High speed steel reamers

NC chucking reamers

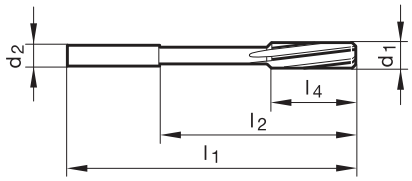
Catalog no. 72910

DIN 212-3 | B | HSS-E | bright | H7 | R | HA | 7°

P	M	K	N	S	H
●	●	●	●	○	

Application recomm. p. 692

- ≤ Ø 3.75 mm with external centres on both ends
- > Ø 3.75 mm with internal centres on both ends
- straight shank tol. h6 for clamping in hydraulic chucks and shrink fit chucks
- for tensile strengths up to a max. 1000 N/mm²



d1 mm	d2 h6 mm	l1 mm	l2 mm	l4 mm	Z	Code no.
1.500	2.000	40.000	18.000	8.000	3	**1.500**
1.600	2.000	43.000	20.000	9.000	3	**1.600**
1.700	2.000	43.000	20.000	9.000	3	**1.700**
1.800	2.000	46.000	22.000	10.000	4	**1.800**
1.900	2.000	46.000	22.000	10.000	4	**1.900**
2.000	2.000	49.000	24.000	11.000	4	**2.000**
2.100	2.000	49.000	24.000	11.000	4	**2.100**
2.200	3.000	53.000	25.000	12.000	4	**2.200**
2.300	3.000	53.000	25.000	12.000	4	**2.300**
2.400	3.000	57.000	29.000	14.000	4	**2.400**
2.500	3.000	57.000	29.000	14.000	4	**2.500**
2.600	3.000	57.000	29.000	14.000	4	**2.600**
2.700	3.000	61.000	33.000	15.000	6	**2.700**
2.800	3.000	61.000	33.000	15.000	6	**2.800**
2.900	3.000	61.000	33.000	15.000	6	**2.900**
3.000	3.000	61.000	33.000	15.000	6	**3.000**
3.100	4.000	65.000	37.000	16.000	6	**3.100**
3.200	4.000	65.000	37.000	16.000	6	**3.200**
3.300	4.000	65.000	37.000	16.000	6	**3.300**
3.400	4.000	70.000	42.000	18.000	6	**3.400**
3.500	4.000	70.000	42.000	18.000	6	**3.500**
3.600	4.000	70.000	42.000	18.000	6	**3.600**
3.700	4.000	70.000	42.000	18.000	6	**3.700**
3.800	4.000	75.000	47.000	19.000	6	**3.800**
3.900	4.000	75.000	47.000	19.000	6	**3.900**
4.000	4.000	75.000	47.000	19.000	6	**4.000**
4.100	4.000	75.000	47.000	19.000	6	**4.100**
4.200	4.000	75.000	47.000	19.000	6	**4.200**
4.300	5.000	80.000	52.000	21.000	6	**4.300**
4.400	5.000	80.000	52.000	21.000	6	**4.400**
4.500	5.000	80.000	52.000	21.000	6	**4.500**
4.600	5.000	80.000	52.000	21.000	6	**4.600**
4.700	5.000	80.000	52.000	21.000	6	**4.700**
4.800	5.000	86.000	58.000	23.000	6	**4.800**
4.900	5.000	86.000	58.000	23.000	6	**4.900**
5.000	5.000	86.000	58.000	23.000	6	**5.000**
5.100	5.000	86.000	58.000	23.000	6	**5.100**
5.200	5.000	86.000	58.000	23.000	6	**5.200**
5.300	5.000	86.000	58.000	23.000	6	**5.300**
5.400	6.000	93.000	57.000	26.000	6	**5.400**
5.500	6.000	93.000	57.000	26.000	6	**5.500**
5.600	6.000	93.000	57.000	26.000	6	**5.600**
5.700	6.000	93.000	57.000	26.000	6	**5.700**
5.800	6.000	93.000	57.000	26.000	6	**5.800**
5.900	6.000	93.000	57.000	26.000	6	**5.900**
6.000	6.000	93.000	57.000	26.000	6	**6.000**
6.100	6.000	101.000	65.000	28.000	6	**6.100**
6.200	6.000	101.000	65.000	28.000	6	**6.200**

Application recommendations for reamers

Feed column no.

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

reamer-Ø mm	Code letter E	F	G	H	I	J
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

Feed f (mm/rpm)

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/mm²)	Hardness	Coolant
General purpose steels	**1.0035** S185(St33),**1.0486** P275N(StE285),**1.0345** P235GH(H1),**1.0425** P265GH(H2)	≤500		■
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	>500-850		■
Free-cutting steels	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		■
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	850-1000		■
Unalloyed tempering steels	**1.0402** C22, **1.1178** C30E (Ck30)	≤ 700		■
	1.0503 C45, **1.1191** C45E (Ck45)	700-850		■
	1.0601 C60, **1.1221** C60E (Ck60)	850-1000		■
Alloyed tempering steels	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	850-≤1000		■
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	1000-1200		■
Unalloyed case hardened steels	**1.0301** (C10), **1.1121** C10E (Ck10)	≤750		■
Alloyed case hardened steels	**1.7043** 38Cr4	850-≤1000		■ ■
	1.5752 15NiCr13 (15NiCr13), **1.7131** 16MnCr5, **1.7264** 20CrMo5	1000-1200		■ ■
Nitriding steels	**1.8504** 34CrAl6	≥850-≤1000		■
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	>1000-1200		■ ■
Tool steels	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		■
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	>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	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤850		■
austenitic	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	**1.4057** X20CrNi 17 2 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤850		■
Cast iron	**0.6010** EN-GJL-100(GG10), **0.6020** EN-GJL-200(GG20)	850-≤1000		■ □
	0.6025 EN-GJL-250(GG25), **0.6035** EN-GJL-350(GG35)	1000-1200		■ □
Spheroidal graphite iron and	**0.7050** EN-GJS-500-7(GGG50), **0.8035** EN-GJMW-350-4(GTW35)		≤240 HB	■
malleable cast iron	**0.7070** EN-GJS-700-2(GGG70), **0.8170** EN-GJMB-700-2(GTS70)		<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)	800-1000		■ □
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	1200-1400		■ □
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Ti and Ti-alloys	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		■
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	>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	≤850		■
	2.0980 CuAl11Ni, **2.1247** CuBe2	>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	72900	72910	72741	72640	72654	72650	72660	72670	72690
Tool material	HSS	HSS-E		HSS-E	HSS-E					HSS-E
Surface finish	nitrided	bright	bright	bright	bright	bright	bright	bright	bright	bright
DIN	311	Stock std.	Stock std.	2179	212	212	212	208	208	212
Form		B	B		A	B	B	A	B	C
Page	721	710	712	722	716	714	717	718	719	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
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
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
6	E
6	E
6	E
6	E
6	E
6	E
6	E
6	E
6	E
6	E
6	E
18	G
8	G
8	G
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