

High speed steel reamers

Bridge reamers



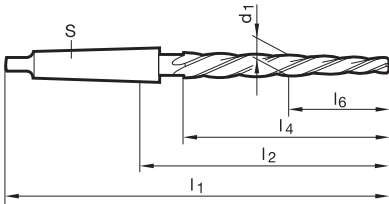
Catalog no. 72680



P	M	K	N	S	H
●	○	●	●		

Application
recomm. p. 692

- with long, tapered chamfer lead 1:10
- corrects the hole offset of stacked sheet metal parts to the required hole -Ø (i. e. to riveting or screwing together)
- manufacturing tolerance k11
- with internal centres on both ends
- Main application area:
 - steel fabrication, boiler and tank construction, shipbuilding
 - tool with high metal removal rate
 - also for slow running hand drilling machines
 - for tensile strengths up to a max. 1000 N/mm²



d1 mm	S	l1 mm	l2 mm	l4 mm	l6 mm	Z	Code no.
9.500	MK-1	166.000	104.000	90.000	27.000	4	9.500
10.000	MK-1	171.000	109.000	95.000	30.000	4	10.000
12.000	MK-2	199.000	124.000	105.000	39.000	4	12.000
13.000	MK-2	199.000	124.000	105.000	39.000	4	13.000
15.000	MK-2	219.000	144.000	125.000	45.000	5	15.000
17.000	MK-3	251.000	157.000	135.000	51.000	5	17.000
19.000	MK-3	261.000	167.000	145.000	58.000	5	19.000
20.000	MK-3	271.000	177.000	155.000	62.000	5	20.000
21.000	MK-3	271.000	177.000	155.000	62.000	5	21.000
23.000	MK-3	281.000	187.000	165.000	66.000	5	23.000
25.000	MK-3	296.000	202.000	180.000	72.000	5	25.000
36.000	MK-4	364.000	246.500	220.000	88.000	5	36.000
37.000	MK-4	364.000	246.500	220.000	88.000	5	37.000

Application recommendations for reamers

		Feed column no.						Feed f (mm/rpm)
Code letter		E	F	G	H	I	J	
reamer-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	

Tools with feed column no. in bold are preferred choices for listed material group.

Diameter	Pre-hole allowance of undersizes (recommended values)
< 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

- 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 strength MPa (N/mm ²)	Hardness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		■
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤ 700 700-850 850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-≤1000 1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850-≤1000 1000-1200		■
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-≤1000 >1000-1200		■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 >850-1000		■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 1.4057 X20CrNi17.2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850 ≤850 ≤850		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	850-≤1000 1000-1200		■ □
Spheroidal graphite iron and malleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 HB <300 HB	■
Chilled cast iron	-		≤350 HB	■
New Cast iron GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo6			■ □
New Cast iron ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	800-1000 1200-1400		■ □
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Ti and Ti-alloys	3.7024 Ti99.5, 3.7114 TiAl5Sn2.5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2.5, - TiAl8Mo1V1	≤850 >850-1200		■
Aluminium and Al-alloys	3.0255 Al99.5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1.5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		□
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤400		■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0.5	≤600		■
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■
	2.0790 CuNi18Zn19Pb	>600-850		■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		■
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren			- □
Thermoplastics	Plexiglas, Hostalen, Novodur, Makralon			- □
Kevlar	Kevlar			- □
Glass/carbon-concentr. plastics	GFK/CFK			- □

Bridge Reamers

NC Chucking Reamers

Taper Pin Reamers

Chucking Reamers

Quick Helix Reamers

Catalog no.	72680
Tool material	HSS
Surface finish	nitrided
DIN	311
Form	
Page	721

72900	72910
HSS-E	
bright	bright
Stock std.	Stock std.
B	B
710	712

72741
HSS-E
bright
2179
722

72640	72654	72650	72660	72670
HSS-E				
bright	bright	bright	bright	bright
212	212	212	208	208
A	B	B	A	B
716	714	717	718	719

72690
HSS-E
bright
212
720



v _c m/min	Feed col. no.
14	F
12	F
10	F
10	E
8	E
6	E
12	F
6	E
8	E
12	E
8	E
5	E
4	E
12	E
12	E
10	E
4	E
3	E
18	G
18	G
18	G
18	G
16	F
16	F
20	E
16	F
14	F
10	F

v _c m/min	Feed col. no.	
16	F	F
12	F	F
12	F	F
10	E	E
14	F	F
12	E	E
10	E	E
10	E	E
8	E	E
16	F	F
10	E	E
8	E	E
10	E	E
8	E	E
14	F	F
10	E	E
10	E	E
6	F	F
6	F	F
4	F	F
14	E	E
12	E	E
12	E	E
10	E	E
8	E	E
8	E	E
6	E	E
4	E	E
4	E	E
18	G	G
18	G	G
20	F	F
18	F	F
20	F	F
18	F	F
18	F	F
16	F	F
20	F	F
18	F	F
18	F	F
14	F	F
12	G	G
14	G	G

v _c m/min	Feed col. no.
8	F
8	F
8	F
8	E
8	E
8	E
8	E
8	E
6	E
6	E
6	E
6	E
6	E
6	E
6	E
6	E
6	E
6	E
6	E
6	E
6	E
8	G
8	G
8	G
8	G
8	F
8	F
8	F
8	F
8	F
8	F
8	F
8	F
8	F
8	F
8	F
8	F

v _c m/min	Feed col. no.				
16	F	F	F	F	F
12	F	F	F	F	F
12	F	F	F	F	F
10	E	E	E	E	E
14	F	F	F	F	F
12	E	E	E	E	E
10	E	E	E	E	E
10	E	E	E	E	E
8	E	E	E	E	E
16	F	F	F	F	F
10	E	E	E	E	E
8	E	E	E	E	E
10	E	E	E	E	E
8	E	E	E	E	E
14	F	F	F	F	F
10	E	E	E	E	E
10	E	E	E	E	E
6	F	F	F	F	F
6	F	F	F	F	F
4	F	F	F	F	F
14	E	E	E	E	E
12	E	E	E	E	E
12	E	E	E	E	E
10	E	E	E	E	E
8	E	E	E	E	E
8	E	E	E	E	E
6	E	E	E	E	E
4	E	E	E	E	E
18	G	G	G	G	G
18	G	G	G	G	G
20	F	F	F	F	F
18	F	F	F	F	F
20	F	F	F	F	F
18	F	F	F	F	F
18	F	F	F	F	F
16	F	F	F	F	F
20	F	F	F	F	F
18	F	F	F	F	F
18	F	F	F	F	F
14	F	F	F	F	F
12	G	G	G	G	G
14	G	G	G	G	G

v _c m/min	Feed col. no.
16	G
12	G
12	G
14	G
12	G
16	G
10	G
5	E
22	G
22	G
20	G
16	G
18	G
12	G
14	G