mm	no.
W1/8	40	3.50	2.70	2.50	56.00	7.00	3.175
W3/16	24	6.00	4.90	3.60	70.00	11.00	4.762
W1/4	20	7.00	5.50	5.10	80.00	13.00	6.350
W5/16	18	8.00	6.20	6.50	90.00	14.00	7.938
W3/8	16	10.00	8.00	7.90	100.00	16.00	9.525
W7/16	14	8.00	6.20	9.20	100.00	18.00	11.113
W1/2	12	9.00	7.00	10.50	110.00	20.00	12.700
W9/16	12	11.00	9.00	12.00	110.00	21.00	14.287
W5/8	11	12.00	9.00	13.50	110.00	24.00	15.876
W3/4	10	14.00	11.00	16.25	125.00	25.00	19.051
W7/8	9	18.00	14.50	19.25	140.00	38.00	22.226
W1	8	18.00	14.50	22.00	160.00	32.00	25.401

AVAILABILITY	
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•2848	○

• Australian stock item ○ German stock item

○ bright ● steam tempered ● nitrided ● AICrN ● S TiN ● C TiCN ● Cb Carbo ● X TiAlN-X

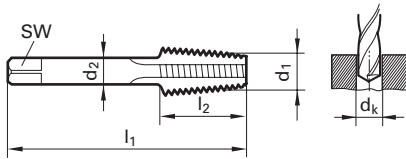
●● universal ●● general steel ●● tool steel ●● stainless steel ●● Aluminium ●● cast materials



MACHINE TAPS FOR BSPT THREADS

TAPS

Guhring no.	5007	4683
Standard	Guhring std.	
Tool material	HSS-E	HSS-PM
Surface	○	ⓐ
Cutting direction	right-hand	right-hand
Tolerance		
Application	●	●
Cutting speed m/min	5-10	5-10



d1	P	d2	SW	dk	l1	l2	Code
inch	inch	mm	mm	mm	mm	mm	no.
Rc1/8	28	7.00	5.50	8.40	63.00	15.00	9.728
Rc1/4	19	11.00	9.00	11.20	63.00	21.00	13.157
Rc3/8	19	12.00	9.00	14.75	70.00	21.00	16.662
Rc1/2	14	16.00	12.00	18.25	80.00	27.00	20.955
Rc3/4	14	20.00	16.00	23.75	100.00	27.00	26.441
Rc1	11	25.00	20.00	30.00	110.00	32.00	33.249
Rc1/8	28	7.00	5.50	8.40	90.00	35.00	9.728
Rc1/4	19	11.00	9.00	11.20	100.00	40.00	13.157
Rc3/8	19	12.00	9.00	14.75	100.00	44.00	16.662
Rc1/2	14	16.00	12.00	18.25	125.00	44.00	20.955
Rc3/4	14	20.00	16.00	23.75	140.00	53.00	26.441
Rc1	11	25.00	20.00	30.00	140.00	56.00	33.249

AVAILABILITY	
● 302617274	
● 302617275	
● 302617276	
● 302617277	
● 302617278	
● 302617279	
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● Australian stock item ○ German stock item

○ bright ● steam tempered ● nitrided ● AICrN ● S TiN ● C TiCN ● Cb Carbo

●● universal ●● general steel ●● tool steel ●● stainless steel ●● Aluminium ●● cast materials

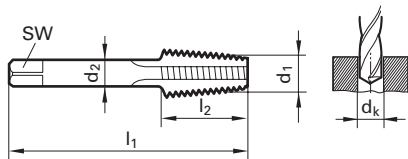


Guhring no.	973	1088	4127
Standard	Guhring std.		
Tool material	HSS-E		
Surface	○	● S	● S
Type	N	VA	N
Form	C	C	C
Cutting direction	right-hand	right-hand	right-hand
Application	●	●	●
Cutting speed m/min	5-10	3-8	3-8

NPT

NPT

NPTF (dry seal)



d1	P	d2	SW	dk	l1	l2	Code
inch	inch	mm	mm	mm	mm	mm	no.
1/16	27	6.00	4.90	6.15	56.00	14.00	8.190
1/8	27	7.00	5.50	8.40	63.00	15.00	10.620
1/4	18	11.00	9.00	11.10	63.00	21.00	14.140
3/8	18	12.00	9.00	14.30	70.00	21.00	17.570
1/2	14	16.00	12.00	17.90	80.00	27.00	21.900
3/4	14	20.00	16.00	23.30	100.00	27.00	27.230
1	11.5	25.00	20.00	29.00	110.00	32.00	34.180
1 1/4	11.5	32.00	24.00	37.70	125.00	33.00	42.900
1 1/2	11.5	36.00	29.00	43.70	140.00	33.00	48.940
2	11.5	36.00	29.00	55.60	160.00	33.00	61.000
1/16	27	8.00	6.20	6.25	90.00	14.00	8.190
1/8	27	11.00	9.00	8.50	90.00	15.00	10.620
1/4	18	14.00	11.00	11.20	100.00	21.00	14.140
3/8	18	16.00	12.00	14.40	110.00	21.00	17.570
1/2	14	18.00	14.50	18.00	125.00	27.00	21.900
3/4	14	22.00	18.00	23.40	140.00	27.00	27.230
1	11.5	25.00	20.00	29.10	170.00	32.00	34.180

AVAILABILITY		
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○	○	○

● Australian stock item ○ German stock item

○ bright ● steam tempered ● nitrided ● AlCrN ● S TiN ● C TiCN ● Cb Carbo

● ● universal ● general steel ● tool steel ● stainless steel ● Aluminium ● cast materials

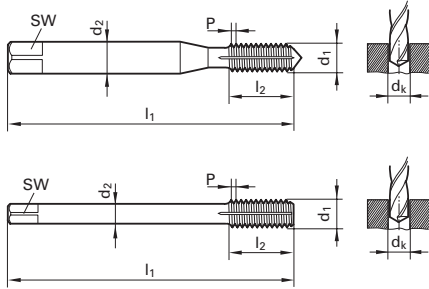


FLUTELESS MACHINE TAPS FOR METRIC THREADS (THREAD FORMERS)



TAPS

Guhring no.	782/793	5598/5599	8088	1587/1589	4487	4485
Standard	DIN 371	DIN 371/376	DIN 371	DIN 371	DIN 371	DIN 371/376
Tool material	HSS-E				HSS-E-PM	
Surface						
Type	N	N	AL	N	N	N
Form	C	C	C	C	C	C
Cutting direction	right-hand	right-hand	right-hand	right-hand	right-hand	right-hand
Tolerance	6HX	6HX	6HX	6HX	4HX/6HX	6HX
Application						
Cutting speed m/min	12-18	10-15	12-18	6-12	6-30	6-12



d1	P	d2	SW	dk	l1	l2	AVAILABILITY							
mm	mm	mm	mm	mm	mm	mm								
M1	0.25	2.50	2.10	0.90	40.00	4.00								
M1.2	0.25	2.50	2.10	1.10	40.00	4.80								
M1.4	0.30	2.50	2.10	1.28	40.00	5.60								
M1.6	0.35	2.50	2.10	1.46	40.00	6.40								
M1.7	0.35	2.50	2.10	1.55	40.00	6.80								
M1.8	0.35	2.50	2.10	1.66	40.00	7.20								
M2	0.40	2.80	2.10	1.80	45.00	8.00								
M2.5	0.45	2.80	2.10	2.30	50.00	9.00								
M3	0.50	3.50	2.70	2.80	56.00	10.00								
M3.5	0.60	4.00	3.00	3.25	56.00	12.00								
M4	0.70	4.50	3.40	3.70	63.00	12.00								
M5	0.80	6.00	4.90	4.65	70.00	14.00								
M6	1.00	6.00	4.90	5.55	80.00	16.00								
M8	1.25	8.00	6.20	7.40	90.00	18.00								
M10	1.50	10.00	8.00	9.25	100.00	20.00								
M12	1.75	9.00	7.00	11.25	110.00	24.00								
M14	2.00	11.00	9.00	13.10	110.00	26.00								
M16	2.00	12.00	9.00	15.10	110.00	26.00								
M20	2.50	16.00	12.00	18.90	140.00	32.00								

• Australian stock item ○ German stock item

bright steam tempered nitrided AlCrN TiN TiCN Carbo+ Sirius

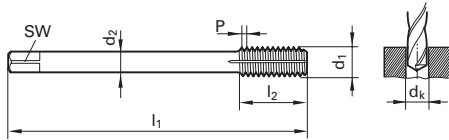
universal general steel tool steel stainless steel Aluminium cast materials

FLUTELESS MACHINE TAPS FOR ISO METRIC FINE THREADS (THREAD FORMERS)



Guhring no.	8101	4489
Standard	DIN 371/374	DIN 374
Tool material	HSS-E	HSS-E-PM
Surface	P	C
Type	INOX PRO	N
Form	C	C
Cutting direction	right-hand	right-hand
Tolerance	6HX	6HX
Application	●	●
Cutting speed m/min	10-15	10-15

TAPS



d1	P	d2	SW	dk	l1	l2	l5	Code
mm	mm	mm	mm	mm	mm	mm	mm	no.
M3	0.35	2.20	1.80	2.85	56.00	7.00	18.00	3.002
M4	0.35	2.80	2.10	3.85	63.00	8.00	21.00	4.002
M4	0.50	2.80	2.10	3.80	63.00	8.00	21.00	4.003
M5	0.50	3.50	2.70	4.80	70.00	10.00	25.00	5.003
M6	0.50	4.50	3.40	5.75	80.00	13.00	30.00	6.003
M6	0.75	4.50	3.40	5.65	80.00	13.00	30.00	6.004
M8	0.75	6.00	4.90	7.65	80.00	14.00	30.00	8.004
M8	1.00	8.00	6.20	7.55	90.00	11.20	35.00	8.005
M9	1.00	7.00	5.50	8.55	80.00	16.00	35.00	9.005
M10	0.75	7.00	5.50	9.65	90.00	16.00	35.00	10.004
M10	1.00	7.00	5.50	9.55	90.00	16.00	35.00	10.005
M10	1.25	7.00	5.50	9.40	90.00	20.00	39.00	10.006
M11	1.00	8.00	6.20	10.55	100.00	20.00	33.00	11.005
M12	1.00	9.00	7.00	11.55	100.00	20.00	40.00	12.005
M12	1.25	9.00	7.00	11.40	100.00	20.00	40.00	12.006
M12	1.50	9.00	7.00	11.30	100.00	20.00	40.00	12.007
M14	1.00	11.00	9.00	13.55	100.00	20.00	40.00	14.005
M14	1.25	11.00	9.00	13.40	100.00	20.00	40.00	14.006
M14	1.50	11.00	9.00	13.30	100.00	20.00	40.00	14.007
M16	1.00	12.00	9.00	15.55	100.00	20.00	40.000	16.005
M16	1.50	12.00	9.00	15.30	100.00	22.00	44.00	16.007
M18	1.00	14.00	9.00	17.55	100.00	22.00	44.00	18.005
M18	1.50	14.00	11.00	17.30	110.00	25.00	44.00	18.007
M18	2.00	14.00	11.00	17.10	125.00	25.00	44.00	18.008
M20	1.00	16.00	12.00	19.55	125.00	30.00	58.00	20.005
M20	1.50	16.00	12.00	19.30	125.00	25.00	44.00	20.007
M20	2.00	16.00	12.00	19.10	140.00	32.00	60.00	20.008
M22	1.00	18.00	14.50	21.55	140.00	25.00	44.00	22.005
M22	1.50	18.00	14.50	21.30	125.00	25.00	44.00	22.007
M22	2.00	18.00	14.50	21.10	125.00	32.00	62.00	22.008
M24	1.00	18.00	14.50	23.55	140.00	28.00	48.00	24.005
M24	1.50	18.00	14.50	23.30	140.00	28.00	48.00	24.007
M24	2.00	18.00	14.50	23.10	140.00	28.00	48.00	24.008

● Australian stock item ○ German stock item

○ bright ● steam tempered ● nitrided ● P AlCrN ● S TiN ● C TiCN ● Cb Carbo ● S Sirius

●● universal ● general steel ● tool steel ● stainless steel ● Aluminium ● cast materials



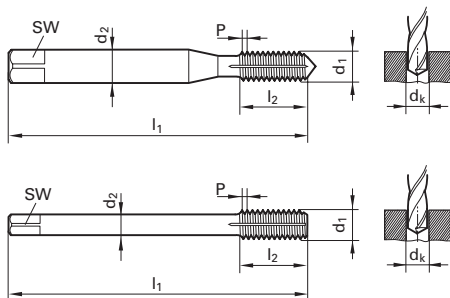
FLUTELESS MACHINE TAPS FOR UNC THREADS (THREAD FORMERS)

THROUGH HOLE

BLIND HOLE

TAPS

Guhring no.	4491
Standard	DIN 371 / DIN 376
Tool material	HSS-E-PM
Surface	C
Type	N
Form	C
Cutting direction	right-hand
Tolerance	2BX
Application	
Cutting speed m/min	6-30



d1	P	d2	SW	dk	l1	l2	Code
inch	inch	mm	mm	mm	mm	mm	no.
No.4	40	3.50	2.70	2.55	56.00	11.00	2.845
No.6	32	4.00	3.00	3.15	56.00	12.00	3.505
No.8	32	4.50	3.40	3.80	63.00	12.00	4.166
No.10	24	6.00	4.90	4.35	70.00	14.00	4.826
No.12	24	6.00	4.90	5.00	80.00	16.00	5.486
1/4	20	7.00	5.50	5.75	80.00	16.00	6.350
5/16	18	8.00	6.20	7.30	90.00	18.00	7.938
3/8	16	10.00	8.00	8.80	90.00	20.00	9.525
7/16	14	8.00	6.20	10.30	100.00	22.00	11.113
1/2	13	9.00	7.00	11.80	100.00	25.00	12.700
9/16	12	11.00	9.00	13.30	100.00	28.00	14.288
5/8	11	12.00	9.00	14.80	100.00	30.00	15.875
3/4	10	14.00	11.00	17.90	110.00	33.00	19.050

AVAILABILITY	
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• Australian stock item ○ German stock item

○ bright ● steam tempered ● nitrided ● P AlCrN ● S TiN ● C TiCN ● Cb Carbo ● S Sirius

● universal ● general steel ● tool steel ● stainless steel ● Aluminium ● cast materials

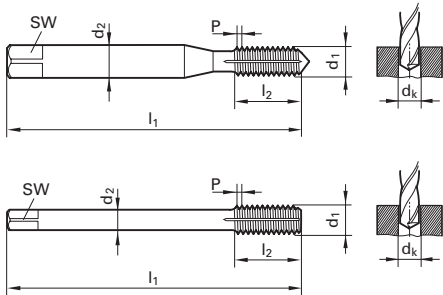
FLUTELESS MACHINE TAPS FOR UNF THREADS (THREAD FORMERS)

THROUGH HOLE BLIND HOLE



Guhring no.	4492
Standard	DIN 371 / DIN 374
Tool material	HSS-E-PM
Surface	C
Type	N
Form	C
Cutting direction	right-hand
Tolerance	2BX
Application	●
Cutting speed m/min	6-30

TAPS



d1	P	d2	SW	dk	l1	l2	Code	AVAILABILITY
inch	inch	mm	mm	mm	mm	mm	no.	
No.4	48	3.50	2.70	2.60	56.00	10.00	2.845	•
No.6	40	4.00	3.00	3.20	56.00	11.00	3.505	•
No.8	36	4.50	3.40	3.85	63.00	12.00	4.166	•
No.10	32	6.00	4.90	4.45	70.00	14.00	4.826	•
No.12	28	6.00	4.90	5.10	80.00	16.00	5.486	•
1/4	28	7.00	5.50	5.95	80.00	16.00	6.350	•
5/16	24	8.00	6.20	7.45	90.00	18.00	7.938	•
3/8	24	10.00	8.00	9.05	100.00	18.00	9.525	•
7/16	20	8.00	6.20	10.55	100.00	22.00	11.113	•
1/2	20	9.00	7.00	12.10	100.00	20.00	12.700	•
9/16	18	11.00	9.00	13.65	100.00	22.00	14.288	•
5/8	18	12.00	9.00	15.25	100.00	22.00	15.875	•
3/4	16	14.00	11.00	18.35	110.00	25.00	19.050	•

• Australian stock item ◦ German stock item

○ bright ● steam tempered ● nitrided ● AICrN ● S TiN ● C TiCN ● Cb Carbo ● S Sirius

● universal ● general steel ● tool steel ● stainless steel ● Aluminium ● cast materials

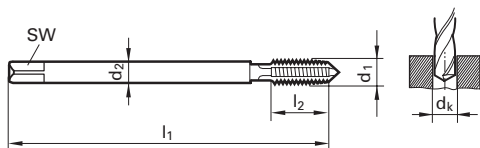


METRIC RECOIL FLUTELESS TAP (THREAD FORMERS)



TAPS

Guhring no.	5010
Standard	DIN 40435
Tool material	HSS-E
Surface	
Type	N
Form	C
Cutting direction	right-hand
Tolerance	6H
Application	
Cutting speed m/min	10-15



d1	P	d2	SW	dk	l1	l2
inch	inch	mm	mm	mm	mm	mm
M2.5	0.45	3.50	2.70	2.90	56.00	10.00
M3	0.50	4.00	3.00	3.45	56.00	11.50
M4	0.70	6.00	4.90	4.60	70.00	14.00
M6	1.00	8.00	6.20	6.85	90.00	16.00
M8	1.25	10.00	8.00	9.05	100.00	20.00

AVAILABILITY	
•	303502990
•	303502991
•	303503092
•	303503093
•	303503094

• Australian stock item ○ German stock item

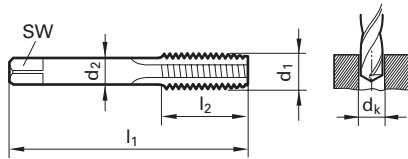
- bright
 - steam tempered
 - nitrided
 - P AlCrN
 - S TiN
 - C TiCN
 - Cb Carbo
 - S Sirius
-
- universal
 - general steel
 - tool steel
 - stainless steel
 - Aluminium
 - cast materials

Guhring no.	861	862	863	864
Standard	DIN 352			
Tool material	HSS			
Surface	○	○	○	○
Type	N	N	N	N
Description	Set of taps	First	Second	Bottoming
Cutting direction	right-hand	right-hand	right-hand	right-hand
Tolerance	ISO 2 / 6H	ISO 2 / 6H	ISO 2 / 6H	ISO 2 / 6H

FIRST AND SECOND TAP IS UNDERSIZE

UNDERSIZE

UNDERSIZE



d1	P	d2	SW	dk	l1	l2	AVAILABILITY			
mm	mm	mm	mm	mm	mm	mm				
M3	0.50	3.50	2.70	2.50	40.00	10.00	•	•	•	•
M4	0.70	4.50	3.40	3.30	45.00	12.00	•	•	•	•
M5	0.80	6.00	4.90	4.20	50.00	14.00	•	•	•	•
M6	1.00	6.00	4.90	5.00	56.00	16.00	•	•	•	•
M8	1.25	6.00	4.90	6.80	63.00	17.00	•	•	•	•
M10	1.50	7.00	5.50	8.50	70.00	20.00	•	•	•	•
M12	1.75	9.00	7.00	10.20	75.00	24.00	•	•	•	•
M14	2.00	11.00	9.00	12.00	80.00	26.00	•	•	•	•
M16	2.00	12.00	9.00	14.00	80.00	26.00	•	•	•	•
M18	2.50	14.00	11.00	15.50	95.00	30.00	•	•	•	•
M20	2.50	16.00	12.00	17.50	95.00	32.00	•	•	•	•
M24	3.00	18.00	14.50	21.00	110.00	36.00	•	•	•	•

• Australian stock item ◦ German stock item

○ bright ◐ steam tempered ● nitrided ● P AlCrN ● S TiN ● C TiCN ● Cb Carbo

● universal ● general steel ● tool steel ● stainless steel ● Aluminium ● cast materials



HAND TAPS FOR METRIC THREADS (NON-SERIAL TAPS)

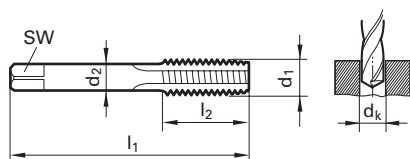
THROUGH HOLE

BLIND HOLE

TAPS

Guhring no.	861NS	863NS	864NS
Standard	DIN 352		
Tool material	HSS		
Surface	○	○	○
Type	N	N	N
Description	Set of taps	Second	Bottoming
Cutting direction	right-hand	right-hand	right-hand
Tolerance	ISO 2 / 6H	ISO 2 / 6H	ISO 2 / 6H

STANDARD FULL FORM



d1	P	d2	SW	dk	l1	l2
mm	mm	mm	mm	mm	mm	mm
M3	0.50	3.50	2.70	2.50	40.00	10.00
M4	0.70	4.50	3.40	3.30	45.00	12.00
M5	0.80	6.00	4.90	4.20	50.00	14.00
M6	1.00	6.00	4.90	5.00	56.00	16.00
M8	1.25	6.00	4.90	6.80	63.00	17.00
M10	1.50	7.00	5.50	8.50	70.00	20.00
M12	1.75	9.00	7.00	10.20	75.00	24.00
M16	2.00	12.00	9.00	14.00	80.00	26.00

AVAILABILITY		
•377028040	•377028048	•377028056
•377028041	•377028049	•377028057
•377028042	•377028050	•377028058
•377028043	•377028051	•377028059
•377028044	•377028052	•377028060
•377028045	•377028053	•377028061
•377028046	•377028054	•377028062
•377028047	•377028055	•377028063

• Australian stock item ○ German stock item

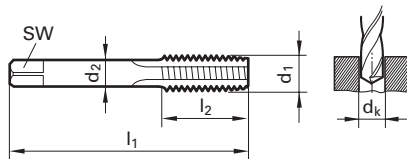
○ bright ● steam tempered ● nitrided ● AICrN ● S TiN ● C TiCN ● Cb Carbo ● S Sirius

● universal ● general steel ● tool steel ● stainless steel ● Aluminium ● cast materials

Guhring no.	981	984
Standard	DIN 352	
Tool material	HSS	
Surface	○	○
Type	N	N
Description	Set of taps	Bottoming
Cutting direction	right-hand	right-hand
Tolerance	2B	2B

TAPS

**FIRST AND SECOND
TAP IS UNDERSIZE**



d1	P	d2	SW	dk	l1	l2	Code	AVAILABILITY	
inch	inch	mm	mm	mm	mm	mm	no.		
No.4	40	3.50	2.70	2.35	40.00	11.00	2.845		•
No.5	40	4.00	3.00	2.65	40.00	11.00	3.175		•
No.6	32	4.00	3.00	2.85	45.00	12.00	3.505	•	•
No.8	32	4.50	3.40	3.50	45.00	13.00	4.166	•	•
No.10	24	6.00	4.90	3.90	50.00	14.00	4.826	•	•
1/4	20	6.00	4.90	5.10	56.00	16.00	6.350	•	•
5/16	18	6.00	4.90	6.60	63.00	18.00	7.938	•	•
3/8	16	7.00	5.50	8.00	70.00	20.00	9.525	•	•
7/16	14	8.00	6.20	9.40	70.00	22.00	11.113	•	•
1/2	13	9.00	7.00	10.80	75.00	25.00	12.700	•	•
9/16	12	11.00	9.00	12.20	80.00	30.00	14.288	•	•
5/8	11	12.00	9.00	13.50	80.00	30.00	15.875	•	•
3/4	10	16.00	12.00	16.50	95.00	33.00	19.050	•	•
7/8	9	18.00	14.50	19.50	100.00	25.00	22.225	•	•
1	8	18.00	14.50	22.25	110.00	38.00	25.400	•	•
1 1/8	7	22.00	18.00	25.00	125.00	44.00	28.575	•	•
2	4.5	40.00	32.00	45.00	180.00	65.00	50.800	•	•

• Australian stock item ○ German stock item

○ bright ● steam tempered ● nitrided ● AlCrN ● TiN ● TiCN ● Carbo

● universal ● general steel ● tool steel ● stainless steel ● Aluminium ● cast materials



HAND TAPS FOR UNF THREADS (SERIAL TAPS)

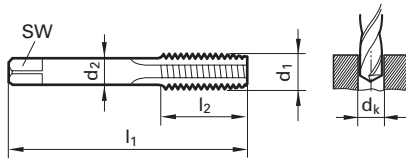
THROUGH
HOLE

BLIND
HOLE

TAPS

Guhring no.	985	987
Standard	DIN 2181	
Tool material	HSS	
Surface	○	○
Type	N	N
Description	Set of taps	Bottoming
Cutting direction	right-hand	right-hand
Tolerance	2B	2B

FIRST TAP IS UNDERSIZE



d1	P	d2	SW	dk	l1	l2	Code
inch	inch	mm	mm	mm	mm	mm	no.
No.10	32	6.00	4.90	4.10	50.00	14.00	4.826
1/4	28	6.00	4.90	5.50	56.00	17.00	6.350
5/16	24	6.00	4.90	6.90	63.00	17.00	7.938
3/8	24	7.00	5.50	8.50	63.00	18.00	9.525
7/16	20	8.00	6.20	9.90	70.00	20.00	11.113
1/2	20	9.00	7.00	11.50	70.00	20.00	12.700
5/8	18	12.00	9.00	14.50	70.00	20.00	15.875

AVAILABILITY

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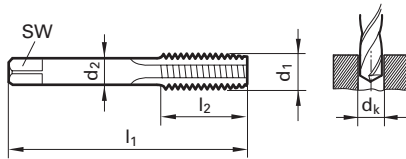
• Australian stock item ○ German stock item

○ bright ● steam tempered ● nitrided ● AICrN ● S TiN ● C TiCN ● Carbo

● universal ● general steel ● tool steel ● stainless steel ● Aluminium ● cast materials

Guhring no.	954	957
Standard	DIN 352	
Tool material	HSS	
Surface		
Type	N	N
Description	Set of taps	Bottoming
Cutting direction	right-hand	right-hand
Tolerance		

FIRST AND SECOND TAP IS UNDERSIZE



d1	P	d2	SW	dk	l1	l2	Code
inch	inch	mm	mm	mm	mm	mm	no.
W3/16	24	6.00	4.90	3.60	50.00	14.00	4.762
W1/4	20	6.00	4.90	5.10	56.00	16.00	6.350
W5/16	18	6.00	4.90	6.50	63.00	18.00	7.938
W3/8	16	7.00	5.50	7.90	70.00	20.00	9.525
W1/2	12	9.00	7.00	10.50	75.00	25.00	12.700

AVAILABILITY	
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• Australian stock item ◦ German stock item



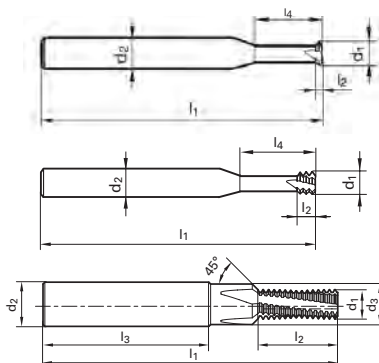
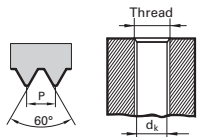
GUHRING

THREAD MILLING CUTTERS

*LEADER IN PROCESS RELIABILITY
AND THREAD QUALITY*



Guhring no.	4225	4226	4133
Standard	Guhring std.		
Tool material	Solid carbide		
Carbide grade	K/P	K/P	K/P
Surface	S	S	S
Cutting direction	right-hand	right-hand	right-hand
Type	MTM1 SP	SP M	TMSP
Thread length	3 x D	3 x D	2 x D
Cutting speed m/min	50-100	50-100	50-100


4225
4226
4133


Thread	P	d1	d2	l1	l2	l4	Code
mm	mm	mm	mm	mm	mm	mm	no.
M1-1.1	0.25	0.70	3.00	39.00	0.25	3.40	1.100
M1.2	0.25	0.90	3.00	39.00	0.25	3.70	1.200
M1.4-1.8	0.35	1.05	3.00	39.00	0.40	3.80	1.800
M2-2.4	0.40	1.50	3.00	39.00	0.40	7.00	2.400
M2.5-3	0.50	2.00	3.00	39.00	0.50	9.00	3.000
M3.5-4.5	0.75	2.80	6.00	58.00	0.80	14.00	4.500
M5-7	1.00	4.00	6.00	58.00	1.00	19.00	7.000
M8-10	1.50	6.40	8.00	64.00	1.50	24.00	10.000
M12-14	2.00	9.00	12.00	84.00	1.80	36.00	14.000
M16-20	2.50	13.00	14.00	100.00	2.20	50.00	20.000
M1.6	0.35	1.20	3.00	39.00	1.10	4.80	1.600
M1.8	0.35	1.40	3.00	39.00	1.10	5.40	1.800
M2	0.40	1.55	3.00	39.00	1.20	6.00	2.000
M2.5	0.45	1.95	3.00	39.00	1.40	7.50	2.500
M3	0.50	2.40	6.00	58.00	1.50	9.50	3.000
M3.5	0.60	2.80	6.00	58.00	1.80	11.00	3.500
M4	0.70	3.20	6.00	58.00	2.10	12.50	4.000
M5	0.80	4.00	6.00	58.00	2.40	16.00	5.000
M6	1.00	4.80	6.00	58.00	3.00	20.00	6.000
M8	1.25	5.95	6.00	58.00	3.80	24.00	8.000
M10	1.50	7.80	8.00	73.00	4.50	33.00	10.000
M12	1.75	9.00	10.00	84.00	5.30	38.00	12.000
M16	2.00	11.80	12.00	84.00	6.00	35.00	16.000
M20	2.50	15.00	16.00	105.00	7.50	51.00	20.000
M6	1.00	4.80	6.00	54.00	13.50		6.000
M8	1.25	6.40	8.00	62.00	18.10		8.000
M10	1.50	7.95	10.00	74.00	21.80		10.000
M12	1.75	9.95	10.00	74.00	25.40		12.000
M14	2.00	11.20	12.00	90.00	31.00		14.000
M16	2.00	12.80	14.00	90.00	35.00		16.000
M20	2.50	14.95	16.00	102.00	41.30		20.000

AVAILABILITY

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● Australian stock item ○ German stock item

○ bright
 ● steam tempered
 ● nitrided
 ● P AlCrN
 ● S TiN
 ● C TiCN
 ● Cb Carbo
 ● S Sirius

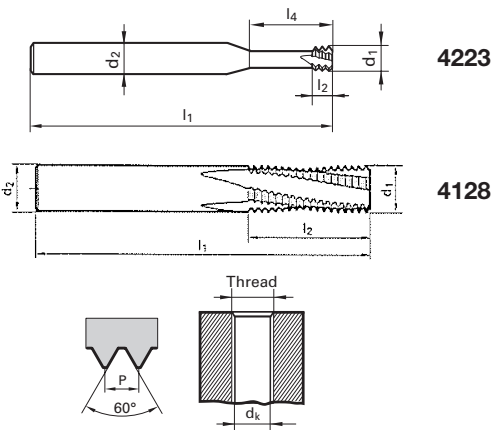
● universal
 ● general steel
 ● tool steel
 ● stainless steel
 ● Aluminium
 ● cast materials



THREAD MILLING CUTTER FOR UNC-THREADS

THREAD MILLING

Guhring no.	4223	4128
Standard	Guhring std.	
Tool material	Solid carbide	
Carbide grade	K/P	K/P
Surface	S	S
Cutting direction	right-hand	right-hand
Type	MTM3 SP	TMSP
Thread length	3 x D	2 x D
Application		
Cutting speed m/min	50-100	50-100



Thread	P	d1	d2	dk	l1	l2	z	Code	AVAILABILITY	
inch	inch	mm	mm	mm	mm	mm		no.		
No. 3	56	1.65	3.00		39.00	1.40	4	2.184		o
No. 4	48	1.90	3.00		39.00	1.60	4	2.515		o
No. 4	40	2.10	6.00		58.00	1.90	4	2.845		o
No. 6	40	2.45	6.00		58.00	1.90	4	3.175		o
No. 6	32	2.55	6.00		58.00	2.40	4	3.505		o
No. 8	32	3.20	6.00		58.00	2.40	4	4.166		o
No. 10	32	3.70	6.00		58.00	2.40	4	4.825		o
No.10&11	24	3.50	6.00		58.00	3.20	4	4.826		o
1/4	20	4.75	6.00		58.00	3.80	4	6.350		o
5/16	18	6.00	6.00		58.00	4.20	4	7.938		o
3/8	16	6.70	8.00		64.00	4.80	4	9.525		o
7/16	20	8.00	8.00		64.00	3.80	4	11.112		o
7/16	14	7.70	8.00		64.00	4.40	4	11.113		o
1/2	13	9.95	10.00		73.00	5.90	4	12.701		o
5/8	11	12.00	12.00		84.00	6.90	4	15.875		o
No. 10	24	3.45	6.35	3.91	63.50	11.09	3	4.826		o
No. 12	24	4.09	6.35	4.50	63.50	12.19	3	5.486		o
1/4	20	4.70	6.35	5.10	63.50	14.60	3	6.350		o
5/16	18	6.15	6.35	6.57	63.50	17.60	3	7.938		•
3/8	16	7.65	7.94	8.00	63.50	21.41	3	9.525		•
7/16	14	8.99	9.52	9.40	76.20	24.51	3	11.113		•
1/2	13	9.42	9.52	10.80	76.20	28.59	3	12.700		•
9/16	12	11.40	12.70	12.19	95.30	30.70	4	14.288		•
5/8	11	12.60	12.70	13.48	95.30	35.78	4	15.875		•
3/4	10	15.77	15.87	16.51	108.00	39.40	4	19.050		o
7/8	9	15.77	15.87	19.50	108.00	46.60	4	22.225		o
1"	8	15.77	15.87	22.25	108.00	49.19	4	25.400		o

• Australian stock item o German stock item

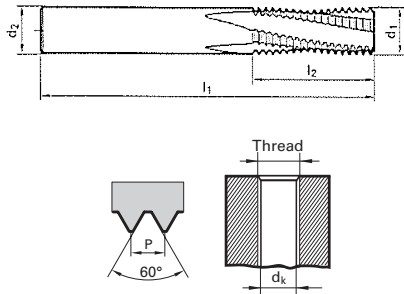
○ bright ● steam tempered ● nitrided ● P AlCrN ● S TiN ● C TiCN ● Cb Carbo ● S Sirius

● ● universal ● general steel ● tool steel ● stainless steel ● Aluminium ● cast materials



Guhring no.	4129
Standard	Guhring std.
Tool material	Solid carbide
Carbide grade	K/P
Surface	S
Cutting direction	right-hand
Type	TMSP
Thread length	2 x D
Application	●
Cutting speed m/min	50-100

THREAD MILLING



Thread	P	d1	d2	dk	l1	l2	z	Code	AVAILABILITY
inch	inch	mm	mm	mm	mm	mm		no.	
No. 10	32	3.81	6.35	4.08	63.50	11.50	3	4.826	○
No. 12	28	4.29	6.35	4.60	63.50	12.19	3	5.486	○
1/4	28	5.15	6.35	5.51	63.50	14.09	3	6.350	●
5/16	24	6.14	6.35	6.88	63.50	17.50	3	7.938	●
3/8	24	7.84	7.94	8.50	63.50	20.60	3	9.525	●
7/16	20	9.42	9.52	9.90	76.20	24.79	3	11.113	●
1/2	20	9.42	9.52	11.50	76.20	27.30	3	12.700	●
9/16	18	11.40	12.70	12.90	95.30	30.30	4	14.288	●
5/8	18	12.60	12.70	14.50	108.00	33.19	4	15.875	●
3/4	16	15.77	15.87	17.50	108.00	38.88	4	19.050	○
7/8	14	15.77	15.87	20.40	108.00	46.30	4	22.225	○
1"	12	15.77	15.87	23.24	108.00	45.49	4	25.400	○

● Australian stock item ○ German stock item

○ bright
 ● steam tempered
 ● nitrided
 ● P AlCrN
 ● S TiN
 ● C TiCN
 ● Cb Carbo
 ● S Sirius

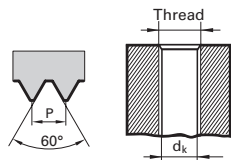
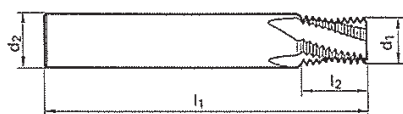
● universal
 ● general steel
 ● tool steel
 ● stainless steel
 ● Aluminium
 ● cast materials



THREAD MILLING CUTTER FOR NPT/NPTF THREADS

THREAD MILLING

Guhring no.	4130	4131
Standard	Guhring std.	
Tool material	Solid carbide	
Carbide grade	K/P	K/P
Surface	S	S
Cutting direction	right-hand	right-hand
Type	TMSP	TMSP
Thread length	2 x D	2 x D
Application	●	●
Cutting speed m/min	50-100	50-100



NPT



NPTF (dry seal)

Thread	P	d1	d2	dk	l1	l2	z	Code
inch	inch	mm	mm	mm	mm	mm		no.
1/16	27	5.41	7.94	6.15	57.15	9.90	3	8.190
1/8	27	7.31	7.94	8.50	57.15	9.90	3	10.620
1/4	18	9.93	12.70	10.99	82.55	14.80	4	14.140
3/8	18	11.20	12.70	14.50	82.55	14.80	4	17.570
1/2	14	14.50	15.87	17.85	88.90	18.99	4	21.900
1"	11 1/2	17.50	19.05	29.00	95.25	23.19	5	34.180

AVAILABILITY	
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<input checked="" type="radio"/>	<input type="radio"/>
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<input type="radio"/>	<input type="radio"/>

● Australian stock item ○ German stock item

○ bright ● steam tempered ● nitrided ● P AlCrN ● S TiN ● C TiCN ● Cb Carbo ● S Sirius

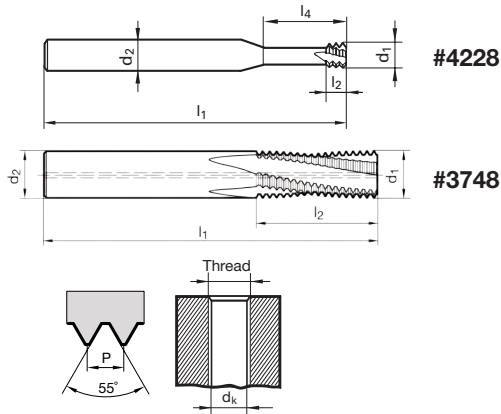
●● universal ● general steel ● tool steel ● stainless steel ● Aluminium ● cast materials

THREAD MILLING CUTTER FOR BSP-THREADS



Guhring no.	4228	3748
Standard	Guhring std.	Guhring std.
Tool material	Solid carbide	Solid carbide
Carbide grade	K/P	K/P
Surface	S	S
Cutting direction	right-hand	right-hand
Type	MTM3 SP	TMSP
Thread length	3 x D	2 x D
Application	●	●
Cutting speed m/min	50-100	50-100

THREAD MILLING



Thread	P	d1	d2	dk	l1	l2	z	Code
inch	inch	mm	mm	mm	mm	mm		no.
G1/8	28.00	7.95	8.00	8.80	64.00	21.30	3	9.728
G1/4	19.00	10.50	12.00	11.80	90.00	28.70	4	13.157
G3/8	19.00	13.60	14.00	15.25	90.00	35.40	4	16.662

G1/16-1/8	28.00	6.20	8.00		64.00	2.70	4	9.728
G1/4-3/8	19.00	9.95	9.95		73.00	4.00	4	16.665
G1/2-7/8	14.00	11.95	11.95		84.00	5.40	4	30.201
G1-G2	11.00	15.95	15.95		105.00	6.90	5	59.614

AVAILABILITY	
	•
	•
	•
	○
	○
	○
	○

• Australian stock item ○ German stock item

○ bright ● steam tempered ● nitrided ● P AlCrN ● S TiN ● C TiCN ● Cb Carbo ● S Sirius

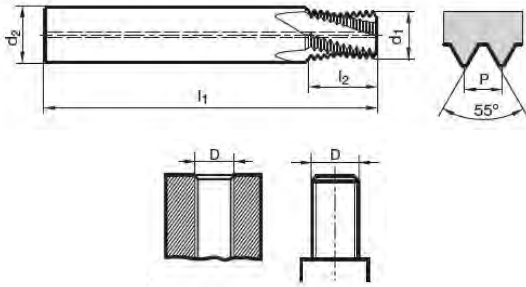
●● universal ●● general steel ●● tool steel ●● stainless steel ●● Aluminium ●● cast materials



UNIVERSAL THREAD MILLING CUTTERS FOR BSPT THREADS

THREAD MILLING

Guhring no.	4770
Standard	Guhring std.
Tool material	Solid carbide
Carbide grade	K/P
Surface	S
Cutting direction	right-hand
Type	TMU SP
Thread length	8,600 mm
Application	●
Cutting speed m/min	50-100



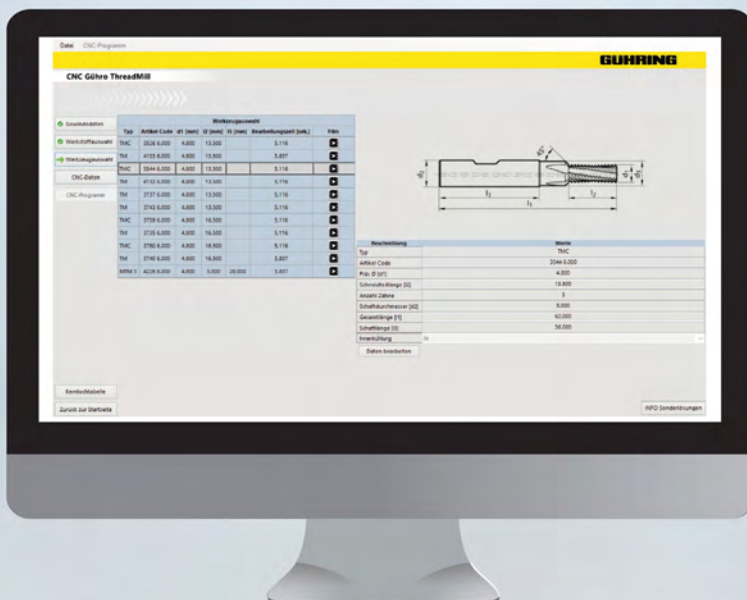
Thread	P	d1	d2	l1	l2	z	Code	AVAILABILITY
inch	inch	mm	mm	mm	mm		no.	
RC1/8	28.00	7.40	8.00	64.00	8.60	3	9.728	○
RC1/4-3/8	19.00	9.12	10.00	74.00	14.04	4	13.157	○
RC1/2-3/4	14.00	14.80	16.00	90.00	19.05	5	20.995	○
RC1-RC2	11.00	18.00	20.00	105.00	33.40	5	33.249	○

● Australian stock item ○ German stock item

○ bright ● steam tempered ● nitrided ● P AlCrN ● S TiN ● C TiCN ● Cb Carbo

●● universal ● general steel ● tool steel ● stainless steel ● Aluminium ● cast materials

GUHRING



CNC Gührö ThreadMill



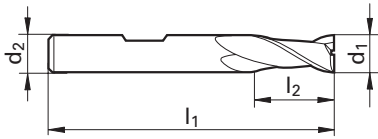
SCAN QR CODE TO
DOWNLOAD SOFTWARE

MILLING





Guhring no.	3451	3453
Standard	DIN 327 D	DIN 844 L
Tool material	M 42	
Surface	○	○
Type	N	N
Length	standard	long
Helix angle	30°	30°
Tolerance	e8/h10	h10



MILLING CUTTERS

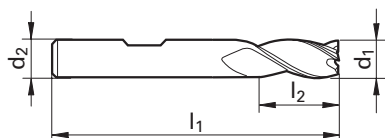
d1	d2	l1	l2	z	AVAILABILITY
mm	mm	mm	mm		
1.000	6.000	47.00	2.00	2	•
1.500	6.000	47.00	3.00	2	•
2.000	6.000	48.00	4.00	2	•
2.500	6.000	49.00	5.00	2	•
3.000	6.000	49.00	5.00	2	•
3.500	6.000	50.00	6.00	2	•
4.000	6.000	51.00	7.00	2	•
5.000	6.000	52.00	8.00	2	•
6.000	6.000	52.00	8.00	2	•
7.000	10.000	60.00	10.00	2	•
8.000	10.000	61.00	11.00	2	•
9.000	10.000	61.00	11.00	2	•
10.000	10.000	63.00	13.00	2	•
11.000	12.000	70.00	13.00	2	•
12.000	12.000	73.00	16.00	2	•
14.000	12.000	73.00	16.00	2	•
15.000	12.000	73.00	16.00	2	•
16.000	16.000	79.00	19.00	2	•
18.000	16.000	79.00	19.00	2	•
20.000	20.000	88.00	22.00	2	•
25.000	25.000	102.00	26.00	2	•
3.00	6.000	56.00	12.00	2	•
4.00	6.000	63.00	19.00	2	•
5.00	6.000	68.00	24.00	2	•
6.00	6.000	68.00	24.00	2	•
8.00	10.000	88.00	38.00	2	•
10.00	10.000	95.00	45.00	2	•
12.00	12.000	110.00	53.00	2	•
14.00	12.000	110.00	53.00	2	•
16.00	16.000	123.00	63.00	2	•
18.00	16.000	123.00	63.00	2	•
20.00	20.000	141.00	75.00	2	•

• Australian stock item ○ German stock item



SLOT DRILLS (3-FLUTED)

Guhring no.	3459	3460
Standard	DIN 844 K	DIN 844 L
Tool material	M 42	
Surface	○	○
Type	N	N
Length	standard	long
Helix angle	30°	30°
Tolerance	e8/h10	h10



MILLING CUTTERS

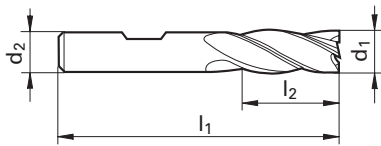
d1	d2	l1	l2	z	AVAILABILITY
mm	mm	mm	mm		
3.000	6.000	52.00	8.00	3	•
4.000	6.000	55.00	11.00	3	•
5.000	6.000	57.00	13.00	3	•
6.000	6.000	57.00	13.00	3	•
7.000	10.000	66.00	16.00	3	•
8.000	10.000	69.00	19.00	3	•
9.000	10.000	69.00	19.00	3	•
10.000	10.000	72.00	22.00	3	•
12.000	12.000	83.00	26.00	3	•
14.000	12.000	83.00	26.00	3	•
16.000	16.000	92.00	32.00	3	•
18.000	16.000	92.00	32.00	3	•
20.000	20.000	104.00	38.00	3	•
3.000	6.000	56.00	12.00	3	•
4.000	6.000	63.00	19.00	3	•
5.000	6.000	68.00	24.00	3	•
6.000	6.000	68.00	24.00	3	•
8.000	10.000	88.00	38.00	3	•
10.000	10.000	95.00	45.00	3	•
12.000	12.000	110.00	53.00	3	•
14.000	12.000	110.00	53.00	3	•
16.000	16.000	123.00	63.00	3	•
18.000	16.000	123.00	63.00	3	•
20.000	20.000	141.00	75.00	3	•

• Australian stock item ○ German stock item

END MILLS (4-FLUTED)



Guhring no.	3428	3431	3433
Standard	DIN 844 K	DIN 844 L	Guhring std.
Tool material	M 42		
Surface	○	○	○
Type	N	N	N
Length	standard	long	extra long
Helix angle	30°	30°	30°
Tolerance	k10	k10	k10



MILLING CUTTERS

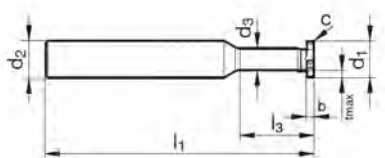
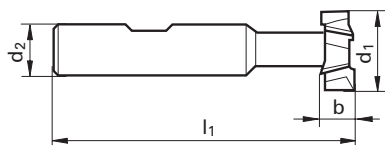
d1	d2	l1	l2	z	AVAILABILITY
mm	mm	mm	mm		
2.000	6.000	51.00	7.00	4	•
2.500	6.000	52.00	8.00	4	•
3.000	6.000	52.00	8.00	4	•
4.000	6.000	55.00	11.00	4	•
5.000	6.000	57.00	13.00	4	•
6.000	6.000	57.00	13.00	4	•
7.000	10.000	66.00	16.00	4	•
8.000	10.000	69.00	19.00	4	•
10.000	10.000	72.00	22.00	4	•
11.000	12.000	79.00	22.00	4	•
12.000	12.000	83.00	26.00	4	•
13.000	12.000	83.00	26.00	4	•
14.000	12.000	83.00	26.00	4	•
16.000	16.000	92.00	32.00	4	•
18.000	16.000	92.00	32.00	4	•
20.000	20.000	104.00	38.00	4	•
25.000	25.000	121.00	45.00	6	•
30.000	25.000	121.00	45.00	6	•
32.000	32.000	133.00	53.00	6	•
3.000	6.000	56.00	12.00	4	•
4.000	6.000	63.00	19.00	4	•
5.000	6.000	68.00	24.00	4	•
6.000	6.000	68.00	24.00	4	•
8.000	10.000	88.00	38.00	4	•
9.000	10.000	88.00	38.00	4	•
10.000	10.000	95.00	45.00	4	•
12.000	12.000	110.00	53.00	4	•
14.000	12.000	110.00	53.00	4	•
16.000	16.000	123.00	63.00	4	•
18.000	16.000	123.00	63.00	4	•
20.000	20.000	141.00	75.00	4	•
25.000	25.000	166.00	90.00	6	•
30.000	25.000	166.00	90.00	6	•
40.000	40.000	217.00	125.00	6	•
6.000	6.000	79.00	40.00	4	•
8.000	10.000	105.00	56.00	4	•
10.000	10.000	112.00	63.00	4	•
12.000	12.000	125.00	71.00	4	•

• Australian stock item ○ German stock item



T-SLOT END MILLS

Guhring no.	3570	6949
Standard	DIN 851	WN
Tool material	HSCO	Solid Carbide
Surface	○	● P
Type	N	6949
Helix angle	10°	10°
Tolerance	d11	h10



MILLING CUTTERS

Code	for	d1	d2	l1	b	z
no.	keyseats	mm	mm	mm	mm	
12.500	6	12.500	10.000	57.00	6.00	6
16.000	8	16.000	10.000	62.00	8.00	6
18.000	10	18.000	12.000	70.00	8.00	6
19.000	10	19.000	12.000	71.00	9.00	6
21.000	12	21.000	12.000	74.00	9.00	8
22.000	12	22.000	12.000	75.00	10.00	8
25.000	14	25.000	16.000	82.00	11.00	8
28.000	16	28.000	16.000	85.00	12.00	8
32.000	18	32.000	16.000	90.00	14.00	8

AVAILABILITY	
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•	

3.801		3.80	6.00	54.00	0.500	3
3.802		3.80	6.00	54.00	1.000	3
5.801		5.80	6.00	54.00	1.000	3
5.802		5.80	6.00	54.00	1.500	3
7.801		7.80	8.00	58.00	1.000	4
7.802		7.80	8.00	58.00	1.500	4
9.801		9.80	10.00	66.00	1.000	4
9.802		9.80	10.00	66.00	1.500	4
11.801		11.80	12.00	83.00	1.500	6
11.802		11.80	12.00	83.00	2.000	6
11.803		11.80	12.00	83.00	2.500	6
11.804		11.80	12.00	83.00	3.000	6

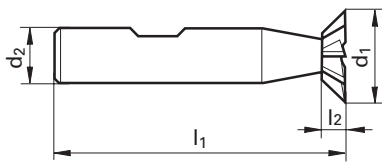
○	
○	
○	
○	
○	
○	
○	
○	
○	
○	
○	
○	

Also Available in:
 Corner Radius = 6950
 Full Radius = 6951

• Australian stock item ○ German stock item



Guhring no.	3572	3574
Standard	DIN 1833	
Tool material	HSCO	
Surface	○	○
Type	H	H
Profile angle	45°	60°
Tolerance	js16	js16



MILLING CUTTERS

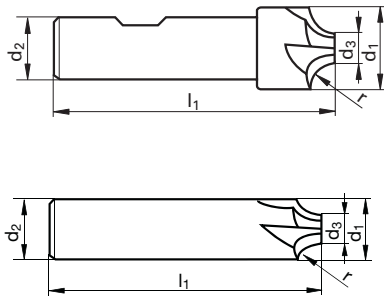
Code no.	d1 mm	d2 mm	l1 mm	l2 mm	z	AVAILABILITY
16.000	16.000	12.00	60.00	4.00	8	•
20.000	20.000	12.00	63.00	5.00	10	•
25.000	25.000	12.00	67.00	6.30	10	•
32.000	32.000	16.00	71.00	8.00	12	•
16.000	16.000	12.00	60.00	6.30	8	•
20.000	20.000	12.00	63.00	8.00	10	•
25.000	25.000	12.00	67.00	10.00	10	•
32.000	32.000	16.00	71.00	12.50	12	•

• Australian stock item ○ German stock item



CORNER ROUNDDING CUTTERS

Guhring no.	3176	6788
Standard	DIN 6518	
Tool material	M42	Solid Carbide
Surface	○	Ⓡ
Type	N	N
Helix angle	5°	7°
Shank Form	HA	



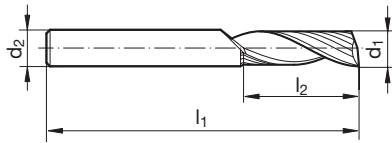
MILLING
CUTTERS

Code	r	d1	d2	d3	l1	z	AVAILABILITY	
no.	mm	mm	mm	mm	mm			
2.000	2.00	10.000	10.000	6.000	60.00	4	•	
2.500	2.50	11.000	10.000	6.000	60.00	4	•	
3.000	3.00	12.000	12.000	6.000	60.00	4	•	
4.000	4.00	14.000	12.000	6.000	60.00	4	•	
5.000	5.00	16.000	12.000	6.000	60.00	4	•	
6.000	6.00	20.000	16.000	8.000	67.00	4	•	
8.000	8.00	24.000	16.000	8.000	71.00	4	•	
10.000	10.00	28.000	25.000	8.000	85.00	4	•	
12.000	12.00	34.000	25.000	10.000	90.00	4	•	
16.000	16.00	48.000	25.000	16.000	100.00	6	•	
20.000	20.00	56.000	32.000	16.000	112.00	6	•	
6.005	0.50	6.000	6.00	5.000	50.00	4	•	
6.010	1.00	6.000	6.00	4.000	50.00	4	•	
8.015	1.50	8.000	8.00	5.000	58.00	4	•	
10.020	2.00	10.000	10.00	6.000	66.00	4	•	
10.025	2.50	10.000	10.00	5.000	66.00	4	•	
12.030	3.00	12.000	12.00	6.000	73.00	4	•	
14.035	3.50	14.000	14.00	7.000	75.00	4	•	
14.040	4.00	14.000	14.00	6.000	75.00	4	•	
16.045	4.50	16.000	16.00	7.000	76.00	4	•	
16.050	5.00	16.000	16.00	6.000	76.00	4	•	
20.055	5.50	20.000	20.00	9.000	92.00	4	•	
20.060	6.00	20.000	20.00	8.000	92.00	4	•	

• Australian stock item ○ German stock item



Guhring no.	6793	8138	6935	8135
Standard	Guhring std.			
Tool material	Solid Carbide			
Surface	○	● _{CB+}	○	● _{CB+}
Type	W	AL	AL	AL
Length	standard	standard	standard	standard
Helix angle	30°	30°	30°	30°
Tolerance	h10	h10	h10	h10



MILLING CUTTERS

d1	d2	l1	l2	z
mm	mm	mm	mm	
2.00	2.00	38	10.0	1
3.00	3.00	39	12.0	1
4.00	4.00	40	15.0	1
5.00	5.00	50	16.0	1
6.00	6.00	57	20.0	1
8.00	8.00	63	22.0	1
10.00	10.00	73	25.0	1
12.00	12.00	83	30.0	1
16.00	16.00	92	35.0	1
3.00	3.00	55	18.0	1
4.00	4.00	60	22.0	1
5.00	5.00	60	24.0	1
6.00	6.00	80	30.0	1
8.00	8.00	80	32.0	1
10.00	10.00	100	45.0	1
12.00	12.00	110	52.0	1
16.00	16.00	120	55.0	1

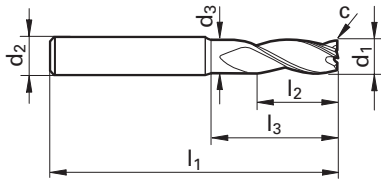
AVAILABILITY			
○	○		
○	○		
●	○		
●	○		
●	○		
●	○		
●	○		
○	○		
		○	○
		○	○
		○	○
		○	○
		○	○
		○	○
		○	○
		○	○

● Australian stock item ○ German stock item

RATIO END MILLS FOR ALUMINIUM (3-FLUTED)



Guhring no.	8230/3472	8232	8236/3473	6734
Standard	Guhring std.			
Tool material	Solid carbide			
Surface	○	⊕	○	○
Type	W	W	W	W
Length	standard	standard	standard	long
Helix angle	39° / 40° / 41°	39° / 40° / 41°	39° / 40° / 41°	39° / 40° / 41°
Tolerance	js7/h10	js7	js7/h10	h10
	RF 100 AL	RF 100 AL	RF 100 AL	RF 100 A



MILLING CUTTERS

d1	d2	d3	l1	l2	l3	c	AVAILABILITY
mm	mm	mm	mm	mm	mm	mm x 45°	
1.000	4.000	0.920	50.00	2.50	5.00	0.02	○8230
1.500	4.000	1.400	50.00	4.00	7.50	0.03	○8230
2.000	6.000	1.850	57.00	5.00	10.00	0.04	○8230
2.500	6.000	2.350	57.00	6.50	12.50	0.05	○8230
3.000	6.000	2.800	57.00	8.00	15.00	0.06	●8230/3472
4.000	6.000	3.800	57.00	11.00	18.00	0.04	●8230/3472
5.000	6.000	4.800	57.00	13.00	18.00	0.05	●8230/3472
6.000	6.000	5.700	57.00	13.00	21.00	0.06	●8230/3472
8.000	8.000	7.700	63.00	19.00	27.00	0.08	●8230/3472
10.000	10.000	9.500	72.00	22.00	32.00	0.10	●8230/3472
12.000	12.000	11.500	83.00	26.00	38.00	0.12	●8230/3472
16.000	16.000	15.500	92.00	32.00	44.00	0.16	●8230/3472
20.000	20.000	19.500	104.00	38.00	54.00	0.20	●8230/3472
25.000	25.000	24.000	121.00	45.00	63.00	0.25	○8230
1.000	4.000	0.920	50.00	2.50	7.00	0.02	○8236
1.500	4.000	1.400	50.00	4.00	10.50	0.03	○8236
2.000	6.000	1.850	57.00	5.00	14.00	0.04	○8236
2.500	6.000	2.350	57.00	6.50	17.50	0.05	○8236
3.000	6.000	2.850	65.00	8.00	21.00	0.06	○8236
3.500	6.000	3.300	65.00	11.00	26.00	0.03	○8236
4.000	6.000	3.800	65.00	11.00	26.00	0.04	○8236
4.500	6.000	4.300	65.00	13.00	26.00	0.04	○8236
5.000	6.000	4.800	65.00	13.00	26.00	0.05	○8236
5.500	6.000	5.300	65.00	13.00	28.00	0.05	○8236
6.000	6.000	5.700	65.00	13.00	29.00	0.06	●8236/3473
8.000	8.000	7.700	75.00	19.00	39.00	0.08	●8236/3473
10.000	10.000	9.500	80.00	22.00	40.00	0.10	●8236/3473
12.000	12.000	11.500	93.00	26.00	48.00	0.12	●8236/3473
16.000	16.000	15.500	108.00	32.00	60.00	0.16	●8236/3473
20.000	20.000	19.500	126.00	38.00	76.00	0.20	●8236/3473
25.000	25.000	24.000	150.00	45.00	92.00	0.25	○8236
6.000	6.000		75.00	30.00	39.0	0.06	●
8.000	8.000		86.00	40.00	50.0	0.08	●
10.000	10.000		100.00	50.00	60.0	0.10	●
12.000	12.000		120.00	60.00	75.0	0.12	●
16.000	16.000		150.00	80.00	102.0	0.16	●
20.000	20.000		175.00	100.00	125.0	0.20	●

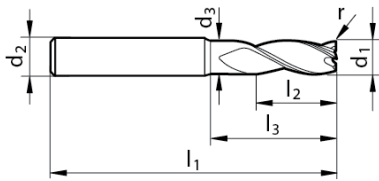
● Australian stock item ○ German stock item



RATIO END MILLS FOR ALUMINIUM (3-FLUTED)

MILLING CUTTERS

Guhring no.	8244
Standard	Guhring std.
Tool material	Solid carbide
Surface	
Type	RF 100 AL
Length	long
Helix angle	39° / 40° / 41°
Tolerance	js7
Form	HA



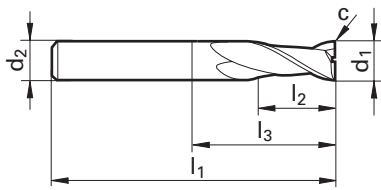
d1	d2	d3	l1	l2	l3	r	code no.	AVAILABILITY
mm	mm	mm	mm	mm	mm	mm		
1.000	4.000	0.92	50.00	2.50	5.00	0.1	1.001	○
2.000	6.000	1.85	57.00	5.00	10.00	0.1	2.001	○
2.000	6.000	1.85	57.00	5.00	10.00	0.2	2.002	○
3.000	6.000	2.85	57.00	8.00	15.00	0.2	3.002	○
3.000	6.000	2.85	57.00	8.00	15.00	0.5	3.005	○
4.000	6.000	3.80	57.00	11.00	18.00	0.2	4.002	○
4.000	6.000	3.80	57.00	11.00	18.00	0.5	4.005	○
4.000	6.000	3.80	57.00	11.00	18.00	1.0	4.010	○
5.000	6.000	4.80	57.00	13.00	18.00	0.2	5.002	○
5.000	6.000	4.80	57.00	13.00	18.00	0.5	5.005	●
5.000	6.000	4.80	57.00	13.00	18.00	1.0	5.010	●
6.000	6.000	5.70	57.00	13.00	20.00	0.2	6.002	○
6.000	6.000	5.70	57.00	13.00	20.00	0.5	6.005	●
6.000	6.000	5.70	57.00	13.00	20.00	1.0	6.010	●
8.000	8.000	7.70	63.00	19.00	26.00	0.5	8.005	●
8.000	8.000	7.70	63.00	19.00	26.00	1.0	8.010	●
10.000	10.000	9.50	72.00	22.00	30.00	0,5	10.005	●
10.000	10.000	9.50	72.00	22.00	30.00	1.0	10.010	●
10.000	10.000	9.50	72.00	22.00	30.00	1.5	10.015	○
12.000	12.000	11.50	83.00	26.00	36.00	0.5	12.005	○
12.000	12.000	11.50	83.00	26.00	36.00	1.0	12.010	●
12.000	12.000	11.50	83.00	26.00	36.00	1.5	12.015	○
12.000	12.000	11.50	83.00	26.00	36.00	2.0	12.020	●
12.000	12.000	11.50	83.00	26.00	36.00	2.5	12.025	○
12.000	12.000	11.50	83.00	26.00	36.00	3.0	12.030	●
12.000	12.000	11.50	83.00	26.00	36.00	4.0	12.040	○
16.000	16.000	15.50	83.00	32.00	42.00	1.0	16.010	○
16.000	16.000	15.50	92.00	32.00	42.00	2.0	16.020	●
16.000	16.000	15.50	92.00	32.00	42.00	2.5	16.025	○
16.000	16.000	15.50	92.00	32.00	42.00	3.0	16.030	●
16.000	16.000	15.50	104.00	32.00	42.00	4.0	16.040	○
20.000	20.000	19.50	104.00	38.00	52.00	1.0	20.010	○
20.000	20.000	19.50	104.00	38.00	52.00	2.0	20.020	○
20.000	20.000	19.50	104.00	38.00	52.00	2.5	20.025	○
20.000	20.000	19.50	104.00	38.00	52.00	3.0	20.030	○
20.000	20.000	19.50	104.00	38.00	52.00	4.0	20.040	○
25.000	25.000	24.00	121.00	45.00	63.00	2.0	25.020	○
25.000	25.000	24.00	121.00	45.00	63.00	3.0	25.030	○
25.000	25.000	24.00	121.00	45.00	63.00	4.0	25.040	○

● Australian stock item ○ German stock item

SLOT DRILLS (2-FLUTED)



Guhring no.	3676	5549
Standard	DIN 6528	Guhring std.
Tool material	Solid carbide	
Surface	F	F
Type	N	N
Length	standard	long
Helix angle	30°	30°
Tolerance	h10	h10



MILLING CUTTERS

d1	d2	l1	l2	l3	c	AVAILABILITY
mm	mm	mm	mm	mm	mm x 45°	
3.000	3.000	38.00	7.00	11.00	0.05	•
4.000	4.000	50.00	8.00	22.00	0.05	•
5.000	5.000	50.00	10.00	22.00	0.05	•
6.000	6.000	57.00	10.00	21.00	0.05	•
8.000	8.000	63.00	16.00	27.00	0.10	•
10.000	10.000	72.00	19.00	32.00	0.10	•
12.000	12.000	83.00	22.00	38.00	0.10	•
16.000	16.000	92.00	26.00	44.00	0.15	•
20.000	20.000	104.00	32.00	54.00	0.15	•
3.000	3.000	75.00	20.00	47.00	0.05	•
4.000	4.000	75.00	25.00	47.00	0.05	•
5.000	5.000	75.00	30.00	47.00	0.05	•
6.000	6.000	75.00	30.00	39.00	0.05	•
8.000	8.000	100.00	40.00	64.00	0.10	•
10.000	10.000	100.00	40.00	60.00	0.10	•
12.000	12.000	150.00	45.00	105.00	0.10	•
16.000	16.000	150.00	65.00	102.00	0.15	•
20.000	20.000	150.00	65.00	100.00	0.15	•

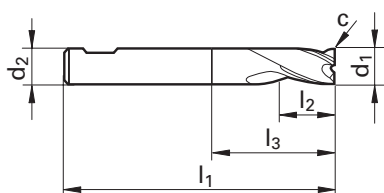
• Australian stock item ◦ German stock item



MINI SLOT DRILLS (3-FLUTED)

MILLING CUTTERS

Guhring no.	5573	5574
Standard	Guhring std.	
Tool material	Solid carbide	
Surface	F	F
Type	N	NH
Length	standard	standard
Helix angle	30°	45°
Tolerance	e8	e8



d1	d2	l1	l2	l3	c
mm	mm	mm	mm	mm	mm x 45°
0.500	3.000	38.00	1.50	3.40	0.03
0.600	3.000	38.00	1.50	3.40	0.03
0.800	3.000	38.00	2.00	3.90	0.03
1.000	3.000	38.00	2.00	3.90	0.03
1.100	3.000	38.00	2.00	4.10	0.03
1.200	3.000	38.00	2.00	3.90	0.03
1.300	3.000	38.00	2.00	4.40	0.03
1.400	3.000	38.00	3.00	5.90	0.03
1.500	3.000	38.00	3.00	5.90	0.03
1.600	3.000	38.00	3.00	5.90	0.03
1.700	3.000	38.00	3.00	5.90	0.03
1.800	3.000	38.00	3.00	5.90	0.03
1.900	3.000	38.00	3.00	5.90	0.03
2.000	6.000	45.00	4.00	6.90	0.03
2.100	6.000	45.00	4.00	6.90	0.03
2.200	6.000	45.00	4.00	7.10	0.03
2.500	6.000	45.00	5.00	7.90	0.05
3.000	6.000	45.00	6.00	9.90	0.05
3.500	6.000	45.00	6.00	9.90	0.05
4.500	6.000	45.00	8.00	13.40	0.05
5.000	6.000	45.00	8.00	13.40	0.05
5.500	6.000	45.00	8.00	14.40	0.05
6.000	6.000	45.00	10.00	15.00	0.05
6.750	8.000	45.00	10.00	18.40	0.10
7.000	8.000	55.00	12.00	12.00	0.10
7.750	8.000	55.00	12.00	12.00	0.10
8.000	8.000	55.00	13.00	19.00	0.10
8.700	10.000	55.00	14.00	23.40	0.10
9.000	10.000	55.00	14.00	23.40	0.10
9.700	10.000	55.00	16.00	16.30	0.10
10.000	10.000	55.00	16.00	25.00	0.10

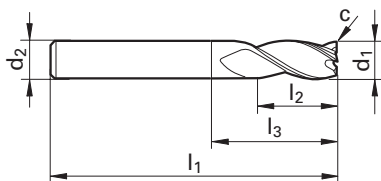
AVAILABILITY	
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	• 303180877
	• 303180879
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	• 303180880
	• 303180887
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	• 303335616
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	• 303180888
	• 303180889
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• Australian stock item ○ German stock item

SLOT DRILLS (3-FLUTED)



Guhring no.	5506	3680	3173
Standard	DIN 6527 L	Guhring std.	Guhring std.
Tool material	Solid carbide		
Surface	F	F	F
Type	NH	N	NH
Length	standard	long	standard
Helix angle	45°	30°	45°
Tolerance	h10	h10	h10



IMPERIAL

d1	d2	l1	l2	l3	c	AVAILABILITY	
mm	mm	mm	mm	mm	mm x 45°		
3.000	6.000	57.00	7.00	10.90	0.03	•	
3.500	6.000	57.00	7.00	10.90	0.05	•	
4.000	6.000	57.00	8.00	11.90	0.06	•	
5.000	6.000	57.00	10.00	15.40	0.08	•	
6.000	6.000	57.00	10.00	21.00	0.09	•	
7.000	8.000	63.00	13.00	21.40	0.11	•	
8.000	8.000	63.00	16.00	27.00	0.12	•	
10.000	10.000	72.00	19.00	32.00	0.15	•	
12.000	12.000	83.00	22.00	38.00	0.18	•	
14.000	14.000	83.00	22.00	38.00	0.21	•	
16.000	16.000	92.00	26.00	44.00	0.19	•	
18.000	18.000	92.00	26.00	44.00	0.22	•	
20.000	20.000	104.00	32.00	54.00	0.24	•	
3.000	3.000	75.00	20.00	47.00	0.05		•
4.000	4.000	75.00	25.00	47.00	0.05		•
5.000	5.000	75.00	30.00	47.00	0.05		•
6.000	6.000	75.00	30.00	39.00	0.05		•
8.000	8.000	100.00	40.00	64.00	0.10		•
10.000	10.000	100.00	40.00	60.00	0.10		•
12.000	12.000	150.00	45.00	105.00	0.10		•
16.000	16.000	150.00	65.00	102.00	0.15		•
20.000	20.000	150.00	65.00	100.00	0.15		•
d1	d2	l1	l2	Code			
inch	inch	inch	inch	no.			
1/8	1/8	1 1/2	3/8	3.170			•
3/16	3/16	2	5/8	4.760			•
1/4	1/4	2 1/2	3/4	6.350			•
5/16	5/16	2 1/2	13/16	7.940			•
3/8	3/8	3	1	9.520			•
7/16	7/16	2 3/4	1	11.110			•
1/2	1/2	3	1	12.700			•
5/8	5/8	3 1/2	1 1/4	15.870			•
3/4	3/4	4	1 1/2	19.050			•
1	1	4	1 1/2	25.400			◊

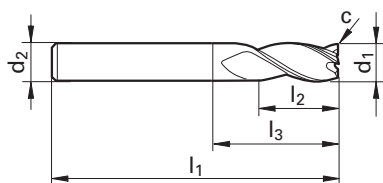
• Australian stock item ◊ German stock item



END MILLS (4-FLUTED)

Gühring no.	19978	5556
Standard	Gühring std.	Gühring std.
Tool material	Solid carbide	
Surface	F	F
Type	N	N
Length	standard	long
Helix angle	30°	30°
Tolerance	h10	h10

MILLING CUTTERS



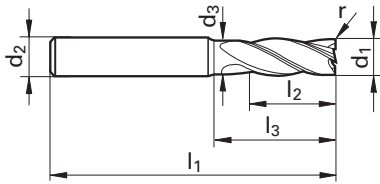
d1	d2	l1	l2	l3	c	AVAILABILITY
mm	mm	mm	mm	mm	mm x 45°	
2.000	2.000	32.000	8.000	10.000	0.025	•
3.000	3.000	38.000	12.000	15.000	0.050	•
4.000	4.000	40.000	12.000	16.000	0.050	•
5.000	5.000	50.000	15.000	20.000	0.050	•
6.000	6.000	57.000	16.000	21.000	0.050	•
7.000	8.000	60.000	16.000	23.900	0.100	•
8.000	8.000	68.000	22.000	32.000	0.050	•
9.000	10.000	72.000	22.000	28.400	0.100	•
10.000	10.000	72.000	25.000	32.000	0.100	•
11.000	12.000	83.000	26.000	27.600	0.100	•
12.000	12.000	83.000	28.000	38.000	0.100	•
14.000	14.000	83.000	28.000	38.000	0.150	•
16.000	16.000	92.000	35.000	44.000	0.100	•
18.000	18.000	92.000	35.000	44.000	0.150	•
20.000	20.000	104.000	40.000	54.000	0.150	•
3.000	3.000	75.00	20.00		0.05	•
4.000	4.000	75.00	25.00		0.05	•
5.000	5.000	75.00	30.00		0.05	•
6.000	6.000	75.00	30.00		0.05	•
8.000	8.000	100.00	40.00		0.10	•
10.000	10.000	100.00	40.00		0.10	•
12.000	12.000	150.00	45.00		0.10	•
14.000	14.000	150.00	45.00		0.15	•
16.000	16.000	150.00	65.00		0.15	•
18.000	18.000	150.00	65.00		0.15	•
20.000	20.000	150.00	65.00		0.15	•

• Australian stock item ◦ German stock item

END MILLS WITH CORNER RADIUS (4-FLUTED)



Guhring no.	3562	3872
Standard	DIN 6527 L	
Tool material	Solid carbide	
Surface		
Type	N	N
Length	standard	standard
Helix angle	30°	35°/38°
Tolerance	h10	h10



MILLING
CUTTERS

d1	d2	d3	l1	l2	l3	r	Code
mm	mm	mm	mm	mm	mm	mm	no.
1.00	4.00	0.92	50	3.00	6.00	0.10	1.001
1.50	4.00	1.40	50	4.00	9.00	0.20	1.502
2.00	6.00	1.85	57	7.00	12.00	0.20	2.002
2.00	6.00	1.85	57	7.00	12.00	0.50	2.005
3.00	6.00	2.85	57	8.00	14.00	0.20	3.002
3.00	6.00	2.85	57	8.00	14.00	0.50	3.005
4.00	6.00	3.80	57	11.00	16.00	0.20	4.002
4.00	6.00	3.80	57	11.00	16.00	0.50	4.005
5.00	6.00	4.80	57	13.00	18.00	0.20	5.002
5.00	6.00	4.80	57	13.00	18.00	0.50	5.005
6.00	6.00	5.73	57	13.00	20.00	0.50	6.005
6.00	6.00	5.70	57	13.00	20.00	1.00	6.010
6.00	6.00	5.70	57	13.00	20.00	2.00	6.020
8.00	8.00	7.70	63	19.00	26.00	0.50	8.005
8.00	8.00	7.70	63	19.00	26.00	1.00	8.010
8.00	8.00	7.70	63	19.00	26.00	2.00	8.020
10.00	10.00	9.50	72	22.00	30.00	0.50	10.005
10.00	10.00	9.50	72	22.00	30.00	1.00	10.010
10.00	10.00	9.50	72	22.00	30.00	2.00	10.020
12.00	12.00	11.50	83	26.00	36.00	0.50	12.005
12.00	12.00	11.50	83	26.00	36.00	1.00	12.010
12.00	12.00	11.50	83	26.00	36.00	2.00	12.020
16.00	16.00	15.50	92	32.00	42.00	0.50	16.005
16.00	16.00	15.50	92	32.00	42.00	1.00	16.010
16.00	16.00	15.50	92	32.00	42.00	2.00	16.020
16.00	16.00	15.50	92	32.00	42.00	3.00	16.030
20.00	20.00	19.50	104	38.00	52.00	0.50	20.005
20.00	20.00	19.50	104	38.00	52.00	1.00	20.010
20.00	20.00	19.50	104	38.00	52.00	2.00	20.020
20.00	20.00	19.50	104	38.00	52.00	3.00	20.030
25.00	25.00	24.00	121	45.00	63.00	2.00	25.020
25.00	25.00	24.00	121	45.00	63.00	3.00	25.030

AVAILABILITY	
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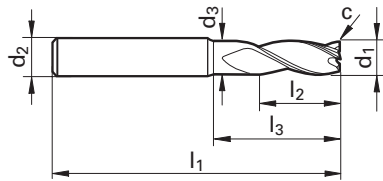
● Australian stock item ○ German stock item



RATIO END MILLS FOR STEEL AND CAST IRON

Guhring no.	5735	5535	5582	3114
Standard	DIN 6527 L	DIN 6527 L	Guhring std.	Guhring std.
Tool material				
Surface	F	F	F	F
Type	N	N	N	N
Length	standard	standard	long	standard
Helix angle	35° / 38°	35° / 38°	35° / 38°	35° / 38°
Tolerance	h10	h10	h10	h10
	RF 100 U	RF 100 U	RF 100 U	RF 100 U

MILLING CUTTERS



d1	d2	d3	l1	l2	l3	c	z
mm	mm	mm	mm	mm	mm	mm x 45°	
4.000	6.000	3.80	57.00	11.00	18.00	0.10	4
5.000	6.000	4.80	57.00	13.00	18.00	0.10	4
6.000	6.000	5.70	57.00	13.00	20.00	0.15	4
8.000	8.000	7.70	63.00	19.00	26.00	0.15	4
10.000	10.000	9.50	72.00	22.00	30.00	0.20	4
12.000	12.000	11.50	83.00	26.00	36.00	0.20	4
14.000	14.000	13.50	83.00	26.00	36.00	0.25	4
16.000	16.000	15.50	92.00	32.00	42.00	0.35	4
18.000	18.000	17.50	92.00	32.00	42.00	0.40	4
20.000	20.000	19.50	104.00	38.00	52.00	0.45	4
25.000	25.000	24.00	121.00	45.00	63.00	0.60	4
10.000	10.000	9.500	100.00	40.00	48.00	0.20	4
12.000	12.000	11.500	150.00	45.00	58.00	0.20	4
16.000	16.000	15.500	150.00	65.00	78.00	0.35	4
20.000	20.000	19.500	150.00	65.00	78.00	0.45	4
25.000	25.000	24.000	150.00	75.00	92.00	0.60	4

d1	d2	l1	l2	z	Code
inch	inch	inch	inch		no.
3/16	3/16	2	3/8	4	4.760
1/4	1/4	2 1/2	3/4	4	6.350
5/16	5/16	2 1/2	13/16	4	7.940
3/8	3/8	2 1/2	1	4	9.520
7/16	7/16	2 3/4	1	4	11.110
1/2	1/2	3	1	4	12.700
5/8	5/8	3 1/2	1 1/4	4	15.870
3/4	3/4	4	1 1/2	4	19.050
1	1	4	1 1/2	4	25.400

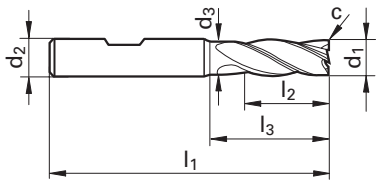
AVAILABILITY			
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• Australian stock item ○ German stock item

RATIO END MILLS FOR STAINLESS STEEL (4-FLUTED)



Guhring no.	3803	3807
Standard	DIN 6527 L	Guhring std.
Tool material	Solid carbide	
Surface	a	a
Type	N	N
Length	standard	standard
Helix angle	36°/38°	36°/38°
Tolerance	h10	h10
	RF 100 VA	RF 100 VA



MILLING CUTTERS

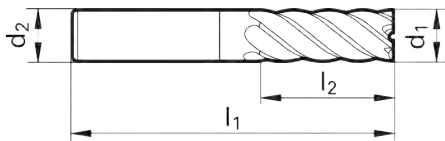
d1	d2	d3	l1	l2	l3	c	AVAILABILITY
mm	mm	mm	mm	mm	mm	mm x 45°	
3.000	6.000	2.800	57.00	8.00	15.00	0.10	•
3.500	6.000	3.300	57.00	10.00	15.00	0.10	○
4.000	6.000	3.800	57.00	11.00	18.00	0.15	•
4.500	6.000	4.300	57.00	11.00	18.00	0.15	○
5.000	6.000	4.800	57.00	13.00	18.00	0.15	•
5.500	6.000	5.300	57.00	13.00	19.40	0.20	○
6.000	6.000	5.700	57.00	13.00	20.00	0.20	•
6.500	8.000	6.200	63.00	16.00	24.40	0.25	○
7.500	8.000	7.200	63.00	19.00	25.30	0.25	○
8.000	8.000	7.700	63.00	19.00	26.00	0.25	•
8.500	10.000	8.200	72.00	19.00	29.40	0.30	○
9.500	10.000	9.200	72.00	22.00	30.30	0.30	•
10.000	10.000	9.500	72.00	22.00	30.00	0.30	○
11.000	12.000	10.000	83.00	26.00	34.70	0.35	•
12.000	12.000	11.500	83.00	26.00	36.00	0.35	•
16.000	16.000	15.500	92.00	32.00	42.00	0.50	•
20.000	20.000	19.500	104.00	38.00	52.00	0.60	○
6.000	6.000	5.700	65.00	10.00	28.00	0.20	○
8.000	8.000	7.700	75.00	12.00	38.00	0.25	○
10.000	10.000	9.500	80.00	14.00	38.00	0.30	○
12.000	12.000	11.500	93.00	16.00	46.00	0.35	○
16.000	16.000	15.500	108.00	22.00	58.00	0.50	○
20.000	20.000	19.500	126.00	26.00	74.00	0.60	○

• Australian stock item ○ German stock item



END MILLS FOR HARDENED STEEL

Gühring no.	3715	6944
Standard	Gühring std.	DIN 6527 L
Tool material	Solid carbide	
Surface	Y	Y
Type	N	G-Mold 65 U
Length	standard	standard
Helix angle	55°	40°/42°
Tolerance	h10	f9



63 HRC



65 HRC

MILLING CUTTERS

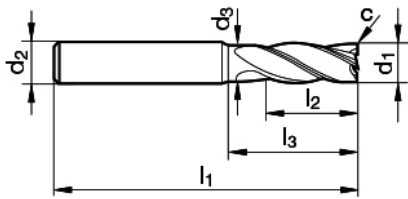
d1	d2	l1	l2	l3	c	z	AVAILABILITY	
mm	mm	mm	mm	mm	mm x 45°			
3.000	6.000	57.00	8.00	11.40	0.05	6	•	
4.000	6.000	57.00	11.00	15.90	0.05	6	•	
5.000	6.000	57.00	13.00	17.90	0.05	6	•	
6.000	6.000	57.00	13.00	21.0	0.05	6	•	
8.000	8.000	63.00	19.00	27.0	0.10	6	•	
10.000	10.000	72.00	22.00	32.0	0.10	6	•	
12.000	12.000	83.00	26.00	38.0	0.10	6	•	
14.000	14.000	83.00	26.00	38.0	0.15	6	○	
16.000	16.000	92.00	32.00	44.0	0.15	6	•	
18.000	18.000	92.00	32.00	44.0	0.15	8	○	
20.000	20.000	104.00	38.00	54.0	0.15	8	•	
3.000	6.000	57.00	8.00	12.00	0.06	4		○
4.000	6.000	57.00	11.00	15.00	0.08	4		○
5.000	6.000	57.00	13.00	18.00	0.10	4		○
6.000	6.000	57.00	13.00	20.00	0.12	4		○
8.000	8.000	63.00	19.00	26.00	0.16	4		○
10.000	10.000	72.00	22.00	31.00	0.20	4		○
12.000	12.000	83.00	26.00	37.00	0.24	4		○
16.000	16.000	92.00	32.00	43.00	0.32	4		○
20.000	20.000	104.00	38.00	53.00	0.40	4		○

• Australian stock item ○ German stock item

ISO	Hardness	VC	fz (mm/z)/Ø							VC	fz (mm/z)/Ø						
			3	6	8	10	12	16	20		3	6	8	10	12	16	20
P	≥ 1000 N/mm ²	180	0,029	0,057	0,076	0,105	0,13	0,17	0,21	180	0,013	0,025	0,033	0,046	0,06	0,07	0,09
K	≥ 300 HB	180	0,029	0,057	0,076	0,105	0,13	0,17	0,21	180	0,013	0,025	0,033	0,046	0,06	0,07	0,09
H	≤ 55 HRC	100	0,024	0,048	0,064	0,088	0,11	0,14	0,18	110	0,010	0,019	0,026	0,035	0,04	0,06	0,07
	≥ 55 HRC	70	0,019	0,038	0,050	0,070	0,08	0,11	0,14	80	0,007	0,014	0,018	0,025	0,03	0,04	0,05



Guhring no.	6801	6736	6737
Standard	Guhring std.		DIN 6527 L
Tool material	C		
Surface	Y	Y	Y
Type	N	N	A
Length	long	standard	standard
Helix angle	36°/38°/37°	36°/38°/37°	36°/38°/37°
Tolerance	h10	h10	h10



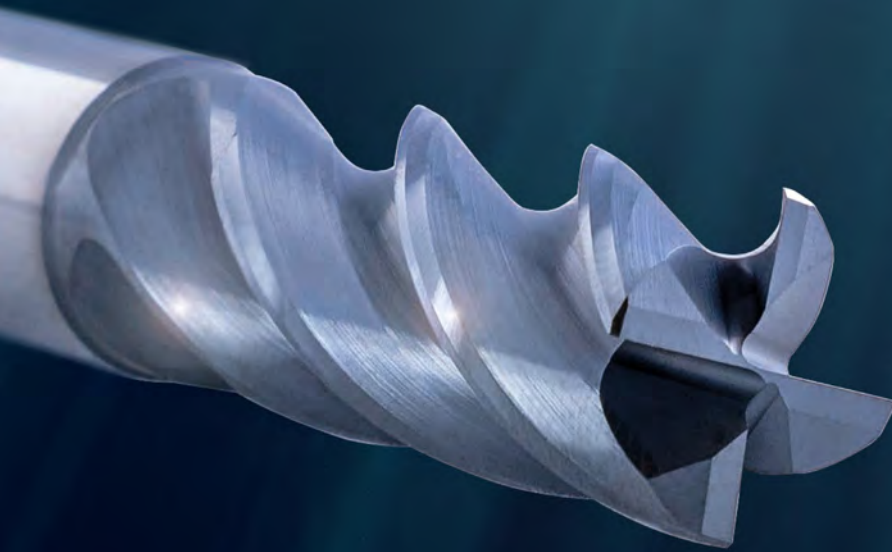
MILLING CUTTERS

d1	d2	d3	l1	l2	l3	c	AVAILABILITY	
mm	mm	mm	mm	mm	mm	mm x 45°		
6.000	6.000	5.70	57.00	13.00	20.00	0.060	•	
8.000	8.000	7.70	63.00	19.00	26.00	0.080	•	
10.000	10.000	9.50	72.00	22.00	30.00	0.100	•	
12.000	12.000	11.50	83.00	26.00	36.00	0.120	•	
16.000	16.000	15.50	92.00	32.00	42.00	0.160	•	
20.000	20.000	19.50	104.00	38.00	52.00	0.200	○	
25.000	25.000	24.00	121.00	45.00	63.00	0.250	○	
4.000	6.000	3.800	57.00	11.00	18.00	0.04		•
5.000	6.000	4.800	57.00	13.00	18.00	0.05		○
5.700	6.000	5.500	57.00	13.00	19.60	0.06		○
6.000	6.000	5.700	57.00	13.00	20.00	0.06		•
7.700	8.000	7.400	63.00	19.00	25.50	0.08		○
8.000	8.000	7.700	63.00	19.00	26.00	0.08		•
9.700	10.000	9.400	72.00	22.00	30.50	0.10		○
10.000	10.000	9.500	72.00	22.00	30.00	0.10		•
11.700	12.000	11.200	83.00	26.00	35.30	0.12		○
12.000	12.000	11.500	83.00	26.00	36.00	0.12		•
13.700	14.000	13.200	83.00	26.00	35.30	0.14		○
14.000	14.000	13.500	83.00	26.00	36.00	0.14		○
15.600	16.000	15.100	92.00	32.00	41.20	0.16		○
16.000	16.000	15.500	92.00	32.00	42.00	0.16		•
19.500	20.000	19.000	104.00	38.00	51.10	0.20		○
20.000	20.000	19.500	104.00	38.00	52.00	0.20		○

• Australian stock item ○ German stock item

ISO	Hardness	VC	fz (mm/z)/Ø							VC	fz (mm/z)/Ø						
			4	6	8	10	12	16	20		4	6	8	10	12	16	20
			ap = 1,0 x D								ap = 1,0 x D						
P	≤ 850 N/mm ²	270	0.017	0.025	0.034	0.050	0.060	0.080	0.100	270	0.014	0.021	0.028	0.040	0.048	0.064	0.080
	≥ 850 N/mm ²	180	0.014	0.021	0.028	0.045	0.054	0.072	0.090	180	0.008	0.012	0.016	0.025	0.030	0.040	0.050
M	≤ 750 N/mm ²	120	0.014	0.021	0.028	0.045	0.054	0.072	0.090	90	0.007	0.011	0.014	0.023	0.027	0.036	0.045
	≥ 750 N/mm ²	80	0.013	0.019	0.026	0.040	0.048	0.064	0.080	60	0.006	0.010	0.013	0.020	0.024	0.032	0.040
S	Ti-based	60	0.013	0.019	0.026	0.040	0.048	0.064	0.080	50	0.006	0.010	0.013	0.020	0.024	0.032	0.040
K	≤ 240 HB	150	0.017	0.025	0.034	0.050	0.060	0.080	0.100	150	0.014	0.021	0.028	0.040	0.048	0.064	0.080
N	≥ 7% Si	340	0.018	0.027	0.036	0.055	0.066	0.088	0.110	340	0.014	0.021	0.028	0.040	0.048	0.064	0.080

RF100 SHARP



Steel



Stainless steel



Aluminium



Special alloys



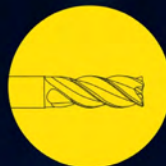
Our specialist for
**soft, tough &
high-alloyed
materials**

with a tensile strength of
300 – 900 N/mm²

YOUR ADVANTAGES:



Exceptionally easy cutting
in soft, tough & high-alloyed materials



Full flexibility in milling operations
slotting, roughing, ramping, helical, finishing



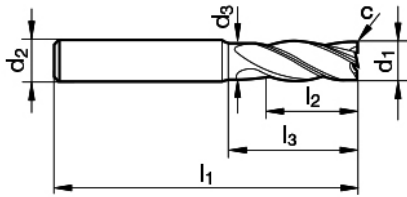
Powerful and smooth
under all operating conditions



Special construction dimensions
for cost-efficient machining



Guhring no.	6478	6480
Standard	Guhring std.	Guhring std.
Tool material	Solid carbide	
Surface	P	P
Type	N	N
Length	standard	long
Helix angle	38°/40°	38°/40°
Tolerance	h10	h10



MILLING CUTTERS

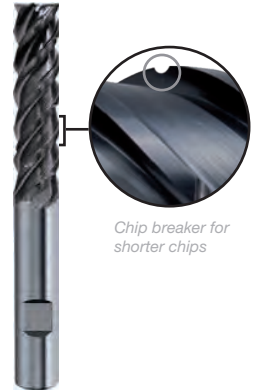
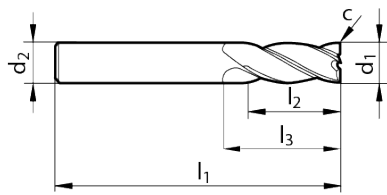
d1	d2	d3	l1	l2	l3	c	AVAILABILITY
mm	mm	mm	mm	mm	mm	mm x 45°	
1.000	4.000	0.920	50.000	3.000	4.000	0.020	•
1.500	4.000	1.400	50.000	4.500	6.000	0.030	•
2.000	6.000	1.900	50.000	6.000	8.000	0.040	•
2.500	6.000	2.400	50.000	7.500	10.000	0.050	•
3.000	6.000	2.900	57.000	10.000	15.000	0.060	•
4.000	6.000	3.800	57.000	14.000	18.000	0.080	•
5.000	6.000	4.800	57.000	15.000	20.000	0.100	•
6.000	6.000	5.700	57.000	16.000	20.000	0.120	•
8.000	8.000	7.700	63.000	21.000	26.000	0.160	•
10.000	10.000	9.500	72.000	25.000	31.000	0.200	•
12.000	12.000	11.500	83.000	28.000	37.000	0.240	•
14.000	14.000	13.500	83.000	28.000	37.000	0.280	•
16.000	16.000	15.500	92.000	36.000	43.000	0.320	•
20.000	20.000	19.500	104.000	41.000	53.000	0.400	•
1.000	4.000	0.920	50.000	3.000	5.500	0.020	•
1.500	4.000	1.400	50.000	4.500	8.500	0.030	•
2.000	6.000	1.900	57.000	6.000	11.500	0.040	•
2.500	6.000	2.400	65.000	7.500	14.500	0.050	•
3.000	6.000	2.900	65.000	10.000	20.000	0.060	•
4.000	6.000	3.800	65.000	14.000	27.000	0.080	•
5.000	6.000	4.800	65.000	15.000	28.000	0.100	•
6.000	6.000	5.700	75.000	19.000	38.000	0.120	•
8.000	8.000	7.700	80.000	21.000	43.000	0.160	•
10.000	10.000	9.500	93.000	26.000	52.000	0.200	•
12.000	12.000	11.500	100.000	28.000	54.000	0.240	•
14.000	14.000	13.500	100.000	28.000	54.000	0.280	•
16.000	16.000	15.500	123.000	38.000	74.000	0.320	•
20.000	20.000	19.500	126.000	41.000	74.000	0.400	•
Also Available in: Short Version = 6938 Corner Radius = 6962							

• Australian stock item ◦ German stock item



RATIO END MILLS RF 100 SPEED (4 - FLUTED)

Gühring no.	6765	6761
Standard	DIN 6527	
Tool material	Solid carbide	
Surface	A	A
Type	RF 100 Speed	RF 100 Speed
Length	Standard	Long
Helix angle	48°	48°
Tolerance	h10	h10



MILLING CUTTERS

d1	d2	l1	l2	l3	z	Code no.
mm	mm	mm	mm	mm		
3.000	6.000	57.00	8.00	21.00	4	3.000
4.000	6.000	57.00	11.00	21.00	4	4.000
5.000	6.000	57.00	13.00	21.00	4	5.000
6.000	6.000	57.00	15.00	21.00	4	6.000
8.000	8.000	63.00	20.00	27.00	4	8.000
10.000	10.000	72.00	24.00	32.00	4	10.000
12.000	12.000	83.00	28.00	38.00	4	12.000
16.000	16.000	92.00	36.00	44.00	4	16.000
20.000	20.000	104.00	45.00	54.00	4	20.000

3.000	6.000	57.00	12.00	21.00	4	3.000
4.000	6.000	65.00	16.00	29.00	4	4.000
5.000	6.000	65.00	20.00	29.00	4	5.000
6.000	6.000	65.00	24.00	29.00	4	6.000
8.000	8.000	75.00	32.00	39.00	4	8.000
10.000	10.000	90.00	40.00	50.00	4	10.000
12.000	12.000	100.00	46.00	55.00	4	12.000
16.000	16.000	108.00	55.00	60.00	4	16.000
20.000	20.000	126.00	65.00	76.00	4	20.000

AVAILABILITY	
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GTC milling strategies

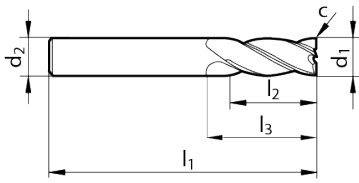
These milling strategies belong to the state-of-the-art and most effective application methods for current solid carbide milling tools. When applied, an enormously high metal removal rate ensures a considerable increase in productivity. Very high cutting parameters can be achieved even with less powerful machines or unstable machining conditions. With difficult-to-machine materials or unfavourable diameter-length-ratios of the tools a massive increase of process reliability can be achieved.



• Australian stock item ◦ German stock item



Guhring no.	6856	6864
Standard	Guhring std.	
Tool material	Solid carbide	
Surface	A	A
Type	N	N
Length	standard	3 x d
Helix angle	45°	45°
Tolerance	h10	h10



*Available in corner radius



Chip breaker



Chip breaker for shorter chips

MILLING CUTTERS

d1	d2	d3	l1	l2	l3	c	AVAILABILITY	
mm	mm	mm	mm	mm	mm	mm x 45°		
6.000	6.000	5.700	57.00	13.00	20.00	0.12	•	
8.000	8.000	7.700	63.00	19.00	26.00	0.16	•	
10.000	10.000	9.500	72.00	22.00	30.00	0.20	•	
12.000	12.000	11.500	83.00	26.00	36.00	0.24	•	
16.000	16.000	15.500	92.00	32.00	42.00	0.32	•	
20.000	20.000	19.500	104.00	38.00	52.00	0.40	•	
6.000	6.000	5.700	65.00	20.00	28.00	0.12		•
8.000	8.000	7.700	75.00	26.00	38.00	0.16		•
10.000	10.000	9.500	80.00	32.00	38.00	0.20		•
12.000	12.000	11.500	93.00	40.00	46.00	0.24		•
16.000	16.000	15.500	108.00	50.00	58.00	0.32		•
20.000	20.000	19.500	126.00	62.00	74.00	0.40		•

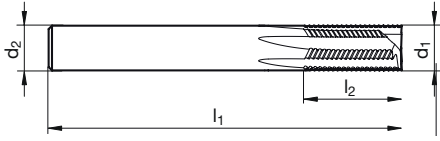
• Australian stock item ○ German stock item

ISO	Härte	v _c	f _z (mm/z)/Ø							v _c	f _z (mm/z)/Ø						
			3	6	8	10	12	16	20		3	6	8	10	12	16	20
P	≤ 850 N/mm ²	340	0,036	0,072	0,096	0,138	0,17	0,22	0,28	360	0,017	0,034	0,046	0,066	0,08	0,11	0,13
	≥ 850 N/mm ²	250	0,031	0,062	0,083	0,115	0,14	0,18	0,23		270	0,015	0,030	0,040	0,055	0,07	0,09
M	≤ 750 N/mm ²	220	0,031	0,062	0,083	0,115	0,14	0,18	0,23	240	0,015	0,030	0,040	0,055	0,07	0,09	0,11
	≥ 750 N/mm ²	110	0,024	0,048	0,064	0,092	0,11	0,15	0,18		120	0,011	0,021	0,028	0,040	0,05	0,06
S	Ni-Basis	60	0,019	0,039	0,052	0,074	0,09	0,12	0,15	60	0,008	0,017	0,022	0,032	0,04	0,05	0,06
	Ti-Basis	110	0,028	0,055	0,074	0,104	0,12	0,17	0,21		120	0,013	0,026	0,035	0,050	0,06	0,08



DIAMOND COATED TRIMMING CUTTERS

Guhring no.	6769
Standard	Guhring std.
Tool material	Solid carbide
Surface	Ⓚ
Type	FR 100
Length	Standard
Helix angle	0°
Tolerance	h10



MILLING CUTTERS

d1	d2	l1	l2	z	Code no.
mm	mm	mm	mm		
4.00	6.00	66	15.0	4	4.000
4.76	4.76	63	15.0	4	4.762
6.00	6.00	70	20.0	4	6.000
6.35	6.35	63	15.0	4	6.350
8.00	8.00	75	25.0	6	8.000
9.52	9.52	76	18.0	6	9.525
12.70	12.70	88	25.4	8	12.700

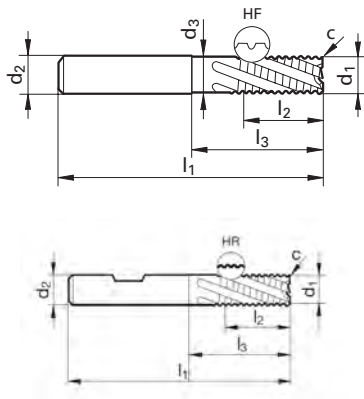
AVAILABILITY	
4.000	○
4.762	○
6.000	●
6.350	○
8.000	●
9.525	●
12.700	○

● Australian stock item ○ German stock item

RATIO END MILLS RMR RF 100 U (4-FLUTED)



Gühring no.	6882	5583
Standard	Gühring std.	DIN 6527 L
Tool material	Solid Carbide	
Surface	F	Y
Type	HF	HR
Length	standard	standard
Helix angle	30° / 32°	20°
Tolerance	h10	h10
	RF 100 U	GS 100 H (fine teeth)



55HRC

MILLING CUTTERS


d1	d2	d3	l1	l2	l3	c
mm	mm	mm	mm	mm	mm	mm x 45°
6.000	6.000	5.700	57.00	13.00	20.00	0.120
8.000	8.000	7.700	63.00	19.00	26.00	0.160
10.000	10.000	9.500	72.00	22.00	30.00	0.200
12.000	12.000	11.500	83.00	26.00	36.00	0.240
16.000	16.000	15.500	92.00	32.00	42.00	0.320
20.000	20.000	19.500	104.00	38.00	52.00	0.400
25.000	25.000	24.000	121.00	45.00	63.00	0.500
6.000	6.000		57.00	13.00	21.00	0.30
8.000	8.000		63.00	19.00	27.00	0.30
10.000	10.000		72.00	22.00	32.00	0.30
12.000	12.000		83.00	26.00	38.00	0.50
16.000	16.000		92.00	32.00	44.00	0.50
20.000	20.000		104.00	38.00	54.00	0.50

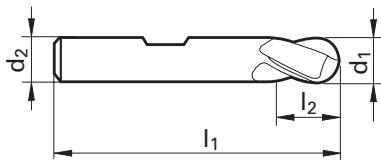
AVAILABILITY	
•	
•	
•	
•	
•	
•	
•	
	○
	○
	○
	○
	○
	○
	○
	○
	○
	○
	○
	○

• Australian stock item ○ German stock item



BALL NOSE SLOT DRILLS (2-FLUTED)

Guhring no.	3466
Standard	DIN 327 D
Tool material	M 42
Surface	
Type	N
Length	short
Helix angle	30°
Tolerance	e8/h10



MILLING CUTTERS

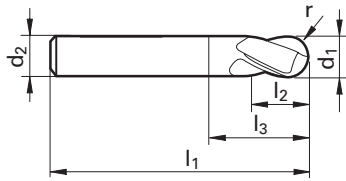
d1	d1	d2	l1	l2	AVAILABILITY
mm	tolerance	mm	mm	mm	
2.000	e8	6.000	48.00	4.00	○
3.000	e8	6.000	49.00	5.00	○
4.000	e8	6.000	51.00	7.00	●
5.000	e8	6.000	52.00	8.00	○
6.000	e8	6.000	52.00	8.00	●
7.000	e8	10.000	60.00	10.00	○
8.000	e8	10.000	61.00	11.00	●
9.000	h10	10.000	61.00	11.00	○
10.000	e8	10.000	63.00	13.00	●
12.000	e8	12.000	73.00	16.00	●
13.000	h10	12.000	73.00	16.00	○
14.000	e8	12.000	73.00	16.00	○
16.000	e8	16.000	79.00	19.00	●
19.000	h10	16.000	79.00	19.00	○
20.000	e8	20.000	88.00	22.00	●
22.000	e8	20.000	88.00	22.00	○
25.000	e8	25.000	102.00	26.00	○
28.000	e8	25.000	102.00	26.00	○

● Australian stock item ○ German stock item

BALL NOSE SLOT DRILLS (2-FLUTED)



Guhring no.	3308	3679	6917
Standard	DIN 6527	Guhring std.	
Tool material	Solid carbide		
Surface	○	●	●
Type	N	N	W
Length	standard	standard	standard
Helix angle	30°	30°	35°
Tolerance	h10	h10	h10
	Aluminium		Aluminium



MILLING CUTTERS

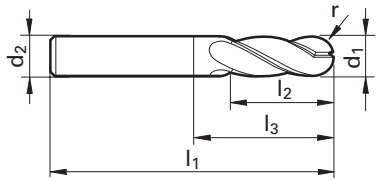
d1	d2	l1	l2	l3	r	AVAILABILITY	
mm	mm	mm	mm	mm	mm		
0.500	3.000	38.00	1.00	2.10	0.25	•	•
0.800	3.000	38.00	1.00	2.10	0.40	•	•
1.000	3.000	38.00	2.00	3.90	0.50	•	•
1.500	3.000	38.00	3.00	6.40	0.75	•	•
2.000	6.000	57.00	6.00	9.40	1.00	•	•
3.000	6.000	57.00	7.00	11.90	1.50	•	•
4.000	6.000	57.00	8.00	13.40	2.00	•	•
5.000	6.000	57.00	10.00	16.90	2.50	•	•
6.000	6.000	57.00	10.00	21.00	3.00	•	•
8.000	8.000	63.00	16.00	27.00	4.00	•	•
10.000	10.000	72.00	19.00	32.00	5.00	•	•
12.000	12.000	83.00	22.00	38.00	6.00	•	•
14.000	14.000	83.00	22.00	38.00	7.00	•	•
16.000	16.000	92.00	26.00	44.00	8.00	•	•
18.000	18.000	92.00	26.00	44.00	9.00	•	•
20.000	20.000	104.00	32.00	54.00	10.00	•	•
3.000	6.000	57.00	4.00	15.00	1.50		•
4.000	6.000	57.00	5.00	18.00	2.00		•
5.000	6.000	57.00	6.00	18.00	2.50		•
6.000	6.000	57.00	7.00	20.00	3.00		•
8.000	8.000	63.00	9.00	26.00	4.00		•
10.000	10.000	72.00	11.00	30.00	5.00		•
12.000	12.000	83.00	12.00	36.00	6.00		•
16.000	16.000	92.00	16.00	42.00	8.00		•

• Australian stock item ○ German stock item

BALL NOSE END MILLS (4-FLUTED)



Guhring no.	5584	6707	3043
Standard	DIN 6527 L	DIN 6527 L	Guhring std.
Tool material	Solid carbide		
Surface	F	a	F
Type	N	RF 100 VA	N
Length	long	long	extra long
Helix angle	30°	36°/38°	30°
Tolerance	h10	h10	h10



MILLING CUTTERS

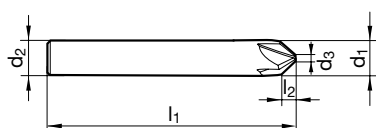
d1	d2	l1	l2	l3	r	AVAILABILITY	
mm	mm	mm	mm	mm	mm		
3.000	6.000	57.00	8.00	12.40	1.50	•	○
4.000	6.000	50.00	11.00	15.90	2.00	•	○
5.000	6.000	50.00	13.00	19.40	2.50	•	○
6.000	6.000	57.00	13.00	21.00	3.00	•	○
8.000	8.000	63.00	19.00	27.00	4.00	•	○
10.000	10.000	72.00	22.00	32.00	5.00	•	○
12.000	12.000	83.00	26.00	38.00	6.00	•	○
16.000	16.000	92.00	44.00	32.00	8.00	•	○
20.000	20.000	104.00	38.00	54.00	10.00	•	○
25.000	25.000	121.00	45.00	63.00	12.50		○
3.000	3.000	75.00	20.00	47.00	1.50		•
4.000	4.000	75.00	25.00	47.00	2.00		•
5.000	5.000	75.00	30.00	47.00	2.50		•
6.000	6.000	75.00	30.00	39.00	3.00		•
8.000	8.000	100.00	40.00	64.00	4.00		•
10.000	10.000	100.00	40.00	60.00	5.00		•
12.000	12.000	150.00	45.00	105.00	6.00		•

• Australian stock item ○ German stock item



CHAMFERING MILLING CUTTERS (4-FLUTED)

Guhring no.	6711	6713	6714
Standard	Guhring Std.		
Tool material	Solid Carbide		
Surface	A	F	A
Type	N	N	N
Length	standard	standard	standard
Angle	60°	90°	120°
Tolerance	js9	h10	js9



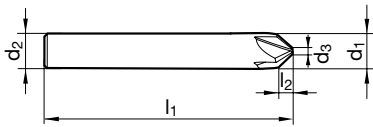
MILLING CUTTERS

d1	d2	l1	l2	z	AVAILABILITY
mm	mm	mm	mm		
4.000	4.000	50.00	3.50	4	○
6.000	6.000	57.00	5.20	4	○
8.000	8.000	63.00	7.00	4	○
10.000	10.000	72.00	8.70	4	○
12.000	12.000	83.00	10.40	4	○
4.000	4.000	50.00	2.00	4	●
6.000	6.000	57.00	3.00	4	●
8.000	8.000	63.00	4.00	4	●
10.000	10.000	72.00	5.00	4	●
12.000	12.000	83.00	6.00	4	●
4.000	4.000	50.00	1.20	4	○
6.000	6.000	57.00	1.80	4	○
8.000	8.000	63.00	2.40	4	○
10.000	10.000	72.00	2.90	4	○
12.000	12.000	83.00	3.50	4	○

● Australian stock item ○ German stock item



Guhring no.	6810	6992	6812
Standard	Guhring Std.		
Tool material	Solid Carbide		
Surface	F	A	F
Type	N	N	N
Length	standard	standard	standard
Angle	60°	90°	120°
Tolerance	js9	h10	h10



MILLING CUTTERS

d1	d2	d3	l1	l2	z	AVAILABILITY
mm	mm	mm	mm	mm		
6.000	6.000	1.500	57.00	3.90	5	○
8.000	8.000	2.000	63.00	5.20	5	○
10.000	10.000	2.500	72.00	6.50	5	○
12.000	12.000	3.000	83.00	7.80	5	○
16.000	16.000	4.000	92.00	10.40	5	○
20.000	20.000	5.000	104.00	13.00	5	○
6.000	6.000	1.500	57.00	2.25	5	•
8.000	8.000	2.000	63.00	3.00	5	•
10.000	10.000	2.500	72.00	3.75	5	•
12.000	12.000	3.000	83.00	4.50	5	•
16.000	16.000	4.000	92.00	6.00	5	•
20.000	20.000	5.000	104.00	7.50	5	•
6.000	6.000	1.500	57.00	1.30	5	•
8.000	8.000	2.000	63.00	1.73	5	•
10.000	10.000	2.500	72.00	2.17	5	•
12.000	12.000	3.000	83.00	2.60	5	•
16.000	16.000	4.000	92.00	3.46	5	○
20.000	20.000	5.000	104.00	4.33	5	○

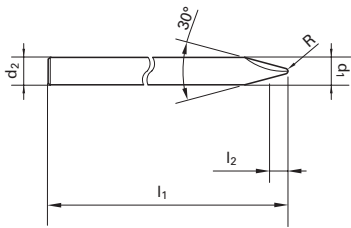
• Australian stock item ○ German stock item



ENGRAVING TOOL (2-FLUTED)

MILLING
CUTTERS

Guhring no.	5006
Standard	Guhring std.
Tool material	Solid carbide
Surface	F
Type	N
Length	standard
Angle	30°
Tolerance	h8



d1	d2	l1	l2	r
mm	mm	mm	mm	mm
3.000	3.000	38.00	0.70	0.30

AVAILABILITY
• 330050477

• Australian stock item ◦ German stock item



GUHRING

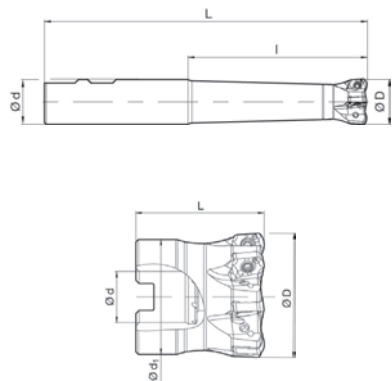
GHM
*HIGH FEED
MILLING CUTTER*



HIGH FEED MILLING CUTTERS WITH INDEXABLE INSERTS

MILLING CUTTERS

Guhring no.	28000	28002
Standard	Guhring std.	
Surface	(Ni)	(Ni)

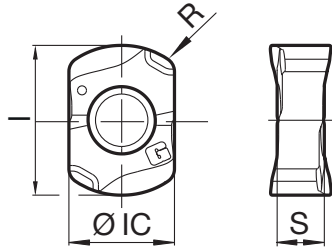


D	d	l	L	Z	Code	AVAILABILITY
mm	mm	mm	mm	mm	no.	
16	16	50	150	2	16.000	•
20	20	90	160	3	20.000	•
25	25	100	180	4	25.000	•
32	32	120	200	5	32.000	•
D	d	L	d1	Z	Code	AVAILABILITY
mm	mm	mm	mm	mm	no.	
40	16	40	36	7	40.000	•
50	22	40	42	6	50.000	•
50	22	40	42	8	50.001	○
52	22	40	40	8	52.000	•
63	22	40	48	9	63.000	•
80	27	50	60	10	80.000	○

• Australian stock item ○ German stock item



Guhring no.	28003	28004	28009
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PK2011



ISO P, ISO K

MP3021



ISO M, ISO S

PK3021



For unstable conditions

MILLING CUTTERS

IC	PR	R	I	S	Size	Description	Code no.
mm	mm	mm	mm	mm			
7.05	1.9	1.0	10	3.6	07	XNMX 07T319 T	7.000

AVAILABILITY	
•	•

Guhring no.	28400	28901
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Code No.	Torque Nm	Size
8.000	1.4	M3X7.5 08IP
8.000		08IP

AVAILABILITY	
•	•

• Australian stock item ◦ German stock item



Objectives: Higher efficiency through greater metal removal rate



HPC = High Performance Cutting:

max. machining volume / time; stable conditions; short chip creation; high performance; good cooling

Milling with a tool contact angle of less than 70° and cutting depths of 2-3 x tool diameter

*i*machining, roughing, trochoid

- low cutting width (a_e): $<0.4 \times d$
- high depth of cut (a_p): up to 2-3 x d
- very high tooth feed rate (f_z)
- very high cutting speed (v_c)



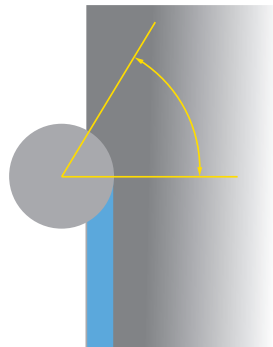
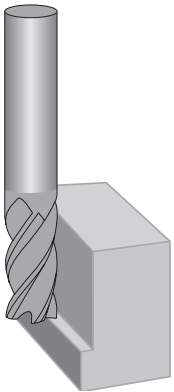
HSC = High Speed Cutting:

at higher cutting speed/ high feed; low power; low feed function

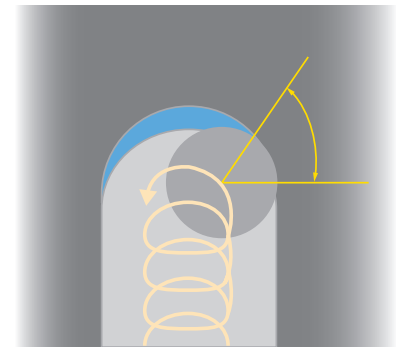
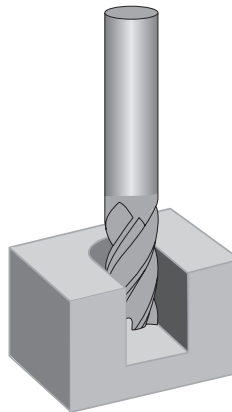
Milling with a tool contact angle of less than 37° and cutting depths up to 3x tool diameter

Semi roughing, finishing and fine-finishing

- minimum cutting width (a_e): $0.15 \times d$
- high depth of cut (a_p): up to 3 x d
- high tooth feed rate (f_z)
- maximum cutting speed (v_c)



Tool Contact Angle



Tool Contact Angle

HPC Linear Milling

Milling internal and external contours with high axial depth (a_p) and low radial widths (a_e). Increasing the cutting parameters due to the tool contact angle.

HPC Milling – Trochoid / *i*machining

Machining of grooves or complex contours with long lengths (a_p) and small radial depths (a_e). Increasing the cutting parameters due to the limited angle of contact. Programming cycles or CAM-program.

Operating Principals

- reducing the contact time of tool and workpiece results in less stress and greater thermal efficiency on the cutting edge
- the reduction of the pressure angle between the tool and workpiece reduces the average chip thickness
- less force on the tool, workpiece and machine

Benefits

- extreme increase in cutting speed
- significant increase in the feed rate per tooth
- significant increase in the removal rate
- process-reliable for difficult-to-machine materials
- increase in tool life
- machinery is conserved



Benchmarks for increasing the cutting values

Application	Radial feed in% from	* f_z Factor	* v_c Factor	Contact Angle
slotting	100%	1	1	180°
HPC roughing	33%	1,3	1,5	70°
HPC roughing	25%	1,5	1,6	60°
HPC roughing	20%	1,6	1,7	53°
HPC roughing	15%	1,9	1,7	46°
HSC roughing	10%	2,3	1,8	37°
HSC roughing	5%	3,3	1,9	26°
HSC finishing	3%	1,1	2,0	20°
HSC finishing	2%	1,4	2,0	18°
HSC finishing	1%	2,0	2,1	11°
Fine finishing	<1%	1	2	target: min R_z

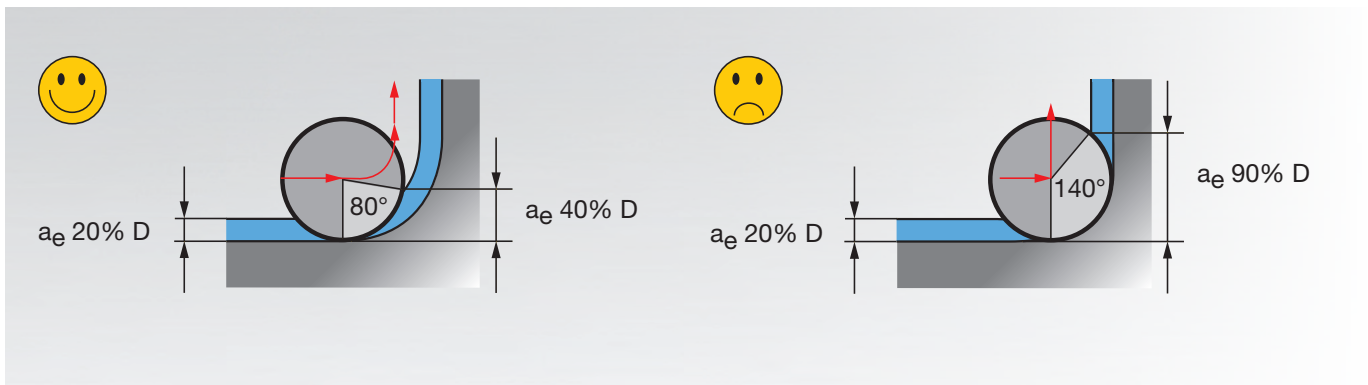
* Basis for the calculation with the v_c and f_z factors is provided within the Guhring Navigator section for „grooves“ in the appropriate material group.

Example: steel C45

- Tools: Milling cutter Ø12 mm
- Feed: Radial feed (a_e) 3 mm
- % Calculation : a_e 3 mm = 25% of Ø 12 mm
- Standard values: v_c slotting = 180 m/min, f_z slotting = 0.07 mm
- Conversion: v_c factor = 1.6 → v_c : 180 m/min x 1,6 = v_c 288 m/min
 f_z factor = 1.5 → f_z : 0.07 mm x 1.5 = f_z 0.105 mm
- Increased Values: v_c 288 m/min / f_z 0.105 mm
 S : 7640 min^{-1} / v_f : 4580 mm/min
 a_p : 24 mm a_e : 3 mm → Q : 330 cm^3/min

$$Q_{(\text{cm}^3/\text{min})} = a_p_{(\text{mm})} \times a_e_{(\text{mm})} \times v_f_{(\text{m}/\text{min})}$$

The increase in the corner contact angle overloads the milling cutters. Solution: the pocket radius must be much larger than the milling cutter radius to keep the contact angle less than 80° (max load).





CUTTING SPEED RECOMMENDATION

(HSCO UNIVERSAL MILLING CUTTERS)

Guhring no. 3451, 3453, 3459, 3460, 3428, 3431, 3433



HSCO

Application	vc factor	fz factor	Feed width (ae)	Feed depth (ap)
Slotting	1	1 (0.7 for ap = 2xd)	1xd	0.5 up to 1xd
Roughing	1	1 (0.7 for ap = 2xd)	0.4 up to 0.9xd	0.5 up to 1xd
Finishing	1	1	0.01 up to 0.1xd	1 up to 2xd
HPC-roughing	1.3	1.5	0.15 up to 0.4xd	1 up to 2xd
HSC-roughing	1.5	2	0.05 up to 0.15xd	1 up to 2xd

MILLING CUTTERS

Material	Hardness	Type of application	cut Vc	fz(mm/z) with nom. ø							
				3	6	8	10	12	16	20	25
Structural + free-cutting steels, unalloyed heat-treatable + case hardened steels S185, P275N, P235GH, P265GH, Mild steel, Grade 250 plate, Grade 350 plate, E295, E360, P500NH	up to 850 N/mm2	Slotting	40	0.010	0.012	0.025	0.032	0.040	0.045	0.060	0.080
		Roughing	50	0.012	0.015	0.030	0.039	0.050	0.060	0.080	0.095
		Finishing	75	0.011	0.014	0.028	0.030	0.042	0.050	0.070	0.075
Free-cutting steels, unalloyed case hardened steels, nitriding steels 11SMnPb30, 11SMn37, 1020, S1214, S1213, S12L13, S12L14, 46S20, 46SPb20	850-1,200 N/mm2	Slotting	35	0.009	0.012	0.020	0.030	0.035	0.040	0.045	0.060
		Roughing	45	0.011	0.015	0.025	0.035	0.045	0.050	0.060	0.080
		Finishing	60	0.010	0.014	0.021	0.028	0.039	0.042	0.050	0.070
Alloyed heat-treatable, tool and high speed steels 50MnSi4, 38Cr2, 28Cr4, 3140, 4130, 4140, 4150, 4340, 6150, EN16, EN26, 36NiCr6, 41Cr4, 42CrMo4 Spring steel = 55Si7, 55Cr3, 51CrV4	850- 1,400 N/mm2	Slotting	25	0.008	0.010	0.015	0.025	0.032	0.040	0.045	0.060
		Roughing	35	0.010	0.012	0.020	0.030	0.039	0.050	0.060	0.080
		Finishing	50	0.009	0.011	0.015	0.028	0.030	0.042	0.050	0.070
Hardened steel Tool steel, heat-treatable steel, spring steel, high-speed steel, case hardened steel, etc. 10CrMo11, 11MnSi6, 3310, 3415, 5115, 4615, 4620, 5120, 8617, 8620, 15NiCr13, 16MnCr5, 20CrMo5, N33, EN36A	up to 54 HRC	Slotting									
		Roughing									
		Finishing									
	54-60 HRC	Slotting									
		Roughing									
		Finishing									
Stainless steel X12CrS13, X14CrMoS17, X6CrMoS17, X8CrNiS18-9, 410S, 430F, 630	up to 750 N/mm2	Slotting	30	0.008	0.009	0.018	0.024	0.030	0.036	0.042	0.054
		Roughing	40	0.010	0.011	0.021	0.027	0.036	0.042	0.054	0.060
		Finishing	55	0.009	0.010	0.018	0.024	0.033	0.039	0.048	0.057
Stainless steel X5CrNi18-10, X6CrNiTi18-10, X6CrNiMoTi 17-12-2, 302, 303, 304, 310, 316, 316Ti, 321	750-850 N/mm2	Slotting	25	0.007	0.009	0.015	0.021	0.027	0.030	0.039	0.048
		Roughing	35	0.009	0.010	0.018	0.024	0.033	0.039	0.048	0.057
		Finishing	50	0.008	0.009	0.018	0.024	0.030	0.036	0.042	0.054
Stainless steel X20CrNi172, X39CrMo17-1, X2CrMoTi18-2, 410, 410X, 416, 420, 420C, 431, 440C	above 850 N/mm2	Slotting	18	0.006	0.007	0.015	0.018	0.024	0.027	0.036	0.042
		Roughing	28	0.008	0.009	0.015	0.021	0.027	0.030	0.039	0.048
		Finishing	36	0.007	0.009	0.015	0.021	0.027	0.030	0.039	0.048
Special alloys (nickel based "Ni") Nimonic, Inconel, Monel, Hastelloy	up to 1,300 N/mm2	Slotting	8	0.006	0.009	0.012	0.015	0.018	0.024	0.030	0.036
		Roughing	10	0.006	0.012	0.018	0.021	0.024	0.033	0.039	0.048
		Finishing	15	0.009	0.015	0.021	0.027	0.030	0.039	0.048	0.072
Titanium alloys ("Ti") Ti99,5, TiAl5Sn2,5, TiCu2, TiAl6Zr5, TiAl6V4, TiAl4Mo4Sn2	up to 1,300 N/mm2	Slotting	18	0.009	0.015	0.021	0.027	0.030	0.039	0.048	0.072
		Roughing	25	0.010	0.018	0.024	0.033	0.039	0.048	0.057	0.084
		Finishing	45	0.010	0.018	0.024	0.033	0.039	0.048	0.057	0.084
Cast iron, grey cast iron, spheroidal graphite and malleable cast iron GG10, GG15, GG20, GG25, GG30, GG35 GG40 GGG40, GGG50, GGG60, 32510,GTW35	up to 240 HB 30	Slotting	40	0.009	0.012	0.024	0.030	0.039	0.048	0.057	0.066
		Roughing	50	0.011	0.012	0.024	0.033	0.042	0.051	0.060	0.072
		Finishing	60	0.010	0.011	0.021	0.027	0.036	0.042	0.054	0.060
Cast iron, grey cast iron, spheroidal graphite and malleable cast iron GG10, GG15, GG20, GG25, GG30, GG35 GG40 GGG40, GGG50, GGG60, 32510,GTW35	above 240 HB 30	Slotting	30	0.009	0.010	0.018	0.024	0.033	0.039	0.048	0.057
		Roughing	40	0.010	0.012	0.024	0.030	0.039	0.048	0.057	0.066
		Finishing	50	0.010	0.011	0.021	0.027	0.036	0.042	0.054	0.060
Aluminium, Al-wrought alloys, Al-alloys Al99,5, AlMgSi1, AlMg1 AlMgSiPb, AlCuMg1, AlMg3Si, AlZnMgCu1,5	up to 3% Si	Slotting	100	0.012	0.014	0.028	0.035	0.046	0.056	0.067	0.077
		Roughing	120	0.012	0.014	0.028	0.039	0.049	0.060	0.070	0.084
		Finishing	160	0.011	0.013	0.025	0.032	0.042	0.049	0.063	0.070
Aluminium-cast alloys G-AlSi5Cu1, G-AlSi7Cu3, G-AlSi9 G-AlSi12, G-AlSi12Cu, - G-AlSi12CuNiMg	above 3% Si	Slotting	70	0.011	0.021	0.028	0.039	0.046	0.056	0.067	0.098
		Roughing	90	0.014	0.028	0.035	0.046	0.056	0.067	0.077	0.112
		Finishing	130	0.013	0.025	0.032	0.042	0.049	0.063	0.070	0.105
Magnesium-alloys MgMn2, G-MgAl8Zn1, G-MgAl6Zn3 -	-	Slotting	65	0.011	0.021	0.028	0.039	0.046	0.056	0.067	0.098
		Roughing	90	0.014	0.028	0.035	0.046	0.056	0.067	0.077	0.112
		Finishing	110	0.013	0.025	0.032	0.042	0.049	0.063	0.070	0.105
Non-ferrous metals (copper, short- or long-chipping brass or bronze) SE-Cu, CuSn6, G-CuSn5ZnPb, CuZn39Pb2, CuZn39Pb3, CuZn43Pb2, CuZn20, CuZn33, CuZn37Pb0,5, CuSn7ZnPb, CuPb5Sn5, CuPb10Sn, CuAl5, CuAl9Mn, CuSn10	up to 850 N/mm2	Slotting	60	0.011	0.018	0.025	0.032	0.035	0.046	0.056	0.084
		Roughing	80	0.011	0.021	0.028	0.039	0.046	0.056	0.067	0.098
		Finishing	100	0.011	0.021	0.028	0.039	0.046	0.056	0.067	0.098

All recommendations are valid for coated tools. For bright milling cutters please vc - 40% and fz -25%!

CUTTING SPEED RECOMMENDATION

(CARBIDE UNIVERSAL END MILLS 2-/3-/4- FLUTED TYPE N)



Guhring no. 3676, 5549, 5573, 3680, 3649, 5556, 3562



CARBIDE

Application	vc factor	fz factor	Feed width (ae)	Feed depth (ap)
Slotting	1	1 (0.7 for ap = 2xd)	1xd	0.5 up to 1xd
Roughing	1	1 (0.7 for ap = 2xd)	0.4 up to 0.9xd	0.5 up to 1xd
Finishing	1	1	0.01 up to 0.1xd	1 up to 2xd
HPC-roughing	1.3	1.5	0.15 up to 0.4xd	1 up to 2xd
HSC-roughing	1.5	2	0.05 up to 0.15xd	1 up to 2xd

Material	Hardness	Recommended RF100 type	Type of application	cut Vc	fz(mm/z) with nom. ø							
					3	6	8	10	12	16	20	25
Structural + free-cutting steels, unalloyed heat-treatable + case hardened steels S185, P275N, P235GH, P265GH, Mild steel, Grade 250 plate, Grade 350 plate, E295, E360, P500NH	up to 850 N/mm2	2-fluted	Slotting	125	0.013	0.025	0.032	0.042	0.049	0.063	0.070	0.105
		2-/3-fluted	Roughing	140	0.014	0.028	0.039	0.049	0.060	0.070	0.084	0.119
		4-fluted	Finishing	190	0.011	0.021	0.028	0.039	0.046	0.056	0.067	0.098
Free-cutting steels, unalloyed case hardened steels, nitriding steels 11SMnPb30, 11SMn37, 1020, S1214, S1213, S12L13, S12L14, 46S20, 46SPb20	850-1,200 N/mm2	2-fluted	Slotting	110	0.013	0.025	0.032	0.042	0.049	0.063	0.070	0.105
		2-/3-fluted	Roughing	130	0.014	0.028	0.039	0.049	0.060	0.070	0.084	0.119
		4-fluted	Finishing	150	0.011	0.021	0.028	0.039	0.046	0.056	0.067	0.098
Alloyed heat-treatable, tool and high speed steels 50MnSi4, 38Cr2, 28Cr4, 3140, 4130, 4140, 4150, 4340, 6150, EN16, EN26, 36NiCr6, 41Cr4, 42CrMo4 Spring steel = 55Si7, 55Cr3, 51CrV4	850-1,400 N/mm2	2-fluted	Slotting	95	0.011	0.021	0.028	0.039	0.046	0.056	0.067	0.098
		2-/3-fluted	Roughing	115	0.014	0.028	0.035	0.046	0.056	0.067	0.077	0.112
		4-fluted	Finishing	140	0.011	0.021	0.028	0.035	0.042	0.049	0.063	0.091
Hardened steel Tool steel, heat-treatable steel, spring steel, high-speed steel, case hardened steel, etc. 10CrMo11, 11MnSi6, 3310, 3415, 5115, 4615, 4620, 5120, 8617, 8620, 15NiCr13, 16MnCr5, 20CrMo5, N33, EN36A	up to 54 HRC	2-fluted	Slotting	50	0.007	0.015	0.018	0.024	0.027	0.036	0.042	0.060
		2-/3-fluted	Roughing	75	0.009	0.015	0.021	0.027	0.030	0.039	0.048	0.072
		4-fluted	Finishing	105	0.009	0.018	0.024	0.030	0.036	0.042	0.054	0.078
Stainless steel X12CrS13, X14CrMoS17, X6CrMoS17, X8CrNiS18-9, 410S, 430F, 630	up to 750 N/mm2	2-fluted	Slotting	85	0.009	0.018	0.024	0.030	0.036	0.042	0.054	0.078
		2-/3-fluted	Roughing	100	0.011	0.021	0.027	0.036	0.042	0.054	0.060	0.090
		4-fluted	Finishing	125	0.010	0.018	0.024	0.033	0.039	0.048	0.057	0.084
Stainless steel X5CrNi18-10, X6CrNiTi18-10, X6CrNiMoTi 17-12-2, 302, 303, 304, 310, 316, 316Ti, 321	750-850 N/mm2	2-fluted	Slotting	55	0.009	0.015	0.021	0.027	0.030	0.039	0.048	0.072
		2-/3-fluted	Roughing	85	0.010	0.018	0.024	0.033	0.039	0.048	0.057	0.084
		4-fluted	Finishing	100	0.009	0.018	0.024	0.030	0.036	0.042	0.054	0.078
Stainless steel X20CrNi172, X39CrMo17-1, X2CrMoTi18-2, 410, 410X, 416, 420, 420C, 431, 440C	above 850 N/mm2	2-fluted	Slotting	50	0.007	0.015	0.018	0.024	0.027	0.036	0.042	0.060
		2-/3-fluted	Roughing	70	0.009	0.015	0.021	0.027	0.030	0.039	0.048	0.072
		4-fluted	Finishing	85	0.009	0.015	0.021	0.027	0.030	0.039	0.048	0.072
Special alloys (nickel based "Ni") Nimonic, Inconel, Monel, Hastelloy	up to 1,300 N/mm2	2-fluted	Slotting	20	0.006	0.009	0.012	0.015	0.018	0.024	0.030	0.036
		2-/3-fluted	Roughing	25	0.006	0.012	0.018	0.021	0.024	0.033	0.039	0.048
		4-fluted	Finishing	30	0.009	0.015	0.021	0.027	0.030	0.039	0.048	0.072
Titanium alloys ("Ti") Ti99,5, TiAl5Sn2,5, TiCu2, TiAl6Zr5, TiAl6V4, TiAl4Mo4Sn2	up to 1,300 N/mm2	2-fluted	Slotting	40	0.009	0.015	0.021	0.027	0.030	0.039	0.048	0.072
		2-/3-fluted	Roughing	60	0.010	0.018	0.024	0.033	0.039	0.048	0.057	0.084
		4-fluted	Finishing	90	0.010	0.018	0.024	0.033	0.039	0.048	0.057	0.084
Cast iron, grey cast iron, spheroidal graphite and malleable cast iron GG10, GG15, GG20, GG25, GG30, GG35 GG40 GGG40, GGG50, GGG60, 32510,GTW35	up to 240 HB 30	2-fluted	Slotting	115	0.012	0.024	0.030	0.039	0.048	0.057	0.066	0.096
		2-/3-fluted	Roughing	125	0.012	0.024	0.033	0.042	0.051	0.060	0.072	0.102
		4-fluted	Finishing	155	0.011	0.021	0.027	0.036	0.042	0.054	0.060	0.090
Cast iron, grey cast iron, spheroidal graphite and malleable cast iron GG10, GG15, GG20, GG25, GG30, GG35 GG40 GGG40, GGG50, GGG60, 32510,GTW35	above 240 HB 30	2-fluted	Slotting	100	0.010	0.018	0.024	0.033	0.039	0.048	0.057	0.084
		2-/3-fluted	Roughing	115	0.012	0.024	0.030	0.039	0.048	0.057	0.066	0.096
		4-fluted	Finishing	140	0.011	0.021	0.027	0.036	0.042	0.054	0.060	0.090
Aluminium, Al-wrought alloys, Al-alloys Al99,5, AlMgSi1, AlMg1 AlMgSiPb, AlCuMg1, AlMg3Si, AlZnMgCu1,5	up to 3% Si	2-fluted	Slotting	350	0.014	0.028	0.035	0.046	0.056	0.067	0.077	0.112
		2-/3-fluted	Roughing	420	0.014	0.028	0.039	0.049	0.060	0.070	0.084	0.119
		4-fluted	Finishing	700	0.013	0.025	0.032	0.042	0.049	0.063	0.070	0.105
Aluminium-cast alloys G-AlSi5Cu1, G-AlSi7Cu3, G-AlSi9 G-AlSi12, G-AlSi12Cu, - G-AlSi12CuNiMg	above 3% Si	2-fluted	Slotting	160	0.011	0.021	0.028	0.039	0.046	0.056	0.067	0.098
		2-/3-fluted	Roughing	200	0.014	0.028	0.035	0.046	0.056	0.067	0.077	0.112
		4-fluted	Finishing	245	0.013	0.025	0.032	0.042	0.049	0.063	0.070	0.105
Magnesium-alloys MgMn2, G-MgAl8Zn1, G-MgAl6Zn3 -		2-fluted	Slotting	125	0.011	0.021	0.028	0.039	0.046	0.056	0.067	0.098
		2-/3-fluted	Roughing	150	0.014	0.028	0.035	0.046	0.056	0.067	0.077	0.112
		4-fluted	Finishing	200	0.013	0.025	0.032	0.042	0.049	0.063	0.070	0.105
Non-ferrous metals (copper, short- or long-chipping brass or bronze) SE-Cu, CuSn6, G-CuSn5ZnPb, CuZn39Pb2, CuZn39Pb3, CuZn43Pb2, CuZn20, CuZn33, CuZn37Pb0,5, CuSn7ZnPb, CuPb5Sn5, CuPb10Sn, CuAl5, CuAl9Mn, CuSn10	up to 850 N/mm2	2-fluted	Slotting	175	0.011	0.018	0.025	0.032	0.035	0.046	0.056	0.084
		2-/3-fluted	Roughing	210	0.011	0.021	0.028	0.039	0.046	0.056	0.067	0.098
		4-fluted	Finishing	280	0.011	0.021	0.028	0.039	0.046	0.056	0.067	0.098

All recommendations are valid for coated tools. For bright milling cutters please vc - 40% and fz -25%!



CUTTING SPEED RECOMMENDATION

(CARBIDE SLOT DRILLS - 2 FLUTED TYPE W FOR ALUMINIUM)

Guhring no. 5743, 3358, 6793



CARBIDE

Application	vc factor	fz factor	Feed width (ae)	Feed depth (ap)
Slotting	1	1 (0.7 for ap = 2xd)	1xd	0.5 up to 1xd
Roughing	1	1 (0.7 for ap = 2xd)	0.4 up to 0.9xd	0.5 up to 1xd
Finishing	1	1	0.01 up to 0.1xd	1 up to 2xd
HPC-roughing	1.3	1.5	0.15 up to 0.4xd	1 up to 2xd
HSC-roughing	1.5	2	0.05 up to 0.15xd	1 up to 2xd

MILLING CUTTERS

Material	Hardness	Recommended RF100 type	Type of application	cut Vc	fz(mm/z) with nom. ø													
					3	6	8	10	12	16	20	25						
Structural + free-cutting steels, unalloyed heat-treatable + case hardened steels S185, P275N, P235GH, P265GH, Mild steel, Grade 250 plate, Grade 350 plate, E295, E360, P500NH	up to 850 N/mm2																	
Free-cutting steels, unalloyed case hardened steels, nitriding steels 11SMnPb30, 11SMn37, 1020, S1214, S1213, S12L13, S12L14, 46S20, 46SPb20	850-1,200 N/mm2																	
Alloyed heat-treatable, tool and high speed steels 50MnSi4, 38Cr2, 28Cr4, 3140, 4130, 4140, 4150, 4340, 6150, EN16, EN26, 36NiCr6, 41Cr4, 42CrMo4 Spring steel = 55Si7, 55Cr3, 51CrV4	850-1,400 N/mm2																	
Hardened steel Tool steel, heat-treatable steel, spring steel, high-speed steel, case hardened steel, etc. 10CrMo11, 11MnSi6, 3310, 3415, 5115, 4615, 4620, 5120, 8617, 8620, 15NiCr13, 16MnCr5, 20CrMo5, N33, EN36A	up to 54 HRC 54-60 HRC																	
Stainless steel X12CrS13, X14CrMoS17, X6CrMoS17, X8CrNiS18-9, 410S, 430F, 630	up to 750 N/mm2																	
Stainless steel X5CrNi18-10, X6CrNiTi18-10, X6CrNiMoTi 17-12-2, 302, 303, 304, 310, 316, 316Ti, 321	750-850 N/mm2																	
Stainless steel X20CrNi172, X39CrMo17-1, X2CrMoTi18-2, 410, 410X, 416, 420, 420C, 431, 440C	above 850 N/mm2																	
Special alloys (nickel based "Ni") Nimonic, Inconel, Monel, Hastelloy	up to 1,300 N/mm2																	
Titanium alloys ("Ti") Ti99,5, TiAl5Sn2,5, TiCu2, TiAl6Zr5, TiAl6V4, TiAl4Mo4Sn2	up to 1,300 N/mm2																	
Cast iron, grey cast iron, spheroidal graphite and malleable cast iron GG10, GG15, GG20, GG25, GG30, GG35 GG40 GGG40, GGG50, GGG60, 32510,GTW35	up to 240 HB 30																	
Cast iron, grey cast iron, spheroidal graphite and malleable cast iron GG10, GG15, GG20, GG25, GG30, GG35 GG40 GGG40, GGG50, GGG60, 32510,GTW35	above 240 HB 30																	
Aluminium, Al-wrought alloys, Al-alloys Al99,5, AlMgSi1, AlMg1 AlMgSiPb, AlCuMg1, AlMg3Si, AlZnMgCu1,5	up to 3% Si	2-fluted	Slotting	350	0.014	0.028	0.035	0.046	0.056	0.067	0.077	0.112						
		2-fluted	Roughing	420	0.014	0.028	0.039	0.049	0.060	0.070	0.084	0.119						
		2-fluted	Finishing	700	0.013	0.025	0.032	0.042	0.049	0.063	0.070	0.105						
Aluminium-cast alloys G-AlSi5Cu1, G-AlSi7Cu3, G-AlSi9 G-AlSi12, G-AlSi12Cu, - G-AlSi12CuNiMg	above 3% Si	2-fluted	Slotting	160	0.011	0.021	0.028	0.039	0.046	0.056	0.067	0.098						
		2-fluted	Roughing	200	0.014	0.028	0.035	0.046	0.056	0.067	0.077	0.112						
		2-fluted	Finishing	245	0.013	0.025	0.032	0.042	0.049	0.063	0.070	0.105						
Magnesium-alloys MgMn2, G-MgAl8Zn1, G-MgAl6Zn3 -		2-fluted	Slotting	125	0.011	0.021	0.028	0.039	0.046	0.056	0.067	0.098						
		2-fluted	Roughing	150	0.014	0.028	0.035	0.046	0.056	0.067	0.077	0.112						
		2-fluted	Finishing	200	0.013	0.025	0.032	0.042	0.049	0.063	0.070	0.105						
Non-ferrous metals (copper, short- or long-chipping brass or bronze) SE-Cu, CuSn6, G-CuSn5ZnPb, CuZn39Pb2, CuZn39Pb3, CuZn43Pb2, CuZn20, CuZn33, CuZn37Pb0,5, CuSn7ZnPb, CuPb5Sn5, CuPb10Sn, CuAl5, CuAl9Mn, CuSn10	up to 850 N/mm2	2-fluted	Slotting	175	0.011	0.018	0.025	0.032	0.035	0.046	0.056	0.084						
		2-fluted	Roughing	210	0.011	0.021	0.028	0.039	0.046	0.056	0.067	0.098						
		2-fluted	Finishing	280	0.011	0.021	0.028	0.039	0.046	0.056	0.067	0.098						

All recommendations are valid for coated tools. For bright milling cutters please vc - 40% and fz -25%!

CUTTING SPEED RECOMMENDATION

(RF 100 U, F, VA, A, TI, H, CARBIDE MILLING CUTTERS FOR STABLE CONDITIONS)



Guhring no. 3472, 3473, 3892, 5735, 5535, 5582, 3114, 3803, 3499, 6978, 6478, 6480, 8230, 8236, 8244



Stable conditions:
- good cooling
- sufficient performance
- short-chipping

Application	vc factor	fz factor	Feed width (ae)	Feed depth (ap)
Slotting	1	1 (0.7 for ap = 2xd)	1xd	0.5 up to 1xd
Roughing	1	1 (0.7 for ap = 2xd)	0.4 up to 0.9xd	0.5 up to 1xd
Finishing	1	1	0.01 up to 0.1xd	1 up to 2xd
HPC-roughing	1.3	1.5	0.15 up to 0.4xd	1 up to 2xd
HSC-roughing	1.5	2	0.05 up to 0.15xd	1 up to 2xd

Material	Hardness	Recommended RF100 type	Type of application	cut Vc	fz(mm/z) with nom. ø							
					3	6	8	10	12	16	20	25
Structural + free-cutting steels, unalloyed heat-treatable + case hardened steels S185, P275N, P235GH, P265GH, Mild steel, Grade 250 plate, Grade 350 plate, E295, E360, P500NH	up to 850 N/mm ²	F	Slotting	180	0.018	0.035	0.045	0.06	0.07	0.09	0.1	0.15
		F	Roughing	200	0.02	0.04	0.055	0.07	0.085	0.1	0.12	0.17
		SF	Finishing	280	0.016	0.03	0.04	0.055	0.065	0.08	0.095	0.14
Free-cutting steels, unalloyed case hardened steels, nitriding steels 11SMnPb30, 11SMn37, 1020, S1214, S1213, S12L13, S12L14, 46S20, 46SPb20	850-1,200 N/mm ²	F	Slotting	160	0.018	0.035	0.045	0.06	0.07	0.09	0.1	0.15
		F	Roughing	180	0.02	0.04	0.055	0.07	0.085	0.1	0.12	0.17
		SF	Finishing	220	0.016	0.03	0.04	0.055	0.065	0.08	0.095	0.14
Alloyed heat-treatable, tool and high speed steels 50MnSi4, 38Cr2, 28Cr4, 3140, 4130, 4140, 4150, 4340, 6150, EN16, EN26, 36NiCr6, 41Cr4, 42CrMo4 Spring steel = 55Si7, 55Cr3, 51CrV4	850-1,400 N/mm ²	U	Slotting	135	0.016	0.03	0.04	0.055	0.065	0.08	0.095	0.14
		U	Roughing	160	0.02	0.04	0.05	0.065	0.08	0.095	0.11	0.16
		SF	Finishing	200	0.015	0.03	0.04	0.05	0.06	0.07	0.09	0.13
Hardened steel Tool steel, heat-treatable steel, spring steel, high-speed steel, case hardened steel, etc. 10CrMo11, 11MnSi6, 3310, 3415, 5115, 4615, 4620, 5120, 8617, 8620, 15NiCr13, 16MnCr5, 20CrMo5, N33, EN36A	up to 54 HRC	U	Slotting	70	0.012	0.025	0.03	0.04	0.045	0.06	0.07	0.1
		U	Roughing	110	0.015	0.025	0.035	0.045	0.05	0.065	0.08	0.12
	54-60 HRC	SF	Finishing	150	0.015	0.03	0.04	0.05	0.06	0.07	0.09	0.13
		H	Slotting									
Stainless steel X12CrS13, X14CrMoS17, X6CrMoS17, X8CrNiS18-9, 410S, 430F, 630	up to 750 N/mm ²	VA	Slotting	120	0.015	0.03	0.04	0.05	0.06	0.07	0.09	0.13
		VA	Roughing	140	0.018	0.035	0.045	0.06	0.07	0.09	0.1	0.15
		SF	Finishing	180	0.016	0.03	0.04	0.055	0.065	0.08	0.095	0.14
Stainless steel X5CrNi18-10, X6CrNiTi18-10, X6CrNiMoTi 17-12-2, 302, 303, 304, 310, 316, 316Ti, 321	750-850 N/mm ²	VA	Slotting	80	0.015	0.025	0.035	0.045	0.05	0.065	0.08	0.12
		VA	Roughing	120	0.016	0.03	0.04	0.055	0.065	0.08	0.095	0.14
		SF	Finishing	140	0.015	0.03	0.04	0.05	0.06	0.07	0.09	0.13
Stainless steel X20CrNi172, X39CrMo17-1, X2CrMoTi18-2, 410, 410X, 416, 420, 420C, 431, 440C	above 850 N/mm ²	VA/F	Slotting	70	0.012	0.025	0.03	0.04	0.045	0.06	0.07	0.1
		VA/F	Roughing	100	0.015	0.025	0.035	0.045	0.05	0.065	0.08	0.12
		SF	Finishing	120	0.015	0.025	0.035	0.045	0.05	0.065	0.08	0.12
Special alloys (nickel based "Ni") Nimonic, Inconel, Monel, Hastelloy	up to 1,300 N/mm ²	Ti/U	Slotting	30	0.01	0.015	0.02	0.025	0.03	0.04	0.05	0.06
		Ti/U	Roughing	35	0.01	0.02	0.03	0.035	0.04	0.055	0.065	0.08
		SF	Finishing	45	0.015	0.025	0.035	0.045	0.05	0.065	0.08	0.12
Titanium alloys ("Ti") Ti99,5, TiAl5Sn2,5, TiCu2, TiAl6Zr5, TiAl6V4, TiAl4Mo4Sn2	up to 1,300 N/mm ²	Ti/U	Slotting	60	0.015	0.025	0.035	0.045	0.05	0.065	0.08	0.12
		Ti/U	Roughing	90	0.016	0.03	0.04	0.055	0.065	0.08	0.095	0.14
		SF	Finishing	130	0.016	0.03	0.04	0.055	0.065	0.08	0.095	0.14
Cast iron, grey cast iron, spheroidal graphite and malleable cast iron GG10, GG15, GG20, GG25, GG30, GG35 GG40 GGG40, GGG50, GGG60, 32510, GTW35	up to 240 HB 30	F	Slotting	160	0.02	0.04	0.05	0.065	0.08	0.095	0.11	0.16
		F	Roughing	180	0.02	0.04	0.055	0.07	0.085	0.1	0.12	0.17
		SF	Finishing	220	0.018	0.035	0.045	0.06	0.07	0.09	0.1	0.15
Cast iron, grey cast iron, spheroidal graphite and malleable cast iron GG10, GG15, GG20, GG25, GG30, GG35 GG40 GGG40, GGG50, GGG60, 32510, GTW35	above 240 HB 30	U	Slotting	140	0.016	0.03	0.04	0.055	0.065	0.08	0.095	0.14
		U	Roughing	160	0.02	0.04	0.05	0.065	0.08	0.095	0.11	0.16
		SF	Finishing	200	0.018	0.035	0.045	0.06	0.07	0.09	0.1	0.15
Aluminium, Al-wrought alloys, Al-alloys Al99,5, AlMgSi1, AlMg1 AlMgSiPb, AlCuMg1, AlMg3Si, AlZnMgCu1,5	up to 3% Si	A	Slotting	500	0.02	0.04	0.05	0.065	0.08	0.095	0.11	0.16
		A	Roughing	600	0.02	0.04	0.055	0.07	0.085	0.1	0.12	0.17
		A	Finishing	1000	0.018	0.035	0.045	0.06	0.07	0.09	0.1	0.15
Aluminium-cast alloys G-AlSi5Cu1, G-AlSi7Cu3, G-AlSi9 G-AlSi12, G-AlSi12Cu, - G-AlSi12CuNiMg	above 3% Si	A	Slotting	230	0.016	0.03	0.04	0.055	0.065	0.08	0.095	0.14
		A	Roughing	280	0.02	0.04	0.05	0.065	0.08	0.095	0.11	0.16
		A	Finishing	350	0.018	0.035	0.045	0.06	0.07	0.09	0.1	0.15
Magnesium-alloys MgMn2, G-MgAl8Zn1, G-MgAl6Zn3 -		A	Slotting	180	0.016	0.03	0.04	0.055	0.065	0.08	0.095	0.14
		A	Roughing	220	0.02	0.04	0.05	0.065	0.08	0.095	0.11	0.16
		A	Finishing	280	0.018	0.035	0.045	0.06	0.07	0.09	0.1	0.15
Non-ferrous metals (copper, short- or long-chipping brass or bronze) SE-Cu, CuSn6, G-CuSn5ZnPb, CuZn39Pb2, CuZn39Pb3, CuZn-43Pb2, CuZn20, CuZn33, CuZn37Pb0,5, CuSn7ZnPb, CuPb5Sn5, CuPb10Sn, CuAl5, CuAl9Mn, CuSn10	up to 850 N/mm ²	A	Slotting	250	0.015	0.025	0.035	0.045	0.05	0.065	0.08	0.12
		A	Roughing	300	0.016	0.03	0.04	0.055	0.065	0.08	0.095	0.14
		SF	Finishing	400	0.016	0.03	0.04	0.055	0.065	0.08	0.095	0.14

All recommendations are valid for coated tools. For bright milling cutters please vc - 40% and fz -25%!



CUTTING SPEED RECOMMENDATION

(RF 100 DIVER, CARBIDE MILLING CUTTERS)



Guhring no. 6736, 6737



PLUNGING* AND RAMPING*

Material/ISO material	Hardness	Ramping depth* (a _p max.)	Ramping max. angle in °	Cutting speed (vc)	fz(mm/z) with nom. ø					
					5.7	7.7	9.7	11.7	15.6	19.5
Struct./free-cutting steels, unall. heat-treat./case hard. steels	up to 850 N/mm ²	1xd	45°	270	0.020	0.030	0.040	0.045	0.050	0.060
Free-cutting steels, unalloyed case hard. steels, nitr. steels	850 - 1200 N/mm ²	1xd	45°	240	0.015	0.020	0.035	0.040	0.045	0.050
Alloyed heat-treatable, tool and high speed steels	850 - 1400 N/mm ²	1xd	30°	200	0.010	0.015	0.025	0.030	0.035	0.040
Stainless steel - easy to machine / sulphured	up to 750 N/mm ²	1xd	10°	60	0.010	0.015	0.025	0.030	0.035	0.040
Stainless steel - moderately difficult to machine	over 750 - 950 N/mm ²	0.5xd	5°	50	0.010	0.015	0.020	0.025	0.030	0.035
Cast iron, grey cast iron, spher. graphite/malleable cast iron	over 240 HB 30	1xd	45°	150	0.020	0.030	0.040	0.045	0.050	0.060
Aluminium, Al-wrought alloys, Al-alloys	up to 3% Si	1xd	30°	180	0.015	0.020	0.035	0.040	0.045	0.050
Aluminium-cast alloys	over 3% Si	1xd	45°	140	0.020	0.030	0.040	0.045	0.050	0.060
Titanium, Titanium alloys	up to 1400 N/mm ²	0.5xd	10°	45	0.010	0.015	0.020	0.025	0.030	0.035

* peripheral cooling „Guhrojet“ recommended for optimal chip evacuation and tool life

SLOTING*

Material/ISO material	Hardness	Cutting depth* (ap)	Cutting width (ae)	Cutting speed (vc)	fz(mm/z) with nom. ø					
					5.7	7.7	9.7	11.7	15.6	19.5
Struct./free-cutting steels, unall. heat-treat./case hard. steels	up to 850 N/mm ²	1xd	1xd	270	0.025	0.035	0.050	0.060	0.080	0.100
Free-cutting steels, unalloyed case hard. steels, nitr. steels	850 - 1200 N/mm ²	1xd	1xd	240	0.025	0.035	0.050	0.060	0.080	0.100
Alloyed heat-treatable, tool and high speed steels	850 - 1400 N/mm ²	1xd	1xd	200	0.025	0.030	0.045	0.050	0.070	0.085
Stainless steel - easy to machine / sulphured	up to 750 N/mm ²	1xd	1xd	120	0.020	0.030	0.045	0.060	0.065	0.075
Stainless steel - moderately difficult to machine	over 750 - 950 N/mm ²	1xd	1xd	80	0.020	0.030	0.040	0.045	0.060	0.070
Cast iron, grey cast iron, spher. graphite/malleable cast iron	over 240 HB 30	1xd	1xd	160	0.025	0.035	0.050	0.060	0.080	0.100
Aluminium, Al-wrought alloys, Al-alloys	up to 3% Si	1xd	1xd	500	0.030	0.040	0.065	0.080	0.095	0.110
Aluminium-cast alloys	over 3% Si	1xd	1xd	340	0.020	0.030	0.055	0.065	0.080	0.100
Titanium, Titanium alloys	up to 1400 N/mm ²	1xd	1xd	60	0.020	0.030	0.040	0.045	0.060	0.070

* peripheral cooling „Guhrojet“ recommended for optimal chip evacuation and tool life

HPC-ROUGHING* AND HSC-FINISHING**

Material/ISO material	Hardness	Cutting depth* (ap)	Cutting width (ae)	Cutting speed (vc)	fz(mm/z) with nom. ø					
					5.7	7.7	9.7	11.7	15.6	19.5
Struct./free-cutting steels, unall. heat-treat./case hard. steels	up to 850 N/mm ²	2xd	0.4xd	350	0.030	0.045	0.060	0.075	0.090	0.110
Free-cutting steels, unalloyed case hard. steels, nitr. steels	850 - 1200 N/mm ²	2xd	0.4xd	290	0.030	0.045	0.060	0.075	0.090	0.110
Alloyed heat-treatable, tool and high speed steels	850 - 1400 N/mm ²	2xd	0.3xd	240	0.025	0.030	0.055	0.070	0.085	0.100
Stainless steel - easy to machine / sulphured	up to 750 N/mm ²	2xd	0.3xd	140	0.025	0.035	0.055	0.065	0.080	0.090
Stainless steel - moderately difficult to machine	over 750 - 950 N/mm ²	2xd	0.25xd	120	0.020	0.030	0.045	0.050	0.065	0.075
Cast iron, grey cast iron, spher. graphite/malleable cast iron	over 240 HB 30	2xd	0.4xd	180	0.030	0.045	0.060	0.075	0.090	0.110
Aluminium, Al-wrought alloys, Al-alloys	up to 3% Si	2xd	0.5xd	600	0.040	0.060	0.080	0.100	0.120	0.150
Aluminium-cast alloys	over 3% Si	2xd	0.4xd	420	0.030	0.045	0.060	0.075	0.090	0.110
Titanium, Titanium alloys	up to 1400 N/mm ²	2xd	0.4xd	120	0.020	0.030	0.045	0.050	0.065	0.075

* peripheral cooling „Guhrojet“ recommended for optimal chip evacuation and tool life

** for HSC machining the cutting speed can be increased by 50%, feed rate fz can be reduced depending on surface requirements.

*** for trochoidal milling and imachining with ae = 0.1-0.2xd the cutting speed vc and the feed rate can be increased by 50 %.

DRILLING*

Material/ISO material	Hardness	Cutting depth** (ap)	Cutting speed (vc)	fz(mm/z) with nom. ø					
				5.7	7.7	9.7	11.7	15.6	19.5
Struct./free-cutting steels, unall. heat-treat./case hard. steels	up to 850 N/mm ²	2xd	270	0.020	0.030	0.040	0.045	0.050	0.060
Free-cutting steels, unalloyed case hard. steels, nitr. steels	850 - 1200 N/mm ²	2xd	240	0.015	0.020	0.035	0.040	0.045	0.050
Alloyed heat-treatable, tool and high speed steels	850 - 1400 N/mm ²	1xd	200	0.010	0.015	0.025	0.030	0.035	0.040
Cast iron, grey cast iron, spher. graphite/malleable cast iron	over 240 HB 30	2xd	150	0.020	0.030	0.040	0.045	0.050	0.060
Aluminium, Al-wrought alloys, Al-alloys	up to 3% Si	1xd	180	0.015	0.020	0.035	0.040	0.045	0.050
Aluminium-cast alloys	over 3% Si	1xd	140	0.020	0.030	0.040	0.045	0.050	0.060

* pecking recommended from drilling depth 1XD

* peripheral cooling „Guhrojet“ recommended for optimal chip evacuation and tool life

MILLING CUTTERS

CUTTING SPEED RECOMMENDATION

(CARBIDE UNIVERSAL SLOT DRILLS AND END MILLS WITH BALL NOSE)



Tool length/reach up to 3xD Vc and fz 100%
 Tool length/reach 3-5xD Vc and fz 80%
 Tool length/reach > 5-10xD Vc and fz 60%



**Guhring no. 3679, 3359,
 3360, 3050, 5584, 3043,
 6984**

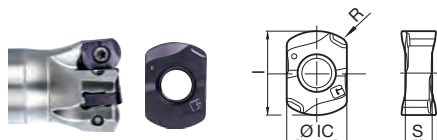
Application	Width/depth		Nom. diameter (mm)							
			2	3	4	6	8	10	12	16
Roughing	ae	(mm)	0.1	0.15	0.2	0.4	0.6	0.75	1	1.2
	ap	(mm)	0.15	0.15	0.3	0.5	0.75	1	1.5	1.5
Finishing	ae	(mm)	0.05	0.07	0.1	0.14	0.16	0.18	0.2	0.3
	ap	(mm)	0.05	0.05	0.07	0.1	0.15	0.2	0.25	0.3

Material	Hardness	Recommended type	Type of application	cut Vc	fz(mm/z) with nom. ø								
					3	6	8	10	12	16	20	25	
Structural + free-cutting steels, unalloyed heat-treatable + case hardened steels S185, P275N, P235GH, P265GH, Mild steel, Grade 250 plate, Grade 350 plate, E295, E360, P500NH	up to 850 N/mm ²	2-/4-fluted	Roughing	175	0.021	0.028	0.032	0.035	0.049	0.070	0.084	0.105	
		2-/4-fluted	Finishing	350	0.021	0.028	0.032	0.035	0.049	0.070	0.084	0.105	
Free-cutting steels, unalloyed case hardened steels, nitriding steels 11SMnPb30, 11SMn37, 1020, S1214, S1213, S12L13, S12L14, 46S20, 46SPb20	850-1,200 N/mm ²	2-/4-fluted	Roughing	175	0.021	0.028	0.032	0.035	0.049	0.070	0.084	0.105	
		2-/4-fluted	Finishing	245	0.021	0.028	0.032	0.035	0.049	0.070	0.084	0.105	
Alloyed heat-treatable, tool and high speed steels 50MnSi4, 38Cr2, 28Cr4, 3140, 4130, 4140, 4150, 4340, 6150, EN16, EN26, 36NiCr6, 41Cr4, 42CrMo4 Spring steel = 55Si7, 55Cr3, 51CrV4	850-1,400 N/mm ²	2-/4-fluted	Roughing	140	0.021	0.028	0.032	0.035	0.049	0.070	0.084	0.105	
		2-/4-fluted	Finishing	210	0.021	0.028	0.032	0.035	0.049	0.070	0.084	0.105	
Hardened steel Tool steel, heat-treatable steel, spring steel, high-speed steel, case hardened steel, etc. 10CrMo11, 11MnSi6, 3310, 3415, 5115, 4620, 5120, 8617, 8620, 15NiCr13, 16MnCr5, 20CrMo5, N33, EN36A	up to 54 HRC	Roughing											
		Finishing											
	54-60 HRC	Roughing											
		Finishing											
Stainless steel X12CrS13, X14CrMoS17, X6CrMoS17, X8CrNiS18-9, 410S, 430F, 630	up to 750 N/mm ²	2-/4-fluted	Roughing	126	0.021	0.028	0.032	0.035	0.049	0.070	0.084	0.105	
		2-/4-fluted	Finishing	196	0.021	0.028	0.032	0.035	0.049	0.070	0.084	0.105	
Stainless steel X5CrNi18-10, X6CrNiTi18-10, X6CrNiMoTi 17-12-2, 302, 303, 304, 310, 316, 316Ti, 321	750-850 N/mm ²	2-/4-fluted	Roughing	91	0.014	0.021	0.025	0.028	0.035	0.049	0.056	0.070	
		2-/4-fluted	Finishing	140	0.018	0.021	0.028	0.032	0.035	0.049	0.070	0.084	
Stainless steel X20CrNi172, X39CrMo17-1, X2CrMoTi18-2, 410, 410X, 416, 420, 420C, 431, 440C	above 850 N/mm ²	2-/4-fluted	Roughing	56	0.014	0.021	0.025	0.028	0.035	0.049	0.056	0.070	
		2-/4-fluted	Finishing	91	0.018	0.021	0.028	0.032	0.035	0.049	0.070	0.084	
Special alloys (nickel based "Ni") Nimonic, Inconel, Monel, Hastelloy	up to 1,300 N/mm ²	2-/4-fluted	Roughing	28	0.007	0.014	0.021	0.025	0.028	0.035	0.049	0.056	
		2-/4-fluted	Finishing	42	0.014	0.018	0.021	0.028	0.032	0.042	0.056	0.063	
Titanium alloys ("Ti") Ti99.5, TiAl5Sn2.5, TiCu2, TiAl6Zr5, TiAl6V4, TiAl4Mo4Sn2	up to 1,300 N/mm ²	2-/4-fluted	Roughing	56	0.014	0.021	0.025	0.028	0.035	0.049	0.056	0.070	
		2-/4-fluted	Finishing	105	0.018	0.021	0.028	0.032	0.035	0.049	0.070	0.084	
Cast iron, grey cast iron, spheroidal graphite and malleable cast iron GG10, GG15, GG20, GG25, GG30, GG35 GG40 GGG40, GGG50, GGG60, 32510,GTW35	up to 240 HB 30	2-/4-fluted	Roughing	140	0.021	0.028	0.032	0.035	0.049	0.070	0.084	0.105	
		2-/4-fluted	Finishing	210	0.021	0.028	0.032	0.035	0.049	0.070	0.084	0.105	
Cast iron, grey cast iron, spheroidal graphite and malleable cast iron GG10, GG15, GG20, GG25, GG30, GG35 GG40 GGG40, GGG50, GGG60, 32510,GTW35	above 240 HB 30	2-/4-fluted	Roughing	105	0.021	0.028	0.032	0.035	0.049	0.070	0.084	0.105	
		2-/4-fluted	Finishing	161	0.021	0.028	0.032	0.035	0.049	0.070	0.084	0.105	
Aluminium, Al-wrought alloys, Al-alloys Al99.5, AlMgSi1, AlMg1 AlMgSiPb, AlCuMg1, AlMg3Si, AlZnMgCu1.5	up to 3% Si												
Aluminium-cast alloys G-AlSi5Cu1, G-AlSi7Cu3, G-AlSi9 G-AlSi12, G-AlSi12Cu, - G-AlSi12CuNiMg	above 3% Si	2-/4-fluted	Roughing	196	0.021	0.028	0.032	0.035	0.049	0.070	0.084	0.105	
		2-/4-fluted	Finishing	245	0.021	0.028	0.032	0.035	0.049	0.070	0.084	0.105	
Magnesium-alloys MgMn2, G-MgAl8Zn1, G-MgAl6Zn3 -													
Non-ferrous metals (copper, short- or long-chipping brass or bronze) SE-Cu, CuSn6, G-CuSn5ZnPb, CuZn39Pb2, CuZn39Pb3, CuZn43Pb2, CuZn20, CuZn33, CuZn37Pb0.5, CuSn7ZnPb, CuPb5Sn5, CuPb10Sn, CuAl5, CuAl9Mn, CuSn10	up to 850 N/mm ²	2-/4-fluted	Roughing	175	0.021	0.028	0.032	0.035	0.049	0.070	0.084	0.105	
		2-/4-fluted	Finishing	280	0.021	0.028	0.032	0.035	0.049	0.070	0.084	0.105	

All recommendations are valid for coated tools. For bright milling cutters please vc - 40% and fz -25%!



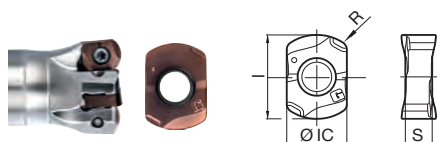
HIGH FEED MILLING CUTTERS WITH INDEXABLE INSERTS (PARAMETERS)



PART NO. 28003 7.000

Correction factors	Factor V_c	Factor f_z
stable machining conditions	+25 %	+25 %
short projection (< 3xD)	0 %	0 %
mid projection ($\geq 3xD$)	-25 %	-25 %
long projection ($\geq 5xD$)	-40 %	-40 %

Machining group	Application	v_c (m/min)	a_p max. (mm)	a_e max.	f_z (mm)
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB	Roughing	200	1	0.6xD	1.200
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB	Roughing	200	1	0.6xD	1.200
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB	Roughing	200	1	0.6xD	1.200
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB	Roughing	200	1	0.6xD	1.200
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB	Roughing	180	1	0.6xD	1.200
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB	Roughing	180	1	0.6xD	1.200
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB	Roughing	160	1	0.6xD	1.200
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB	Roughing	170	1	0.6xD	1.200
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB	Roughing	170	1	0.6xD	1.200
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB	Roughing	155	1	0.6xD	1.200
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB	Roughing	155	1	0.6xD	1.200
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB	Roughing	160	1	0.6xD	1.050
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB	Roughing	145	1	0.6xD	1.050
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB	Roughing	255	1	0.6xD	1.200
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB	Roughing	230	1	0.6xD	1.200
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB	Roughing	255	1	0.6xD	1.200
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB	Roughing	230	1	0.6xD	1.200
K1.3.1 Malleable cast iron, ferritic, 130 HB	Roughing	255	1	0.6xD	1.200
K1.3.2 Malleable cast iron, pearlitic, 230 HB	Roughing	230	1	0.6xD	1.200
K2.1.1 Vermicular graphite cast iron (GJV)	Roughing	230	1	0.6xD	1.200
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)	Roughing	210	1	0.6xD	1.200



PART NO. 28004 7.000

Correction factors	Factor V_c	Factor f_z
stable machining conditions	+25 %	+25 %
short projection (< 3xD)	0 %	0 %
mid projection ($\geq 3xD$)	-25 %	-25 %
long projection ($\geq 5xD$)	-40 %	-40 %

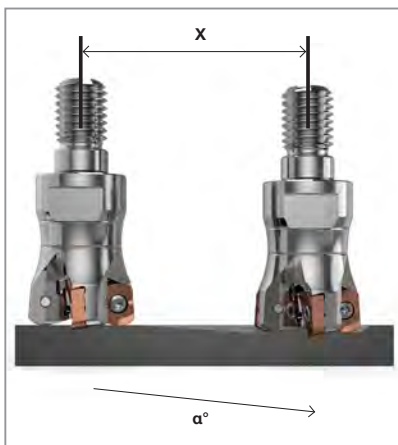
Machining group	Application	v_c (m/min)	a_p max. (mm)	a_e max.	f_z (mm)
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives	Roughing	130	1	0.6xD	1.200
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB	Roughing	120	1	0.6xD	1.080
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB	Roughing	120	1	0.6xD	1.080
M2.1.1 Stainless steel, austenitic, quenched, 180 HB	Roughing	110	1	0.6xD	1.050
M2.2.1 Duplex steel, high-strength stainless steels	Roughing	90	1	0.6xD	0.840
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB	Roughing	60	1	0.6xD	1.200
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB	Roughing	55	1	0.6xD	1.200
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB	Roughing	55	1	0.6xD	1.200
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB	Roughing	50	1	0.6xD	1.080
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB	Roughing	40	1	0.6xD	1.080
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²	Roughing	75	1	0.6xD	1.050
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²	Roughing	50	1	0.6xD	0.840

MILLING CUTTERS



Circular milling / Circular interpolation

Milling Cutter Ø	Smallest Possible Ø	Largest Possible Ø	Maximum pitch per Revolution
mm	mm	mm	mm
16	24.8	28.4	0.96 / 1.0
20	32.8	36.4	0.91 / 1.0
25	42.8	46.4	0.87 / 1.0
32	56.8	60.4	0.88 / 1.0
35	62.8	66.4	0.83 / 0.94
40	72.8	76.4	0.89 / 0.99
42	76.8	80.4	0.85 / 0.94
50	92.8	96.4	0.82 / 0.89
52	96.8	100.4	0.85 / 0.92
63	118.8	122.4	0.91 / 0.97
80	152.8	156.4	0.79 / 0.83



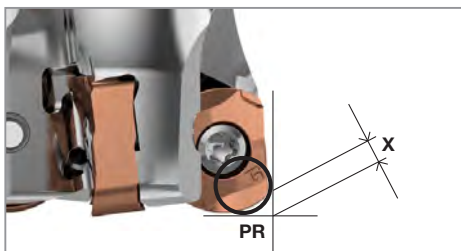
Ramping / Angles plunge

Milling Cutter Ø	Maximum Ramp Angle	Maximum Distance X	Maximum Milling Depth a_p
mm	a°	mm	mm
16	2.0	28.6	1
20	1.3	44.1	1
25	0.9	63.7	1
32	0.65	88.1	1
35	0.55	104.2	1
40	0.50	114.6	1
42	0.45	127.3	1
50	0.35	163.7	1
52	0.35	163.7	1
63	0.30	191.0	1
80	0.2	286.5	1

MILLING CUTTERS

Programming radius residual material

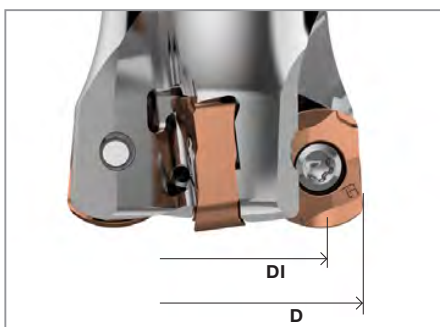
the specified programming radius makes it easier for you to select the follow-up tool for finishing.



Indexable Insert	Programming Radius PR	Residual Material X
	mm	mm
XNMX07T319	1.9	0.4

Effective diameter

for ideal utilisation and programming of the available milling width a_e during face milling.



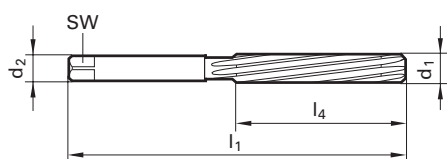
D nominal-Ø	DI inner-Ø
mm	mm
16	9.2
20	13.2
25	18.2
32	25.3
35	28.3
40	33.3
42	35.2
50	43.3
52	45.3
63	56.3
80	73.4



REAMERS



Guhring no.	413
Standard	DIN 206
Tool material	HSS
Surface	○
Form	B
Cutting direction	right-hand
Tolerance	H7
Helix angle	8°
Hole type	through hole



REAMERS

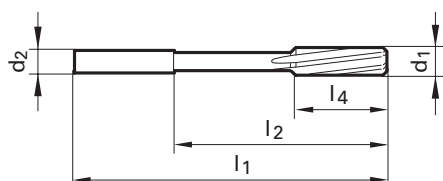
d1	d2	l1	l4	SW	z	AVAILABILITY
mm	mm	mm	mm	mm		
5.000	5.000	87.00	44.00	3.80	6	○
5.500	5.500	93.00	47.00	4.30	6	○
6.000	6.000	93.00	47.00	4.90	6	○
6.500	6.500	100.00	50.00	4.90	6	○
7.000	7.000	107.00	54.00	5.50	6	○
7.500	7.500	107.00	54.00	6.20	6	○
8.000	8.000	115.00	58.00	6.20	6	○
8.500	8.500	115.00	58.00	7.00	6	○
9.000	9.000	124.00	62.00	7.00	6	○
9.500	9.500	124.00	62.00	8.00	6	○
10.000	10.000	133.00	66.00	8.00	6	○
10.500	10.500	133.00	66.00	8.00	6	○
11.000	11.000	142.00	71.00	9.00	6	○
11.500	11.500	142.00	71.00	9.00	6	○
12.000	12.000	152.00	76.00	9.00	6	○
12.500	12.500	152.00	76.00	10.00	6	○
13.000	13.000	152.00	76.00	10.00	6	○
14.000	14.000	163.00	81.00	11.00	8	○
15.000	15.000	163.00	81.00	12.00	8	○
16.000	16.000	175.00	87.00	12.00	8	○
16.500	16.500	175.00	87.00	13.00	8	○
17.000	17.000	175.00	87.00	13.00	8	○
18.000	18.000	188.00	93.00	14.50	8	○
19.000	19.000	188.00	93.00	14.50	8	○
20.000	20.000	201.00	100.00	16.00	8	○
21.000	21.000	201.00	100.00	16.00	8	○
22.000	22.000	215.00	107.00	18.00	8	○
24.000	24.000	231.00	115.00	18.00	8	○
25.000	25.000	231.00	115.00	20.00	8	○
28.000	28.000	247.00	124.00	22.00	10	○
30.000	30.000	247.00	124.00	24.00	10	○
31.000	31.000	265.00	133.00	24.00	10	○
32.000	32.000	265.00	133.00	24.00	10	○
33.000	33.000	265.00	133.00	26.00	10	○
34.000	34.000	284.00	142.00	26.00	10	○
35.000	35.000	284.00	142.00	29.00	10	○
38.000	38.000	305.00	152.00	29.00	10	○
40.000	40.000	305.00	152.00	32.00	10	○
43.000	43.000	326.00	163.00	35.00	12	○

● Australian stock item ○ German stock item



MACHINE REAMERS

Guhring no.	468	5004
Standard	DIN 212-2	DIN 212-2
Tool material	HSS-E	
Surface	○	○
Form	B	B
Cutting direction	right-hand	right-hand
Tolerance	H7	H7
Helix angle	8°	8°
Hole type	through hole	through hole



IMPERIAL

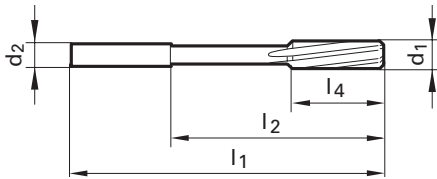
REAMERS

d1		d2	l1	l2	l4	z	AVAILABILITY	
mm	inch	mm	mm	mm	mm			
4.000		4.000	75.00	47.00	19.00	6	•	
4.500		4.500	80.00	52.00	21.00	6	•	
5.000		5.000	86.00	58.00	23.00	6	•	
5.500		5.600	93.00	57.00	26.00	6	•	
6.000		5.600	93.00	57.00	26.00	6	•	
6.500		6.300	101.00	65.00	28.00	6	•	
7.000		7.100	109.00	73.00	31.00	6	•	
8.000		8.000	117.00	81.00	33.00	6	•	
9.000		9.000	125.00	85.00	36.00	6	•	
10.000		10.000	133.00	93.00	38.00	6	•	
11.000		10.000	142.00	102.00	41.00	6	•	
12.000		10.000	151.00	111.00	44.00	6	•	
13.000		10.000	151.00	111.00	44.00	6	•	
14.000		12.500	160.00	115.00	47.00	8	•	
15.000		12.500	162.00	117.00	50.00	8	•	
16.000		12.500	170.00	125.00	52.00	8	•	
17.000		14.000	175.00	130.00	54.00	8	•	
18.000		14.000	182.00	137.00	56.00	8	•	
19.000		16.000	189.00	141.00	58.00	8	•	
20.000		16.000	195.00	147.00	60.00	8	•	
0.1 mm inc. also available								
12.700	1/2	10.000	151.00	111.00	44.00	6	•	302676137
14.287	9/16	12.500	162.00	117.00	50.00	8	•	302676138
15.875	5/8	12.500	170.00	125.00	52.00	8	•	302676139
19.050	3/4	16.000	189.00	141.00	58.00	8	•	302676140
22.225	7/8	18.000	217.00	161.00	66.00	8	•	302676141
25.400	1	20.000	234.00	174.00	70.00	8	•	302676142

• Australian stock item ○ German stock item



Guhring no.	496
Standard	DIN 212
Tool material	HSS-E
Surface	○
Form	B
Cutting direction	right-hand
Tolerance	+0.004/+0.005
Helix angle	8°
Hole type	through hole



*Available in 0.01mm increments on request



REAMERS

d1	d2	l1	l2	l4	z	AVAILABILITY
mm	inch	mm	mm	mm	mm	
1.000		1.00	34.00	5.50	3	•
1.020		1.10	34.00	15.00	3	•
1.100		1.10	36.00	15.50	3	•
1.200		1.20	38.00	16.50	3	•
1.300		1.20	38.00	16.50	3	•
1.320		1.20	38.00	16.50	3	•
1.400		1.40	40.00	18.00	3	•
1.500		1.50	40.00	18.00	3	•
1.520		1.60	43.00	20.00	3	•
1.590	1/16	1.60	43.00	20.00	3	•
1.600		1.60	43.00	20.00	3	•
1.700		1.60	43.00	20.00	3	•
1.780		1.80	46.00	22.00	4	•
1.800		1.80	46.00	22.00	4	•
1.870		1.80	46.00	22.00	4	•
1.900		1.80	46.00	22.00	4	•
1.990		2.00	49.00	24.00	4	•
2.000		2.00	49.00	24.00	4	•
2.010		2.00	49.00	24.00	4	•
2.020		2.00	49.00	24.00	4	•
2.100		2.00	49.00	24.00	4	•
2.200		2.20	53.00	25.00	4	•
2.300		2.20	53.00	25.00	4	•
2.380	3/32	2.50	57.00	29.00	4	•
2.400		2.50	57.00	29.00	4	•
2.490		2.50	57.00	29.00	4	•
2.500		2.50	57.00	29.00	4	•
2.520		2.50	57.00	29.00	4	•
2.530		2.50	57.00	29.00	4	•
2.600		2.50	57.00	29.00	4	•
2.700		2.80	61.00	33.00	6	•
2.800		2.80	61.00	33.00	6	•
2.900		3.00	61.00	33.00	6	•
2.960		3.00	61.00	33.00	6	•
2.980		3.00	61.00	33.00	6	•
2.990		3.00	61.00	33.00	6	•
3.000		3.00	61.00	33.00	6	•
3.010		3.20	65.00	37.00	6	•
3.020		3.20	65.00	37.00	6	•

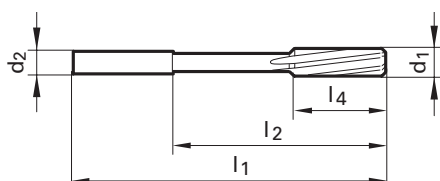
• Australian stock item ○ German stock item



MACHINE REAMERS

REAMERS

Guhring no.	496
Standard	DIN 212
Tool material	HSS-E
Surface	○
Form	B
Cutting direction	right-hand
Tolerance	+0.004/+0.005
Helix angle	8°
Hole type	through hole



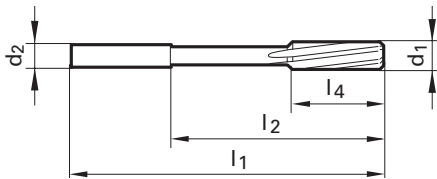
d1		d2	l1	l2	l4	z	AVAILABILITY
mm	inch	mm	mm	mm	mm		
3.100		3.20	65.00	37.00	16.00	6	•
3.170	1/8	3.20	65.00	37.00	16.00	6	•
3.180		3.20	65.00	37.00	16.00	6	•
3.200		3.20	65.00	37.00	16.00	6	•
3.300		3.20	65.00	37.00	16.00	6	•
3.370		3.50	70.00	42.00	18.00	6	•
3.380		3.50	70.00	42.00	18.00	6	•
3.400		3.50	70.00	42.00	18.00	6	•
3.480		3.50	70.00	42.00	18.00	6	•
3.500		3.50	70.00	42.00	18.00	6	•
3.520		3.50	70.00	42.00	18.00	6	•
3.570	9/64	3.50	70.00	42.00	18.00	6	•
3.600		3.50	70.00	42.00	18.00	6	•
3.700		3.50	70.00	42.00	18.00	6	•
3.730		3.50	70.00	42.00	18.00	6	•
3.760		4.00	75.00	47.00	19.00	6	•
3.800		4.00	75.00	47.00	19.00	6	•
3.900		4.00	75.00	47.00	19.00	6	•
3.970	5/32	4.00	75.00	47.00	19.00	6	•
3.980		4.00	75.00	47.00	19.00	6	•
3.990		4.00	75.00	47.00	19.00	6	•
4.010		4.00	75.00	47.00	19.00	6	•
4.020		4.00	75.00	47.00	19.00	6	•
4.030		4.00	75.00	47.00	19.00	6	•
4.100		4.00	75.00	47.00	19.00	6	•
4.150		4.00	75.00	47.00	19.00	6	•
4.200		4.00	75.00	47.00	19.00	6	•
4.300		4.50	80.00	52.00	21.00	6	•
4.370	11/64	4.50	80.00	52.00	21.00	6	•
4.400		4.50	80.00	52.00	21.00	6	•
4.600		4.50	80.00	52.00	21.00	6	•
4.700		4.50	80.00	52.00	21.00	6	•
4.750		4.50	80.00	52.00	21.00	6	•
4.760	3/16	5.00	86.00	58.00	23.00	6	•
4.800		5.00	86.00	58.00	23.00	6	•
4.900		5.00	86.00	58.00	23.00	6	•
4.980		5.00	86.00	58.00	23.00	6	•
4.990		5.00	86.00	58.00	23.00	6	•
5.010		5.00	86.00	58.00	23.00	6	•

Available in 0.01mm increments on request

• Australian stock item ○ German stock item



Guhring no.	496
Standard	DIN 212
Tool material	HSS-E
Surface	○
Form	B
Cutting direction	right-hand
Tolerance	+0.004/+0.005
Helix angle	8°
Hole type	through hole



REAMERS

d1	d2	l1	l2	l4	z	AVAILABILITY	
mm	inch	mm	mm	mm	mm		
5.020		5.00	86.00	58.00	23.00	6	•
5.040		5.00	86.00	58.00	23.00	6	•
5.100		5.00	86.00	58.00	23.00	6	•
5.200		5.00	86.00	58.00	23.00	6	•
5.300		5.00	86.00	58.00	23.00	6	•
5.400		5.60	93.00	57.00	26.00	6	•
5.500		5.60	93.00	57.00	26.00	6	•
5.600		5.60	93.00	57.00	26.00	6	•
5.700		5.60	93.00	57.00	26.00	6	•
5.800		5.60	93.00	57.00	26.00	6	•
5.900		5.60	93.00	57.00	26.00	6	•
5.980		5.60	93.00	57.00	26.00	6	•
5.990		5.60	93.00	57.00	26.00	6	•
6.010		6.30	101.00	65.00	28.00	6	•
6.020		6.30	101.00	65.00	28.00	6	•
6.100		6.30	101.00	65.00	28.00	6	•
6.200		6.30	101.00	65.00	28.00	6	•
6.300		6.30	101.00	65.00	28.00	6	•
6.340		6.30	101.00	65.00	28.00	6	•
6.350	1/4	6.30	101.00	65.00	28.00	6	•
6.370		6.30	101.00	65.00	28.00	6	•
6.400		6.30	101.00	65.00	28.00	6	•
6.500		6.30	101.00	65.00	28.00	6	•
6.600		6.30	101.00	65.00	28.00	6	•
6.700		6.30	101.00	65.00	28.00	6	•
6.800		7.10	109.00	73.00	31.00	6	•
6.900		7.10	109.00	73.00	31.00	6	•
7.020		7.10	109.00	73.00	31.00	6	•
7.100		7.10	109.00	73.00	31.00	6	•
7.140	9/32	7.10	109.00	73.00	31.00	6	•
7.200		7.10	109.00	73.00	31.00	6	•
7.300		7.10	109.00	73.00	31.00	6	•
7.400		7.10	109.00	73.00	31.00	6	•
7.500		7.10	109.00	73.00	31.00	6	•
7.600		8.00	117.00	81.00	33.00	6	•
7.700		8.00	117.00	81.00	33.00	6	•
7.800		8.00	117.00	81.00	33.00	6	•
7.900		8.00	117.00	81.00	33.00	6	•
7.930		8.00	117.00	81.00	33.00	6	•

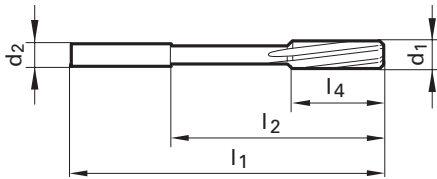
Available in 0.01mm increments on request

• Australian stock item ○ German stock item



MACHINE REAMERS

Guhring no.	496
Standard	DIN 212
Tool material	HSS-E
Surface	○
Form	B
Cutting direction	right-hand
Tolerance	+0.004/+0.005
Helix angle	8°
Hole type	through hole



REAMERS

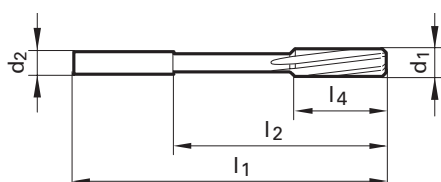
d1		d2	l1	l2	l4	z	AVAILABILITY
mm	inch	mm	mm	mm	mm		
7.940	5/16	8.00	117.00	81.00	33.00	6	•
7.980		8.00	117.00	81.00	33.00	6	•
8.010		8.00	117.00	81.00	33.00	6	•
8.020		8.00	117.00	81.00	33.00	6	•
8.030		8.00	117.00	81.00	33.00	6	•
8.100		8.00	117.00	81.00	33.00	6	•
8.200		8.00	117.00	81.00	33.00	6	•
8.300		8.00	117.00	81.00	33.00	6	•
8.400		8.00	117.00	81.00	33.00	6	•
8.500		8.00	117.00	81.00	33.00	6	•
8.600		9.00	125.00	85.00	36.00	6	•
8.700		9.00	125.00	85.00	36.00	6	•
8.730	11/32	9.00	125.00	85.00	36.00	6	•
8.800		9.00	125.00	85.00	36.00	6	•
8.900		9.00	125.00	85.00	36.00	6	•
8.960		9.00	125.00	85.00	36.00	6	•
8.980		9.00	125.00	85.00	36.00	6	•
9.100		9.00	125.00	85.00	36.00	6	•
9.200		9.00	125.00	85.00	36.00	6	•
9.300		9.00	125.00	85.00	36.00	6	•
9.400		9.00	125.00	85.00	36.00	6	•
9.500		9.00	125.00	85.00	36.00	6	•
9.520	3/8	10.00	133.00	93.00	38.00	6	•
9.530		10.00	133.00	93.00	38.00	6	•
9.540		10.00	133.00	93.00	38.00	6	•
9.600		10.00	133.00	93.00	38.00	6	•
9.700		10.00	133.00	93.00	38.00	6	•
9.800		10.00	133.00	93.00	38.00	6	•
9.900		10.00	133.00	93.00	38.00	6	•
9.980		10.00	133.00	93.00	38.00	6	•
9.990		10.00	133.00	93.00	38.00	6	•
10.010		10.00	133.00	93.00	38.00	6	•
10.020		10.00	133.00	93.00	38.00	6	•
10.030		10.00	133.00	93.00	38.00	6	•
10.100		10.00	133.00	93.00	38.00	6	•
10.200		10.00	133.00	93.00	38.00	6	•
10.300		10.00	133.00	93.00	38.00	6	•
10.320	13/32	10.00	133.00	93.00	38.00	6	•
10.400		10.00	133.00	93.00	38.00	6	•

Available in 0.01mm increments on request

• Australian stock item ○ German stock item



Guhring no.	496
Standard	DIN 212
Tool material	HSS-E
Surface	○
Form	B
Cutting direction	right-hand
Tolerance	+0.004/+0.005
Helix angle	8°
Hole type	through hole



REAMERS

d1	d2	l1	l2	l4	z	AVAILABILITY	
mm	inch	mm	mm	mm	mm		
10.500		10.00	133.00	93.00	38.00	6	•
10.530		10.00	133.00	93.00	38.00	6	•
10.600		10.00	133.00	93.00	38.00	6	•
10.700		10.00	142.00	102.00	41.00	6	•
10.800		10.00	142.00	102.00	41.00	6	•
10.900		10.00	142.00	102.00	41.00	6	•
11.020		10.00	142.00	102.00	41.00	6	•
11.100		10.00	142.00	102.00	41.00	6	•
11.110	7/16	10.00	142.00	102.00	41.00	6	•
11.200		10.00	142.00	102.00	41.00	6	•
11.300		10.00	142.00	102.00	41.00	6	•
11.400		10.00	142.00	102.00	41.00	6	•
11.500		10.00	142.00	102.00	41.00	6	•
11.600		10.00	142.00	102.00	41.00	6	•
11.700		10.00	142.00	102.00	41.00	6	•
11.800		10.00	142.00	102.00	41.00	6	•
11.900		10.00	151.00	111.00	44.00	6	•
11.980		10.00	151.00	111.00	44.00	6	•
11.990		10.00	151.00	111.00	44.00	6	•
12.020		10.00	151.00	74.50	44.00	6	•
12.040		10.00	151.00	74.50	44.00	6	•

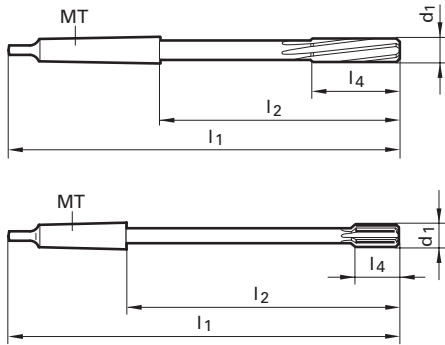
Available in 0.01mm increments on request

• Australian stock item ○ German stock item



MACHINE REAMERS (TAPER SHANK)

Guhring no.	405	720
Standard	DIN 208	DIN 8051
Tool material	HSS-E	Carbide
Surface		
Form	B	B
Cutting direction	right-hand	
Tolerance	H7	H7
Helix angle	8°	8°
Hole type	through hole	through hole



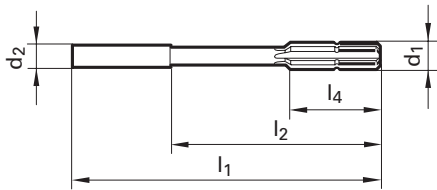
REAMERS

d1	MT	l1	l2	l4	z	AVAILABILITY
mm		mm	mm	mm		
13.000	1	182.00	120.00	44.00	6	•
14.000	1	189.00	127.00	47.00	8	•
15.000	2	204.00	129.00	50.00	8	•
16.000	2	210.00	135.00	52.00	8	•
17.000	2	214.00	139.00	54.00	8	•
18.000	2	219.00	144.00	56.00	8	•
19.000	2	223.00	148.00	58.00	8	•
20.000	2	228.00	153.00	60.00	8	•
21.000	2	232.00	157.00	62.00	8	•
22.000	2	237.00	162.00	64.00	8	•
23.000	2	241.00	166.00	66.00	8	•
24.000	3	268.00	174.00	68.00	8	•
25.000	3	268.00	174.00	68.00	8	•
26.000	3	273.00	179.00	70.00	8	•
28.000	3	277.00	183.00	71.00	10	•
30.000	3	281.00	187.00	73.00	10	•
32.000	4	317.00	199.50	77.00	10	•
34.000	4	321.00	203.50	78.00	10	•
35.000	4	321.00	203.50	78.00	10	•
36.000	4	325.00	207.50	79.00	10	•
38.000	4	329.00	211.50	81.00	10	•
40.000	4	329.00	211.50	81.00	10	•
50.000	4	344.00	226.50	86.00	12	•
6.000	1	138.00	76.00	12.00	6	○
8.000	1	156.00	94.00	16.00	6	○
10.000	1	168.00	108.00	12.00	6	○
11.000	1	175.00	113.00	12.00	6	○
12.000	1	182.00	120.00	12.00	6	○
13.000	1	182.00	120.00	12.00	6	○
14.000	1	189.00	127.00	16.00	6	○
15.000	2	204.00	129.00	16.00	6	•
16.000	2	210.00	135.00	19.00	6	•
18.000	2	219.00	144.00	19.00	6	•
20.000	2	228.00	153.00	19.00	6	•
22.000	2	237.00	162.00	22.00	6	•

• Australian stock item ○ German stock item



Guhring no.	1409
Standard	DIN 8093
Tool material	Carbide
Surface	○
Form	B
Cutting direction	right-hand
Tolerance	H7
Helix angle	8°
Hole type	through hole



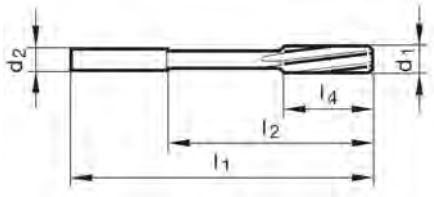
d1	d2	l1	l2	l4	z	AVAILABILITY
mm	mm	mm	mm	mm		
1.000	1.000	34.00	15.50	5.50	3	•
1.500	1.500	40.00	18.80	8.00	3	○
2.000	2.000	49.00	25.00	11.00	4	•
2.500	2.500	57.00	30.30	14.00	4	○
3.000	3.000	61.00	34.50	15.00	6	•
3.500	3.500	70.00	43.80	18.00	6	○
4.000	4.000	75.00	43.00	19.00	6	•
4.500	4.500	80.00	47.00	21.00	6	○
5.000	5.000	86.00	52.00	23.00	6	•
5.500	5.600	93.00	57.00	26.00	6	○
6.000	5.600	93.00	57.00	26.00	6	•
6.500	6.300	101.00	63.00	28.00	6	○
7.000	7.100	109.00	69.00	31.00	6	•
7.500	7.100	109.00	69.00	31.00	6	○
8.000	8.000	117.00	75.00	33.00	6	•
8.500	8.000	117.00	75.00	33.00	6	○
9.000	9.000	125.00	81.00	36.00	6	•
9.500	9.000	125.00	81.00	36.00	6	○
10.000	10.000	133.00	87.00	38.00	6	•
10.500	10.000	133.00	87.00	38.00	6	○
11.000	10.000	142.00	96.00	41.00	6	•
12.000	10.000	151.00	105.00	44.00	6	•
13.000	10.000	151.00	105.00	44.00	6	○
14.000	12.000	160.00	110.00	47.00	6	•
15.000	12.000	162.00	112.00	50.00	6	○
16.000	12.000	170.00	120.00	52.00	6	•
18.000	14.000	182.00	130.00	56.00	6	○
19.000	16.000	189.00	131.00	58.00	6	○
20.000	16.000	195.00	137.00	60.00	6	•

• Australian stock item ○ German stock item



NC MACHINE REAMERS

Guhring no.	1449	6017
Standard	Guhring std.	
Tool material	Solid Carbide	
Surface	○	ⓐ
Form	B	B
Cutting direction	right-hand	right-hand
Tolerance	H7	H7
Hole type	through hole	through hole



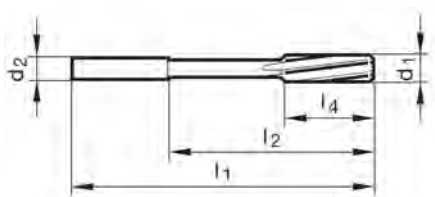
REAMERS

d1	d2 h6	l1	l2	l4	z	AVAILABILITY	
mm	mm	mm	mm	mm			
3.00	4.00	64.0	36.0	17.0	6	○	○
3.10	4.00	68.0	40.0	18.0	6	○	○
3.20	4.00	68.0	40.0	18.0	6	○	○
3.30	4.00	68.0	40.0	18.0	6	○	○
3.40	4.00	74.0	46.0	20.0	6	○	○
3.50	4.00	74.0	46.0	20.0	6	○	○
3.60	4.00	74.0	46.0	20.0	6	○	○
3.70	4.00	74.0	46.0	20.0	6	○	○
3.80	4.00	77.0	45.0	21.0	6	○	○
3.90	4.00	77.0	45.0	21.0	6	○	○
4.00	4.00	77.0	49.0	21.0	6	○	○
4.10	6.00	82.0	53.0	23.0	6	○	○
4.20	6.00	82.0	53.0	23.0	6	○	○
4.30	6.00	82.0	53.0	23.0	6	○	○
4.40	6.00	82.0	53.0	23.0	6	○	○
4.50	6.00	82.0	53.0	23.0	6	○	○
4.60	6.00	82.0	53.0	23.0	6	○	○
4.70	6.00	82.0	53.0	23.0	6	○	○
4.80	6.00	93.0	62.0	26.0	6	○	○
4.90	6.00	93.0	62.0	26.0	6	○	○
5.00	6.00	93.0	62.0	26.0	6	○	○
5.10	6.00	93.0	62.0	26.0	6	○	○
5.20	6.00	93.0	62.0	26.0	6	○	○
5.30	6.00	93.0	62.0	26.0	6	○	○
5.40	6.00	93.0	60.1	26.0	6	○	○
5.50	6.00	93.0	60.2	26.0	6	○	○
5.60	6.00	93.0	60.2	26.0	6	○	○
5.70	6.00	93.0	60.2	26.0	6	○	○
5.80	6.00	93.0	60.3	26.0	6	○	○
5.90	6.00	93.0	60.3	26.0	6	○	○
6.00	6.00	93.0	60.3	26.0	6	○	○
6.10	8.00	101.0	67.0	28.0	6	○	○
6.20	8.00	101.0	67.0	28.0	6	○	○
6.30	8.00	101.0	67.0	28.0	6	○	○
6.40	8.00	101.0	67.0	28.0	6	○	○
6.50	8.00	101.0	67.0	28.0	6	○	○
6.60	8.00	101.0	67.0	28.0	6	○	○
6.70	8.00	101.0	67.0	28.0	6	○	○
6.80	8.00	109.0	73.0	31.0	6	○	○

● Australian stock item ○ German stock item



Guhring no.	1449	6017
Standard	Guhring std.	
Tool material	Solid Carbide	
Surface	○	ⓐ
Form	B	B
Cutting direction	right-hand	right-hand
Tolerance	H7	H7
Hole type	through hole	through hole



REAMERS

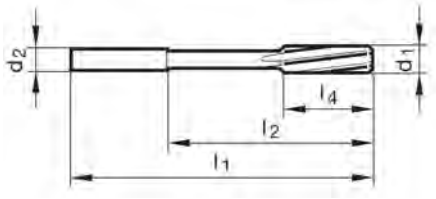
d1	d2 h6	l1	l2	l4	z	AVAILABILITY	
mm	mm	mm	mm	mm			
6.90	8.00	109.0	73.0	31.0	6	○	○
7.00	8.00	109.0	73.0	31.0	6	○	○
7.10	8.00	109.0	73.0	31.0	6	○	○
7.20	8.00	109.0	73.0	31.0	6	○	○
7.30	8.00	109.0	73.0	31.0	6	○	○
7.40	8.00	109.0	73.0	31.0	6	○	○
7.50	8.00	109.0	73.0	31.0	6	○	○
7.60	8.00	109.0	73.0	31.0	6	○	○
7.70	8.00	117.0	79.0	33.0	6	○	○
7.80	8.00	117.0	79.0	33.0	6	○	○
7.90	8.00	117.0	79.0	33.0	6	○	○
8.00	8.00	117.0	81.0	33.0	6	○	○
8.10	10.00	117.0	80.0	33.0	6	○	○
8.20	10.00	117.0	80.0	33.0	6	○	○
8.30	10.00	117.0	80.0	33.0	6	○	○
8.40	10.00	117.0	80.0	33.0	6	○	○
8.50	10.00	117.0	80.0	33.0	6	○	○
8.60	10.00	117.0	80.0	33.0	6	○	○
8.70	10.00	125.0	86.0	36.0	6	○	○
8.80	10.00	125.0	86.0	36.0	6	○	○
8.90	10.00	125.0	86.0	36.0	6	○	○
9.00	10.00	125.0	86.0	36.0	6	○	○
9.10	10.00	125.0	86.0	36.0	6	○	○
9.20	10.00	125.0	86.0	36.0	6	○	○
9.30	10.00	125.0	86.0	36.0	6	○	○
9.40	10.00	125.0	86.0	36.0	6	○	○
9.50	10.00	125.0	86.0	36.0	6	○	○
9.60	10.00	125.0	86.0	36.0	6	○	○
9.70	10.00	133.0	92.0	38.0	6	○	○
9.80	10.00	133.0	92.0	38.0	6	○	○
9.90	10.00	133.0	93.0	38.0	6	○	○
10.00	10.00	133.0	93.0	38.0	6	○	○
10.10	10.00	133.0	93.0	38.0	6	○	○
10.20	10.00	133.0	92.0	38.0	6	○	○
10.30	10.00	133.0	93.0	38.0	6	○	○
10.40	10.00	133.0	93.0	38.0	6	○	○
10.50	10.00	133.0	93.0	38.0	6	○	○
10.60	10.00	133.0	93.0	38.0	6	○	○
10.70	10.00	142.0	142.0	41.0	6	○	○

● Australian stock item ○ German stock item



NC MACHINE REAMERS

Guhring no.	1449	6017
Standard	Guhring std.	
Tool material	Solid Carbide	
Surface		
Form	B	B
Cutting direction	right-hand	right-hand
Tolerance	H7	H7
Hole type	through hole	through hole



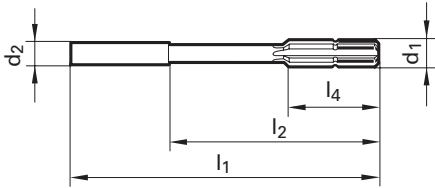
REAMERS

d1	d2 h6	l1	l2	l4	z	AVAILABILITY	
mm	mm	mm	mm	mm			
10.80	10.00	142.0	102.0	41.0	6	o	o
10.90	10.00	142.0	102.0	41.0	6	o	o
11.00	10.00	142.0	102.0	41.0	6	o	o
11.10	10.00	142.0	102.0	41.0	6	o	o
11.20	10.00	142.0	102.0	41.0	6	o	o
11.30	10.00	142.0	102.0	41.0	6	o	o
11.40	10.00	142.0	102.0	41.0	6	o	o
11.50	10.00	142.0	102.0	41.0	6	o	o
11.60	10.00	142.0	102.0	41.0	6	o	o
11.70	10.00	142.0	102.0	41.0	6	o	o
11.80	10.00	142.0	102.0	41.0	6	o	o
11.90	12.00	151.0	112.0	44.0	6	o	o
12.00	12.00	151.0	106.0	44.0	6	o	o
13.00	14.00	160.0	116.0	44.0	6		o
14.00	14.00	160.0	115.0	47.0	6		o
15.00	16.00	170.0	122.0	50.0	6		o
16.00	16.00	170.0	122.0	52.0	6		o
17.00	18.00	182.0	132.0	52.0	6		o
18.00	18.00	182.0	134.0	52.0	6		o
19.00	20.00	195.0	139.0	52.0	6		o
20.00	20.00	195.0	145.0	52.0	6		o

• Australian stock item o German stock item



Guhring no.	5527	6018
Standard	Guhring std.	
Tool material	Solid Carbide	
Surface	○	ⓐ
Form	B	B
Cutting direction	right-hand	right-hand
Tolerance	+0.004/+0.005	+0.004/+0.005
Helix angle	8°	
Hole type	through hole	through hole



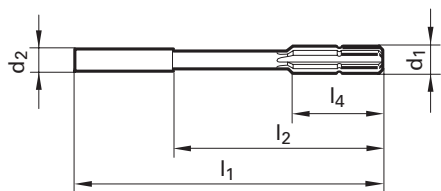
d1	d2	l1	l2	l4	z	AVAILABILITY	
mm	mm	mm	mm	mm			
0.980	4.00	50.00	22.00	6.00	6	○	○
0.990	4.00	50.00	22.00	6.00	6	○	○
1.000	4.00	50.00	22.00	6.00	6	○	○
1.010	4.00	50.00	22.00	6.00	6	○	○
1.020	4.00	50.00	22.00	6.00	6	○	○
1.030	4.00	50.00	22.00	9.00	6	○	○
1.480	4.00	50.00	22.00	9.00	6	○	○
1.490	4.00	50.00	22.00	9.00	6	○	○
1.500	4.00	50.00	22.00	9.00	6	○	○
1.510	4.00	50.00	22.00	9.00	6	○	○
1.520	4.00	50.00	22.00	9.00	6	○	○
1.530	4.00	50.00	22.00	9.00	6	○	○
1.980	4.00	50.00	22.00	12.00	6	○	○
1.990	4.00	50.00	22.00	12.00	6	○	○
2.000	4.00	50.00	22.00	12.00	6	○	○
2.010	4.00	50.00	22.00	12.00	6	○	○
2.020	4.00	50.00	22.00	12.00	6	○	○
2.030	4.00	50.00	22.00	12.00	6	○	○
2.480	4.00	60.00	32.00	16.00	6	○	○
2.490	4.00	60.00	32.00	16.00	6	○	○
2.500	4.00	60.00	32.00	16.00	6	○	○
2.510	4.00	60.00	32.00	16.00	6	○	○
2.520	4.00	60.00	32.00	16.00	6	○	○
2.530	4.00	60.00	32.00	16.00	6	○	○
2.970	4.00	64.00	36.00	17.00	6	○	○
2.980	4.00	64.00	36.00	17.00	6	○	○
2.990	4.00	60.00	36.00	17.00	6	○	○
3.000	4.00	60.00	36.00	17.00	6	○	○
3.010	4.00	64.00	36.00	17.00	6	○	○
3.020	4.00	64.00	36.00	17.00	6	○	○
3.030	4.00	64.00	36.00	17.00	6	○	○
3.970	4.00	77.00	45.00	21.00	6	○	○
3.980	4.00	77.00	45.00	21.00	6	○	○
3.990	4.00	77.00	45.00	21.00	6	○	○
4.000	4.00	77.00	45.00	21.00	6	○	○
4.010	4.00	77.00	45.00	21.00	6	○	○
4.020	4.00	77.00	45.00	21.00	6	○	○
4.030	4.00	77.00	45.00	21.00	6	○	○
4.970	6.00	93.00	59.00	26.00	6	○	○

● Australian stock item ○ German stock item



CARBIDE REAMERS

Guhring no.	5527	6018
Standard	Guhring std.	
Tool material	Solid Carbide	
Surface	○	ⓐ
Form	B	B
Cutting direction	right-hand	right-hand
Tolerance	+0.004/+0.005	+0.004/+0.005
Helix angle	8°	
Hole type	through hole	through hole

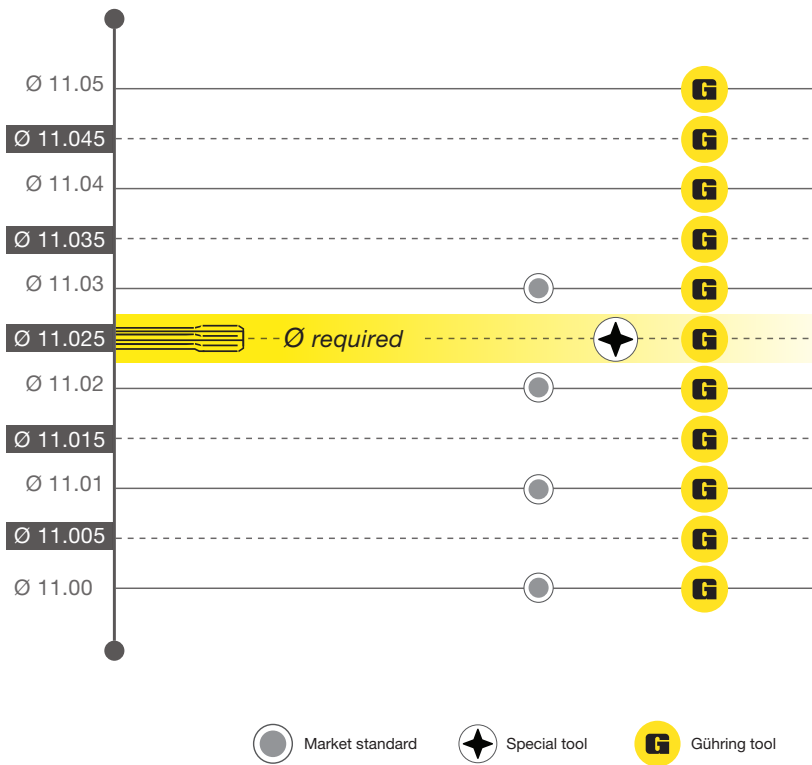


REAMERS

d1	d2	l1	l2	l4	z	AVAILABILITY	
mm	mm	mm	mm	mm			
4.980	6.00	93.00	59.00	26.00	6	○	○
4.990	6.00	93.00	59.00	26.00	6	○	○
5.000	6.00	93.00	59.00	26.00	6	○	○
5.010	6.00	93.00	59.00	26.00	6	○	○
5.020	6.00	93.00	59.00	26.00	6	○	○
5.030	6.00	93.00	59.00	26.00	6	○	○
5.970	6.00	93.00	57.00	26.00	6	○	○
5.980	6.00	93.00	57.00	26.00	6	○	○
5.990	6.00	93.00	57.00	26.00	6	○	○
6.000	6.00	93.00	57.00	26.00	6	○	○
6.010	6.00	93.00	57.00	26.00	6	○	○
6.020	6.00	93.00	57.00	26.00	6	○	○
6.030	6.00	93.00	57.00	26.00	6	○	○
7.000	8.00	109.00	69.00	31.00	6	○	○
7.970	8.00	117.00	75.00	33.00	6	○	○
7.980	8.00	117.00	75.00	33.00	6	○	○
7.990	8.00	117.00	75.00	33.00	6	○	○
8.000	8.00	117.00	75.00	33.00	6	○	○
8.010	8.00	117.00	75.00	33.00	6	○	○
8.020	8.00	117.00	75.00	33.00	6	○	○
8.030	8.00	117.00	75.00	33.00	6	○	○
8.040	8.00	117.00	75.00	33.00	6	○	○
9.000	10.00	125.00	81.00	36.00	6	○	○
9.970	10.00	133.00	87.00	38.00	6	○	○
9.980	10.00	133.00	87.00	38.00	6	○	○
9.990	10.00	133.00	87.00	38.00	6	○	○
10.000	10.00	133.00	87.00	38.00	6	○	○
10.010	10.00	133.00	87.00	38.00	6	○	○
10.020	10.00	133.00	87.00	38.00	6	○	○
10.030	10.00	133.00	87.00	38.00	6	○	○
10.040	10.00	133.00	87.00	38.00	6	○	○
10.050	10.00	133.00	87.00	38.00	6	○	○
11.970	10.00	151.00	105.00	44.00	6	○	○
11.980	10.00	151.00	105.00	44.00	6	○	○
11.990	10.00	151.00	105.00	44.00	6	○	○
12.000	10.00	151.00	105.00	44.00	6	○	○
12.010	10.00	151.00	105.00	44.00	6	○	○
12.020	10.00	151.00	105.00	44.00	6	○	○
12.030	10.00	151.00	105.00	44.00	6	○	○

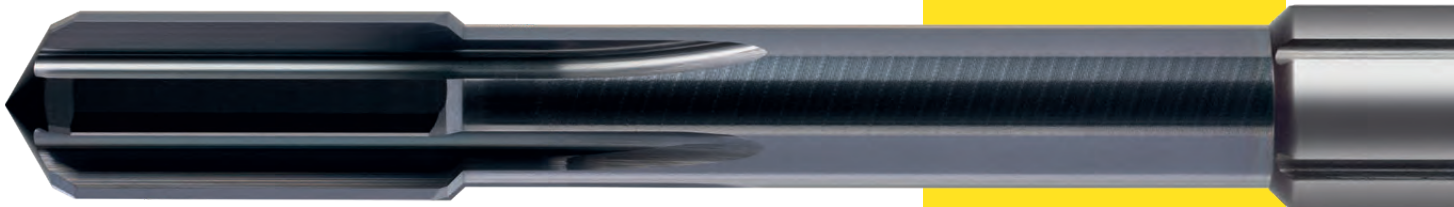
● Australian stock item ○ German stock item

Fixed sizes 5 μ -increments



With the new fixed-size reamers in 5 μ increments, Gühring covers all tolerance ranges with a precision-fit.

REAMERS



Quick and convenient: With our new online tolerance calculator, you can find the most economical dimension to achieve maximum tool life and process reliability for your desired fit

1. Scan the QR code & open the tolerance calculator
2. Enter the desired hole tolerance
3. Select the recommended reamer
4. Buy everything you need directly in the shop

<https://webnavigator.guehring.de/en/>



new



CUTTING SPEED RECOMMENDATION

Guhring no.

Standard/DIN

Tool material

Surface finish

Type

Counter-sink 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

REAMERS

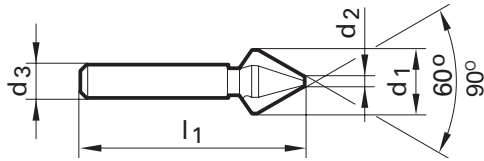
Material group	Material examples	Tensile strength MPa (N/mm ²)	Hardness	Coolant
Common structural steels	S185, P275N, P235GH, P265GH, Mild steel, Grade 250 plate, Grade 350 plate	≤500		○
	E295, E360, P500NH	≤1000		○
Free-cutting steels	11SMnPb30, 11SMn37, 1020, S1214, S1213, S12L13, S12L14	≤850		○
	46S20, 46SPb20	≤1000		○
Unalloyed heat-treatable steels	C22, C30E, 1035, 1045, 1055, 1060, 1025	≤700		○
	C45, C45E	≤850		○
	C60, C60E	≤1000		○
Alloyed heat-treatable steels	50MnSi4, 38Cr2, 28Cr4, 3140, 4130, 4140, 4150, 4340, 6150, EN16, EN26	≤1000		○
	36NiCr6, 41Cr4, 42CrMo4	≤1400		○
Unalloyed case hardened steels	C10E, 1010, 1015	≤850		○
Alloyed case hardened steels	10CrMo11, 11MnSi6, 3310, 3415, 5115, 4615, 4620, 5120, 8617, 8620	≤1000		●
	15NiCr13, 16MnCr5, 20CrMo5, N33, EN36A	≤1400		●
Nitriding steels	34CrAl6	≤1000		○
	31CrMoV9, 34CrAlNi7	≤1400		●
Tool steels	C75W, 102Cr6, 29CrMoV9, H11, H13, P20, D2, D3	≤850		○
	X210Cr12, X42Cr13, 105WCr6, X45NiCrMo4	≤1400		●
High speed steels	S 6-5-2-5, S 6-5-2, S 6-5-3, M2, M3, M35, M45	≤1400		●
Spring steels	55Si7, 55Cr3, 51CrV4, 5155, 6150, 9255		≤350 HB	●
Stainless steels, sulphured	X12CrS13, X14CrMoS17, X6CrMoS17, X8CrNiS18-9, 410S, 430F, 630	≤900		●
austenitic	X5CrNi18-10, X6CrNiTi18-10, X6CrNiMoTi 17-12-2, 302, 303, 304, 310, 316, 316Ti, 321	≤1100		●
martensitic	X20CrNi172, X39CrMo17-1, X2CrMoTi18-2, 410, 410X, 416, 420, 420C, 431, 440C	≤1500		●
Hardened steels	-		≤48 HRC	●
			≤66 HRC	●
Special alloys	Nimonic, Inconel, Monel, Hastelloy, Bisalloy	≤2000		●
Cast iron	GG10, GG15, GG20		≤240 HB	○
	GG25, GG30, GG35 GG40		≤350 HB	○
Spheroidal graphite iron and malleable cast iron	GGG40, GGG50, GGG60, 32510, GTW35		≤240 HB	○
	GGG70, GTS70, 50005, Nodular Iron		≤350 HB	○
Chilled cast iron	-		≤350 HB	○
Ti and Ti-alloys	Ti99.5, TiAl5Sn2.5, TiCu2	≤850		●
	TiAl6Zr5, TiAl6V4, TiAl4Mo4Sn2.5, - TiAl8Mo1V1	≤1400		●
Aluminium and Al-alloys	Al99.5, AlMgSi1, AlMg1	≤400		○
Al wrought alloys	AlMgSiPb, AlCuMg1, AlMg3Si, AlZnMgCu1.5	≤650		○
Al cast alloys ≤ 10 % Si	G-AlSi5Cu1, G-AlSi7Cu3, G-AlSi9	≤600		○
≤ 24 % Si	G-AlSi12, G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		○
Magnesium alloys	MgMn2, G-MgAl8Zn1, G-MgAl6Zn1	≤400		○
Copper, low-alloyed	SE-Cu, CuSn6, G-CuSn5ZnPb	≤500		○
Brass, short-chipping	CuZn39Pb2, CuZn39Pb3, CuZn43Pb2	≤600		○
long-chipping	CuZn20, CuZn33, CuZn37Pb0.5	≤600		○
Bronze, short-chipping	CuSn7ZnPb, CuPb5Sn5, CuPb10Sn	≤600		○
	CuNi18Zn19Pb	≤850		●
Bronze, long-chipping	CuAl5, CuAl9Mn, CuSn10	≤850		●
	CuAl11Ni, CuBe2	≤1000		●
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150		○
Thermoplastics	Plexiglas, Hostalen, Novodur, Makralon	≤100		○
New cast materials CGI	GGV25, GGV35		≤220 HB	○
	GGV40, GGV50, SiMo 6		≤300 HB	○
New cast materials ADI	ADI800, ADI1000	≤1000		○
	ADI1200, ADI1400	≤1400		○
Kevlar	Kevlar	≤1000		○
Glass, carbon concent. plastics	GRP/CFRP	≤1000		○



COUNTERSINKS



Guhring no.	472	476	476F
Standard	DIN 334	DIN 335	DIN 335
Tool material	HSS		
Surface	○	○	● (F)
Cutting direction	right-hand	right-hand	right-hand
Form	C	C	C
	60°	90°	90°



d1	d3	l1	d2	z	AVAILABILITY
mm	mm	mm	mm		
6.300	5.000	45.00	1.600	3	•
8.000	6.000	50.00	2.000	3	•
12.500	8.000	56.00	3.200	3	•
16.000	10.000	63.00	4.000	3	•
20.000	10.000	67.00	5.000	3	•
25.000	10.000	71.00	6.300	3	•
4.300	4.000	40.00	1.300	3	•
5.000	4.000	40.00	1.500	3	•
5.300	4.000	40.00	1.500	3	•
5.800	5.000	45.00	1.500	3	○
6.000	5.000	45.00	1.500	3	○
6.300	5.000	45.00	1.500	3	• 377003325
7.000	6.000	50.00	1.800	3	○
7.300	6.000	50.00	1.800	3	○
8.000	6.000	50.00	2.000	3	•
8.300	6.000	50.00	2.000	3	• 377003326
9.400	6.000	50.00	2.200	3	○
10.000	6.000	50.00	2.500	3	•
10.400	6.000	50.00	2.500	3	• 377003318
11.500	8.000	56.00	2.800	3	○
12.400	8.000	56.00	2.800	3	• 377003319
13.400	8.000	56.00	2.900	3	○
15.000	10.000	60.00	3.200	3	•
16.500	10.000	60.00	3.200	3	• 377003320
19.000	10.000	63.00	3.500	3	•
20.500	10.000	63.00	3.500	3	• 377003321
23.000	10.000	67.00	3.800	3	○
25.000	10.000	67.00	3.800	3	• 377003322
26.000	10.000	67.00	3.800	3	•
28.000	12.000	71.00	4.000	3	•
30.000	12.000	71.00	4.200	3	• 377003323
31.000	12.000	71.00	4.200	3	•
Different coatings available on request.					

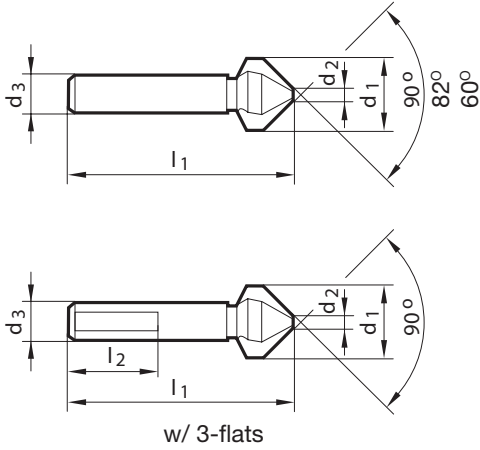
COUNTERSINKS & COUNTERBORES

• Australian stock item ○ German stock item



SPYROTEC COUNTERSINKS

Guhring no.	5670	5674	5500	5501
Standard	DIN 334	DIN 334	DIN 335	DIN 335
Tool material	HSS	HSCO		
Surface	A	A	A	A
Cutting direction	right-hand	right-hand	right-hand	right-hand
Formw	C	C	C	C
	60°	82°	90°	90°



IMPERIAL

3 flats

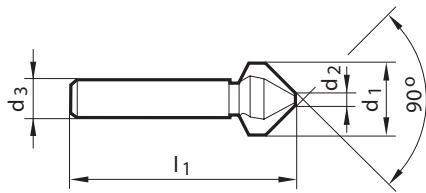
COUNTERSINKS & COUNTERBORES

d1	d3	l1	d2	l2	z	AVAILABILITY	
mm	mm	mm	mm	mm			
6.300	5.000	45.00	1.600		3	•	
8.000	6.000	50.00	2.000		3	•	
10.000	6.000	56.00	3.200		3	•	
12.500	8.000	56.00	3.200		3	•	
16.000	10.000	63.00	4.000		3	•	
20.000	10.000	67.00	5.000		3	•	
25.000	10.000	71.00	6.300		3	•	
6.350	6.350	50.80	1.500		3		○
7.930	6.350	50.80	2.000		3		○
9.520	6.350	50.80	2.200		3		○
12.700	9.520	57.10	3.800		3		○
15.870	9.520	57.10	4.500		3		○
19.050	12.700	69.80	5.300		3		○
22.220	12.700	69.80	5.800		3		○
25.400	12.700	69.80	6.300		3		○
31.750	12.700	76.20	9.400		3		○
6.300	5.000	45.00	1.500	30.00	3		○
8.000	6.000	50.00	2.000	30.00	3	•	○
8.300	6.000	50.00	2.000	30.00	3	•	○
10.000	6.000	50.00	2.500	30.00	3	•	○
10.400	6.000	50.00	2.500	30.00	3	•	○
11.500	8.000	56.00	2.800	30.00	3	•	○
12.400	8.000	56.00	2.800	30.00	3	•	○
15.000	10.000	60.00	3.200	30.00	3	•	○
16.500	10.000	60.00	3.200	30.00	3	•	○
19.000	10.000	63.00	3.500	30.00	3	•	○
20.500	10.000	63.00	3.500	30.00	3	•	○
23.000	10.000	67.00	3.800	30.00	3	•	○
25.000	10.000	67.00	3.800	30.00	3	•	○
31.000	12.000	71.00	4.200	30.00	3	•	○
40.000	12.000	75.00	10.000	30.00	3	•	○

• Australian stock item ○ German stock item



Guhring no.	5503
Standard	Guhring std.
Tool material	HSS
Surface	A
Cutting direction	right-hand
Form	C 90°



d1	d2	d3	l1	z	AVAILABILITY
mm	mm	mm	mm		
6.300	1.500	5.000	140.00	3	o
8.300	2.000	6.000	105.00	3	o
10.400	2.500	6.000	107.00	3	o
12.400	2.800	8.000	108.00	3	o
16.500	3.200	10.000	111.00	3	o
20.500	3.500	10.000	114.00	3	o
25.000	3.800	10.000	118.00	3	o
31.000	4.200	12.000	140.00	3	o

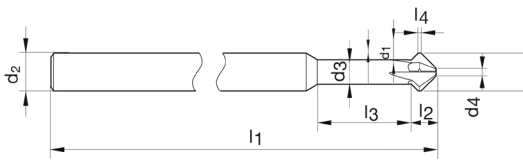
COUNTERSINKS & COUNTERBORES

• Australian stock item o German stock item

90° FRONT/BACK DEBURRER (4-FLUTED)



Guhring no.	495
Standard	Guhring std.
Tool material	Carbide
Surface	a
Cutting direction	right-hand



d1	d2	d3	d4	l1	l2	l3	l4	z
mm	mm	mm	mm	mm	mm	mm	mm	
3.00	4.00	2.20	0.60	75.00	2.10	9.30	2.10	4
4.00	4.00	2.90	0.80	75.00	2.70	12.30	2.70	4
5.00	5.00	3.90	1.00	75.00	3.00	15.00	3.00	4
6.00	6.00	3.90	1.20	100.0	3.95	14.30	3.50	4
8.00	6.00	3.90	1.60	100.0	4.70	-	4.70	4
10.00	6.00	6.00	2.00	100.0	6.50	-	6.50	4
12.00	6.00	6.00	2.40	100.0	8.30	-	8.30	4

AVAILABILITY	
	•
	•
	•
	•
	•
	•
	•


COUNTERSINKS & COUNTERBORES

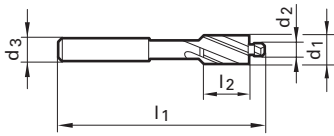
ISO	Hardness	VC	fz (mm/U)/Ø						
			3	6	8	10	12	16	20
P	≤850 N/mm ²	180	0,08	0,12	0,20	0,20	0,25	0,25	0,25
	≥850 N/mm ²	150	0,06	0,10	0,15	0,15	0,20	0,20	0,20
M	≤750 N/mm ²	100	0,06	0,10	0,15	0,15	0,20	0,20	0,20
	≥750 N/mm ²	80	0,05	0,08	0,12	0,12	0,15	0,15	0,15
K	≤ 350 HB	120	0,08	0,12	0,20	0,20	0,25	0,25	0,25
N*	≤3% Si	200	0,10	0,15	0,25	0,25	0,30	0,30	0,30
	≥3% Si	150	0,08	0,12	0,20	0,20	0,25	0,25	0,25
S	≤850 N/mm ²	60	0,05	0,08	0,12	0,12	0,15	0,15	0,15
	≥1400 N/mm ²	40	0,04	0,06	0,10	0,10	0,12	0,12	0,12
H	≤55 HRC	100	0,06	0,10	0,15	0,15	0,20	0,20	0,20
	≥63 HRC	40	0,04	0,05	0,06	0,06	0,08	0,08	0,08

• Australian stock item ◦ German stock item



COUNTERBORES WITH FIXED PILOTS FOR FINE TOLERANCES

Guhring no.	482
Standard	DIN 373
Tool material	HSS
Surface	
Cutting direction	right-hand



COUNTERSINKS & COUNTERBORES

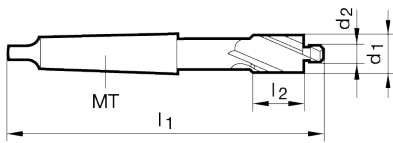
d1	d2	d3	l1	l2	for	z	AVAILABILITY
mm	mm	mm	mm	mm	thread		
2.200	1.100	2.200	45.00	7.00	M1	2	○
2.500	1.300	2.500	45.00	7.00	M1,2	2	○
3.800	1.800	3.800	56.00	10.00	M1,7	2	○
4.300	2.200	4.300	56.00	10.00	M2	2	●
5.500	2.800	5.000	71.00	14.00	M2,6	3	○
6.000	3.200	5.000	71.00	14.00	M3	3	●
6.500	3.700	5.000	71.00	14.00	M3,5	3	○
8.000	4.300	5.000	71.00	14.00	M4	3	●
10.000	5.300	8.000	80.00	18.00	M5	3	●
11.000	6.400	8.000	80.00	18.00	M6	3	●
15.000	8.400	12.500	100.00	22.00	M8	3	●
18.000	10.500	12.500	100.00	22.00	M10	3	●
20.000	13.000	12.500	100.00	22.00	M12	3	●

● Australian stock item ○ German stock item

COUNTERBORES WITH FIXED PILOTS FOR FINE TOLERANCES (TAPER SHANK)



Guhring no.	485
Standard	Guhring std.
Tool material	HSS
Surface	
Cutting direction	right-hand



d1	d2	MT	l1	l2	for	z	AVAILABILITY	
mm	mm		mm	mm	thread			
26.000	17.00	3	192.00	35.00	M16	3		•
30.000	19.00	3	192.00	35.00	M18	3		•
33.000	21.00	3	204.00	40.00	M20	3		•
40.000	25.00	3	204.00	40.00	M24	3		•

COUNTERSINKS & COUNTERBORES

• Australian stock item ○ German stock item



CUTTING SPEED RECOMMENDATION

Guhring no.
Standard/DIN
Tool material
Surface finish
Angle of taper
Type/Form

Counter-sink 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
50.00	0.17	0.24	0.31	0.36	0.42	0.48
63.00	0.20	0.27	0.33	0.38	0.44	0.50
80.00	0.23	0.30	0.35	0.40	0.46	0.52
100.00	0.25	0.30	0.35	0.40	0.46	0.52

- Coolant:
- Air
 - Neat oil
 - Soluble oil

COUNTERSINKS & COUNTERBORES

Material group	Material examples	Tensile strength MPa (N/mm ²)	Hardness	Coolant
Common structural steels	S185, P275N, P235GH, P265GH, Mild steel, Grade 250 plate, Grade 350 plate	≤500		○
	E295, E360, P500NH	≤1000		○
Free-cutting steels	11SMnPb30, 11SMn37, 1020, S1214, S1213, S12L13, S12L14	≤850		○
	46S20, 46SPb20	≤1000		○
Unalloyed heat-treatable steels	C22, C30E, 1035, 1045, 1055, 1060, 1025	≤700		○
	C45, C45E	≤850		○
	C60, C60E	≤1000		○
Alloyed heat-treatable steels	50MnSi4, 38Cr2, 28Cr4, 3140, 4130, 4140, 4150, 4340, 6150, EN16, EN26	≤1000		○
	36NiCr6, 41Cr4, 42CrMo4	≤1400		○
Unalloyed case hardened steels	C10E, 1010, 1015	≤850		○
Alloyed case hardened steels	10CrMo11, 11MnSi6, 3310, 3415, 5115, 4615, 4620, 5120, 8617, 8620	≤1000		●
	15NiCr13, 16MnCr5, 20CrMo5, N33, EN36A	≤1400		●
Nitriding steels	34CrAl6	≤1000		○
	31CrMoV9, 34CrAlNi7	≤1400		●
Tool steels	C75W, 102Cr6, 29CrMoV9, H11, H13, P20, D2, D3	≤850		○
	X210Cr12, X42Cr13, 105WCr6, X45NiCrMo4	≤1400		●
High speed steels	S 6-5-2-5, S 6-5-2, S 6-5-3, M2, M3, M35, M45	≤1400		●
Spring steels	55Si7, 55Cr3, 51CrV4, 5155, 6150, 9255		≤350 HB	●
Stainless steels, sulphured	X12CrS13, X14CrMoS17, X6CrMoS17, X8CrNiS18-9, 410S, 430F, 630	≤900		●
austenitic	X5CrNi18-10, X6CrNiTi18-10, X6CrNiMoTi 17-12-2, 302, 303, 304, 310, 316, 316Ti, 321	≤1100		●
martensitic	X20CrNi172, X39CrMo17-1, X2CrMoTi18-2, 410, 410X, 416, 420, 420C, 431, 440C	≤1500		●
Hardened steels	-		≤48 HRC	●
			≤66 HRC	●
Special alloys	Nimonic, Inconel, Monel, Hastelloy, Bisalloy	≤2000		●
Cast iron	GG10, GG15, GG20		≤240 HB	○
	GG25, GG30, GG35 GG40		≤350 HB	○
Spheroidal graphite iron and malleable cast iron	GGG40, GGG50, GGG60, 32510, GTW35		≤240 HB	○
	GGG70, GTS70, 50005, Nodular Iron		≤350 HB	○
Chilled cast iron	-		≤350 HB	○
Ti and Ti-alloys	Ti99,5, TiAl5Sn2,5, TiCu2	≤850		●
	TiAl6Zr5, TiAl6V4, TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminium and Al-alloys	Al99,5, AlMgSi1, AlMg1	≤400		○
Al wrought alloys	AlMgSiPb, AlCuMg1, AlMg3Si, AlZnMgCu1,5	≤650		○
Al cast alloys ≤ 10 % Si	G-AlSi5Cu1, G-AlSi7Cu3, G-AlSi9	≤600		○
≤ 24 % Si	G-AlSi12, G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		○
Magnesium alloys	MgMn2, G-MgAl8Zn1, G-MgAl6Zn1	≤400		○
Copper, low-alloyed	SE-Cu, CuSn6, G-CuSn5ZnPb	≤500		○
Brass, short-chipping	CuZn39Pb2, CuZn39Pb3, CuZn43Pb2	≤600		○
long-chipping	CuZn20, CuZn33, CuZn37Pb0,5	≤600		○
Bronze, short-chipping	CuSn7ZnPb, CuPb5Sn5, CuPb10Sn	≤600		○
	CuNi18Zn19Pb	≤850		●
Bronze, long-chipping	CuAl5, CuAl9Mn, CuSn10	≤850		●
	CuAl11Ni, CuBe2	≤1000		●
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150		○
Thermoplastics	Plexiglas, Hostalen, Novodur, Makralon	≤100		○
New cast materials CGI	GGV25, GGV35		≤220 HB	○
	GGV40, GGV50, SiMo 6		≤300 HB	○
New cast materials ADI	ADI800, ADI1000	≤1000		○
	ADI1200, ADI1400	≤1400		○
Kevlar	Kevlar	≤1000		○
Glass, carbon concent. plastics	GRP/CFRP	≤1000		○

GROOVING



GROOVING SYSTEMS

Highest quality and flexibility thanks to maximum manufacturing depth

Flexible | Economical | Accurate | **All from one** supplier



SYSTEM 104

Micro-precision tools from \varnothing 0.7 mm
Broaching from \varnothing 1.5 mm



SYSTEM 106

Micro-precision tools from \varnothing 5 mm
Broaching from \varnothing 6 mm



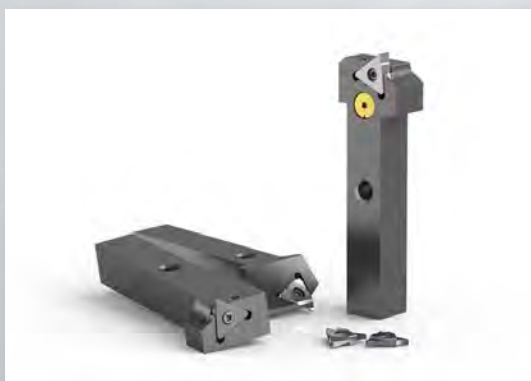
SYSTEM 108

Micro-precision tools from \varnothing 7 mm
Broaching from \varnothing 9 mm



SYSTEM 110

Micro-precision tools for special solutions



SYSTEM 305

Indexable inserts and tool holders for
grooving and parting off



SYSTEM 222

For grooving and parting off



*If you require further
information ask your
local rep for a full
Grooving Catalogue*

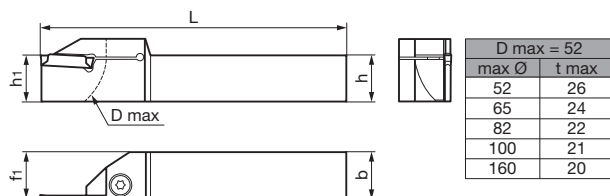


TOOL HOLDERS FOR INDEXABLE INSERTS

Square shank holders straight, external machining, without IC

- **tmax:** maximum grooving depth before 2nd cutting edge engages
- without internal coolant supply

Type GH222



Right hand version shown
Left hand version mirror image

Article no. 26100

Version right

Code no.	Description	t max	h	b	L	h1	f1	D max	Cut width
		mm	mm	mm	mm	mm	mm	mm	mm
22.110	GH222.1010.125.00.02.R.00.26	21.00	10.00	10.00	125.00	10.00	9.00	26.00	2.0
22.020	GH222.1212.125.00.03.R.00.34	21.00	12.00	12.00	125.00	12.00	10.50	34.00	3.0
22.030	GH222.0500.500.00.03.R.00.34	21.00	12.70	12.70	127.00	12.70	11.20	34.00	3.0
22.040	GH222.0625.500.00.03.R.00.45	21.00	15.87	15.87	127.00	15.87	14.37	45.00	3.0
22.050	GH222.1616.125.00.03.R.00.45	21.00	16.00	16.00	125.00	16.00	14.50	45.00	3.0
22.060	GH222.0750.500.00.03.R.00.52	21.00	19.05	19.05	127.00	19.05	19.05	52.00	3.0
22.070	GH222.2020.125.00.03.R.00.52	21.00	20.00	20.00	125.00	20.00	20.00	52.00	3.0
22.080	GH222.2525.150.00.03.R.00.52	21.00	25.00	25.00	150.00	25.00	25.00	52.00	3.0
22.090	GH222.1000.600.00.03.R.00.52	21.00	25.40	25.40	152.40	25.40	25.40	52.00	3.0
22.120	GH222.1212.125.00.02.R.00.26	21.00	12.00	12.00	125.00	10.00	11.00	26.00	2.0
22.121	GH222.1212.125.00.02.R.00.34	21.00	12.00	12.00	125.00	12.00	11.00	34.00	2.0
22.130	GH222.0500.500.00.02.R.00.26	21.00	12.70	12.70	127.00	12.70	11.70	26.00	2.0
22.131	GH222.0500.500.00.02.R.00.34	21.00	12.70	12.70	127.00	12.70	11.70	34.00	2.0
22.140	GH222.0625.500.00.02.R.00.45	21.00	15.87	15.87	127.00	15.57	14.87	45.00	2.0
22.150	GH222.1616.125.00.02.R.00.45	21.00	16.00	16.00	127.00	16.00	15.00	45.00	2.0
22.160	GH222.0750.500.00.02.R.00.45	21.00	19.05	19.05	127.00	19.05	19.05	45.00	2.0
22.170	GH222.2020.125.00.02.R.00.45	21.00	20.00	20.00	125.00	20.00	20.00	45.00	2.0

Article no. 26101

Version left

On the left-hand design, version changes to .L

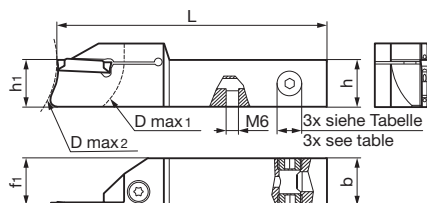
GROOVING SYSTEMS



Square shank holders straight, external machining, with IC

- **tmax:** maximum grooving depth before 2nd cutting edge engages
- with internal coolant supply from above and below
- TL (tubeless): tubeless coolant supply from location face from shank size 19.05x19.05

Type GH222



□	⊙	D max 1 = 52	
		max Ø	t max
12/12	M8x1	52	26
12,7/12,7	M8x1	65	24
15,87/15,87	G1/8	82	22
16/16	G1/8	100	21
19,05/19,05	G1/8	120	20
20/20	G1/8		
25/25	G1/8		
25,4/25,4	G1/8		



Right hand version shown
Left hand version mirror image

Article no. **26102**

Version right

Code no.	Description	t max	h	b	L	h1	f1	TL	D max1	D max2	cut width
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
22.110	GH222.1010.125.00.02.R.IK.26	21.00	10.00	10.00	125.00	10.00	9.00	-	26.00	65.00	2.0
22.120	GH222.1212.125.00.02.R.IK.26	21.00	12.00	12.00	125.00	12.00	11.00	-	26.00	65.00	2.0
22.020	GH222.1212.125.00.03.R.IK.34	21.00	12.00	12.00	125.00	12.00	10.50	-	34.00	65.00	3.0
22.121	GH222.1212.125.00.02.R.IK.34	21.00	12.00	12.00	125.00	12.00	11.00	-	34.00	65.00	2.0
22.130	GH222.0500.500.00.02.R.IK.26	21.00	12.70	12.70	127.00	12.70	11.70	-	26.00	65.00	2.0
22.030	GH222.0500.500.00.03.R.IK.34	21.00	12.70	12.70	127.00	12.70	11.20	-	34.00	65.00	3.0
22.131	GH222.0500.500.00.02.R.IK.34	21.00	12.70	12.70	127.00	12.70	11.70	-	34.00	65.00	2.0
22.140	GH222.0625.500.00.02.R.IK.45	21.00	15.87	15.87	127.00	15.87	14.87	-	45.00	82.00	2.0
22.040	GH222.0625.500.00.03.R.IK.45	21.00	15.87	15.87	127.00	15.87	14.37	-	45.00	82.00	3.0
22.150	GH222.1616.125.00.02.R.IK.45	21.00	16.00	16.00	125.00	16.00	15.00	-	45.00	82.00	2.0
22.050	GH222.1616.125.00.03.R.IK.45	21.00	16.00	16.00	125.00	16.00	14.50	-	45.00	82.00	3.0
22.160	GH222.0750.404.00.02.R.IK.45	21.00	19.05	19.05	127.00	19.05	19.05	-	45.00	82.00	2.0
22.060	GH222.0750.427.00.03.R.IK.52	21.00	19.05	19.05	108.50	19.05	19.05	M6	52.00	82.00	3.0
22.170	GH222.2020.103.00.02.R.IK.45	21.00	20.00	20.00	102.50	20.00	20.00		45.00	82.00	2.0
22.070	GH222.2020.109.00.03.R.IK.52	21.00	20.00	20.00	109.00	20.00	20.00	M6	52.00	82.00	3.0
22.080	GH222.2525.120.00.03.R.IK.52	21.00	25.00	25.00	120.50	25.00	25.00	M6	52.00	120.00	3.0
22.090	GH222.1000.474.00.03.R.IK.52	21.00	25.40	25.40	120.50	25.40	25.40	M6	52.00	120.00	3.0

Article no. **26103**

On the left-hand design, version changes to .L

Version left

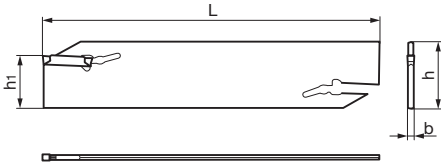
GROOVING SYSTEMS



Parting off blades, without IC

- without internal coolant supply

Type GS222



Article no. **26200**

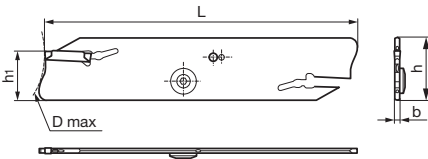
Version neutral

Code no.	Description	t max	b	h	h1	L	Size
		mm	mm	mm	mm	mm	
22.002	GS222.0026.120.03.02.N	35.00	2.25	26.00	21.40	120.00	03
22.003	GS222.0032.150.03.02.N	45.00	2.25	32.00	25.00	150.00	03

Parting off blades, with IC

- with internal coolant supply from above and below

Type GS222



Article no. **26201**

Version neutral

Code no.	Description	t max	b	h	h1	L	D max	Size
		mm	mm	mm	mm	mm	mm	
22.002	GS222.0026.118.03.02.N.IK	35.00	2.25	26.00	21.40	118.00	70.00	03
22.003	GS222.0032.147.03.02.N.IK	45.00	2.25	32.00	25.00	147.50	90.00	03

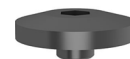
Spare parts

Article no.	Mounting key
25921	
Code 15.000	



Spare parts

Article no.	IC locking screw
25909	
Code 4.000	

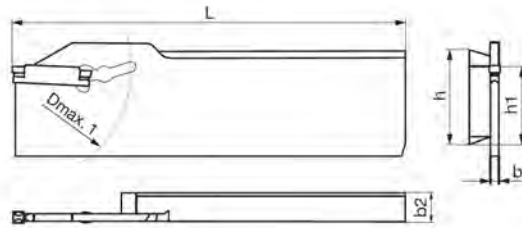




Reinforced parting off blade, without IC

- For indexable inserts type 222/122

Type 222/122



Right hand version shown
Left hand version mirror image

Article no. **26202**

Version right

Code no.	Description	b	b2	h	h1	L	D max1	cut width
		mm	mm	mm	mm	mm	mm	mm
22.002	GS222.0826.110.03.01.R.00.R	3.00	8.00	26.00	21.40	110.00	66.00	3.0
22.003	GS222.0832.120.03.01.R.00.R	3.00	8.00	32.00	25.00	120.00	66.00	3.0

Article no. **26203**

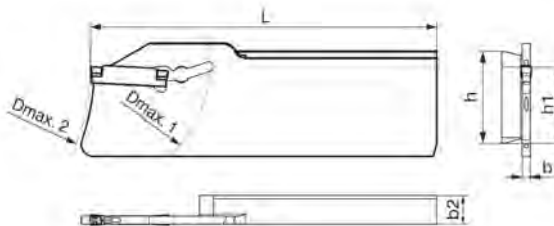
On the left-hand design, version changes to .L

Version left

Reinforced parting off blade, with IC

- For indexable inserts type 222/122

Type 222/122



Right hand version shown
Left hand version mirror image

Article no. **26206**

Version right

Code no.	Description	b	b2	h	h1	L	D max1	D max2	cut width
		mm	mm	mm	mm	mm	mm	mm	mm
22.002	GS222.0826.097.03.01.R.IK.R	3.00	8.00	26.00	21.40	99.54	66.00	120.00	3.0
22.003	GS222.0832.120.03.01.R.IK.R	3.00	8.00	32.00	25.00	123.02	66.00	120.00	3.0

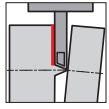
Article no. **26207**

On the left-hand design, version changes to .L

Version left



INDEXABLE INSERTS FOR PARTING OFF



- With chip former

Guhring no.

26601

26602

26603

Tool material

Solid carbide

Type

GZ222

Surface

F

F

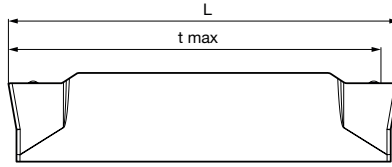
F

Version

neutral

right

left



Scan for speeds and feeds



Code no.	Description	t max	b ±0.025	L ±0.1	R	W2
		mm	mm	mm	mm	°
22.030	GZ222.0300.020.PP.02.N	21.00	3.00	22.00	0.20	0
22.020	GZ222.0200.020.PP.02.N	21.00	2.00	22.00	0.20	0
22.030	GZ222.0300.020.PM.01.R.08	21.00	3.00	22.00	0.20	8
22.030	GZ222.0300.020.PM.01.L.08	21.00	3.00	22.00	0.20	8

AVAILABILITY
•
•
•
•

Guhring no.

26604

Tool material

Solid carbide

Type

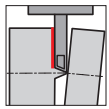
GZ122

Surface

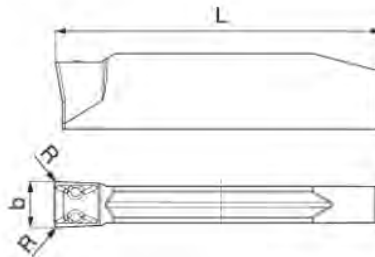
F

Version

neutral

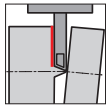


- Single Sided
- With chip former



Code no.	Description	t max	b ±0.025	L ±0.1	R	W2
		mm	mm	mm	mm	°
22.030	GZ222.0300.020.PP.02.N	holder tmax	3.00	21.54	0.20	

AVAILABILITY
•



- With chip former
- Geometry NN. sintered
- For tool holders type GH222/GS222

Guhring no.

26607

26608

26609

Tool material

Solid carbide

Type

GZ222

Surface

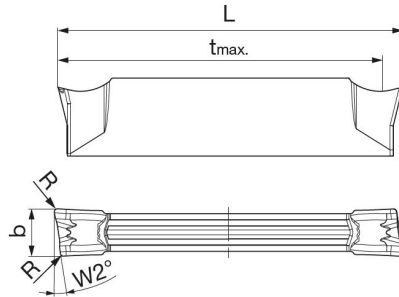


Version

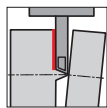
neutral

right

left



Code no.	Description	t max	b (cut width)	L	R	W2	AVAILABILITY
		mm	mm	mm	mm	°	
22.030	GZ222.0300.020.NN.02.N	21.00	3.0	22.00	0.20		○
22.030	GZ222.0300.020.NN.02.R	21.00	3.00	22.35	0.20	8	○
22.030	GZ222.0300.020.NN.02.L	21.00	3.00	22.35	0.20	8	○



- With chip former
- Geometry .MP sintered
- For tool holders type GH222/GS222

Guhring no.

26605

Tool material

Solid carbide

Type

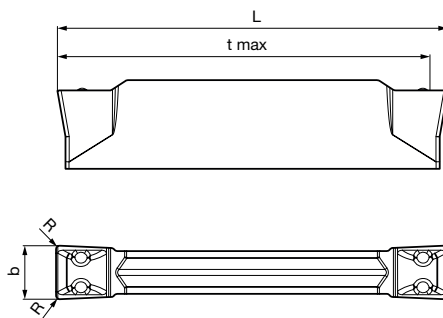
GZ222

Surface



Version

neutral



Code no.	Description	t max	b ±0.025	L ±0.1	R	W2	AVAILABILITY
		mm	mm	mm	mm	°	
22.020	GZ222.0200.020.MP.02.N	21.00	2.00	22.00	0.20	8	○
22.030	GZ222.0300.020.MP.02.N	21.00	3.00	22.00	0.20	8	○



INDEXABLE INSERTS FOR PARTING OFF

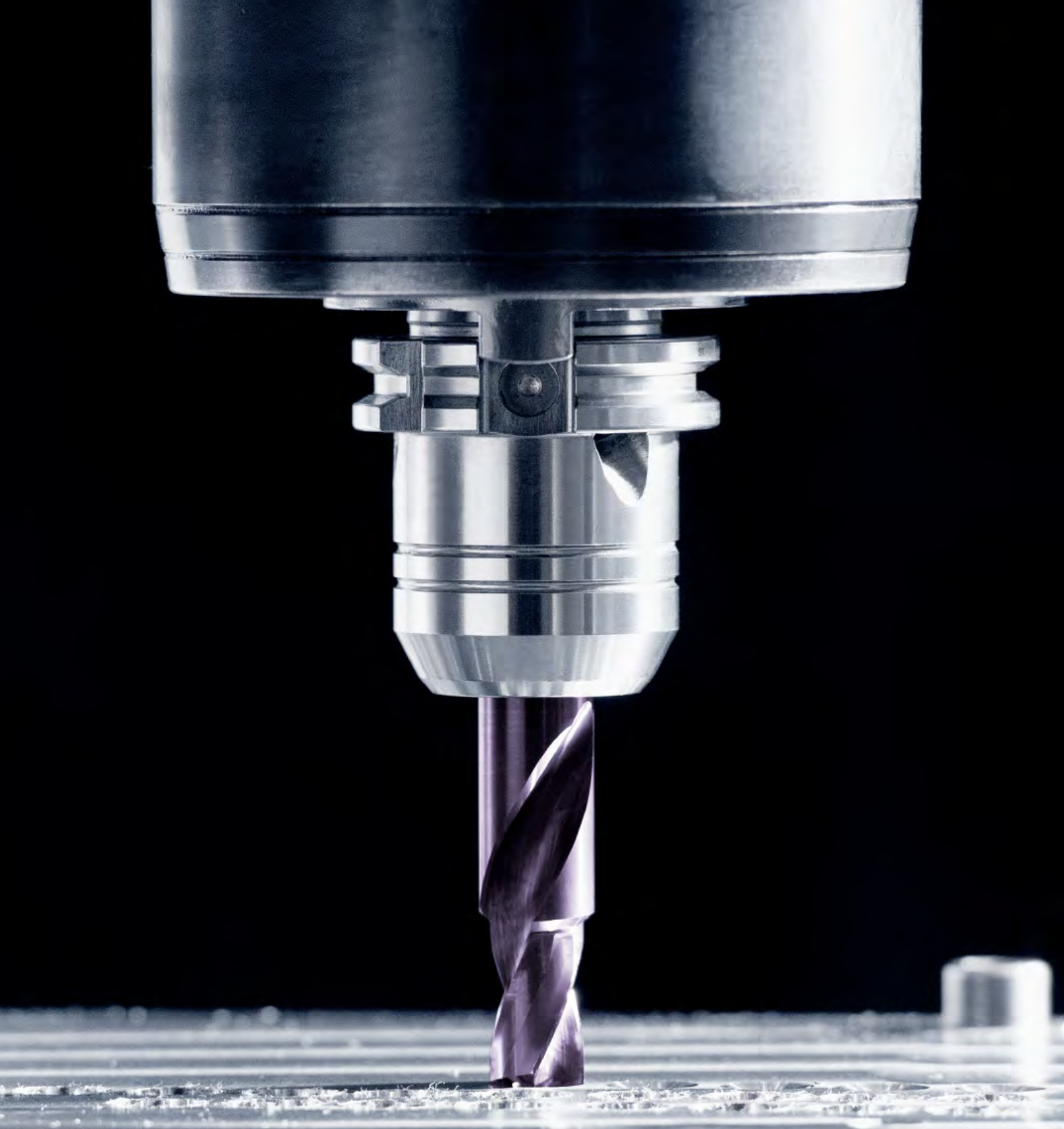


Machining group	System 222				
	v _c (m/min) by width		PP neutral	PM L/R	MP
	2	3			
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB	100	120	0.130	0.060	0.100
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB	100	120	0.130	0.060	0.100
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB	100	120	0.130	0.060	0.100
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB	100	120	0.130	0.060	0.100
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB	100	120	0.130	0.060	0.100
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB	100	120	0.130	0.060	0.100
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB	100	120	0.130	0.060	0.100
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB	100	120	0.130	0.060	0.100
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB	100	120	0.130	0.060	0.100
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB	100	120	0.130	0.060	0.100
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB	100	120	0.130	0.060	0.100
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB	100	120	0.130	0.060	0.100
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB	100	120	0.130	0.060	0.100
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives	90	110	0.100	0.045	0.075
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB	90	110	0.100	0.045	0.075
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB	90	110	0.100	0.045	0.075
M2.1.1 Stainless steel, austenitic, quenched, 180 HB	90	110	0.100	0.045	0.075
M2.2.1 Duplex steel, high-strength stainless steels	90	110	0.100	0.045	0.075
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB	100	120	0.165	0.075	
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB	100	120	0.165	0.075	
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB	100	120	0.165	0.075	
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB	100	120	0.165	0.075	
K1.3.1 Malleable cast iron, ferritic, 130 HB	100	120	0.165	0.075	
K1.3.2 Malleable cast iron, pearlitic, 230 HB	100	120	0.165	0.075	
K2.1.1 Vermicular graphite cast iron (GJV)	100	120	0.130	0.060	
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)	100	120	0.130	0.060	
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB					
N1.1.2 Wrought aluminium alloys, hardened, 100 HB					
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB					
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB					
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB					
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %					
N3.1.2 Copper and copper alloys: CuZn, CuSnZn					
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte					
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics					
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.					
N4.1.3 Non-metallic materials: Graphite					
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB					
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB					
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB					
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB					
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB					
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²					
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²					
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC					
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC					
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC					
H2.1.1 Chilled cast iron, 400 HB					
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC					

GROOVING SYSTEMS



Machining group	System 222		
	v _c (m/min)	NN neutral	NN L/R
		f (mm/rev)	
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB			
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB			
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB			
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB			
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB			
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB			
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB			
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB			
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB			
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB			
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB			
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB			
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB			
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives			
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB			
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB			
M2.1.1 Stainless steel, austenitic, quenched, 180 HB			
M2.2.1 Duplex steel, high-strength stainless steels			
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB			
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB			
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB			
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB			
K1.3.1 Malleable cast iron, ferritic, 130 HB			
K1.3.2 Malleable cast iron, pearlitic, 230 HB			
K2.1.1 Vermicular graphite cast iron (GJV)			
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)			
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB	400	0.150	0.100
N1.1.2 Wrought aluminium alloys, hardened, 100 HB	400	0.150	0.100
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB	400	0.150	0.100
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	400	0.150	0.100
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	400	0.150	0.100
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %	400	0.150	0.100
N3.1.2 Copper and copper alloys: CuZn, CuSnZn	400	0.150	0.100
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte	400	0.150	0.100
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics	400	0.150	0.100
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.	400	0.150	0.100
N4.1.3 Non-metallic materials: Graphite	400	0.150	0.100
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB			
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB			
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB			
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB			
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB			
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²			
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²			
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC			
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC			
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC			
H2.1.1 Chilled cast iron, 400 HB			
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC			



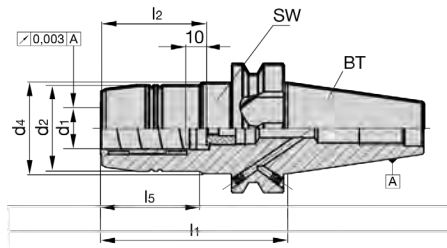
TOOL HOLDERS



Guhring no.

4221

HYDRAULIC CHUCK



Balancing quality: G2.5 / 25,000 rev./min

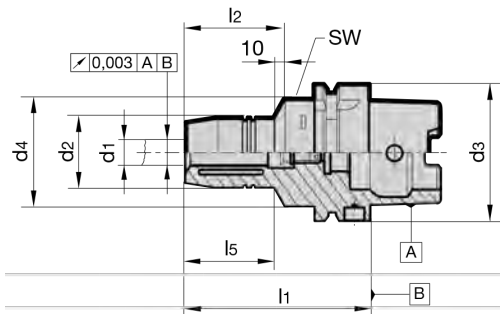
Code No.	d1 h6	d2	d4	l1	l2	l5	BT	SW
	mm	mm	mm	mm	mm	mm		
6.040	6	26.0	44.5	90.0	37	43.0	40	5
8.040	8	28.0	44.5	90.0	37	44.5	40	5
10.040	10	30.0	44.5	90.0	41	44.5	40	5
12.040	12	32.0	44.5	90.0	46	44.5	40	5
14.040	14	34.0	44.5	90.0	46	44.5	40	5
16.040	16	38.0	44.5	90.0	49	47.5	40	5
18.040	18	40.0	44.5	90.0	49	47.5	40	5
20.040	20	49.5	49.5	72.5	51	-	40	5
20.140	20	42.0	44.5	90.0	51	47.5	40	6
25.040	25	49.5	49.5	83.0	57	-	40	6
32.040	32	63.0	80.0	83.0	61	25.5	40	6

AVAILABILITY
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Guhring no.

4299

HSK-A 63 HYDRAULIC HOLDER



Balancing quality of G2.5/ 25,000 rev./min

Code No.	d1 h6	d2	d4	l1	l2	l5	HSK	SW
	mm	mm	mm	mm	mm	mm		
6.063	6	26.0	50.0	70.0	37	24.5	63	5
8.063	8	28.0	50.0	70.0	37	24.5	63	5
10.063	10	30.0	50.0	80.0	41	35.5	63	5
12.063	12	32.0	50.0	85.0	46	41.5	63	5
14.063	14	34.0	50.0	85.0	46	41.5	63	5
16.063	16	38.0	50.0	90.0	49	45.5	63	5
18.063	18	40.0	50.0	90.0	49	48.5	63	5
20.063	20	42.0	50.0	90.0	51	47.5	63	5
25.063	25	57.0	63.0	120.0	57	55.3	63	6
32.063	32	64.0	75.0	125.0	61	63	63	6

AVAILABILITY
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TOOLHOLDERS

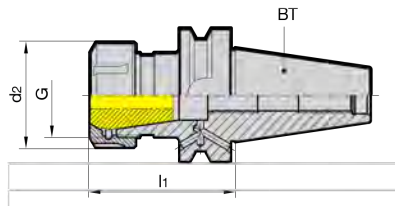
• Australian stock item ◦ German stock item



Guhring no.

4245

BT40 ER COLLET HOLDER



Balancing quality of G6.3 / 15,000 rev./min

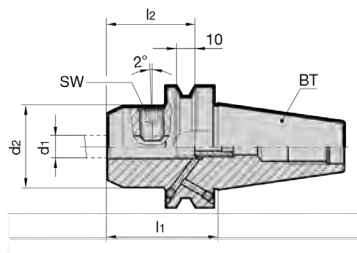
Code No.	clamping range	d2	G	l1	BT
		mm		mm	
16.040	ER16 1-10	32	M22X1.5	63	40
25.040	ER25 1-16	42	M32X1.5	60	40
32.040	ER32 2-20	50	M40X1.5	70	40
16.140	ER16 1-10	32	M22X1.5	160	40
25.140	ER25 1-16	42	M32X1.5	160	40
32.140	ER32 2-20	50	M40X1.5	160	40

AVAILABILITY
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Guhring no.

4233

SIDE LOCK HOLDER



Balancing quality of G6.3 / 15,000 rev./min

Code No.	d1 h6	d2	l1	l2	BT	SW
	mm	mm	mm	mm		
6.040	6	25	50	36	40	3
8.040	8	28	50	36	40	4
10.040	10	35	63	40	40	5
12.040	12	42	63	45	40	6
14.040	14	44	63	45	40	6
16.040	16	48	63	48	40	6
18.040	18	50	63	48	40	6
20.040	20	52	63	50	40	8
25.040	25	63	90	56	40	10
32.040	32	72	100	60	40	10

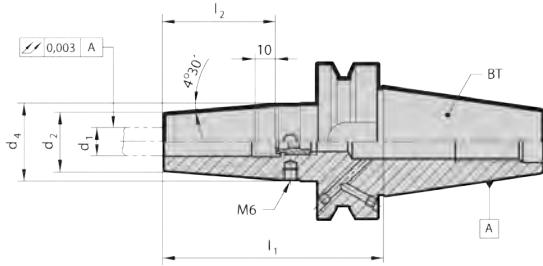
AVAILABILITY
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• Australian stock item ◦ German stock item



Guhring no.

4739



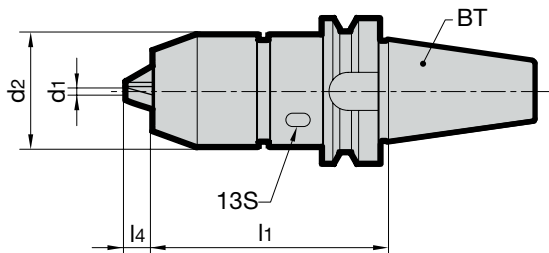
Code No.	d1 h6	d2	d4	l1	l2	BT
	mm	mm	mm	mm	mm	
3.040	3	10.0	18.0	80.0	30	40
4.040	4	10.0	18.0	80.0	35	40
5.040	5	10.0	18.0	80.0	40	40
6.040	6	21.0	27.0	80.0	36	40
8.040	8	21.0	27.0	80.0	36	40
10.040	10	24.0	32.0	80.0	41	40
12.040	12	24.0	32.0	80.0	46	40
14.040	14	27.5	34.0	90.0	46	40
16.040	16	27.0	34.0	80.0	49	40
18.040	18	33.5	42.0	90.0	49	40
20.040	20	33.0	42.0	90.0	51	40
25.040	25	44.0	53.0	100.0	57	40
32.040	32	44.0	53.0	100.0	61	40

AVAILABILITY

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Guhring no.

377025896



Code No.	d1	d2	l1	l4
	mm	mm	mm	mm
377025896	1-13	50.5	96.4	12.1

AVAILABILITY

- 377025896

TOOLHOLDERS

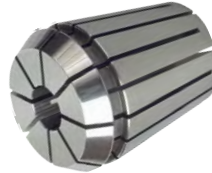
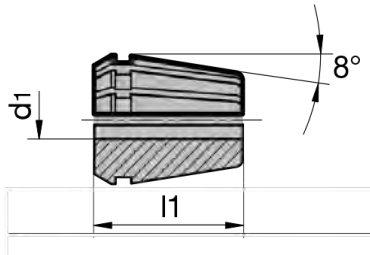
• Australian stock item ◦ German stock item



COLLETS

Guhring no.	4307	4175
Standard	Guhring std.	Guhring std.
Tool material	HSS	

ER-32 COLLETS



Metallic Sealed

Code No.	nom. size	clamping range d1	l1	AVAILABILITY
		mm	mm	
2.032	ER32 (470E)	2.0-1.0	40.0	•
2.532	ER32 (470E)	2.5-1.5	40.0	•
3.032	ER32 (470E)	3.0-2.0	40.0	•
4.032	ER32 (470E)	4.0-3.0	40.0	•
5.032	ER32 (470E)	5.0-4.0	40.0	•
6.032	ER32 (470E)	6.0-5.0	40.0	• ○
7.032	ER32 (470E)	7.0-6.0	40.0	•
8.032	ER32 (470E)	8.0-7.0	40.0	• ○
9.032	ER32 (470E)	9.0-8.0	40.0	•
10.032	ER32 (470E)	10.0-9.0	40.0	• ○
11.032	ER32 (470E)	11.0-10.0	40.0	•
12.032	ER32 (470E)	12.0-11.0	40.0	• ○
13.032	ER32 (470E)	13.0-12.0	40.0	•
14.032	ER32 (470E)	14.0-13.0	40.0	• ○
15.032	ER32 (470E)	15.0-14.0	40.0	•
16.032	ER32 (470E)	16.0-15.0	40.0	• ○
17.032	ER32 (470E)	17.0-16.0	40.0	•
18.032	ER32 (470E)	18.0-17.0	40.0	• ○
19.032	ER32 (470E)	19.0-18.0	40.0	•
20.032	ER32 (470E)	20.0-19.0	40.0	• ○
*ER-16, ER-20, ER-25 available on request				

TOOLHOLDERS

• Australian stock item ○ German stock item

GUHRING TOOL SETS

Tool Image	Description	Tool material	Surface	Diameter range	Guhring No.	Set consists of:
	Jobber Drill	HSS	 $\frac{2,36}{>0}$	Ø 1.0 - 10.0	205 0,000 377002081	91 pcs (In increments of 0.1mm)
	Jobber Drill	HSS	 head coated	Ø 1.0 - 10.0	9651 0,005 377005379	91 pcs (In increments of 0.1 mm)
	Jobber Drill	HSS	  $\frac{2,36}{>0}$	1/16 inch - 1/2 inch Ø 1.00 - 13.00	201 0,021 8901 0,014	29 pcs (In increments of 1/64 inch) 25 pcs (In increments of 0.5 mm)
	Jobber Drill	HSS	 head coated	1/16 inch - 1/2 inch Ø 1.00 - 13.00	234 0,021 322036485 234 6,014	29 pcs (In increments of 1/64 inch) 25 pcs (In increments of 0.5 mm)
	Jobber Drill	HSCO		Ø 1.00 - 13.00	8928 0,014	25 pcs (In increments of 0.5 mm)
	StepPower Drill	HSS		Ø 1.00 - 10.00 Ø 1.00 - 13.00	9501 0,013 9501 0,014	19 pcs 25 pcs (In increments of 0.5 mm)
	StepPower Drill	HSCO		Ø 1.00 - 10.00 Ø 1.00 - 13.00	9503 0,013 9503 0,014	19 pcs 25 pcs (In increments of 0.5 mm)

GUHRING
TOOL SET

GUHRING TOOL SETS

Tool Image	Description	Tool material	Surface	Diameter range	Guhring No.	Set consists of:
	Carbide Tapping Drill	Carbide	F	M5 - M12 Ø 4.2, 5.0, 6.8, 8.5, 10.2	5514 0,000	5 pcs
	Carbide Tapping Drill	Carbide	F	M5 - M12 Ø 4.2, 5.0, 6.8, 8.5, 10.2	5515 0,000	5 pcs
	2-Flute End Mill	Carbide	F	Ø 6, 8, 10, 12	3676 0,001 377002907	4 pcs (In increments of 2.00 mm)
	3-Flute End Mill	Carbide	F	Ø 6, 8, 10, 12	3560 0,001 377002900	4 pcs (In increments of 2.00 mm)
	4-Flute End Mill	Carbide	F	Ø 6, 8, 10, 12	3799 1,000	4 pcs (In increments of 2.00 mm)


GUHRING TOOL SETS

Tool Image	Description	Tool material	Surface	Diameter range	Guhring No.	Set consists of:
	3 Flute RF100 A	Carbide	○	Ø 6, 8, 10, 12	3472 0,001 377002897	4 pcs (In increments of 2.00 mm)
	Ratio End Mills	Carbide	Ⓡ	Ø 6, 8, 10, 12	5735 1,000 377003387	4 pcs (In increments of 2.00 mm)
	Ratio End Mills	Carbide	Ⓡ	Ø 6, 8, 10, 12, 16	5635 1,000	5 pcs (In increments of 2.00 mm)
	RF100 Speed	Carbide	Ⓡ	Ø 6, 8, 10, 12, 16	6778 1,000	5 pcs
				Ø 6, 8, 10, 12	6778 2,000	4 pcs
				Ø 6	6778 6,000	5 pcs
				Ø 8	6778 8,000	5 pcs
				Ø 10	6778 10,000	5 pcs
				Ø 12	6778 12,000	3 pcs
				Ø 16	6778 16,000	3 pcs
	RF100 Diver	Carbide	Ⓡ	Ø 6, 8, 10, 12, 16	6754 2,000	5 pcs (HB Shank)
					6755 2,000	5 pcs (HA Shank)
	RF100 Sharp	Carbide	Ⓡ	Ø 6, 8, 10, 12, 16	6482 1,000	5 pcs
				Ø 6, 8, 10, 12	6482 2,000	4 pcs

GUHRING TOOL SETS

Tool Image	Description	Tool material	Surface	Diameter range	Guhring No.	Set consists of:
	Gun Nose Powertaps	HSS-E		M5, M6, M8, M10, M12	5695 17,000	5 pcs
	Spiral Flute Powertaps	HSS-E		M5, M6, M8, M10, M12	5697 17,000	5 pcs
	Gun Taps, Drills	HSS-E		M3 - M12 Ø 2.5, 3.3, 4.2, 5.0, 6.8, 8.5, 10.2	5696 17,100	14 pcs (7 taps, 7 drills)
	Spiral Taps, Drills	HSS-E		M3 - M12 Ø 2.5, 3.3, 4.2, 5.0, 6.8, 8.5, 10.2	5698 17,100	14 pcs (7 taps, 7 drills)
	Gun Taps, Twist Drills, 90° Countersinks	HSS-E		M3 - M10 Ø 2.5, 3.3, 4.2, 5.0, 8.5 Ø 6.3 / 12.4	8903 2,000 322036486	14 pcs (6 taps, 6 drills, 2 countersinks)
	Spiral Taps, Twist Drills, 90° Countersinks	HSS-E		M3 - M10 Ø 2.5, 3.3, 4.2, 5.0, 8.5 Ø 6.3 / 12.4	8903 1,000	14 pcs (6 taps, 6 drills and 2 countersinks)

GUHRING TOOL SETS

Tool Image	Description	Tool material	Surface	Diameter range	Guhring No.	Set consists of:
	Counterbores	HSS	○	M3 - M12	482 0,200	7 pcs
	90° Countersinks	HSS	○	Ø 6.3, 8.3, 10.4, 12.4, 16.5, 20.5	498 7,000	6 pcs
	90° Countersinks	HSS	Ⓡ	Ø 6.3, 8.3, 10.4, 12.4, 16.5, 20.5	498 8,000	6 pcs
	60° SpyroTec Countersinks	HSS	Ⓡ	Ø 6.3, 8.0, 10.0, 12.5, 16.0, 20.0	5672 1,000 5673 1,000	6 pcs 6 pcs (w/ 3-flats)
	82° SpyroTec Countersinks IMPERIAL	HSCO	Ⓡ	Ø 6.35, 7.93, 9.52, 12.70, 15.87, 19.05	5676 1,000 5677 1,000	6 pcs 6 pcs (w/ 3-flats)
	90° SpyroTec Countersinks	HSCO	Ⓡ	Ø 6.3, 8.3, 10.4, 12.4, 16.5, 20.5 Ø 6.3, 10.4, 16.5, 20.5, 25.0	5538 1,000 5539 1,000 5538 2,000 5539 2,000	6 pcs 6 pcs 5 pcs (w/ 3-flats) 5 pcs (w/ 3-flats)

GUHRING TOOL SET

HYDRAULIC CHUCK SETS

(1 Hydraulic Chuck + 5 reduction bushes)

Set 1

HSK-A 63 + 5 reduction bushes

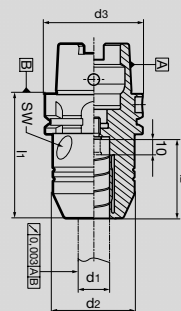
ORDER NO. 4666 20.063



HSK-A 63
PART NO. 4299



PART NO. 4665



ORDER NO.	PART NO.	INTERFACE	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	WEIGHT (kg)	SW (mm)
4666 20.063	4299	HSK-A 63	20.00	52.50	80.00	51.00	1.310	5.0

Set 2

MAS/BT 40 + 5 reduction bushes

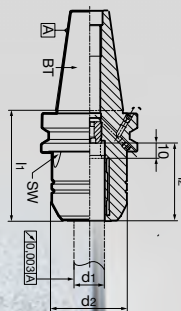
ORDER NO. 4666 20.140



MAS/BT 40
PART NO. 4221



PART NO. 4665



ORDER NO.	PART NO.	INTERFACE	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	WEIGHT (kg)	SW (mm)
4666 20.140	4221	MAS/BT 40	20.00	49.30	72.50	51.00	1.250	5.0



1 hydraulic chuck + 5 reduction bushes

SERVICE



SPECIAL TOOLS & RE-GRINDING SERVICE



Guhring Australia has become a one-stop shop for offering a range of high performance cutting tool solutions, including a local Production and Service Division that manufactures solid carbide special tools in-house, from step drills and reamers to complex form tools and milling cutters. The local grinding division also offers a comprehensive resharpener service for both original Guhring tools as well as competitor products. The division is also equipped with its own in-house PVD coating centre for depositing a range of advanced ceramic coatings.

“THE SHORTEST DELIVERY TIMES FOR THE HIGHEST QUALITY SPECIAL TOOLS WITH PVD COATING!”

Guhring Australia draws on the wealth of knowledge and experience from our twenty years since setting up our special tools division. In addition, with support from our parent company in Germany, we are able to offer rapid delivery of custom-made special tools at highly competitive prices, complete with in-house coating facilities. If the need arises our highly experienced local team can deliver special coated carbide cutting tools within 48 hours. No other cutting tool company can offer such a rapid and complete solution in Australia.



High quality carbide

Guhring Australia uses only German-made Guhring carbide rods for the in-house production of special tools. A large range of carbide rods are kept in stock to meet the increasing demands from the machine-tool industry for the highest possible performance from specialist cutting tools.

Re-grinding

Worn tools don't belong on the scrap heap. Regrinding can offer a highly cost effective solution to reduce overall tooling costs by regrinding and recoating tools to near as-new condition. The service is not only for Guhring tools but also competitor products.

Get a quotation now

Quotation within 24 hours!
Tool delivery within 3 weeks!
Call us on 1800 639 991

IN-HOUSE PVD COATING

For special applications it is desirable to increase the wear resistance of tools and improve the coefficient of friction between the tool and the workpiece material using special PVD coatings. Guhring offer a range of advanced wear-resistant coatings from an in-house PVD coating facility.

S S-coating or TiN coating (Titanium nitride)

Physical appearance: golden colour. Well proven, cost efficient all-round coating. Achieving performance increases. Surpassed in certain cases by other more advanced coatings.

A Super A-coating or AlTiN-coating (Aluminium titanium nitride)

Physical appearance: Black-violet colour. Guhring's well-proven A-coat has undergone continuous development by optimising the structural, chemical and mechanical properties of the coating. The result is the Super A-coating that has extremely high hot hardness, very good oxidisation resistance as well as excellent coating adhesion. This coating is suitable for the machining of difficult-to-machine materials such as titanium-alloys, Inconel and hardened steels as well as for hard machining (>52HRC) and HSC.

F FIRE coating

Physical appearance: violet-black colour. Multilayer TiAlN-coating with a graded structure. All-round coating achieving at least twice the performance of TiN. Combines the advantages of TiN, TiAlN and TiCN. Excellent, near "fire resistant" heat resistance. High toughness.

C ICE coating (AlCrN-coat)

Physical appearance: metallic grey. The coating is specially adapted to satisfy the demands of high temperature and MQL machining applications. Our ICE-coat is based on aluminium chromium nitride (AlCrN) and possesses an extremely high oxidation resistance and hot hardness thanks to the high chromium content. The result is a high wear resistance and productivity in difficult to machine applications.

Z ZENIT coating

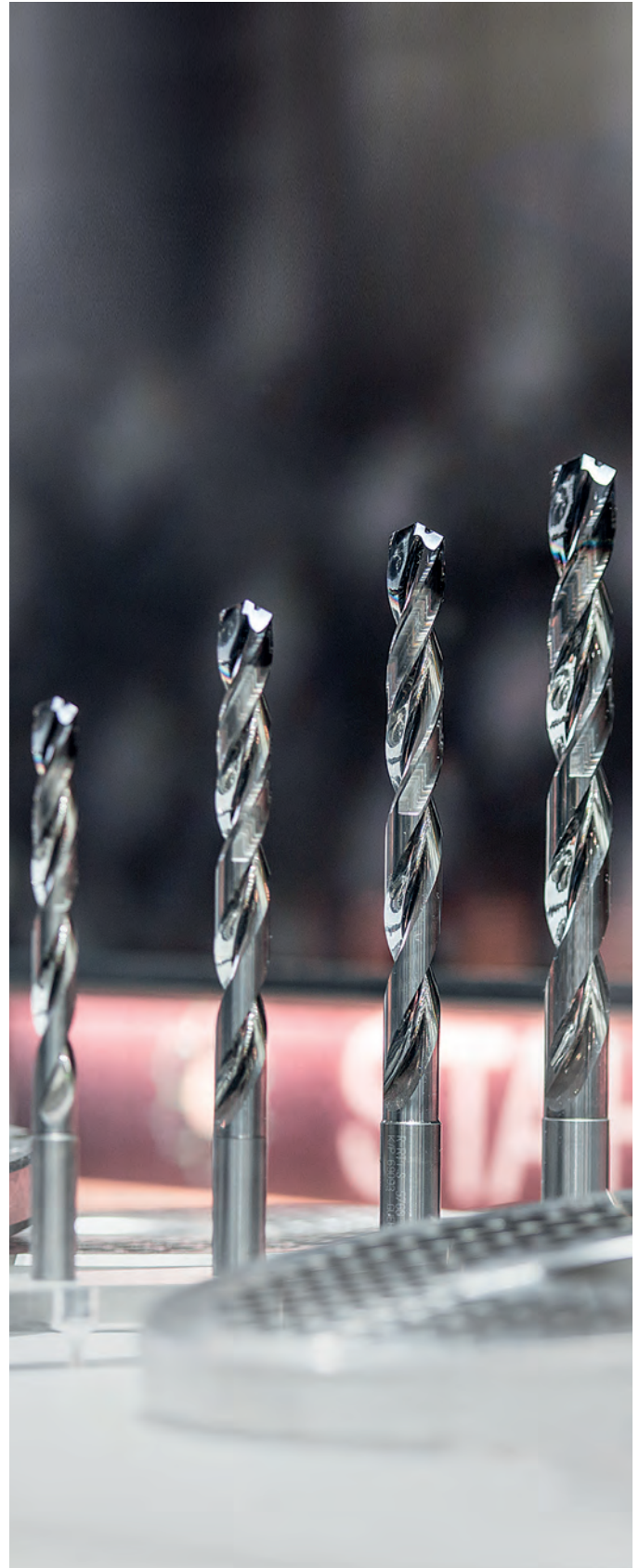
Physical appearance: pale yellow colour. The Zenit coating is specifically designed for non-ferrous applications, especially for milling of aerospace grade titanium alloys.

E Endurum coating

Physical appearance: copper. This coating is adapted for the drilling of low-alloyed steels such as carbon, free-cutting and manganese-alloyed steels.

Y Signum coating

Physical appearance: bronze. This signum coating has an extremely high hardness, that is retained even at high temperatures. The coating provides an especially high wear-resistance and at the same time, a high diffusion resistance.



							
	S-coating TiN	Super-A Coating TiAlN	FIRE Coating TiN/TiAlN	ICE Coating TiAlCrN	Zenit Coating ZrN/AlTiN	Endurum Coating TiAl/TiSi	Signum Coating TiAlY/TiAlSi/MoCrW
Colour	Gold	Grey Violet	Black Violet	Metallic Silver	Light Gold	Copper	Bronze Copper
Coating process	Physical Vapour Deposition	Physical Vapour Deposition	Physical Vapour Deposition	Physical Vapour Deposition	Physical Vapour Deposition	Physical Vapour Deposition	Physical Vapour Deposition
Layer structure	Monolayer	Monolayer	Graded Multilayer	Nanolayer	Nanolayer	Multilayered	Multilayered Nano Composite
Thickness [µm]	1.5 – 3.0	1.5 – 3.0	2.0 – 4.0	2.0 – 4.0	2.0 – 3.0	2.0 – 4.0	3.0 – 5.0
Hardness [HV 5g]	2300	3400	3300	3500	3000	4000	5500
Friction coefficient	0.4	0.6	0.6	0.5	0.3	0.6	0.5
Deposition temp. [°C]	400 – 500°C	400 – 500°C	400 – 500°C	400 – 500°C	400 – 500°C	400 – 500°C	400 – 500°C
Maximum operating temperature [°C]	600°C	900°C	800°C	1000°C	800°C	800°C	800°C+
Applications	General	High Performance	High Performance	High Performance	High Performance	High Performance	High performance
Workpiece materials	General	Hardened steels Cast irons AlSi alloys	Hardened steels Cast irons AlSi alloys	Hardened steels Cast irons, AlSi and Titanium alloys	Non ferrous, stainless steel	Carbon, free machining manganese, alloyed steel, low alloyed steel	Stainless steel, hardened high strength steels, cast iron



TM

TOOL MANAGEMENT

Powered by **GÜHRING**



GTMS

Modern and practice-oriented tool management software from Gühring is the engine of tool management.



LOGISTICS

The GTMS triggers order suggestions as required and co-ordinates delivery and re-grind service.



SERVICE

Thanks to the co-ordinated delivery and re-grind service all production relevant working materials and tools are made available based on requirement and on time.



INTEGRATION

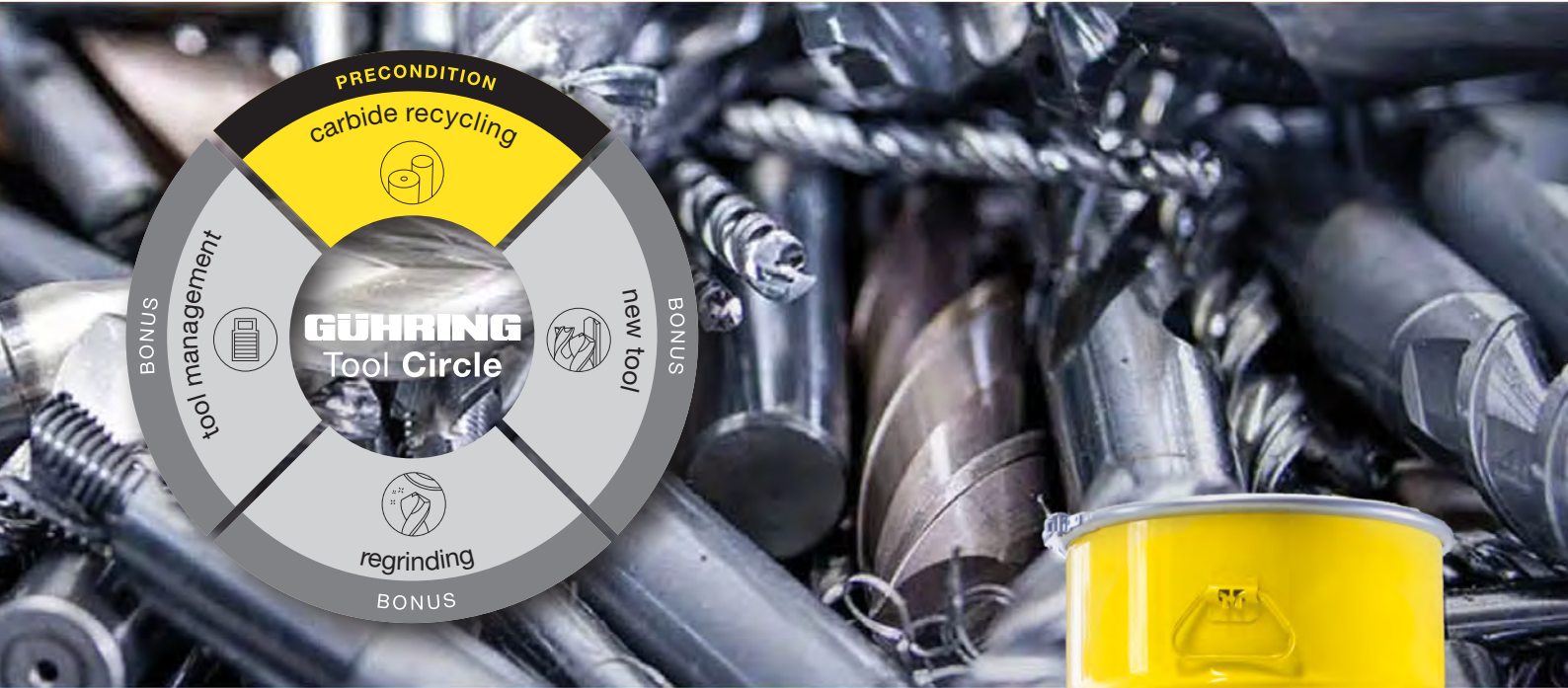
By incorporating the software in the existing customer infrastructure it provides support to all relevant tool management processes.



Simple Transparent
Flexible Efficient
Economical



- Low Cost of Entry
- Avoid Tool Shortages
- Higher Machine Utilization
- Create Transparency and Order
- Reduction of Tool, Storage and Personnel Costs by up to 20%



Guhring recycling carbide protects the environment and conserves resources.

Throw away high quality used carbide? It's just too valuable.

We offer you an environment-friendly and economically attractive solution: Our Recycling Carbide Tools.

Thanks to our own carbide technology we are able to recycle this valuable raw material.

By sending us your used carbide tools, you help preserve and protect the environment and ensure that these products are recycled responsibly. You also earn extra money.

Please fill out the form below or call us on 1800-639-991 to obtain the latest price.



Company

Address

Name

Suburb

Postcode

Telephone

Fax

E-Mail

Approx. Weight of used carbide tools

(e.g. carbide inserts, drills, taps, end mills, reamers, and milling cutters)

 Kg

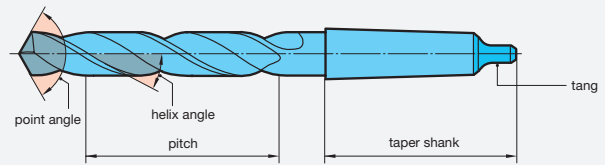
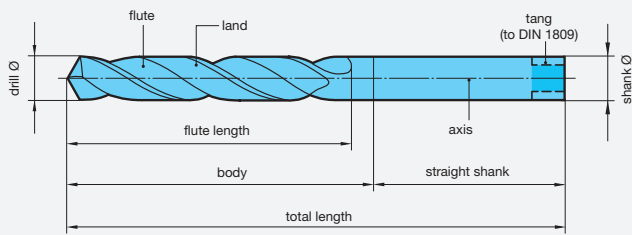
1 Miles Street, Mulgrave VIC 3170 FAX: (03) 9948 4699 E-MAIL: sales@guhring.com.au



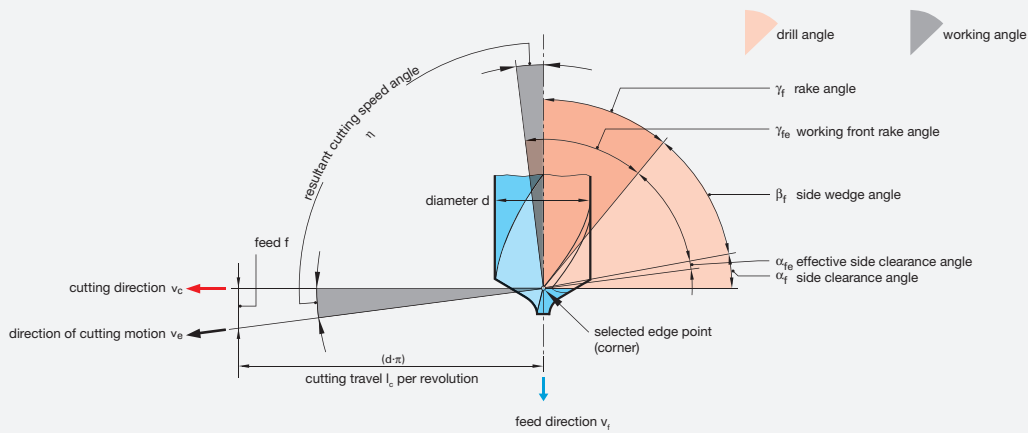
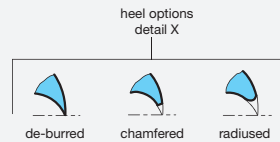
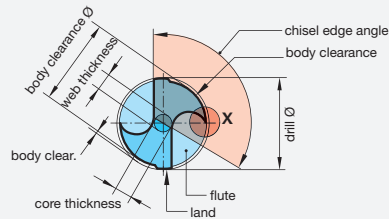
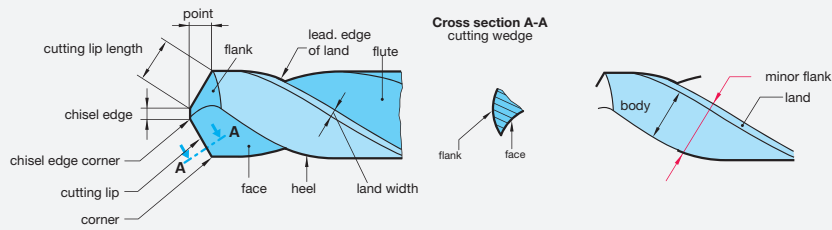
TECHNICAL INFORMATION



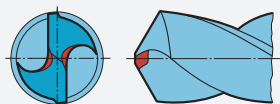
Twist drills with straight / Morse taper shank



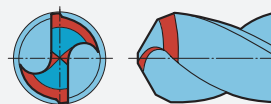
Cutting portion



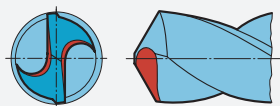
Special point geometry to DIN 1412 (extract; edition 03/01)



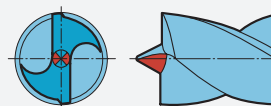
Form A
Thinned chisel edge



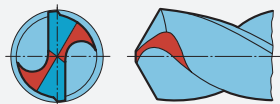
Form D
Point ground for cast iron



Form B
Thinned chisel edge with corrected cutting lips



Form E
Brad point (center point)



Form C
Split point



Twist drill manufacturing tolerances to DIN ISO 286, part 2

diameter (nominal size) up to and incl. mm	tolerance range mm	
	h8	h7
0.38 ... 0.60	10	7
0.95	12	8
3.00	14	10
6.00	18	12
10.00	22	15
18.00	27	18
30.00	33	21
50.00	39	25
80.00	46	30
120.00	54	35

* If you need tolerances other than ISO h8 please let us know. Additional charges for closer diameter tolerance see additional charges at the end of chapter Drilling Tools.

Reference to other relevant standards

DIN 228	Part 1 machine tapers; Morse tapers and metric tapers, taper shank
DIN 1414-1	Directions for design and use for high speed steel twist drills
DIN 6580	Definitions of the metal-cutting industry; motions and geometry of the cutting process
DIN 6581	Definitions of the metal-cutting industry; Cutting portion reference systems and angles

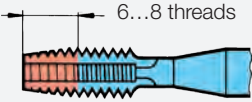
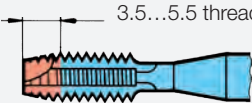
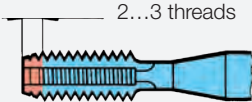
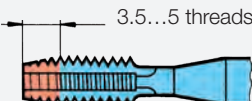
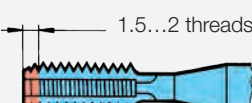
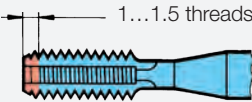
The standard descriptions above are given with the permission from the German Standards Institute (Deutsches Institut für Normung). The most recent editions of the standard sheets apply and are available in DIN A 4 format from Beuth-Verlag GmbH, D-10787 Berlin.

Conversion table inch - millimetre (From 1/64 to 11 63/64)

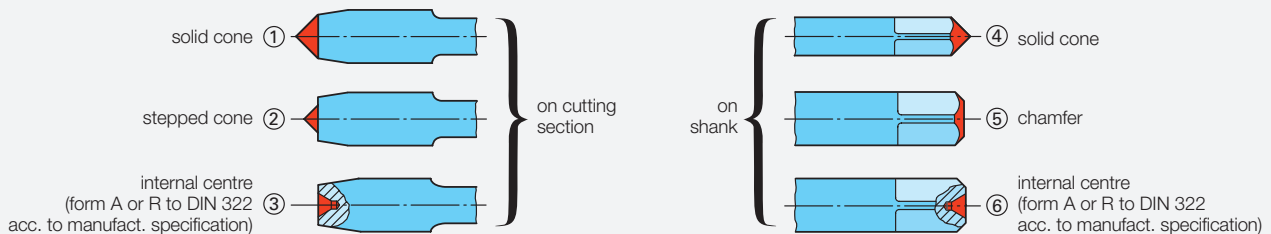
Fraction	mm	inch	Fraction	mm	inch	Fraction	mm	inch	Fraction	mm	inch	Fraction	mm	inch	Fraction	mm	inch
-	0.10	0.0039	66	0.84	0.0330	3/32	2.38	0.0938	10	4.91	0.1935	Q	8.43	0.3320	-	16.00	0.6299
97	0.15	0.0059	65	0.89	0.0350	41	2.44	0.0960	9	4.98	0.1960		8.50	0.3346	41/64	16.27	0.6406
96	0.16	0.0063	-	0.90	0.0354	40	2.50	0.0980	-	5.00	0.1968	R	8.61	0.3390		16.50	0.6496
95	0.17	0.0067	64	0.91	0.0360	39	2.53	0.0995	8	5.05	0.1990	11/32	8.73	0.3438	21/32	16.67	0.6562
94	0.18	0.0071	63	0.94	0.0370	38	2.58	0.1015	7	5.11	0.2010		8.75	0.3445	-	17.00	0.6693
93	0.19	0.0075	62	0.97	0.0380	37	2.64	0.1040	13/64	5.16	0.2031	S	8.84	0.3480	43/64	17.07	0.6719
92	0.20	0.0079	61	0.99	0.0390	36	2.71	0.1065	6	5.18	0.2040	-	9.00	0.3543	11/16	17.46	0.6875
91	0.21	0.0083	-	1.00	0.0394	7/64	2.78	0.1094	5	5.22	0.2055	T	9.09	0.3580		17.50	0.6890
90	0.22	0.0087	60	1.02	0.0400	35	2.79	0.1100		5.25	0.2067	23/64	9.13	0.3594	45/64	17.86	0.7031
89	0.23	0.0091	59	1.04	0.0410	34	2.82	0.1110	4	5.31	0.2090	U	9.35	0.3680	-	18.00	0.7087
88	0.24	0.0095	58	1.07	0.0420	33	2.87	0.1130	3	5.41	0.2130		9.50	0.3740	23/32	18.26	0.7188
-	0.25	0.0098	57	1.09	0.0430		2.90	0.1142		5.50	0.2165	3/8	9.53	0.3750		18.50	0.7283
87	0.25	0.0100	56	1.18	0.0465	32	2.95	0.1160	7/32	5.56	0.2188	V	9.56	0.3770	47/64	18.65	0.7344
	0.26	0.0102	3/64	1.19	0.0469	-	3.00	0.1181	2	5.61	0.2210	W	9.80	0.3860	-	19.00	0.7480
86	0.27	0.0105		1.20	0.0472	31	3.05	0.1200	1	5.79	0.2280	25/64	9.92	0.3906	3/4	19.05	0.7500
	0.27	0.0106		1.25	0.0492	1/8	3.18	0.1250	A	5.94	0.2340	-	10.00	0.3937	49/64	19.45	0.7656
85	0.28	0.0110		1.30	0.0512	30	3.26	0.1285	15/64	5.95	0.2344	X	10.08	0.3970		19.50	0.7677
	0.29	0.0114	55	1.32	0.0520		3.30	0.1299	-	6.00	0.2362	Y	10.26	0.4040	25/32	19.84	0.7812
84	0.29	0.0115	54	1.40	0.0550	29	3.45	0.1360	B	6.05	0.2380	13/32	10.32	0.4062	-	20.00	0.7874
-	0.30	0.0118		1.45	0.0571		3.50	0.1378	C	6.15	0.2420	Z	10.49	0.4130	51/64	20.24	0.7969
83	0.30	0.0120		1.50	0.0591	28	3.57	0.1405	D	6.25	0.2460		10.50	0.4134		20.50	0.8071
82	0.32	0.0125	53	1.51	0.0595	9/64	3.57	0.1406	1/4	6.35	0.2500	27/64	10.72	0.4219	13/16	20.64	0.8125
	0.32	0.0126		1.55	0.0610	27	3.66	0.1440	E	6.35	0.2500	-	11.00	0.4331	-	21.00	0.8268
81	0.33	0.0130	1/16	1.59	0.0625	26	3.73	0.1470		6.50	0.2559	7/16	11.11	0.4375	53/64	21.03	0.8281
80	0.34	0.0135		1.60	0.0630		3.75	0.1476	F	6.53	0.2570		11.50	0.4528	27/32	21.43	0.8438
79	0.37	0.0145	52	1.61	0.0635	25	3.80	0.1495	G	6.63	0.2610	29/64	11.51	0.4531		21.50	0.8465
1/64	0.40	0.0156		1.65	0.0650	24	3.86	0.1520	17/64	6.75	0.2656	15/32	11.91	0.4688	55/64	21.84	0.8594
78	0.41	0.0160	51	1.70	0.0670	23	3.91	0.1540		6.75	0.2657	-	12.00	0.4724	-	22.00	0.8661
77	0.46	0.0180		1.75	0.0689	5/32	3.97	0.1562	H	6.76	0.2660	31/64	12.30	0.4844	7/8	22.23	0.8750
-	0.50	0.0197	50	1.78	0.0700	22	3.99	0.1570	I	6.91	0.2720		12.50	0.4921		22.50	0.8858
76	0.51	0.0200		1.80	0.0709	-	4.00	0.1575	-	7.00	0.2756	1/2	12.70	0.5000	57/64	22.62	0.8906
75	0.53	0.0210	49	1.85	0.0730	21	4.04	0.1590	J	7.04	0.2772	-	13.00	0.5118	-	23.00	0.9055
74	0.57	0.0225		1.90	0.0748	20	4.09	0.1610	K	7.14	0.2810	33/64	13.10	0.5156	29/32	23.02	0.9062
-	0.60	0.0236	48	1.93	0.0760		4.20	0.1654	9/32	7.14	0.2812	17/32	13.49	0.5312	59/64	23.42	0.9219
73	0.61	0.0240		1.95	0.0768	19	4.22	0.1660	L	7.37	0.2900		13.50	0.5315		23.50	0.9252
72	0.64	0.0250	5/64	1.98	0.0781	18	4.31	0.1695	M	7.49	0.2949	35/64	13.89	0.5469	15/16	23.81	0.9375
71	0.66	0.0260	47	1.99	0.0785	11/64	4.37	0.1719		7.50	0.2953	-	14.00	0.5512	-	24.00	0.9449
-	0.70	0.0276	-	2.00	0.0787	17	4.39	0.1730	19/64	7.54	0.2969	9/16	14.29	0.5625	61/64	24.21	0.9531
70	0.71	0.0280		2.05	0.0807	16	4.50	0.1770	N	7.67	0.3020		14.50	0.5709		24.50	0.9646
69	0.74	0.0292	46	2.06	0.0810	15	4.57	0.1800		7.75	0.3051	37/64	14.68	0.5781	31/32	24.61	0.9688
-	0.75	0.0295	45	2.08	0.0820	14	4.62	0.1820	5/16	7.94	0.3125	-	15.00	0.5906	-	25.00	0.9843
68	0.79	0.0310		2.15	0.0846	13	4.70	0.1850	-	8.00	0.3150	19/32	15.08	0.5938	63/64	25.00	0.9844
1/32	0.79	0.0313	44	2.18	0.0860	3/16	4.76	0.1875	O	8.03	0.3160	39/64	15.48	0.6094	1	25.40	1.0000
-	0.80	0.0315	43	2.26	0.0890	12	4.80	0.1890	P	8.20	0.3230		15.50	0.6102			
67	0.81	0.0320	42	2.37	0.0935	11	4.85	0.1910	21/64	8.33	0.3281	5/8	15.88	0.6250			



Chamfer forms to DIN 2197

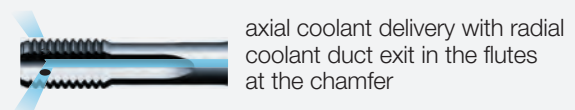
Form A		long, 6 - 8 threads for short through holes
Form B		medium, 3.5 - 5.5 threads, with spiral point, for all through holes and deep tapping holes in medium and long-chipping materials
Form C		short, 2 - 3 threads for blind holes and generally for aluminium, grey cast iron and brass
Form D		medium, 3.5 - 5 threads for short through holes
Form E		extremely short, 1.5-2 threads, for blind holes with little run-out depth.
Form F		extremely short, 1-1.5 threads, for blind holes with little run-out depth. Avoid use if possible.

Types of centres (standard, to DIN 2197/DIN 2175)



Thread dia. range mm	Centre on cutting section		Centre on shank
	with chamfer forms A, C, D, E	with chamfer form B	
≤ 4.2	1	1	4, 5, 6
> 4.2 ... 5.6	1, 2	1	4, 5, 6
> 5.6 ... 10.0	1, 2, 3	1, 2, 3	4, 5, 6
> 10.0	3	3	6

Coolant duct geometries





THE CHARACTERISTICS OF DIFFERENT THREAD TYPES

geometry drawing	Standard	application	geometry drawing	Standard	application
M ISO-metric thread			MF ISO-metric fine thread		
	DIN 13-1	General standard thread		DIN 13-2 to DIN 13-11	General fine thread
UNC Unified National Coarse Thread			UNF Unified National Fine Thread		
	ASME B1.1	General UN standard thread		ASME B1.1 ISO-metric trapezoidal thread	General UN Fine Thread
UNEF Unified National Extra Fine Thread			UNS Unified Special Thread		
	ASME B1.1	General UN Extra Fine Thread		ASME B1.1	General UN Special Thread
G Cylindrical Pipe Thread without thread sealing connections			PG steel conduit thread		
	DIN EN ISO 228-1	Threads for pipes, pipe connections and fittings		DIN 40430 cylindrical round thread	electrical engineering
TR ISO-metric trapezoidal thread			S metric saw thread		
	DIN 103	General, draw collets, rolling stock		DIN 513	when absorbing uni-directional forces
W Cylindrical Whitworth Thread			W Whitworth Taper Thread		
	DIN 477	Side connector and accessories for gas bottle valves		DIN 477	Threaded connection in gas cylinder bottles for valves
NPT American Standard Pipe Threads tapered for sealing			NPTF American Standard Pipe Thread tapered for dry sealing		
	ANSI/ASME B1.20.1	pipe threads and fittings		ANSI B1.20.3	pipe threads and fittings

TECHNICAL INFORMATION



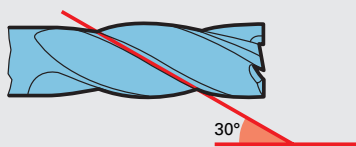
geometry drawing	Standard	application
BSW cylindrical Whitworth thread		
	B.S. 84 British Standard	Threads for pipes, pipe connections and fittings
BSP pipe thread cylindrical (identical to G)		
	B.S. 93 British Standard	Threads for pipes, pipe connections and fittings
R Whitworth pie thread tapered external thread		
	DIN EN 10226-1 (based on ISO 7-1) replacement for DIN 2999-1	External thread for pipe threads and fittings (for in the thread sealing connections)
Rc Whitworth pipe thread tapered internal thread		
	DIN ISO 10226-2 (hardly used in Europe, replaceable with pipe threads to ISO 7-1)	Internal thread for pipe threads and fittings (for in the thread sealing connections)
MJ thread metric thread		
	DIN ISO 5855-1	For the aerospace industry
Vg valve thread		
	DIN 7756	Valves for car tyres manifold block
MFS		
	DIN 8141	Interference fits in Aluminium-cast alloys

geometry drawing	Standard	application
BSF Whitworth fine thread cylindrical		
	B.S. 84 British Standard Fine	Threads for pipes, pipe connections and fittings
BSPT pipe thread tapered (identical to Rc)		
	B.S. 93 British Standard	Internal thread for pipe threads and fittings
Rp Whitworth pipe thread cylindrical internal thread		
	DIN EN 10226-1 (based on ISO 7-1) Replacement for DIN 2999-1	Internal thread for pipe threads and fittings (for in the thread sealing connections)
RD cylindrical round thread		
	DIN 405	General, load hook, mining, food industry
UNJ inch thread		
	ISO 3161	For the aerospace industry
MSG lock nut thread		
	Guhring standard	Self-locking thread transmission housing etc.

- external thread
- internal thread
- play



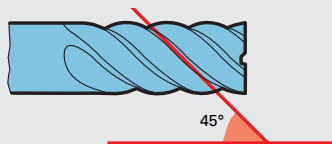
TYPES OF MILLING CUTTERS AND THEIR BASIC APPLICATION RANGE



Type N

Quick spiral with 30° helical pitch, suitable for finish milling structural, case hardened and heat-treatable steels as well as short-chipping non-ferrous metals and materials up to

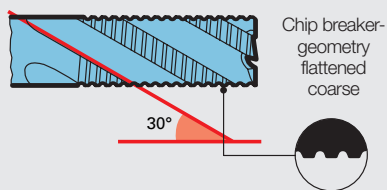
- 1200·N/mm²-tensile strength-applying high speed steel milling cutters
- 1600·N/mm²-tensile strength-applying solid carbide milling cutters



Type NH

Quick spiral with high 45° helical pitch, suitable for super fine finishing high-alloyed materials and grey cast iron up to appr.

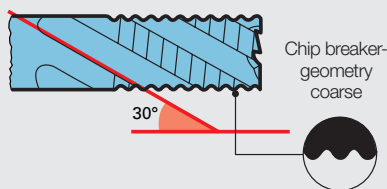
- 1600·N/mm²-tensile strength



Type NF

Flat knuckle-type teeth/quick spiral, produces short chips and improved smoother surface quality in comparison to type NR or NRf. Suitable for milling standard materials up to appr.

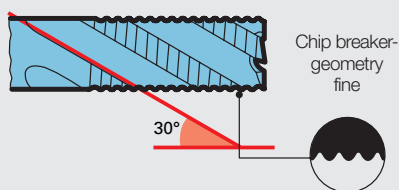
- 1200·N/mm²-tensile strength-applying high speed steel milling cutters
- 1600·N/mm²-tensile strength applying solid carbide milling cutters



Type NR

Standard knuckle-type teeth, produces short chips and good chip evacuation. Suitable for milling standard materials up to appr.

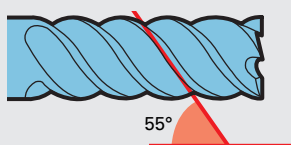
- 1000·N/mm²-tensile strength-applying high speed steel milling cutters
- 1200·N/mm²-tensile strength-applying solid carbide milling cutters



Type NRf

Fine knuckle-type teeth, produces short chips and good chip evacuation. Better feed rates possible than with type NR. Suitable for milling materials with a high tensile strength up to appr.

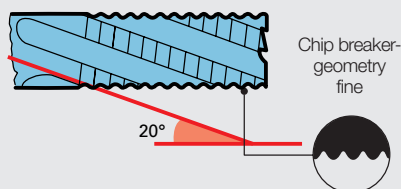
- 1400·N/mm²-tensile strength-applying high speed steel milling cutters
- 1600·N/mm²-tensile strength applying solid carbide milling cutters



Type H

Quick spiral with high 55° helical pitch, suitable for super-fine finishing as well as HSC* machining of all hardened materials and chilled cast iron up to appr.

- 62·HRC-hardness

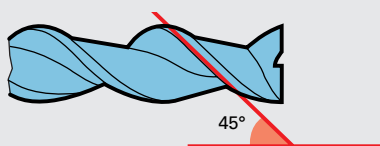


Type HR

Fine knuckle-type teeth, produces short chips with good chip evacuation. Suitable for milling hardened materials as well as grey and chilled cast iron with up to appr.

- 56 HRC hardness

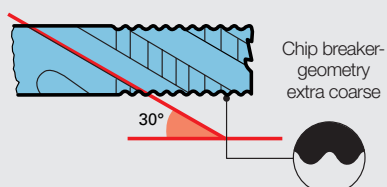
* High Speed Cutting



Type W

Quick spiral with 45° helical pitch, suitable for finish milling soft materials such as aluminium, Al-alloys and non-ferrous metals up to appr.

- 600·N/mm² tensile strength



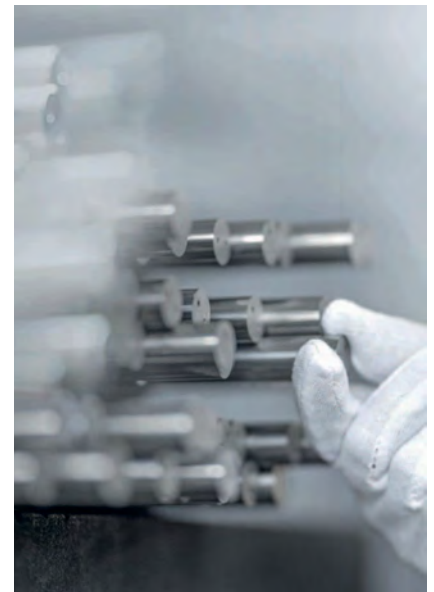
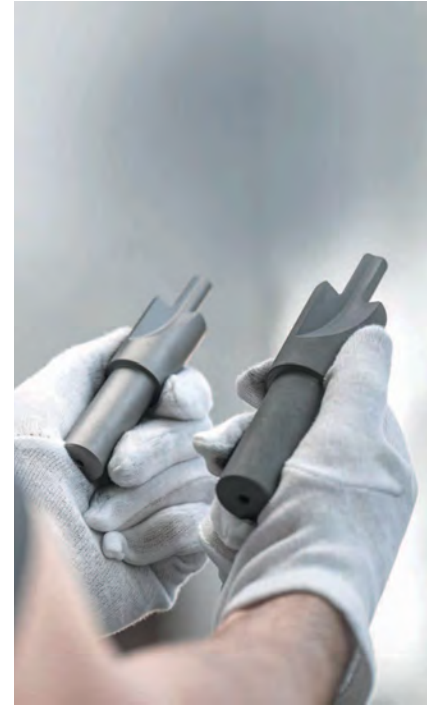
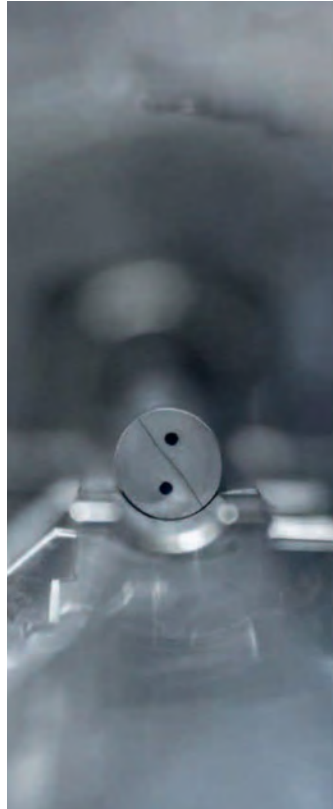
Type WR

Coarse knuckle-type teeth, produces short chips with good chip evacuation. Suitable for milling aluminium, non-ferrous metals as well as soft steels up to appr.

- 600·N/mm²-tensile strength.



	<p>RF 100 U (type N)</p>	<p>35°/38° helix. Suitable for slotting, roughing and finishing steel, high-alloyed steel and hardened steel up to</p> <ul style="list-style-type: none"> • 1600 N/mm² tensile strength (48 HRC)
	<p>RF 100 U (type NH) 3-fluted</p>	<p>41°/43°/45° helix. Suitable for slotting, roughing and finishing steel, high-alloyed steel and stainless steel up to</p> <ul style="list-style-type: none"> • 1400 N/mm² tensile strength (44 HRC) <p>3-fluted suitable for extreme cutting depths</p>
	<p>RF 100 U/HF (type HF)</p>	<p>30°/32° helix and roughing and finishing geometry. Suitable for slotting and roughing with large cutting widths and depths in steel, high-alloyed steel and hardened steel up to</p> <ul style="list-style-type: none"> • 1600 N/mm² tensile strength (48 HRC)
	<p>RF 100 F (type NH)</p>	<p>40°/42° helix. Suitable for slotting, roughing and finishing as well as HPC-milling/imachining tough steels as well as other long-chipping materials up to</p> <ul style="list-style-type: none"> • 850 N/mm² tensile strength (25 HRC)
	<p>RF 100 VA (type N)</p>	<p>36°/38° helix. Suitable for slotting, roughing and finishing VA steels and stainless materials</p>
	<p>RF 100 VA/NF (type NF)</p>	<p>36°/38° helix and roughing and finishing geometry. Suitable for slotting and roughing VA steels and stainless materials</p>
	<p>RF 100 A (type W)</p>	<p>39°/40°/41° helix. Suitable for slotting, roughing and finishing aluminium and Al-alloys as well as long-chipping materials and non-ferrous metals</p>
	<p>RF 100 A/WF (type WF)</p>	<p>29°/30°/31° helix and roughing and finishing geometry. Suitable for slotting and roughing aluminium and Al-alloys</p>
	<p>RF 100 H (type H)</p>	<p>40°/42° helix and progressive core diameter. Suitable for roughing up to 1xD in materials up to 54 HRC, for finishing over the entire cutting edge length in materials over 63 HRC. With HPC strategy suitable for roughing materials > 63 HRC.</p>
	<p>RF 100 Ti (type N)</p>	<p>35°/38° helix with corner radius. Suitable for slotting and roughing of titanium alloys as well as difficult-to-cut alloys</p>
	<p>RF 100 SF (type NH)</p>	<p>44°/45°/46° helix. Suitable for HSC super fine finishing for semi-roughing with feed widths up to max. 0.3xD and HPC roughing over the entire cutting edge length for standard steels, cast iron, non-ferrous metals and high-alloyed materials</p>



With an annual production of in excess of 1500 tons Gühring Hard Material division is one of the leading carbide manufacturers. Grade variety, manufacturing possibilities and capacities as well as quality set market standards – the same as expert advice and the development support for our customers. Contact us and involve us with your task. We are sure we can offer you an efficient and cost-effective solution.

CARBIDE BLANKS

- for punches, core pullers, drawing dies and much more for the forming technology
- for cutting, punching, drilling, milling, shredding etc. for the machining technology
- for grooved bushes, nozzles, pressure and skid plates for the wear protection technology
- for impact knives, stirring staffs or strainers for the food and pharmaceutical industry
- for the manufacture of rotary tools



High Speed Steels

Only high quality tool materials are used to produce HSS tools. Systematic selection of alloying elements ensure the tool possesses the optimal characteristics for the individual tasks.

Tungsten, Molybdenum: Increase tempering and wearing resistance.

Vanadium: Increases wear-resistance of finishing tools.

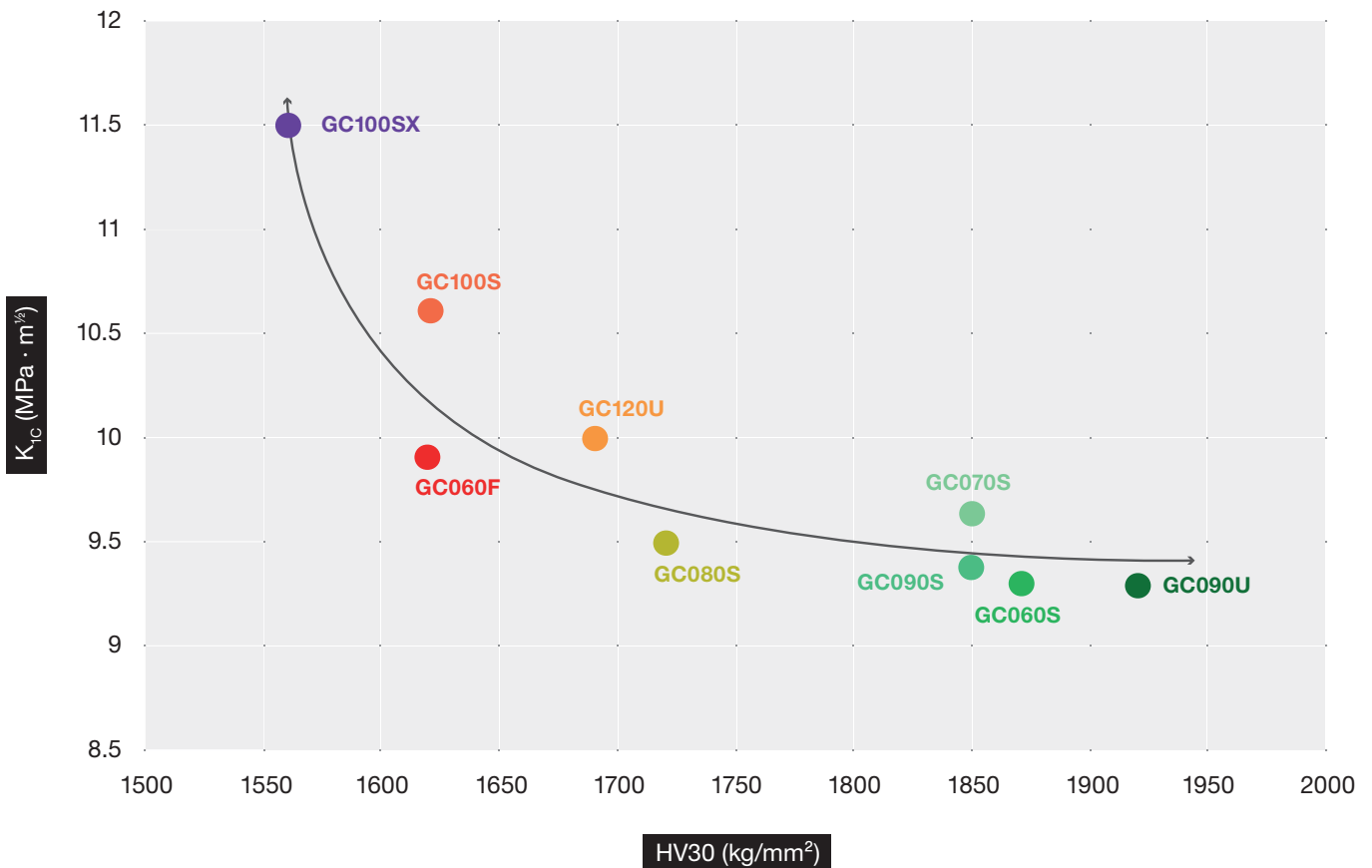
Cobalt: Enables increased hardening temperatures and improves heat-resistance.

Guhring description	German steel description	Material No. (steel code)	Range of application
HSS	HS 6-5-2 (DMo5)	1.3343	standard tool material for most common applications
HSCO HSS-E	HS 6-5-2-5 (EMo5Co5)	1.3243	high heat-resistance, especially suited for roughing or when coolant insufficient
HSS-E	HS 6-5-3 (EMo5V3)	1.3344	high friction resistance and cutting edge stability, especially important for reaming operations
M42 HSS-E	HS 2-9-1-8	1.3247	increased heat resistance and hardness, suitable for difficult-to-machine materials
HSS-E-PM	10-2-5-8, PM52	1.3253	high hardness, heat-resistance and cutting edge stability, very dense structure
	HS 6-5-3-8, PM30	1.3294	

Individual Guhring carbide grades

The following table lists the most important carbides that are available from Guhring ex-stock for general applications. In more than 80% of applications known to Guhring, the results of DK460UF carbide grade tools together with a specially adapted coating could not be surpassed by any other carbide grades, including coated tools. This and the availability of the material ex-stock simplify tool selection immensely. For further information regarding the application of other carbide grades please contact to our technical engineers.

Type		GC100SX	GC060F	GC100S	GC120U	GC080S	GC070S	GC090S	GC060S	GC090U
Classification		K20-K40	K15-K20	K20-K40	K20-K30	K20-K30	K10	K10	K05-K10	K05-K10
Co	%	10.0	6.0	10.0	12.0	8.0	7.0	9.0	6.0	9.0
WC including doping	%	90.0	94.0	90.0	88.0	92.0	93.0	91.0	94.0	91.0
Hardness HV (± 50)	kg/mm ²	1560	1620	1620	1690	1720	1850	1850	1870	1920
Fracture toughness K_{IC}	MPa · m ^{1/2}	11.5	9.9	10.6	10.0	9.5	9.6	9.4	9.3	9.3
Bending Strength	N/mm ²	3700	3200	4100	4000	3800	3500	3800	3900	3800
Medium gain size	μm	0.5-0.8	0.8-1.3	0.5-0.8	0.2-0.5	0.5-0.8	0.5-0.8	0.5-0.8	0.5-0.8	0.2-0.5





NESTING TOOLS

*FOR WOODWORKING
AND COMPOSITE PANELS*



GUHRING



WORK EASILY, QUICKLY AND EFFICIENTLY WITH EACH APPLICATION

Fume extraction

Vapours produced during the shrink fit process are removed and filtered under controlled conditions by the fume extraction system.

Length setting

During the shrink fit process the tool is pre-set to the required length with the assistance of an adjustment rod.

Quick cooling

The water-cooled cooling elements cool down the shrink fit chuck quickly and safely. The shrink fit chuck remains clean and dry, so that it can be applied again without drying and without rusting. Hot spots remain safely screened during the cooling process in order to prevent burns.

Tool identification Balluff chip

The read and write function of the Balluff chip simplifies tool identification. Tool life can be managed.

User-friendly software

Intuitive menu navigation similar to the well-established Guhring TM-Software GTMS via touch-screen monitor (for details see page 5).

Safe shrink fitting

The minimal heating of the shrink fit chuck ensures maximum operating safety on the one hand, on the other the controlled heating ensures the long life of the shrink fit chuck.

Label printer

Print data such as Guhring no., current setting dimension, date, operator etc. on an adhesive label for your pre-set tool.



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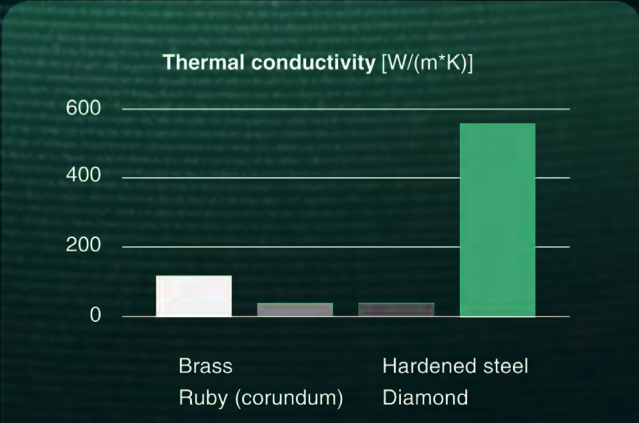
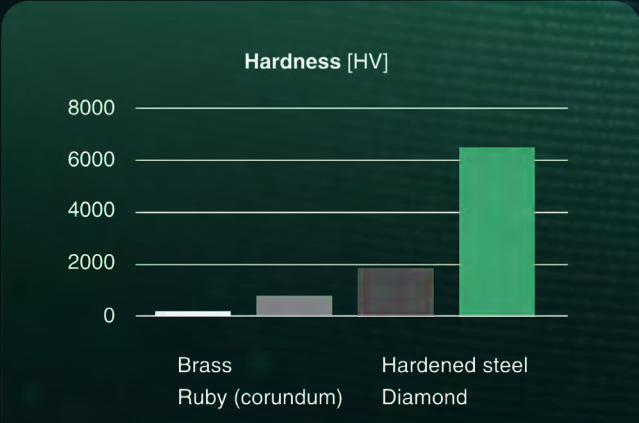
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- one nozzle for any material
- boost your cost efficiency
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60	95	810	94	3308	159	4299	217	5641	85	6737	151	9651	8
205	8	811	95	3358	140	4307	220	5642	86	6761	154	9670	16
217	14	812	95	3359	160	4485	114	5649	26	6765	154	9671	17
223	4	815	92	3360	160	4487	114	5652	23	6769	156	9672	18
242	19	816	93	3428	135	4489	115	5670	198	6788	138	19978	146
243	19	822	94	3431	135	4491	116	5674	198	6793	139	25909	210
244	19	823	95	3433	135	4492	117	5678	26	6801	151	25921	210
245	29	827	96	3451	133	4683	112	5688	87	6810	163	26100	208
257	31	834	97	3453	133	4739	219	5691	87	6812	163	26101	208
280	25	861	119	3459	134	4770	130	5692	87	6856	155	26102	209
293	33	862	119	3460	134	5004	180	5693	87	6864	155	26103	209
298	33	863	119	3466	158	5006	164	5694	87	6882	157	26200	210
299	33	864	119	3472	141	5007	112	5716	92	6917	159	26201	210
301	22	873	104	3473	141	5009	99	5717	94	6935	139	26202	211
336	14	876	105	3562	147	5010	118	5718	100	6944	150	26203	211
380	28	878	104	3570	136	5496	40	5722	94	6949	136	26206	211
405	186	879	93	3572	137	5500	198	5723	96	6992	163	26207	211
413	179	881	105	3574	137	5501	198	5724	97	8062	93	26601	212
468	180	908	106	3676	143	5503	199	5725	104	8080	95	26602	212
472	197	910	95	3679	159	5506	145	5726	105	8088	114	26603	212
476	197	911	107	3680	145	5510	36	5727	106	8101	115	26604	212
477	200	954	123	3715	150	5511	40	5728	107	8135	139	26605	213
482	202	957	123	3748	129	5512	44	5731	108	8138	139	26607	213
485	203	962	108	3803	149	5514	36	5732	109	8230	141	26608	213
495	201	965	109	3807	149	5515	40	5733	92	8232	141	26609	213
496	181	967	108	3872	147	5516	4	5734	94	8236	141	28000	166
502	16	968	109	3992	104	5517	8	5735	148	8244	142	28002	166
503	17	973	113	3993	105	5520	4	5736	92	8283	104	28003	167
504	18	981	121	3994	106	5522	8	5743	140	8284	106	28004	167
526	32	984	121	3995	107	5523	8	5768	40	8285	105	28009	167
527	32	985	122	4107	50	5524	4	6017	188	8286	107	28400	167
557	26	987	122	4108	53	5525	46	6018	191	8330	95	28501	67
565	32	998	100	4109	56	5526	36	6027	26	8333	101	28503	69
566	33	1010	98	4110	59	5527	191	6062	36	8339	99	28504	71
567	26	1011	98	4112	61	5535	148	6063	44	8340	97	28505	71
568	26	1088	113	4113	61	5537	14	6064	46	8346	105	28508	71
571	18	1228	4	4114	61	5549	143	6065	35	8347	107	28509	71
581	25	1409	187	4115	61	5551	95	6407	28	8348	109	28900	71
618	16	1499	188	4127	113	5552	95	6408	24	8352	111	28901	71
619	17	1587	114	4128	126	5553	95	6478	153	8354	93	28901	167
658	8	1589	114	4129	127	5556	146	6480	153	8356	101	476F	197
659	4	2463	4	4130	128	5557	93	6498	36	8362	99	557F	26
720	186	2464	8	4131	128	5558	93	6511	47	8363	96	861NS	120
723	26	2847	111	4133	125	5559	93	6513	48	8367	104	863NS	120
736	25	2848	111	4175	220	5573	144	6514	49	8368	106	864NS	120
782	114	2864	97	4206	221	5574	144	6559	98	8369	108	8926F	27
786	94	2871	96	4221	217	5580	40	6564	98	8371	110		
787	94	2892	110	4223	126	5582	148	6596	35	8514	44		
789	92	2893	110	4225	125	5583	157	6707	161	8518	46		
790	92	2944	102	4226	125	5584	161	6711	162	8908	20		
793	114	3043	161	4228	129	5598	114	6713	162	8910	27		



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