

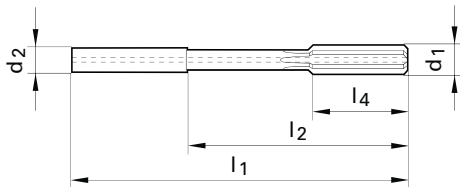
HR 500 solid carbide high-performance reamers

High-performance reamers



The solid carbide HR 500 reamer operates at unbelievably high cutting rates while producing extremely precise holes. Therefore, it offers considerable savings through process improvement and reliability.

Intermediate dimensions from Ø 2.0-20.1 mm can be produced as specials.



HR 500 reamers are stocked in Germany

d1	d2 h6	l1	l2	l4		Code no.
mm	mm	mm	mm	mm		
2.000	4.000	50.00	22.00	8.00	4	2.000
2.500	4.000	50.00	22.00	8.00	4	2.500
3.000	4.000	68.00	40.00	12.00	4	3.000
3.500	4.000	68.00	40.00	12.00	4	3.500
4.000	4.000	68.00	40.00	12.00	4	4.000
4.500	6.000	76.00	40.00	12.00	4	4.500
5.000	6.000	76.00	40.00	12.00	4	5.000
5.500	6.000	76.00	40.00	12.00	4	5.500
6.000	6.000	76.00	40.00	12.00	4	6.000
6.500	8.000	101.00	65.00	16.00	6	6.500
7.000	8.000	101.00	65.00	16.00	6	7.000
7.500	8.000	101.00	65.00	16.00	6	7.500
8.000	8.000	101.00	65.00	16.00	6	8.000
8.500	10.000	101.00	61.00	19.00	6	8.500
9.000	10.000	101.00	61.00	19.00	6	9.000
9.500	10.000	101.00	61.00	19.00	6	9.500
10.000	10.000	101.00	61.00	19.00	6	10.000
10.500	12.000	130.00	85.00	19.00	6	10.500
11.000	12.000	130.00	85.00	19.00	6	11.000
11.500	12.000	130.00	85.00	19.00	6	11.500
12.000	12.000	130.00	85.00	19.00	6	12.000
13.000	14.000	130.00	85.00	22.00	6	13.000
14.000	14.000	130.00	85.00	22.00	6	14.000
15.000	16.000	150.00	102.00	22.00	6	15.000
16.000	16.000	150.00	102.00	22.00	6	16.000
17.000	18.000	150.00	102.00	25.00	6	17.000
18.000	18.000	150.00	102.00	25.00	6	18.000
19.000	20.000	150.00	100.00	25.00	6	19.000
20.000	20.000	150.00	100.00	25.00	6	20.000

Solid carbide



Series no.

1685

1686

Surface finish Speeds & Feeds

a

p. 24



a

p. 24



EDP Number

9016850020000	9016860020000
9016850025000	9016860025000
9016850030000	9016860030000
9016850035000	9016860035000
9016850040000	9016860040000
9016850045000	9016860045000
9016850050000	9016860050000
9016850055000	9016860055000
9016850060000	9016860060000
9016850065000	9016860065000
9016850070000	9016860070000
9016850075000	9016860075000
9016850080000	9016860080000
9016850085000	9016860085000
9016850090000	9016860090000
9016850095000	9016860095000
9016850100000	9016860100000
9016850105000	9016860105000
9016850110000	9016860110000
9016850115000	9016860115000
9016850120000	9016860120000
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9016850160000	9016860160000
9016850170000	9016860170000
9016850180000	9016860180000
9016850190000	9016860190000
9016850200000	9016860200000

TECHNICAL DATA

Series 1675-1676-1685-1686

Material group	Hardness		SFM	Feed Rate - IPR									
	HRc	Bhn		< 4 mm	4 mm	5 mm	6.3 mm	8 mm	10 mm	12.5 mm	16 mm	20 mm	25 mm
Common structural steels	-	≤ 150	395 - 820	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
	≤ 32	≤ 301	395 - 820	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
Free-cutting steels	≤ 25	≤ 255	395 - 820	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
	≤ 32	≤ 301	395 - 820	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
Unalloyed heat-treatable steels	≤ 20	≤ 220	395 - 820	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
	≤ 25	≤ 255	395 - 820	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
	≤ 32	≤ 301	395 - 820	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
Alloyed heat-treatable steels	≤ 32	≤ 301	395 - 820	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
	≤ 43	≤ 402	395 - 820	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
Unalloyed case hardened steels	≤ 25	≤ 255	395 - 820	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
Alloyed case hardened steels	≤ 32	≤ 301	395 - 820	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
	≤ 43	≤ 402	395 - 820	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
Nitriding steels	≤ 32	≤ 301	395 - 820	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
	≤ 43	≤ 402	395 - 820	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
Tool steels	≤ 25	≤ 255	395 - 820	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
	≤ 43	≤ 402	395 - 820	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
High speed steels	≤ 43	≤ 402	195 - 395	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
Spring steels	≤ 38	≤ 354	100 - 195	0.0049	0.0063	0.0063	0.0079	0.0098	0.0124	0.0124	0.0157	0.0197	0.0248
Stainless steels, sulphured	≤ 28	≤ 273	195 - 395	0.0118	0.0118	0.0157	0.0157	0.0236	0.0236	0.0315	0.0315	0.0315	0.0394
austenitic	≤ 36	≤ 337	130 - 260	0.0118	0.0118	0.0157	0.0157	0.0236	0.0236	0.0315	0.0315	0.0315	0.0394
martensitic	≤ 46	≤ 435	195 - 395	0.0118	0.0118	0.0157	0.0157	0.0236	0.0236	0.0315	0.0315	0.0315	0.0394
Hardened steels	≤ 48	≤ 460	130 - 195	0.0049	0.0063	0.0063	0.0079	0.0098	0.0124	0.0124	0.0157	0.0197	0.0248
	≤ 66	-	100 - 195	0.0049	0.0063	0.0063	0.0079	0.0098	0.0124	0.0124	0.0157	0.0197	0.0248
Cast iron	≤ 23	≤ 242	195 - 460	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
	≤ 38	≤ 354	195 - 460	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
Spheroidal graphite iron and malleable cast iron	≤ 23	≤ 242	395 - 820	0.0118	0.0118	0.0157	0.0157	0.0236	0.0236	0.0315	0.0315	0.0315	0.0394
	≤ 38	≤ 354	195 - 395	0.0118	0.0118	0.0157	0.0157	0.0236	0.0236	0.0315	0.0315	0.0315	0.0394
Chilled cast iron	≤ 38	≤ 354	100 - 165	0.0118	0.0118	0.0157	0.0157	0.0236	0.0236	0.0315	0.0315	0.0315	0.0394
New cast materials GGV	≤ 20	≤ 220	-										
	≤ 32	≤ 301	260	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
New cast materials ADI	≤ 32	≤ 301	-										
	≤ 43	≤ 402	260	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
Special alloys	≤ 54	≤ 549	130 - 195	0.0118	0.0118	0.0157	0.0157	0.0236	0.0236	0.0315	0.0315	0.0315	0.0394
Ti and Ti-alloys	≤ 25	≤ 255	130 - 195	0.0118	0.0118	0.0157	0.0157	0.0236	0.0236	0.0315	0.0315	0.0315	0.0394
	≤ 43	≤ 402	130 - 195	0.0118	0.0118	0.0157	0.0157	0.0236	0.0236	0.0315	0.0315	0.0315	0.0394
Aluminium and Al-alloys	-	≤ 120	-										
Al wrought alloys	-	≤ 200	-										
Al cast alloys ≤ 10 % Si	-	≤ 180	-										
> 10 % Si	-	≤ 180	-										
Magnesium alloys	-	≤ 120	260 - 525	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
Copper, low-alloyed	-	≤ 150	-										
Brass, short-chipping	-	≤ 180	330 - 820	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
long-chipping	-	≤ 180	-										
Bronze, short-chipping	-	≤ 180	330 - 820	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
	≤ 25	≤ 255	330 - 820	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
Bronze, long-chipping	≤ 25	≤ 255	-										
	≤ 32	≤ 301	-										
Duroplastics			260 - 655	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
Thermoplastics			260 - 655	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
Kevlar			260	0.0031	0.0039	0.0039	0.0049	0.0063	0.0079	0.0079	0.0098	0.0124	0.0157
Glass, carbon concentrated plastics			260	0.0031	0.0039	0.0039	0.0049	0.0063	0.0079	0.0079	0.0098	0.0124	0.0157

Series 1678 - 1679

Material group	Hardness		SFM	Feed Rate - IPR									
	HRc	Bhn		< 4 mm	4 mm	5 mm	6.3 mm	8 mm	10 mm	12.5 mm	16 mm	20 mm	25 mm
Common structural steels	-	≤ 150											
	≤ 32	≤ 301											
Free-cutting steels	≤ 25	≤ 255											
	≤ 32	≤ 301											
Unalloyed heat-treatable steels	≤ 20	≤ 220											
Alloyed heat-treatable steels	≤ 32	≤ 301											
	≤ 43	≤ 402											
Unalloyed case hardened steels	≤ 25	≤ 255											
Alloyed case hardened steels	≤ 32	≤ 301											
	≤ 43	≤ 402											
Nitriding steels	≤ 32	≤ 301											
	≤ 43	≤ 402											
Tool steels	≤ 25	≤ 255											
	≤ 43	≤ 402											
High speed steels	≤ 43	≤ 402											
Spring steels	≤ 38	≤ 354											
Stainless steels, sulphured	≤ 28	≤ 273											
austenitic	≤ 36	≤ 337											
martensitic	≤ 46	≤ 435											
Hardened steels	≤ 48	≤ 460											
	≤ 66	-											
Cast iron	≤ 23	≤ 242											
	≤ 38	≤ 354											
Spheroidal graphite iron and malleable cast iron	≤ 23	≤ 242											
	≤ 38	≤ 354											
Chilled cast iron	≤ 38	≤ 354											
New cast materials GGV	≤ 20	≤ 220											
	≤ 32	≤ 301											
New cast materials ADI	≤ 32	≤ 301											
	≤ 43	≤ 402											
Special alloys	≤ 54	≤ 549											
Ti and Ti-alloys	≤ 25	≤ 255											
	≤ 43	≤ 402											
Aluminium and Al-alloys	-	< 120	655 - 985	0.0315	0.0394	0.0394	0.0472	0.0709	0.0709	0.0787	0.0866	0.0866	0.0984
Al wrought alloys	-	< 200	655 - 985	0.0315	0.0394	0.0394	0.0472	0.0709	0.0709	0.0787	0.0866	0.0866	0.0984
Al cast alloys ≤ 10 % Si	-	≤ 180	655 - 985	0.0315	0.0394	0.0394	0.0472	0.0709	0.0709	0.0787	0.0866	0.0866	0.0984
> 10 % Si	-	≤ 180	655 - 985	0.0315	0.0394	0.0394	0.0472	0.0709	0.0709	0.0787	0.0866	0.0866	0.0984
Magnesium alloys	-	< 120											
Copper, low-alloyed	-	≤ 150											
Brass, short-chipping	-	≤ 180											
long-chipping	-	≤ 180											
Bronze, short-chipping	-	≤ 180											
	≤ 25	≤ 255											
Bronze, long-chipping	≤ 25	≤ 255											
	≤ 32	≤ 301											
Duroplastics													
Thermoplastics													
Kevlar													
Glass, carbon concentrated plastics													



HR 500

HR 500

Solid carbide high-performance reamers
up to Ø 20 mm for universal application

HR 500 T NEW

Solid carbide reamer head for Ø 16-38 mm

HR 500 Cast

Solid carbide high-performance reamers
for the machining of GG and GGG achieving
optimal surface quality and efficiency

HR 500 Alu

Solid carbide high-performance reamers
for the machining of aluminium and AlSi-alloys

HR 500 G

Carbide-tipped or cermet-tipped high-performance
reamers from Ø 6 mm up to 40 mm

HR 500 GT

Carbide-tipped or cermet-tipped high-performance
reamers from Ø 40 mm up to 76.2 mm

USA Edition 2018

EXCLUSIVELINE®

Made by Guhring

HR 500 high-performance reamers Pictograms

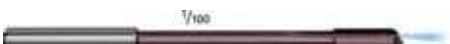
Tool material	Solid Carbide Carbide Tipped Cermet Tipped	Solid carbide Carbide tipped Cermet tipped
Internal cooling		
Standard		to Guhring standard
Type	HR 500 S HR 500 T S HR 500 Guss S HR 500 Alu S HR 500 G S HR 500 GT S HR 500 D HR 500 T D HR 500 Guss D HR 500 Alu D HR 500 G D HR 500 GT D	Blind hole (S) Through hole (D)
Cutting direction		Right hand
Tolerance	H7 +0,005	
Hole type		Through hole Blind hole
No. of cutting edges		
Shank form		
Helix angle		straight-fluted
Spacing		extremely unequal

Possible misprints or any type of intermediate changes do not entitle to any claims. All DIN marked products can be supplied deviating from the catalog dimensions as long as they correspond to the specified DIN standard.

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EXCLUSIVE[®]LINE

HR 500 high-performance reamers Program summary

Standard	Type	Tool illustration	Tool material	Surface finish	d1 (mm)	Gühring Series	Standard range page
	HR 500 S		Solid carbide		2.000 - 20.000	1685	8
	HR 500 S		Solid carbide		1.970 - 12.030	1675	9
	HR 500 D		Solid carbide		2.000 - 20.000	1686	8
	HR 500 D		Solid carbide		1.970 - 12.030	1676	9
	HR 500 T S		Solid carbide		16.000 - 38.000	1548	11
	HR 500 T D		Solid carbide		16.000 - 38.000	1549	11
	HR 500 Guss S		Solid carbide		3.000 - 20.000	1036	13
	HR 500 Guss D		Solid carbide		3.000 - 20.000	1037	13
	HR 500 Alu S		Solid carbide		4.000 - 20.000	1678	14
	HR 500 Alu D		Solid carbide		4.000 - 20.000	1679	14
	HR 500 G S		Carbide Tipped		22.000 - 40.000	1680	15
	HR 500 G S		Cermet Tipped		6.000 - 40.000	1682	16
	HR 500 G D		Carbide Tipped		22.000 - 40.000	1681	15
	HR 500 G D		Cermet Tipped		6.000 - 40.000	1683	16

HR 500 reamers are stocked in Germany

HR 500 high-performance reamers Program summary

Standard	Type	Tool illustration	Tool material	Surface finish	d1 (mm)	Gühring Series	Standard range page
	HR 500 GT S	 Semi-standard	Carbide Tipped		41.000 - 76.200	1038	19
	HR 500 GT S	 Semi-standard	Cermet Tipped		41.000 - 76.200	1040	18
	HR 500 GT D	 Semi-standard	Carbide Tipped		41.000 - 76.200	1039	19
	HR 500 GT D	 Semi-standard	Cermet Tipped		41.000 - 76.200	1041	18

HSK-A hydraulic chucks, extra length, for HR 500 GT

		HSK-A 63	4290	20
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Shrink fit extension for HR 500 T

			4719	20
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Tool selection for optimal results

			Ø ≤ 20 mm				Ø > 20 mm	
			Solid carbide HR 500 Universal		Solid carbide HR500 Guss	Solid carbide HR500 Alu	Carbide tipped HR500	Cermet tipped HR500
			1675	1676	1036	1678	1680/1038	1682/1040
			1685	1686	1037	1679	1681/1039	1683/1041
Steel	P	up to 1200 N/mm ²	●	●			○	●
Stainless steel	M		●	●			●	
Cast iron	K	GG	○	○	●		●	
		GGG 40/50	○	○	●		○	●
		GGG 60/70	○	○	●		●	
Aluminium	N					●		
Ti-special alloys	S	Ti-Basis	●	●			●	
		Ni-Basis	●	●			●	
Hardened steel	H	up to 48 HRC	●	●			○	
		up to 63 HRC	●	●				

● optimal suitability ○ limited suitability

Optimal diameters of pre-drilled holes

Recommended stock allowance, in mm			up to Ø6	up to Ø10	up to Ø16	up to Ø25	up to Ø40	above Ø40
all materials			Ø 0.1 - 0.2	Ø 0.2	Ø 0.2 - 0.3	Ø 0.3	Ø 0.3 - 0.4	Ø 0.4 - 0.5
Hardened steel	H	up to 48 HRC	Ø 0.1 - 0.2	Ø 0.2	Ø 0.2	Ø 0.2	Ø 0.3	Ø 0.3
		up to 63 HRC	Ø 0.1	Ø 0.1	Ø 0.1 - 0.2	Ø 0.2	Ø 0.2	Ø 0.2