

## SuperR-HS

Solid carbide  
high-performance reamers



Chip – by Chip – to the Top

# SuperR-HS high-performance reamers

## Technology and advantages

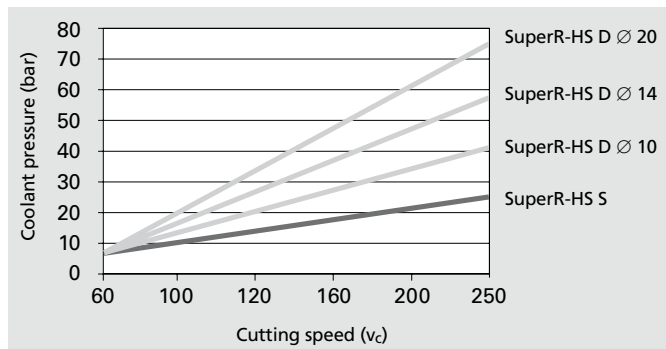
### Significant time reduction up to factor 50

With the SuperR-HS range Stock provides high-performance reamers for virtually any application task. Countless technical innovations give SuperR-HS high-performance reamers their exceptional properties, from which the user benefits from maximum cutting rates and therefore shortest machining times as well as optimum hole qualities.

### New ways of machining through holes

The specially developed straight-flute geometry is unique with reamers for through holes. It enables extremely high cutting rates also for deep holes. At the same time, the straight-flute geometry combined with the exceptional coolant delivery supports the problem-free chip evacuation ahead of the cutting edge. Subsequently, the excellent reamed surface remains optimally preserved, as chips do not return back within the flutes.

The optimal coolant supply is ensured by patent applied for longitudinal grooves ground in the re-inforced HA shank, their position exactly synchronised to the spacing of the reamer flute. This version of external cooling has more than one advantage over internal cooling via radial coolant ducts: The solid portion is considerably more rigid and a flow restriction is not created through eroded or sintered cooling ducts. In addition, chips cannot become lodged - with this solution non-existent - exit holes of the coolant ducts. Furthermore, the optimal coolant delivery is unconditionally maintained even with re-ground tools. By the way, the user need not fear a negative influence on the clamping in hydraulic or shrink fit chucks due to the oil grooves. The remaining bearing surface is more than sufficient for a secure clamping.



Coolant pressure - cutting speed  
valid for standard dimensions

### Maximum performance in blind holes

SuperR-HS high-performance reamers for the machining of blind holes are internally cooled with a central coolant duct. Its especially large cross-section ensures the optimal delivery of the coolant to the cutting edge of the tool. The straight-fluted tool geometry combined with the outstanding coolant supply again ensure the safe evacuation of the optimally formed chips.

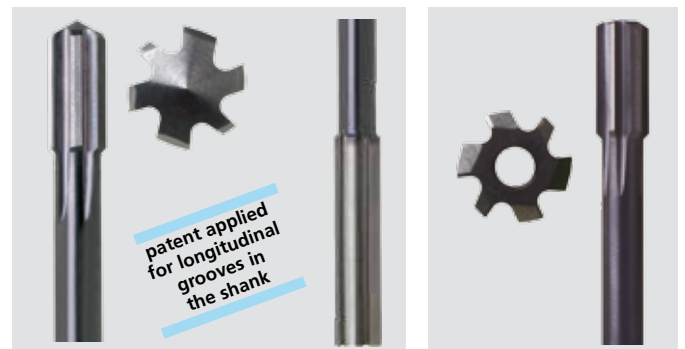
### Better than cermet, but without its disadvantages: SuperR-HS solid carbide high-performance reamers

The performance level of solid carbide HPC reamers SuperR-HS could so far only be achieved with cermet tools and had to be acquired with several disadvantages. Cermet reamers are only suitable for the machining of few materials, whilst our solid carbide reamers can be applied in close to all materials including soft and stainless steels.

Machining with interrupted cut or non-rigid machining conditions are not possible at all with cermet tools but with solid carbide in most cases this is not a problem. In addition, generally cermet reamers are comparatively more expensive.

The user gains multiple benefits with the new Stock SuperR-HS reamer:

- extremely high cutting rates,
- considerable time saving and therefore cost saving in the production
- broad range of application
- a standard program with favourable prices as well as excellent stock availability.







# SuperR-HS high-performance reamers

## Types

Type	Tool material	Surface finish	Standard	Diameter range (mm)	Catalogue no.
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### Solid carbide high-performance reamers

 SuperR-HS-S	Solid carbide	AlTiN nano	Stock std.	3,000 - 20,000	<b>72870</b>
 SuperR-HS-D	Solid carbide	AlTiN nano	Stock std.	3,000 - 20,000	<b>72871</b>
 SuperR-HS-S	Solid carbide	AlTiN nano	Stock std.	2,970 - 12,030	<b>72872</b>
 SuperR-HS-D	Solid carbide	AlTiN nano	Stock std.	2,970 - 12,030	<b>72873</b>

### Application examples for Stock's new SuperR-HS-S and SuperR-HS-D solid carbide high-performance reamers with highest feed rates and tool life

Our new solid carbide high-performance reamers have shown their performance in several applications, see following table:

Tool type	SuperR-HS-S	SuperR-HS-D	SuperR-HS-D	SuperR-HS-S
catalogue no.	72870	72871	special reamer for tighter tolerances	72870
component machined	hinge	ring	valve body	ring
workpiece material	gen. steel	alloyed steel	gen. steel	alloyed steel
hole diameter (mm)	9	8	5.9	15
hole tolerance	H7	H7	H6	IT 5
reaming depth (mm)	30	25	48	20
cutting speed $v_c$ (m/min.)	120	200	190	250
feed rate $v_f$ (mm/min.)	4200	12700	6100	7200
tool life (m)	60	100	55	70

# SuperR-HS high-performance reamers

## Application recommendations

		Feed column					
Code-letter	E	F	G	H	I	J	
Tool-Ø mm	3.15	0.080	0.100	0.125	0.300	0.500	0.800
	4.00	0.100	0.125	0.160	0.300	0.500	1.000
	5.00	0.100	0.125	0.160	0.400	0.600	1.000
	6.30	0.125	0.160	0.200	0.400	0.700	1.200
	8.00	0.160	0.200	0.250	0.600	1.000	1.800
	10.00	0.200	0.250	0.315	0.600	1.200	1.800
	12.50	0.200	0.250	0.315	0.800	1.200	2.000
	16.00	0.250	0.315	0.400	0.800	1.400	2.200
	20.00	0.315	0.400	0.500	0.800	1.400	2.200

Katalog-Nr.	<b>72870</b>	<b>72872</b>
	<b>72871</b>	<b>72873</b>
Tool material	<b>solid carbide</b>	
Surface finish	AlTiN nano	
DIN	Stock	Stock

Diameter	Recommended undersize
< 6 mm	0.1 - 0.2 mm
< 10 mm	0.2 mm
< 16 mm	0.2 - 0.3 mm
< 25 mm	0.3 - 0.4 mm
> 25 mm	0.4 mm

For an optimal cooling lubricant supply to SuperR-HS type D reamer cutting edges for through holes we recommend clamping in hydraulic or shrink fit chucks to the maximum clamping depth.

### Lubricants:

- cutting oil, highly activated, surface active lubricant with effective additives which chemically react and result in a special adhesive and abrasion reducing lubricant film.
- soluble oil (emulsion)
- without lubricant
- air only



Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile str. MPa (N/mm <sup>2</sup> )	Hardness	Coolant	V <sub>c</sub> m/min	Feed column no.
General purpose steels	<b>1.0035</b> S185(St33), <b>1.0486</b> P275N(StE285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> <b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH	≤500 >500-850		<input checked="" type="checkbox"/>	185 185	I-J I-J
Free-cutting steels	<b>1.0718</b> 11SMnPb30 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36) <b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤850 850-1000		<input checked="" type="checkbox"/>	185 185	I-J I-J
Unalloyed tempering steels	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30) <b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45) <b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤ 700 700-850 850-1000		<input checked="" type="checkbox"/>	185 185 185	I-J I-J I-J
Alloyed tempering steels	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4 <b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	850≤1000 1000-1200		<input checked="" type="checkbox"/>	185 185	I-J I-J
Unalloyed case hardened steels	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤750		<input checked="" type="checkbox"/>	185	I-J
Alloyed case hardened steels	<b>1.7043</b> 38Cr4 <b>1.5752</b> 15NiCr13 (15NiCr13), <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	850≤1000 1000-1200		<input checked="" type="checkbox"/>	185 185	I-J I-J
Nitriding steels	<b>1.8504</b> 34CrAl6 <b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≥850≤1000 >1000-1200		<input checked="" type="checkbox"/>	185 185	I-J I-J
Tool steels	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9 <b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WCr6, <b>1.2767</b>	≤850 >850-1000		<input checked="" type="checkbox"/>	185 185	I-J I-J
High speed steels	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≥650-1000		<input checked="" type="checkbox"/>	90	I-J
Spring steels	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)	≤330 HB		<input checked="" type="checkbox"/>	45	G-H
Stainless steels, sulphured	<b>1.4005</b> X12CrS13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17, <b>1.4305</b>	≤850		<input checked="" type="checkbox"/>	90	H-I
austenitic	<b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi	≤850		<input checked="" type="checkbox"/>	60	H-I
martensitic	<b>1.4057</b> X20CrNi 17.2 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b>	≤850		<input checked="" type="checkbox"/>	90	H-I
Hardened steels	-	≤40-48 HRC >48-60 HRC		<input checked="" type="checkbox"/>	50 45	G-H G-H
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		<input checked="" type="checkbox"/>		
Cast iron	<b>0.6010</b> EN-GJL-100(GG10), <b>0.6020</b> EN-GJL-200(GG20) <b>0.6025</b> EN-GJL-250(GG25), <b>0.6035</b> EN-GJL-350(GG35)	≤240 HB <300 HB		<input type="checkbox"/>	100 100	I-J I-J
Spheroidal graphite iron and maleable cast iron	<b>0.7050</b> EN-GJS-500-7(GGG50), <b>0.8035</b> EN-GJMW-350-4(GTW35)	≤240 HB		<input checked="" type="checkbox"/>	185	I-J
Chilled cast iron	<b>0.7070</b> EN-GJS-700-2(GGG70), <b>0.8170</b> EN-GJMB-700-2(GTS70)	<300 HB		<input checked="" type="checkbox"/>	90	I-J
Ti and Ti-alloys	-	≤350 HB		<input checked="" type="checkbox"/>	40	H-I
	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2 <b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		<input checked="" type="checkbox"/>	60 60	H-I H-I
Aluminium and Al-alloys	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400		<input checked="" type="checkbox"/>		
Al wrought alloys	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMg3Si, <b>3.4365</b>	≤450		<input checked="" type="checkbox"/>		
Al cast alloys ≤ 10 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9	≤600		<input checked="" type="checkbox"/>		
> 10 % Si	<b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		<input checked="" type="checkbox"/>		
Magnesium alloys	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5612.05</b> G-MgAl6Zn1	≤450		<input checked="" type="checkbox"/>	120	I-J
Copper, low alloyed	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤400		<input type="checkbox"/>		
Brass, short-chipping	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2	≤600		<input checked="" type="checkbox"/>	175	I-J
long-chipping	<b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600		<input checked="" type="checkbox"/>		
Bronze, short-chipping	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn	≤600		<input checked="" type="checkbox"/>	175	I-J
	<b>2.0790</b> CuNi18Zn19Pb	>600-850		<input checked="" type="checkbox"/>	175	I-J
Bronze, long-chipping	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10 <b>2.0980</b> CuAl11Ni, <b>2.1247</b> CuBe2	≤850 >850-1000		<input checked="" type="checkbox"/>		
Duroplastics	Epoxidharz, Resopal, Pertinax, Moltopren	-		<input type="checkbox"/>	140	I-J
Thermoplastics	Plexiglas, Hostalen, Novodur, Makralon	-		<input type="checkbox"/>	140	I-J
Kevlar	Kevlar	-		<input type="checkbox"/>		
Glass/carbon-concentr. plastics	GFK/CFK	-		<input type="checkbox"/>		

# SuperR-HS high-performance reamers

## Reamers in special dimensions

 **Order**
 **Inquiry**

Name/customer no. if available New customer

Street no.

Telephone

Date

Contact for questions

Order no.

Town/post code/country

Fax

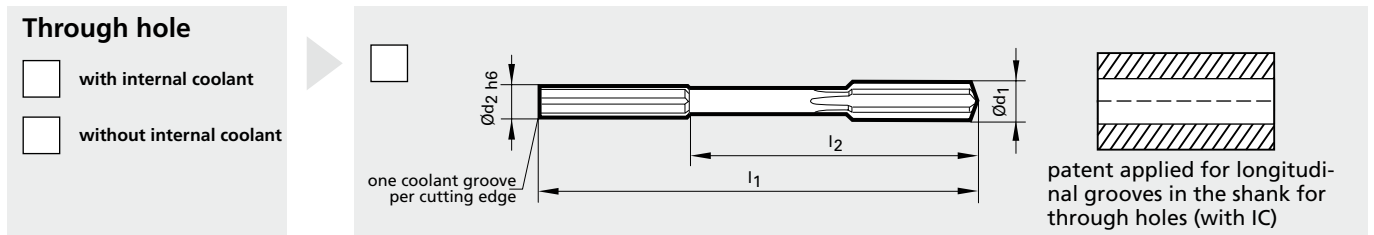
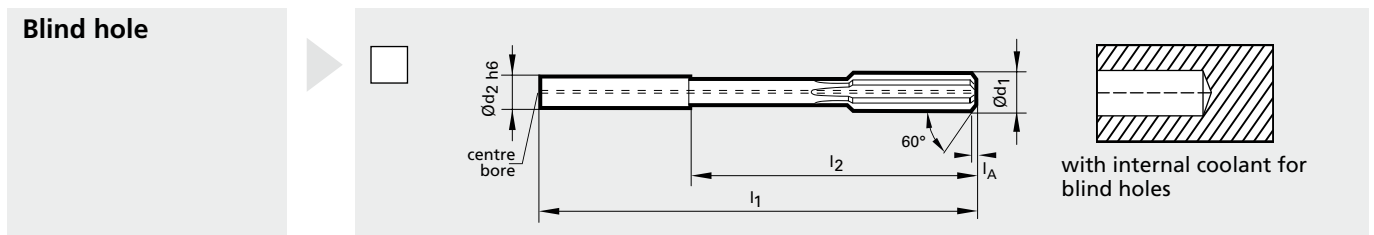
Signature

**Quantity**  Minimum order quantity 5 pcs.

**Hole Ø / tol.**  **Tolerance**  **Example**  **Example**

or

**Reamers manufact. Ø / tol.**  **upper/lower limit**  **Example**



**Dimensions**

long version

short version

Further dimensions on request

Nom.-Ø [mm] from - to d <sub>1</sub>	long version		short version		Chamfer length l <sub>a</sub> (only blind holes)	Shank-Ø h6 DIN 6535 d <sub>2</sub>
	l <sub>1</sub>	Reach l <sub>2</sub>	l <sub>1</sub>	Reach l <sub>2</sub>		
2.950 – 4.1	68	40	-	-	0.4	4
4.101 – 6.1	76	40	-	-	0.4	6
6.101 – 8.1	101	65	76	40	0.4	8
8.101 – 10.1	101	61	76	36	0.4	10
10.101 – 12.1	130	85	80	35	0.5	12
12.101 – 14.1	130	85	90	45	0.5	14
14.101 – 16.1	150	102	90	42	0.5	16
16.101 – 18.1	150	102	100	52	0.5	18
18.101 – 20.1	150	100	100	50	0.5	20

**Coating**

AlTiN nano (optimal for machining cast iron/ steel)

bright (optimal for machining titanium)

**Material**

Steel/hardened steels/ GGG/VA

GG



## Our Program

### Products

- | Twist Drills
- | Taps
- | Milling Cutters
- | Reamers
- | Countersinks & -bores
- | Chamfering Tools
- | Special HSS and Carbide Tools  
(to your specifications, or our solutions)

### Services

- | Regrinding
- | Modifications
- | Recoating
- | Paid labour coating
- | Coating removal
- | Technical assistance
- | Intelligent Tool Depot Systems

Your local contact:

**R. Stock AG**  
**Precision Cutting Tools**  
Lengeder Straße 29-35  
13407 Berlin • Germany

Phone +49 30 40903-33 300  
Fax +49 30 40903-33 324  
eMail sales@stock.de

**[www.stock.de](http://www.stock.de)**