



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 Cermet
	Solid carbide Carbide-tipped
Internal cooling	
Standard	 to Guhring standard
Type	HR 500 S HR 500 TS HR 500 Guss S HR 500 Alu S HR 500 G S HR 500 GT S HR 500 D HR 500 TD 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

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Guhring, Inc.
1445 Commerce Ave., Brookfield, WI 53045
(800) 776-6170 (262) 784-6730
www.guhring.com

EXCLUSIVE[®]LINE

HR 500 high-performance reamers



HR 500 HIGH-PERFORMANCE REAMERS

Precise reaming through a wide range of diameters

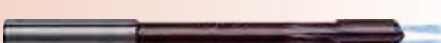
HR 500 high-performance reamers are the optimal tooling solution for all diameters from 1.97 to 76.2 mm.

To apply the optimally designed HR 500 high-performance reamer a range of various HR 500 options is available.

- Solid carbide reamers up to diameter 38.00 mm
- Carbide-tipped and cermet-tipped reamers up to diameter 76.2 mm
- Solid carbide reamers for intermediate dimensions and stepped tools in HR 500 Active program

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		22.000 - 40.000	1680	15
	HR 500 G S		Cermet tipped		6.000 - 40.000	1682	16
	HR 500 G D		Carbide		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		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		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

EXCLUSIVE[®]LINE

HR 500 T – solid carbide head solution

now available
as a standard tool

HR 500 T

With HR 500 T Guhring provides a solid carbide reamer head from 16 to 39.1 mm diameter.

With HR 500 T reamers the successful solid carbide design of HR 500 T is being extended to 39.1 mm diameter. Its short and compact design offers an economical reaming solution while maintaining the high-performance benefits of the HR500 reamers..

Thanks to the universal HA shank HR 500 T can be flexibly combined with standard chucks and extension options. This unique advantage makes expensive special holders unnecessary, and offers a cost-efficient and reliable reaming operation.

An overview of your advantages

- High-performance reamer ensures especially economical machining
- Flexible holder options thanks to HA shank
- Simple extension possible with shrink fit extension or hydraulic chuck
- Available as universal, cast iron or aluminium design options



EXCLUSIVE[®]LINE

HR 500 T – versatile combination possibilities

3 options

- a** Standard option for universal application is nano-A coated
- K** Cast iron option with nano-Si coating is available as a special solution for the application in all cast irons
- N** With the Carbo-coated special solution for applications in aluminium, aluminium wrought alloys or AISi cast alloys can be machined.

Concentricity check position

Internal cooling



Blind hole design
with central
coolant exit



Through hole design
with radial
coolant delivery

Wide-ranging extension possibilities

For applications with deep reaming depths and to provide clearance from the cutting diameter, HR 500 T can be combined with numerous extensions. For a cost-efficient price-to-performance ratio the **shrink fit extension (Guhring no. 4719)** can be used. When a slim holder is required and shrink fit is not an option, Guhring can provide the new **hydraulic chuck for clamping-Ø 10 mm**.

NEW!

Hydraulic chuck as
a special holder from
clamping-Ø 10 mm.



Shrink fit extension (Guhring no. 4719), p. 20)

Flexible combination possibilities

For short reaming depths HR 500 T can be clamped in conventional hydraulic chucks, shrink fit chucks or other precision clamping chucks thanks to the standardized shank to DIN 6535-HA.

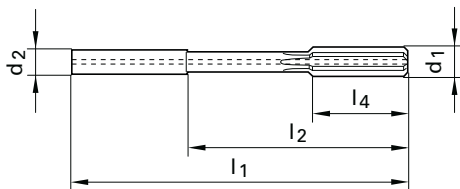
HR 500 solid carbide high-performance reamers

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		
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2.500	4.000	50.00	22.00	8.00	4	2.500
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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
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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
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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

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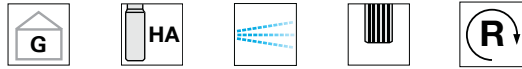


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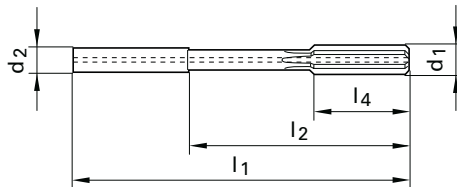
HR 500 solid carbide high-performance reamers

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		
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1.980	4.000	50.00	22.00	8.00	4	1.980
1.990	4.000	50.00	22.00	8.00	4	1.990
2.000	4.000	50.00	22.00	8.00	4	2.000
2.010	4.000	50.00	22.00	8.00	4	2.010
2.030	4.000	50.00	22.00	8.00	4	2.030
2.970	4.000	68.00	40.00	12.00	4	2.970
2.980	4.000	68.00	40.00	12.00	4	2.980
2.990	4.000	68.00	40.00	12.00	4	2.990
3.000	4.000	68.00	40.00	12.00	4	3.000
3.010	4.000	68.00	40.00	12.00	4	3.010
3.020	4.000	68.00	40.00	12.00	4	3.020
3.030	4.000	68.00	40.00	12.00	4	3.030
3.970	4.000	68.00	40.00	12.00	4	3.970
3.980	4.000	68.00	40.00	12.00	4	3.980
3.990	4.000	68.00	40.00	12.00	4	3.990
4.000	4.000	68.00	40.00	12.00	4	4.000
4.010	4.000	68.00	40.00	12.00	4	4.010
4.020	4.000	68.00	40.00	12.00	4	4.020
4.030	4.000	68.00	40.00	12.00	4	4.030
4.970	6.000	76.00	40.00	12.00	4	4.970
4.980	6.000	76.00	40.00	12.00	4	4.980
4.990	6.000	76.00	40.00	12.00	4	4.990
5.000	6.000	76.00	40.00	12.00	4	5.000
5.010	6.000	76.00	40.00	12.00	4	5.010
5.020	6.000	76.00	40.00	12.00	4	5.020
5.030	6.000	76.00	40.00	12.00	4	5.030
5.970	6.000	76.00	40.00	12.00	4	5.970
5.980	6.000	76.00	40.00	12.00	4	5.980
5.990	6.000	76.00	40.00	12.00	4	5.990

Solid carbide



Series no.

1675

1676

Surface finish

a

a

Speeds & Feeds

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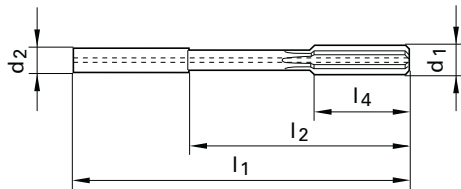
HR 500 solid carbide high-performance reamers

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.
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7.990	8.000	101.00	65.00	16.00	6	7.990
8.000	8.000	101.00	65.00	16.00	6	8.000
8.010	8.000	101.00	65.00	16.00	6	8.010
8.020	8.000	101.00	65.00	16.00	6	8.020
8.030	8.000	101.00	65.00	16.00	6	8.030
9.000	10.000	101.00	61.00	19.00	6	9.000
9.970	10.000	101.00	61.00	19.00	6	9.970
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10.010	10.000	101.00	61.00	19.00	6	10.010
10.020	10.000	101.00	61.00	19.00	6	10.020
10.030	10.000	101.00	61.00	19.00	6	10.030
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11.970	12.000	130.00	85.00	19.00	6	11.970
11.980	12.000	130.00	85.00	19.00	6	11.980
11.990	12.000	130.00	85.00	19.00	6	11.990
12.000	12.000	130.00	85.00	19.00	6	12.000
12.010	12.000	130.00	85.00	19.00	6	12.010
12.020	12.000	130.00	85.00	19.00	6	12.020
12.030	12.000	130.00	85.00	19.00	6	12.030

Solid carbide



1675

1676

Surface finish
Speeds & Feeds

a

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+0,005

a

p. 24



+0,005



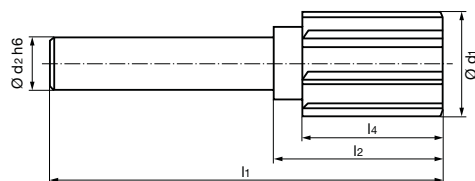
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High-performance reamers



Intermediate dimensions from Ø 15.9 – 39.1 mm can be produced as specials.



Solid carbide			
			
1548		1549	
			
p. 23		p. 23	
			

[illegible][illegible]

HR 500 Cast – specialist for optimal surface finish

*Cast iron machining
with only one tool*

APPLICATION EXAMPLES

GG-30 brake housing

Ø 18.00 mm H7

Surface finish requirement $R_a = 0.8$

$v_c = 200$ m/min

$f_u = 1.2$ mm/rev.

Tool life: 48 m

GGG-50 transmission housing

Ø 20.00 mm

Surface finish requirement $R_z = 10$

$v_c = 195$ m/min

$f_u = 1.1$ mm/rev.

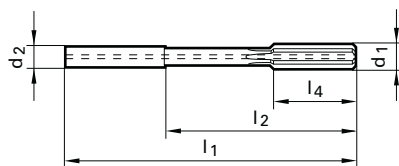
Tool life: 66 m

The customer also machines GG-25 with the same tool and achieves optimal machining results.

High-performance reamers Cast



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

[illegible]

Solid carbide



1037

Y

p. 22

[illegible]

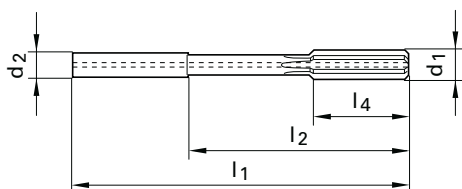
HR 500 ALU solid carbide high-performance reamers

High-performance reamers ALU



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 mm	d2 h6 mm	l1 mm	l2 mm	l4 mm		Code no.
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5.000	6.000	76.00	40.00	12.00	4	5.000
6.000	6.000	76.00	40.00	12.00	4	6.000
7.000	8.000	101.00	65.00	16.00	6	7.000
8.000	8.000	101.00	65.00	16.00	6	8.000
10.000	10.000	101.00	61.00	19.00	6	10.000
12.000	12.000	130.00	85.00	19.00	6	12.000
14.000	14.000	130.00	85.00	22.00	6	14.000
16.000	16.000	150.00	102.00	22.00	6	16.000
18.000	18.000	150.00	102.00	25.00	6	18.000
20.000	20.000	150.00	100.00	25.00	6	20.000

Solid carbide



Series no.

1678

1679

Surface finish

Ⓢ

Ⓢ

Speeds & Feeds

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p. 24



EDP Number

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HR 500 G high-performance reamers

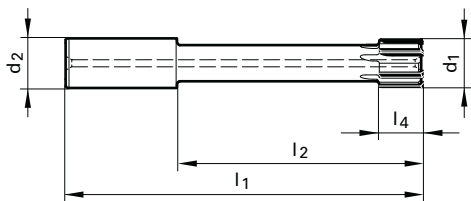
High-performance reamers



The carbide-tipped and cermet-tipped HR 500 G reamers operate at unbelievably high cutting rates while producing extremely precise holes. Therefore, it offers considerable savings through process improvement and reliability.

Further advantages:

- Intermediate dimensions from Ø 20.1 mm can be supplied as specials
- Carbide-tipped tools with nano-Si coating for GG machining meet the highest hole quality requirements. (see cutting rates for Guhring series 1036/1037)



HR 500 reamers are stocked in Germany

d1	d2 h6	l1	l2	l4		Code no.
mm	mm	mm	mm	mm		
22.000	20.000	160.00	110.00	22.00	6	22.000
24.000	25.000	180.00	124.00	22.00	6	24.000
25.000	25.000	180.00	124.00	22.00	6	25.000
26.000	25.000	180.00	124.00	22.00	6	26.000
28.000	25.000	180.00	124.00	25.00	6	28.000
30.000	25.000	180.00	124.00	25.00	6	30.000
32.000	32.000	200.00	140.00	25.00	6	32.000
34.000	32.000	200.00	140.00	25.00	6	34.000
36.000	32.000	200.00	140.00	25.00	8	36.000
38.000	32.000	200.00	140.00	25.00	8	38.000
40.000	32.000	200.00	140.00	25.00	8	40.000

Carbide



1681

a

p. 25



EDP Number

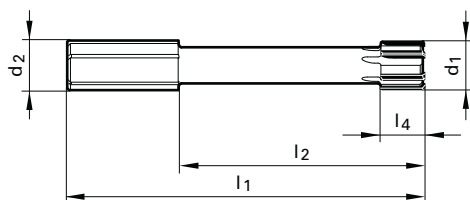
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9016800400000	9016810400000

HR 500 G high-performance reamers

High-performance reamers



The carbide-tipped and cermet-tipped HR 500 G reamers operate at unbelievably high cutting rates while producing extremely precise holes. Therefore, it offers considerable savings through process improvement and reliability.



HR 500 reamers are stocked in Germany

d1	d2 h6	l1	l2	l4		Code no.
mm	mm	mm	mm	mm		
6.000	6.000	76.00	40.00	12.00	4	6.000
8.000	8.000	101.00	65.00	16.00	4	8.000
10.000	10.000	101.00	61.00	16.00	4	10.000
12.000	12.000	130.00	85.00	16.00	4	12.000
14.000	14.000	130.00	85.00	16.00	6	14.000
16.000	16.000	150.00	102.00	19.00	6	16.000
18.000	18.000	150.00	102.00	19.00	6	18.000
20.000	20.000	150.00	100.00	19.00	6	20.000
22.000	20.000	160.00	110.00	22.00	6	22.000
24.000	25.000	180.00	124.00	22.00	6	24.000
25.000	25.000	180.00	124.00	22.00	6	25.000
26.000	25.000	180.00	124.00	22.00	6	26.000
28.000	25.000	180.00	124.00	25.00	6	28.000
30.000	25.000	180.00	124.00	25.00	6	30.000
32.000	32.000	200.00	140.00	25.00	6	32.000
34.000	32.000	200.00	140.00	25.00	6	34.000
36.000	32.000	200.00	140.00	25.00	8	36.000
38.000	32.000	200.00	140.00	25.00	8	38.000
40.000	32.000	200.00	140.00	25.00	8	40.000

Cermet-tipped



Series no.

1682

1683

Surface finish
Speeds & Feeds

○
p. 25

○
p. 25



EDP Number

9016820060000	9016830060000
9016820080000	9016830080000
9016820100000	9016830100000
9016820120000	9016830120000
9016820140000	9016830140000
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9016820260000	9016830260000
9016820280000	9016830280000
9016820300000	9016830300000
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9016820340000	9016830340000
9016820360000	9016830360000
9016820380000	9016830380000
9016820400000	9016830400000

HR 500 GT high-performance reamers

HR 500 GT high-performance reamers for applications above Ø 40.00 mm

For diameters above 40.00 mm Guhring's HR 500 technology is the first choice for high-performance reaming, ensuring maximum production rates while maintaining extreme precision and hole quality.

Variety for perfect machining results

The HR 500 GT reamer heads are available in the semi-standard range with short delivery times in the diameter range > 40.0 to 76.2 mm for the following material ranges:

- Carbide-tipped with nano-A coating for stainless steels, GGG 60, GG, special alloys and non-ferrous metals
- Carbide-tipped with nano-Si coating for the highest surface quality requirements in GG and GGG 60
- Carbide-tipped with Carbo-coating for Al machining
- Cermet-tipped for steels and GGG 40/50

In addition, we manufacture special tools to customer specific requirements on request.

Optimal cooling lubrication

Thanks to the newly developed, patent-pending, coolant directing screw at the face side of the HR 500 GT reamer heads, the coolant is accurately directed to the cutting edge, and it is impossible for chips to clog in the coolant ports. Thanks to the special design of the coolant directing screw it is possible to machine blind holes right up to the bottom of the hole. If necessary, the coolant directing screw can be completely removed for the machining of blind holes.



HR 500 GT high-performance reamers

High-performance reamers



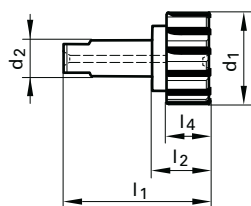
HR 500 GT as semi-standard

Straight shank ~ DIN 6535 HA tol. H6 with tang for optimal holding in extra length, slender hydraulic chuck Guhring no. 4290, but also in conventional hydraulic chucks or shrink fit chucks.

Minimum order quantity is 2.

When applying long hydraulic chucks with tang:

Eliminate play between chuck and reamer by rotating to stop prior to clamping.



HR 500 reamers are stocked in Germany

d1 mm	d2 h6 mm	l1 mm	l2 mm	l4 mm		Code no.
41.000	25.000	90.00	34.00	25.00	8	41.000
42.000	25.000	90.00	34.00	25.00	8	42.000
44.000	25.000	90.00	34.00	25.00	8	44.000
46.000	25.000	90.00	34.00	25.00	8	46.000
47.000	25.000	90.00	34.00	25.00	8	47.000
48.000	25.000	90.00	34.00	25.00	8	48.000
50.000	25.000	90.00	34.00	25.00	8	50.000
52.000	25.000	90.00	34.00	25.00	8	52.000
53.000	25.000	90.00	34.00	25.00	8	53.000
54.000	25.000	90.00	34.00	25.00	8	54.000
56.000	25.000	90.00	34.00	25.00	8	56.000
58.000	25.000	90.00	34.00	25.00	8	58.000
59.000	32.000	95.00	35.00	25.00	8	59.000
60.000	32.000	95.00	35.00	25.00	8	60.000
62.000	32.000	95.00	35.00	25.00	8	62.000
64.000	32.000	95.00	35.00	25.00	8	64.000
65.000	32.000	95.00	35.00	25.00	8	65.000
66.000	32.000	95.00	35.00	25.00	10	66.000
68.000	32.000	95.00	35.00	25.00	10	68.000
70.000	32.000	95.00	35.00	25.00	10	70.000
71.000	32.000	95.00	35.00	25.00	10	71.000
72.000	32.000	95.00	35.00	25.00	10	72.000
74.000	32.000	95.00	35.00	25.00	10	74.000
76.000	32.000	95.00	35.00	25.00	10	76.000

Cermet-tipped



Series no.

1040

1041

Surface finish
Speeds & Feeds

○
p. 23

○
p. 23

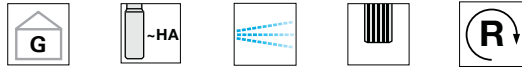


EDP Number

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HR 500 GT high-performance reamers

High-performance reamers



HR 500 GT as semi-standard

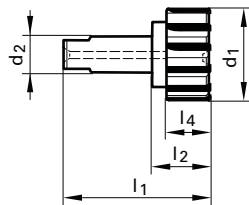
Straight shank ~ DIN 6535 HA tol. H6 with tang for optimal holding in extra length hydraulic chuck series no. 4290, but also in conventional hydraulic chucks or shrink fit chucks.

Further advantages:

- Intermediate dimensions from Ø 40.0-76.2 mm can be produced as specials
- Carbide-tipped tools with nano-Si coating for GG machining meet the highest hole quality requirements (for cutting rates see Guhring series 1036/1037)

When applying long hydraulic chucks with tang:

Eliminate play between chuck and reamer by rotating to stop prior to clamping.



HR 500 reamers are stocked in Germany

d1 mm	d2 h6 mm	l1 mm	l2 mm	l4 mm		Code no.
41.000	25.000	90.00	34.00	25.00	8	41.000
42.000	25.000	90.00	34.00	25.00	8	42.000
44.000	25.000	90.00	34.00	25.00	8	44.000
46.000	25.000	90.00	34.00	25.00	8	46.000
47.000	25.000	90.00	34.00	25.00	8	47.000
48.000	25.000	90.00	34.00	25.00	8	48.000
50.000	25.000	90.00	34.00	25.00	8	50.000
52.000	25.000	90.00	34.00	25.00	8	52.000
53.000	25.000	90.00	34.00	25.00	8	53.000
54.000	25.000	90.00	34.00	25.00	8	54.000
56.000	25.000	90.00	34.00	25.00	8	56.000
58.000	25.000	90.00	34.00	25.00	8	58.000
59.000	32.000	95.00	35.00	25.00	8	59.000
60.000	32.000	95.00	35.00	25.00	8	60.000
62.000	32.000	95.00	35.00	25.00	8	62.000
64.000	32.000	95.00	35.00	25.00	8	64.000
65.000	32.000	95.00	35.00	25.00	8	65.000
66.000	32.000	95.00	35.00	25.00	10	66.000
68.000	32.000	95.00	35.00	25.00	10	68.000
70.000	32.000	95.00	35.00	25.00	10	70.000
71.000	32.000	95.00	35.00	25.00	10	71.000
72.000	32.000	95.00	35.00	25.00	10	72.000
74.000	32.000	95.00	35.00	25.00	10	74.000
76.000	32.000	95.00	35.00	25.00	10	76.000

Carbide

Series no.	1038	1039
Surface finish	 a	 a
Speeds & Feeds	p. 22	p. 22
	 H7	 H7



EDP Number

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

HSK-A hydraulic chucks, extra length

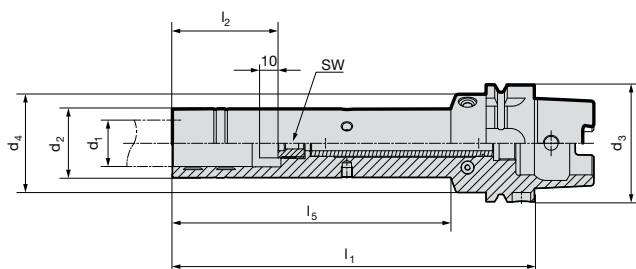
For high precision reamers HR 500 GT with tang.

Series no.

4290

Scope of delivery:

- incl. adjustment screw Guhring no. 4900
- incl. hexagon chuck key Guhring no. 4912
- order coolant delivery set Guhring no. 4949 separately



d3	f. d1 h6	d2	d4	l1	l2	l5	inc.	SW	kg	Code no.
HSK-A	mm	mm	mm	mm	mm	mm	4900 ...			
63	25	37	53	195	57	150	20.114	5.0	1.9	25.063
63	25	37	53	295	57	250	20.114	5.0	2.7	25.163
63	32	44	53	195	61	150	20.114	5.0	2.2	32.063
63	32	44	53	295	61	250	20.114	5.0	3.4	32.163

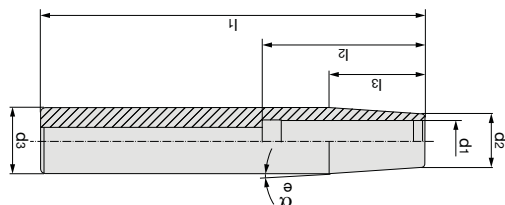
EDP Number
9042900250630
9042900251630
9042900320630
9042900321630

Shrink fit extension for HR 500 T

Series no.

4719

For clamping in hydraulic or shrink fit chuck.



for shank-Ø	d2	d3 h6	l1	l2	l3	α	Code no.
d1 h6 mm	mm	mm	mm	mm	mm	e	
6	10	12	125	38	19.1	3	6.012
6	10	12	200	38	21	3	6.312
8	12	14	125	38	19.1	3	8.014
8	12	14	200	38	21	3	8.314
10	14	16	160	42	19.1	3	10.116
10	14	16	250	42	21	3	10.316
12	16	20	160	47	38.2	3	12.120
12	16	20	250	47	40	3	12.320
16	22	25	160	50	28.6	3	16.225
16	22	25	250	50	30.5	3	16.325
20	27	32	160	52	47.7	3	20.332
20	27	32	250	52	49.6	3	20.432

EDP Number
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9047190101160
9047190103160
9047190121200
9047190123200
9047190162250
9047190163250
9047190203320
9047190204320

EWB 500 de-burring reamer

Simple and efficient

> Deburring cross-holes with EWB 500

With conventional reamers the burr at the cross-hole is simply folded over rather than being cut off. The surface finish quality and hole quality is reduced. The new EWB 500 deburring reamer reliably deburrs cross-holes.



By adapting the coolant pressure, the gap between reamer and the wall of the hole is eliminated. This enables a clean cut of the burr at the root. The wall of the hole is not damaged during operation so the deburring reamer can be applied for precision fits.



The deburring tool is individually designed by Guhring. The position and number of coolant exits is determined based on the machining task.

The contact pressure is applied through several coolant exits thus reducing the drop in pressure.

EWB 500



TECHNICAL DATA

Series 1036 - 1037

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											
	≤ 25	≤ 255											
	≤ 32	≤ 301											
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 austenitic martensitic	≤ 28 ≤ 36 ≤ 46	≤ 273 ≤ 337 ≤ 435											
Hardened steels	≤ 48 ≤ 66	≤ 460 -											
Cast iron	≤ 23 ≤ 38	≤ 242 ≤ 354	655 655	0.0315 0.0315	0.0394 0.0394	0.0394 0.0394	0.0472 0.0472	0.0709 0.0709	0.0709 0.0709	0.0787 0.0787	0.0866 0.0866	0.0866 0.0866	0.0984 0.0984
Spheroidal graphite iron and malleable cast iron	≤ 23 ≤ 38	≤ 242 ≤ 354	395 - 985 260 - 395	0.0039 0.0039	0.0049 0.0049	0.0049 0.0049	0.0063 0.0063	0.0079 0.0079	0.0098 0.0098	0.0098 0.0098	0.0124 0.0124	0.0157 0.0157	0.0197 0.0197
Chilled cast iron	≤ 38	≤ 354											
New cast materials GGV	≤ 20 ≤ 32	≤ 220 ≤ 301											
			655	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 ≤ 43	≤ 301 ≤ 402											
			655	0.0197	0.0197	0.0236	0.0276	0.0394	0.0472	0.0472	0.0551	0.0551	0.0630
Special alloys	≤ 54	≤ 549											
Ti and Ti-alloys	≤ 25 ≤ 43	≤ 255 ≤ 402											
Aluminium and Al-alloys	-	≤ 120											
Al wrought alloys	-	≤ 200											
Al cast alloys ≤ 10 % Si	-	≤ 180											
> 10 % Si	-	≤ 180											
Magnesium alloys	-	≤ 120											
Copper, low-alloyed	-	≤ 150											
Brass, short-chipping	-	≤ 180											
long-chipping	-	≤ 180											
Bronze, short-chipping	-	≤ 180											
	≤ 25	≤ 255											
Bronze, long-chipping	≤ 25 ≤ 32	≤ 255 ≤ 301											

Series 1038 - 1039

Material group	Hardness		SFM	Feed Rate - IPR									
	HRc	Bhn		8 mm	10 mm	12.5 mm	16 mm	20 mm	25 mm	31.5 mm	40 mm	50 mm	> 50 mm
Common structural steels	-	≤ 150	80 - 130								0.0472	0.0551	0.0630
	≤ 32	≤ 301	80 - 130								0.0472	0.0551	0.0630
Free-cutting steels	≤ 25	≤ 255	80 - 130								0.0472	0.0551	0.0630
	≤ 32	≤ 301	80 - 130								0.0472	0.0551	0.0630
Unalloyed heat-treatable steels	≤ 20	≤ 220	80 - 130								0.0472	0.0551	0.0630
	≤ 25	≤ 255	80 - 130								0.0472	0.0551	0.0630
	≤ 32	≤ 301	80 - 130								0.0472	0.0551	0.0630
Alloyed heat-treatable steels	≤ 32	≤ 301	80 - 130								0.0472	0.0551	0.0630
	≤ 43	≤ 402	80 - 130								0.0472	0.0551	0.0630
Unalloyed case hardened steels	≤ 25	≤ 255	80 - 130								0.0472	0.0551	0.0630
Alloyed case hardened steels	≤ 32	≤ 301	80 - 130								0.0472	0.0551	0.0630
	≤ 43	≤ 402	80 - 130								0.0472	0.0551	0.0630
Nitriding steels	≤ 32	≤ 301	80 - 130								0.0472	0.0551	0.0630
	≤ 43	≤ 402	80 - 130								0.0472	0.0551	0.0630
Tool steels	≤ 25	≤ 255	80 - 130								0.0472	0.0551	0.0630
	≤ 43	≤ 402	80 - 130								0.0472	0.0551	0.0630
High speed steels	≤ 43	≤ 402	65 - 100								0.0472	0.0551	0.0630
Spring steels	≤ 38	≤ 354	65 - 100								0.0472	0.0551	0.0630
Stainless steels, sulphured	≤ 28	≤ 273	100 - 195								0.0472	0.0551	0.0630
austenitic	≤ 36	≤ 337	65 - 100								0.0472	0.0551	0.0630
martensitic	≤ 46	≤ 435	65 - 100								0.0472	0.0551	0.0630
Hardened steels	≤ 48	≤ 460	35 - 65								0.0248	0.0315	0.0394
	≤ 66	-											
Cast iron	≤ 23	≤ 242	130 - 330								0.0787	0.0866	0.0866
	≤ 38	≤ 354	130 - 330								0.0787	0.0866	0.0866
Spheroidal graphite iron and malleable cast iron	≤ 23	≤ 242	165 - 395								0.0787	0.0866	0.0866
	≤ 38	≤ 354	165 - 330								0.0787	0.0866	0.0866
Chilled cast iron	≤ 38	≤ 354	65 - 130								0.0472	0.0551	0.0630
New cast materials GGV	≤ 20	≤ 220											
	≤ 32	≤ 301	195 - 260								0.0472	0.0551	0.0630
New cast materials ADI	≤ 32	≤ 301											
	≤ 43	≤ 402	130 - 260								0.0472	0.0551	0.0630
Special alloys	≤ 54	≤ 549	65 - 100										
Ti and Ti-alloys	≤ 25	≤ 255	65 - 130								0.0315	0.0394	0.0492
	≤ 43	≤ 402	65 - 130								0.0315	0.0394	0.0492
Aluminium and Al-alloys	-	≤ 120											
Al wrought alloys	-	≤ 200											
Al cast alloys ≤ 10 % Si	-	≤ 180											
> 10 % Si	-	≤ 180											
Magnesium alloys	-	≤ 120	260 - 525								0.0787	0.0866	0.0866
Copper, low-alloyed	-	≤ 150											
Brass, short-chipping	-	≤ 180	130 - 395								0.0472	0.0551	0.0630
long-chipping	-	≤ 180											
Bronze, short-chipping	-	≤ 180	165 - 395								0.0472	0.0551	0.0630
	≤ 25	≤ 255	165 - 395								0.0472	0.0551	0.0630
Bronze, long-chipping	≤ 25	≤ 255											
	≤ 32	≤ 301											
Duroplastics			130 - 395								0.0472	0.0551	0.0630
Thermoplastics			130 - 395								0.0472	0.0551	0.0630
Kevlar			130 - 395								0.0197	0.0248	0.0315
Glass, carbon concentrated plastics			130 - 395								0.0197	0.0248	0.0315

TECHNICAL DATA

Series 1040 - 1041

Material group	Hardness		SFM	Feed Rate - IPR									
	HRc	Bhn		8 mm	10 mm	12.5 mm	16 mm	20 mm	25 mm	31.5 mm	40 mm	50 mm	> 50 mm
Common structural steels	-	≤ 150	330 - 590								0.0787	0.0866	0.0866
	≤ 32	≤ 301	330 - 590								0.0787	0.0866	0.0866
Free-cutting steels	≤ 25	≤ 255	330 - 590								0.0787	0.0866	0.0866
	≤ 32	≤ 301	330 - 590								0.0787	0.0866	0.0866
Unalloyed heat-treatable steels	≤ 20	≤ 220	330 - 590								0.0787	0.0866	0.0866
	≤ 25	≤ 255	330 - 590								0.0787	0.0866	0.0866
	≤ 32	≤ 301	330 - 590								0.0787	0.0866	0.0866
Alloyed heat-treatable steels	≤ 32	≤ 301	330 - 590								0.0787	0.0866	0.0866
	≤ 43	≤ 402	260 - 395								0.0472	0.0551	0.0630
Unalloyed case hardened steels	≤ 25	≤ 255	330 - 590								0.0787	0.0866	0.0866
Alloyed case hardened steels	≤ 32	≤ 301	330 - 590								0.0787	0.0866	0.0866
	≤ 43	≤ 402	260 - 395								0.0472	0.0551	0.0630
Nitriding steels	≤ 32	≤ 301	330 - 590								0.0787	0.0866	0.0866
	≤ 43	≤ 402	260 - 395								0.0472	0.0551	0.0630
Tool steels	≤ 25	≤ 255	330 - 590								0.0787	0.0866	0.0866
	≤ 43	≤ 402	260 - 395								0.0472	0.0551	0.0630
High speed steels	≤ 43	≤ 402											
Spring steels	≤ 38	≤ 354	330 - 395								0.0472	0.0551	0.0630
Stainless steels, sulphured	≤ 28	≤ 273											
austenitic	≤ 36	≤ 337	130 - 260										
martensitic	≤ 46	≤ 435	195 - 395										
Hardened steels	≤ 48	≤ 460											
	≤ 66	-											
Cast iron	≤ 23	≤ 242											
	≤ 38	≤ 354											
Spheroidal graphite iron and malleable cast iron	≤ 23	≤ 242	395 - 985								0.0248	0.0315	0.0394
	≤ 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													
Ti and Ti-alloys													
Aluminium and Al-alloys	-	≤ 120											
Al wrought alloys	-	≤ 200											
Al cast alloys ≤ 10 % Si	-	≤ 180											
> 10 % Si	-	≤ 180											
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											

Not recommended for these materials

Series 1548 - 1549

Material group	Hardness		SFM	Feed Rate - IPR									
	HRc	Bhn		8 mm	10 mm	12.5 mm	16 mm	20 mm	25 mm	31.5 mm	40 mm	50 mm	> 50 mm
Common structural steels	-	≤ 150	395 - 820				0.0551	0.0551	0.0630	0.0787	0.0787		
	≤ 32	≤ 301	395 - 820				0.0551	0.0551	0.0630	0.0787	0.0787		
Free-cutting steels	≤ 25	≤ 255	395 - 820				0.0551	0.0551	0.0630	0.0787	0.0787		
	≤ 32	≤ 301	395 - 820				0.0551	0.0551	0.0630	0.0787	0.0787		
Unalloyed heat-treatable steels	≤ 20	≤ 220	395 - 820				0.0551	0.0551	0.0630	0.0787	0.0787		
	≤ 25	≤ 255	395 - 820				0.0551	0.0551	0.0630	0.0787	0.0787		
	≤ 32	≤ 301	395 - 820				0.0551	0.0551	0.0630	0.0787	0.0787		
Alloyed heat-treatable steels	≤ 32	≤ 301	395 - 820				0.0551	0.0551	0.0630	0.0787	0.0787		
	≤ 43	≤ 402	395 - 820				0.0551	0.0551	0.0630	0.0787	0.0787		
Unalloyed case hardened steels	≤ 25	≤ 255	395 - 820				0.0551	0.0551	0.0630	0.0787	0.0787		
Alloyed case hardened steels	≤ 32	≤ 301	395 - 820				0.0551	0.0551	0.0630	0.0787	0.0787		
	≤ 43	≤ 402	395 - 820				0.0551	0.0551	0.0630	0.0787	0.0787		
Nitriding steels	≤ 32	≤ 301	395 - 820				0.0551	0.0551	0.0630	0.0787	0.0787		
	≤ 43	≤ 402	395 - 820				0.0551	0.0551	0.0630	0.0787	0.0787		
Tool steels	≤ 25	≤ 255	395 - 820				0.0551	0.0551	0.0630	0.0787	0.0787		
	≤ 43	≤ 402	395 - 820				0.0551	0.0551	0.0630	0.0787	0.0787		
High speed steels	≤ 43	≤ 402	195 - 395				0.0551	0.0551	0.0630	0.0787	0.0787		
Spring steels	≤ 38	≤ 354	100 - 195				0.0157	0.0197	0.0248	0.0248	0.0315		
Stainless steels, sulphured	≤ 28	≤ 273	195 - 395				0.0315	0.0315	0.0394	0.0394	0.0472		
austenitic	≤ 36	≤ 337	130 - 260				0.0315	0.0315	0.0394	0.0394	0.0472		
martensitic	≤ 46	≤ 435	195 - 395				0.0315	0.0315	0.0394	0.0394	0.0472		
Hardened steels	≤ 48	≤ 460	130 - 195				0.0157	0.0197	0.0248	0.0248	0.0315		
	≤ 66	-	100 - 195				0.0157	0.0197	0.0248	0.0248	0.0315		
Cast iron	≤ 23	≤ 242	195 - 460				0.0551	0.0551	0.0630	0.0787	0.0787		
	≤ 38	≤ 354	195 - 460				0.0551	0.0551	0.0630	0.0787	0.0787		
Spheroidal graphite iron and malleable cast iron	≤ 23	≤ 242	395 - 820				0.0315	0.0315	0.0394	0.0394	0.0472		
	≤ 38	≤ 354	195 - 395				0.0315	0.0315	0.0394	0.0394	0.0472		
Chilled cast iron	≤ 38	≤ 354	100 - 165				0.0315	0.0315	0.0394	0.0394	0.0472		
New cast materials GGV	≤ 20	≤ 220											
	≤ 32	≤ 301	260				0.0551	0.0551	0.0630	0.0787	0.0787		
New cast materials ADI	≤ 32	≤ 301											
	≤ 43	≤ 402	260				0.0551	0.0551	0.0630	0.0787	0.0787		
Special alloys	≤ 54	≤ 549	130 - 195				0.0315	0.0315	0.0394	0.0394	0.0472		
Ti and Ti-alloys	≤ 25	≤ 255	130 - 195				0.0315	0.0315	0.0394	0.0394	0.0472		
	≤ 43	≤ 402	130 - 195				0.0315	0.0315	0.0394	0.0394	0.0472		
Aluminium and Al-alloys	-	≤ 120											
Al wrought alloys	-	≤ 200											
Al cast alloys ≤ 10 % Si	-	≤ 180											
> 10 % Si	-	≤ 180											
Magnesium alloys	-	≤ 120	260 - 525				0.0551	0.0551	0.0630	0.0787	0.0787		
Copper, low-alloyed	-	≤ 150											
Brass, short-chipping	-	≤ 180	330 - 820				0.0551	0.0551	0.0630	0.0787	0.0787		
long-chipping	-	≤ 180											
Bronze, short-chipping	-	≤ 180	330 - 820				0.0551	0.0551	0.0630	0.0787	0.0787		
	≤ 25	≤ 255	330 - 820				0.0551	0.0551	0.0630	0.0787	0.0787		
Bronze, long-chipping	≤ 25	≤ 255											
	≤ 32	≤ 301											
Duroplastics			260 - 655				0.0551	0.0551	0.0630	0.0787	0.0787		
Thermoplastics			260 - 655				0.0551	0.0551	0.0630	0.0787	0.0787		
Kevlar			260				0.0098	0.0124	0.0157	0.0157	0.0197		
Glass, carbon concentrated plastics			260				0.0098	0.0124	0.0157	0.0157	0.0197		

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
	≤ 36	≤ 337	130 - 260	0.0118	0.0118	0.0157	0.0157	0.0236	0.0236	0.0315	0.0315	0.0315	0.0394
	≤ 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 Ti and Ti-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
	≤ 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	-										
	-	≤ 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
	-	≤ 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													

TECHNICAL DATA

Series 1680 - 1681

Material group	Hardness		SFM	Feed Rate - IPR									
	HRc	Bhn		8 mm	10 mm	12.5 mm	16 mm	20 mm	25 mm	31.5 mm	40 mm	50 mm	> 50 mm
Common structural steels	- ≤ 32	≤ 150 ≤ 301	80 - 130					0.0315 0.0315	0.0394 0.0394	0.0394 0.0394	0.0472 0.0472	0.0551 0.0551	0.0630 0.0630
Free-cutting steels	≤ 25 ≤ 32	≤ 255 ≤ 301	80 - 130					0.0315 0.0315	0.0394 0.0394	0.0394 0.0394	0.0472 0.0472	0.0551 0.0551	0.0630 0.0630
Unalloyed heat-treatable steels	≤ 20	≤ 220	80 - 130					0.0315	0.0394	0.0394	0.0472	0.0551	0.0630
	≤ 25	≤ 255	80 - 130					0.0315	0.0394	0.0394	0.0472	0.0551	0.0630
	≤ 32	≤ 301	80 - 130					0.0315	0.0394	0.0394	0.0472	0.0551	0.0630
Alloyed heat-treatable steels	≤ 32 ≤ 43	≤ 301 ≤ 402	80 - 130					0.0315 0.0315	0.0394 0.0394	0.0394 0.0394	0.0472 0.0472	0.0551 0.0551	0.0630 0.0630
	Unalloyed case hardened steels	≤ 25 ≤ 32	≤ 255 ≤ 301	80 - 130				0.0315 0.0315	0.0394 0.0394	0.0394 0.0394	0.0472 0.0472	0.0551 0.0551	0.0630 0.0630
Alloyed case hardened steels	≤ 32 ≤ 43	≤ 301 ≤ 402	80 - 130					0.0315 0.0315	0.0394 0.0394	0.0394 0.0394	0.0472 0.0472	0.0551 0.0551	0.0630 0.0630
Nitriding steels	≤ 32 ≤ 43	≤ 301 ≤ 402	80 - 130					0.0315 0.0315	0.0394 0.0394	0.0394 0.0394	0.0472 0.0472	0.0551 0.0551	0.0630 0.0630
	Tool steels	≤ 25 ≤ 43	≤ 255 ≤ 402	80 - 130				0.0315 0.0315	0.0394 0.0394	0.0394 0.0394	0.0472 0.0472	0.0551 0.0551	0.0630 0.0630
High speed steels	≤ 43	≤ 402	65 - 100					0.0315	0.0394	0.0394	0.0472	0.0551	0.0630
Spring steels	≤ 38	≤ 354	65 - 100					0.0315	0.0394	0.0394	0.0472	0.0551	0.0630
Stainless steels, sulphured austenitic martensitic	≤ 28 ≤ 36 ≤ 46	≤ 273 ≤ 337 ≤ 435	100 - 195					0.0315 0.0315 0.0315	0.0394 0.0394 0.0394	0.0394 0.0394 0.0394	0.0472 0.0472 0.0472	0.0551 0.0551 0.0551	0.0630 0.0630 0.0630
	Hardened steels	≤ 48 ≤ 66	≤ 460 -	35 - 65				0.0157	0.0197	0.0197	0.0248	0.0315	0.0394
	Cast iron	≤ 23 ≤ 38	≤ 242 ≤ 354	130 - 330					0.0551 0.0551	0.0630 0.0630	0.0787 0.0787	0.0787 0.0787	0.0866 0.0866
Spheroidal graphite iron and malleable cast iron	≤ 23 ≤ 38	≤ 242 ≤ 354	165 - 395					0.0551 0.0551	0.0630 0.0630	0.0787 0.0787	0.0787 0.0787	0.0866 0.0866	0.0866 0.0866
Chilled cast iron	≤ 38	≤ 354	65 - 130					0.0315	0.0394	0.0394	0.0472	0.0551	0.0630
New cast materials GGV	≤ 20 ≤ 32	≤ 220 ≤ 301											
New cast materials ADI	≤ 32 ≤ 43	≤ 301 ≤ 402	195 - 260					0.0315	0.0394	0.0394	0.0472	0.0551	0.0630
	Special alloys Ti and Ti-alloys	≤ 54 ≤ 25 ≤ 43	≤ 549 ≤ 255 ≤ 402	65 - 100 65 - 130 65 - 130				0.0315 0.0197 0.0197	0.0394 0.0248 0.0248	0.0394 0.0248 0.0248	0.0472 0.0315 0.0315	0.0551 0.0394 0.0394	0.0630 0.0492 0.0492
Aluminium and Al-alloys	-	≤ 120											
Al wrought alloys	-	≤ 200											
Al cast alloys ≤ 10 % Si	-	≤ 180											
> 10 % Si	-	≤ 180											
Magnesium alloys	-	≤ 120	260 - 525					0.0551	0.0630	0.0787	0.0787	0.0866	0.0866
Copper, low-alloyed	-	≤ 150											
Brass, short-chipping	-	≤ 180	130 - 395					0.0315	0.0394	0.0394	0.0472	0.0551	0.0630
long-chipping	-	≤ 180											
Bronze, short-chipping	-	≤ 180	165 - 395					0.0315	0.0394	0.0394	0.0472	0.0551	0.0630
	≤ 25	≤ 255	165 - 395					0.0315	0.0394	0.0394	0.0472	0.0551	0.0630
Bronze, long-chipping	≤ 25 ≤ 32	≤ 255 ≤ 301											
Duroplastics			130 - 395					0.0315	0.0394	0.0394	0.0472	0.0551	0.0630
Thermoplastics			130 - 395					0.0315	0.0394	0.0394	0.0472	0.0551	0.0630
Kevlar			260					0.0124	0.0157	0.0157	0.0197	0.0248	0.0315
Glass, carbon concentrated plastics			260					0.0124	0.0157	0.0157	0.0197	0.0248	0.0315

Series 1682 - 1683

Material group	Hardness		SFM	Feed Rate - IPR									
	HRc	Bhn		8 mm	10 mm	12.5 mm	16 mm	20 mm	25 mm	31.5 mm	40 mm	50 mm	> 50 mm
Common structural steels	-	≤ 150	330 - 590					0.0551	0.0630	0.0787	0.0787	0.0866	0.0866
	≤ 32	≤ 301	330 - 590					0.0551	0.0630	0.0787	0.0787	0.0866	0.0866
Free-cutting steels	≤ 25	≤ 255	330 - 590					0.0551	0.0630	0.0787	0.0787	0.0866	0.0866
	≤ 32	≤ 301	330 - 590					0.0551	0.0630	0.0787	0.0787	0.0866	0.0866
Unalloyed heat-treatable steels	≤ 20	≤ 220	330 - 590					0.0551	0.0630	0.0787	0.0787	0.0866	0.0866
	≤ 25	≤ 255	330 - 590					0.0551	0.0630	0.0787	0.0787	0.0866	0.0866
	≤ 32	≤ 301	330 - 590					0.0551	0.0630	0.0787	0.0787	0.0866	0.0866
Alloyed heat-treatable steels	≤ 32	≤ 301	330 - 590					0.0551	0.0630	0.0787	0.0787	0.0866	0.0866
	≤ 43	≤ 402	260 - 395					0.0551	0.0630	0.0787	0.0787	0.0866	0.0866
Unalloyed case hardened steels	≤ 25	≤ 255	330 - 590					0.0551	0.0630	0.0787	0.0787	0.0866	0.0866
Alloyed case hardened steels	≤ 32	≤ 301	330 - 590					0.0551	0.0630	0.0787	0.0787	0.0866	0.0866
	≤ 43	≤ 402	260 - 395					0.0551	0.0630	0.0787	0.0787	0.0866	0.0866
Nitriding steels	≤ 32	≤ 301	330 - 590					0.0551	0.0630	0.0787	0.0787	0.0866	0.0866
	≤ 43	≤ 402	260 - 395					0.0551	0.0630	0.0787	0.0787	0.0866	0.0866
Tool steels	≤ 25	≤ 255	330 - 590					0.0551	0.0630	0.0787	0.0787	0.0866	0.0866
	≤ 43	≤ 402	260 - 395					0.0551	0.0630	0.0787	0.0787	0.0866	0.0866
High speed steels	≤ 43	≤ 402											
Spring steels	≤ 38	≤ 354	330 - 395					0.0315	0.0394	0.0394	0.0472	0.0551	0.0630
Stainless steels, sulphured	≤ 28	≤ 273											
austenitic	≤ 36	≤ 337											
martensitic	≤ 46	≤ 435											
Hardened steels	≤ 48	≤ 460											
Cast iron	≤ 23	≤ 242											
	≤ 38	≤ 354											
Spheroidal graphite iron and malleable cast iron	≤ 23	≤ 242	395 - 985					0.0157	0.0197	0.0197	0.0248	0.0315	0.0394
	≤ 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											
Al wrought alloys	-	≤ 200											
Al cast alloys ≤ 10 % Si	-	≤ 180											
> 10 % Si	-	≤ 180											
Magnesium alloys	-	≤ 120											
Copper, low-alloyed	-	≤ 150											
Brass	-	≤ 180											
Bronze	-	≤ 180											
Bronze, long-chipping	≤ 25	≤ 255											
	≤ 32	≤ 301											
Duroplastics													
Thermoplastics													
Kevlar													
Glass, carbon concentrated plastics													

Not recommended for these materials

APPLICATION EXAMPLES

Application examples for Guhring's HR 500 S and HR 500 D solid carbide high-performance reamers with highest feed rates and tool life.



The HR 500 S and HR 500 D solid carbide high-performance reamers have shown their performance in several applications, see following table:

Tool type	HR 500 S	HR 500 D	HR 500 D	HR 500 S	HR 500 Cast D
Guhring no.	1685	1686	special reamer for tighter tolerances	1685	1037
component machined	hinge	ring	valve body	ring	cylinder head
workpiece material	gen. steel	alloyed steel	gen. steel	alloyed steel	GG 30
hole diameter (mm)	9	8	5,9	15	20.2
hole tolerance	H7	H7	H6	IT 5	H7
reaming depth (mm)	30	25	48	20	60
cutting speed v_c (m/min.)	120	200	190	250	200
feed rate v_f (mm/min.)	4200	12700	6100	7200	6300
tool life (m)	60	100	55	200	150

Application examples for Guhring special high-performance reamers HR 500 G



Carbide- or cermet-tipped special high-performance reamers HR 500 G S and HR 500 G D have already been able to demonstrate their efficiency in numerous applications. The following table contains some examples.

Tool type	HR 500 G D	HR 500 G D	HR 500 G D
Guhring no.	1683 (shortened)	1681	1683
tool material/coating	Cermet	HM + TiAlN nanoA	Cermet
component machined	universal joint	wheel flange	differential housing
workpiece material	steel	cast iron	cast iron
hole diameter (mm)	25	22	32
hole tolerance	F7	H8	H7
reaming depth (mm)	18	20	50
cutting speed v_c (m/min.)	130	120	120
feed rate v_f (mm/min.)	2000	2600	3000
tool life (m)	175	120	160

EXCLUSIVE^{LINE}[®]

HR 500 ACTIVE

Special range of HR 500 solid carbide high-performance reamers



Ever since their introduction, Guhring's solid carbide high-performance reamers HR 500 D for through holes and HR 500 S for blind holes have impressed customers with their outstanding performance. Even under difficult machining conditions such as interrupted cutting or unstable machines they ream holes at cutting rates higher than cermet levels with maximum tool life and optimal quality in almost all materials.

So the user can also fully utilize the advantages of HR 500 high-performance reamers for the machining of the special applications Guhring has developed the HR 500 ACTIVE range.

There is a choice of four HR 500 ACTIVE types:

- for cylindrical blind holes
- for cylindrical through holes
- for stepped blind holes
- for stepped through holes

The four HR 500 ACTIVE types are available in the following designs:

- with or without internal cooling
- short or long version
- with different coatings or bright finish
- to hole tolerance or reamer manufacturing tolerance

You have the choice of designing the optimal HR 500 reamer for your specific application! Simply complete the questionnaire.

EXCLUSIVE[®]LINE

Guhring, Inc. Main Office
1445 Commerce Avenue
Brookfield, WI 53045
Tel (262) 784-6730 (800) 776-6170
Fax (262) 784-9096

East Coast Reconditioning Facility
121 W Dudley Town Rd.
Bloomfield, CT 06002

**West Coast Distribution Center and
Reconditioning Facility**
15581 Computer Ln
Huntington Beach, CA 92649

**Michigan Manufacturing and
Reconditioning Facility**
29550 W.K. Smith Rd. Suite B
New Hudson, MI 48165

Guhring Corp. (Canada)
20 Steckle Place, Unit #14
Kitchener, ON N2E 2C3
Tel (519) 748-9664 (800) 463-5555
Fax (519) 748-2954

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