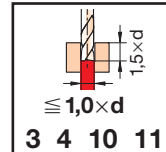
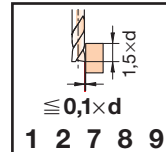


Milling	Feed column No.											
	21	22	23	24	25	26	27	28	29	30	31	32
	f _z (mm/z)											
∅ 2,00	0,002	0,004	0,007	0,004	0,007	0,010	0,006	0,009	0,014	0,008	0,011	0,016
∅ 3,00	0,004	0,007	0,010	0,008	0,010	0,015	0,011	0,013	0,019	0,013	0,017	0,022
∅ 5,00	0,010	0,014	0,020	0,016	0,020	0,025	0,022	0,026	0,031	0,027	0,032	0,038
∅ 6,00	0,013	0,017	0,024	0,021	0,025	0,031	0,029	0,033	0,039	0,036	0,041	0,047
∅ 8,00	0,019	0,024	0,032	0,031	0,035	0,042	0,042	0,047	0,053	0,052	0,058	0,064
∅ 10,00	0,025	0,030	0,038	0,039	0,044	0,051	0,053	0,059	0,065	0,066	0,073	0,080
∅ 12,50	0,030	0,036	0,046	0,048	0,052	0,059	0,063	0,072	0,079	0,080	0,089	0,100
∅ 16,00	0,038	0,045	0,054	0,058	0,063	0,071	0,079	0,088	0,095	0,100	0,110	0,120
∅ 20,00	0,048	0,057	0,066	0,073	0,081	0,089	0,097	0,106	0,114	0,120	0,130	0,139
∅ 30,00	0,063	0,073	0,084	0,094	0,103	0,112	0,123	0,134	0,143	0,152	0,163	0,173
∅ 40,00	0,073	0,084	0,094	0,105	0,114	0,125	0,136	0,147	0,157	0,167	0,178	0,189

Tool material
TiN-coated
Norme DIN
With coolant

$$\text{Formula for RPM} = \frac{V_c \text{ (m/min)} \times 1000}{d \text{ (}\varnothing \text{ mm)} \times 3,14}$$



HSCO: S6-5-2,5
1.3243 (6,5 W/5% Mo/2% V/4,8% Co)

HM: Carbide

Material group	Material examples (bold printed numbers: according to DIN EN 10027)	Tensile strenght N/mm ²
Common structural steels	1.0035 St 33, 1.0254 St 37.0, 1.0486 StE 285, 1.0345 H1, 1.0425 H2 1.0050 St 50-2, 1.0070 St 70-2, 1.8937 WStE500	≤500 >500–850
Free-cutting steels	1.0718 9SMnPb28, 1.0723 15 S20, 1.0736 9 SMn36 1.0727 45 S20, 1.0728 60 S20, 1.0757 45SPb20	≤850 850–1000
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 Ck30 1.0503 C45, 1.1191 Ck45 1.0601 C60, 1.1221 Ck60	≤700 700–850 850–1000
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.0735 41Cr4, 1.7225 42CrMo5	850–1000 >1000–1200
Unalloyed case-hard steels	1.0301 C10, 1.1121 Ck10, 1.1140 Cm15	≤750
Alloyed case-hard steels	1.5919 15CrNi6, 1.7012 13Cr2, 1.7015 15Cr13 1.5752 14NiCr14, 1.7131 16MnCr5, 1.7264 20CrMo5	850–1000 >1000–1200
Nitriding steels	1.8504 34CrAl6, 1.8506 34CrAlS5, 1.8509 41CrAlMo7 1.8507 34CrAlMo5, 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850–1000 >1000–1200
Tool steels	1.1750 C75W, 1.2067 100Cr6, 1.2307 29CrMoV 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
Stainless steels	sulphured austenitic martensitic 1.4005 X12CrS13, 1.4104 X2CrMoS17, 1.4105 X4CrMoS18, 1.4305 1.4301 X5CrNi1810, 1.4541 X6CrNiTi1810, 1.4571 X6CrNiMoTi 1712 2 1.4057 X20CrNi17 2, 1.4122 X35CrMo17, 1.4521 X2CrMoTi18 2	≤850 ≤850 ≤850
Cast iron	≤ 240 HB < 300 HB GG 10–GG 20 GG 25–GG 45	
Spheroidat and malleable cast iron	GTW 35, GTS 55, GGG 50 GTW 65, GTS 70, GGG 70	
Ti and Ti alloys	3.7024 Ti99,5, 3.7114 TiAl5Su2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7164 TiAl6V4, 3.7184 TiAl4Mo45Su2, - TiAl8Mo1V1	≤850 >850–1200
Aluminum and Al alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400
Aluminum wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450
Aluminum cast alloys	≤ 10 % Si < 10 % Si 3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9 3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600
Magnesium alloys	MgMn2, G-MgAl18Zn1, G-MgAl6Zn3	≤450
Copper, low alloys	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤400
Brass	short-chipping long-chipping 2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2 2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600 ≤600
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn 2.0790 CuNi18Zn19Pb	≤600 >600–850
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 850–1000
Plastic	a = duroplastics b = thermoplastics Bakelit, Resopal, Pertinax, Moltopren Plexiglas, Hostalen, Novodur, Makralon	

	HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	HM-K 40	HM-K 40	HM-K 40	HM-K 40	HM-K 40	HM-K 40
		TiN		TiN		TiN			TiN		TiN		TiN
	844/B	844/B	844/B	844/B	-	-	1880	6527	6527	6527/B	6527/B	-	-
					x	x						x	x
Lubrication	1	2	3	4	5	6	7	8	9	10	11	12	13
● Emulsion ● Oil ○ Air	m/min No.	m/min No.	m/min No.	m/min No.	m/min No.	m/min No.	m/min No.	m/min No.	m/min No.	m/min No.	m/min No.	m/min No.	m/min No.
●	50 26 40 25	80 26 65 25	32 27 29 26	58 27 47 26	45 29 36 28	72 29 58 28	40 26 32 25	200 26 160 25	250 26 200 25	162 28 129 27	202 28 162 27	200 28 160 27	250 28 200 27
●	40 26 33 25	65 26 58 25	29 27 24 26	47 27 41 26	36 29 30 28	28 29 52 28	32 26 26 25	160 25 150 24	200 25 190 24	129 27 122 26	162 27 154 26	160 28 150 27	200 28 190 27
●	40 26 35 25 30 23	75 26 50 25 45 23	29 27 25 26 22 25	54 27 36 26 32 25	36 29 32 28 27 27	68 29 45 28 40 27	32 26 28 25 24 24	170 26 160 25 150 24	215 26 200 25 190 24	129 28 129 27 122 26	162 28 162 27 154 26	170 28 160 27 150 26	215 28 200 27 190 26
●	30 25 25	45 25 34	22 26 18	32 26 24	27 28 23 27	40 28 30 27	24 15 20 24	150 24 130 23	190 24 160 23	129 26 105 25	162 26 129 25	150 27 130 26	190 27 160 26
●	40 26	65 26	29 27	47 27	36 29	58 29	32 26	200 26	250 26	162 28	202 28	200 28	250 28
●	30 25 25	45 25 34	22 26 18	32 26 24 24	27 28 23 27	40 28 30 27	24 24 20 24	150 24 130 23	190 24 160 23	122 26 105 25	154 26 129 25	150 27 130 26	190 27 160 26
●	30 25 25	45 25 34	22 26 18	32 26 24	27 28 24 27	40 28 30 27	24 25 20 24	150 24 130 23	190 24 160 23	122 26 105 25	154 26 129 25	150 27 130 26	190 27 160 26
●	25 26 22 25	34 26 28 25	18 27 16 26	24 27 20 26	22 29 20 28	30 29 25 28	20 26 18 25	160 24 150 23	200 24 190 23	129 26 122 25	162 26 154 25	160 28 150 27	200 28 190 27
●	18 23	23 23	14 24	16 24	16 26	20 26	15 23	90 23	110 23	73 25	89 25	90 25	110 25
●	22 24 22 23 22 24	28 24 28 23 28 24	16 25 16 24 16 25	20 25 20 24 20 25	20 27 20 26 20 27	25 27 25 26 25 27	18 24 18 23 18 24	110 24 90 23 90 24	140 24 110 23 110 24	89 26 73 25 73 26	113 26 89 25 89 26	110 26 90 25 90 26	140 26 110 25 110 26
● ○	26 25 22 24	40 25 28 24	18 26 16 25	24 26 20 25	23 28 30 27	36 28 25 27	20 25 18 24	140 28 90 27	175 28 110 27	114 30 100 29	143 30 115 29	140 27 90 26	175 27 110 26
●	30 25 25 24	45 25 34 24	22 26 18 25	32 26 24 25	27 28 23 27	40 28 30 27	24 25 20 24	110 28 90 27	140 28 110 27	89 30 73 29	113 30 89 29	110 27 90 26	140 27 110 26
●	30 25 20	45 25 25	22 26 15	32 26 18	27 28 18 27	40 28 23 27	24 25 16 24	135 23 90 22	170 23 110 22	109 25 73 24	138 25 89 24	135 27 90 26	170 27 110 26
●	350 30	500 30	252 28	360 28	315 31	450 31	280 29	600 28	750 28	485 30	606 30	600 30	750 30
●	350 30	500 30	252 28	360 28	315 31	450 31	280 29	750 28	950 28	608 30	764 30	750 30	950 30
●	100 30 80 30	150 30 120 30	72 28 58 28	108 28 86 28	90 31 72 31	135 31 108 31	80 29 64 29	280 27 210 27	350 27 260 27	226 29 170 29	283 29 210 29	280 30 210 30	350 30 260 30
○	60 30	120 30	58 28	86 28	54 31	108 31	64 29	210 28	260 28	170 30	210 30	210 30	260 30
●	100 26	150 26	72 27	108 27	90 29	135 29	80 26	190 28	240 28	153 30	194 30	190 28	240 28
●	100 26 60 26	150 26 90 26	72 27 43 27	108 27 65 27	90 29 54 29	135 29 81 29	80 26 48 26	270 27 210 26	340 27 260 26	218 29 170 28	275 29 210 28	270 28 210 28	340 28 260 28
● ●	120 26 100 26	170 26 150 26	86 27 72 27	122 27 108 27	108 29 90 29	153 29 135 29	96 26 80 26	270 27 210 26	340 27 260 26	218 29 170 28	275 29 210 28	270 28 210 28	340 28 260 28
●	100 26 60 26	150 26 90 26	72 27 43 27	108 27 65 27	90 29 54 29	135 29 81 29	80 26 48 26	210 26 190 25	260 26 240 25	170 28 154 27	210 28 194 27	210 28 190 28	260 28 240 28
○	-	-	-	-	-	-	-	160 23	200 23	129 25	162 25	160 30	200 30
● ○	150 32	150 32	108 32	108 32	135 32	135 32	120 32	135 23	135 23	109 25	109 25	135 31	135 31