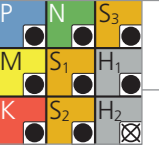


Type C - Roughing

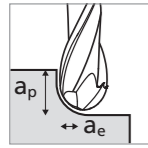
V_c [m/min]
f_z [mm]

RECOMMENDATION FOR USE
● Excellent | ● Good | ○ Acceptable | ⊗ Not recommended



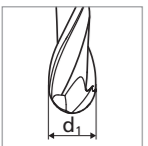
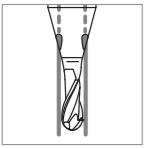
MILLING WITH INTEGRATED COOLING | CUTTING DATA OVERVIEW

Roughing



- a_p = 0.5 x d_i (Ød_i < 0.5 mm)
- a_p = 1 x d_i (Ød_i > 0.5 mm)
- a_e = 0.3 x d_i

Machining angle = 0°



Materials group	Material	Mat. no.	DIN	AISI/ASTM/UNS	0.3 mm – 0.4 mm 1/64"		0.5 mm – 0.8 mm 1/32"		1.0 mm – 1.2 mm		Ød _i 1.5 mm – 1.8 mm 1/16"		2.0 mm – 2.5 mm 3/32"		3.0 mm 1/8"		4.0 mm – 6.0 mm 5/32 – 3/16 – 7/32 – 1/4"		8.0 mm																	
					v _c	f _z	v _c	f _z	v _c	f _z	v _c	f _z	v _c	f _z	v _c	f _z	v _c	f _z	v _c	f _z	v _c	f _z														
					P	Unalloyed carbon steel Rm < 800 N/mm ²	1.0301	C10	AISI 1010	60	0.005–0.007	100	0.010–0.014	140	0.015–0.017	200	0.024–0.026	220	0.034–0.036	240	0.040	280	0.050	280	0.050											
1.0401	C15	AISI 1015																																		
1.1191	C45E/CK45	AISI 1045																																		
1.0044	S275JR	AISI 1020																																		
1.0715	11SMn30	AISI 1215																																		
1.5752	15NiCr13	ASTM 3415 / AISI 3310																																		
Low alloyed steel Rm > 900 N/mm ²	1.7131	16MnCr5	AISI 5115	60		0.004–0.006	100	0.009–0.012	140	0.014–0.016	200	0.022–0.024	220	0.032–0.034	240	0.038	280	0.048	280	0.048																
	1.3505	100Cr6	AISI 52100																																	
	1.7225	42CrMo4	AISI 4140																																	
	1.2842	90MnCrV8	AISI O2																																	
	1.2379	X153CrMoV12	AISI D2																																	
	1.2436	X210CrW12	AISI D4/D6																																	
High alloyed tool steel Rm < 1200 N/mm ²	1.3343	HS6-5-2C	AISI M2 / UNS T11302	60	0.004–0.006	100	0.008–0.011	140	0.011–0.013	200	0.020–0.022	220	0.030–0.032	240	0.035	280	0.044	280	0.044																	
	1.3355	HS18-0-1	AISI T1 / UNS T12001																																	
	1.4016	X6Cr17	AISI 430 / UNS S43000																	60	0.005–0.007	100	0.010–0.014	140	0.016–0.018	200	0.024–0.026	220	0.034–0.036	240	0.040	280	0.048	280	0.048	
	1.4105	X6CrMoS17	AISI 430F																																	
	1.4034	X46Cr13	AISI 420C																																	
	1.4112	X90CrMoV18	AISI 440B																																	
1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH																																		
1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH																																		
M	Stainless steel ferritic	1.4301	X5CrNi 18-10	AISI 304	60	0.004–0.006	100	0.008–0.011	140	0.012–0.014	200	0.016–0.018	220	0.030–0.032	240	0.034	280	0.044	280	0.044																
		1.4435	X2CrNiMo 18-14-3	AISI 316L																																
	1.4441	X2CrNiMo 18-15-3	AISI 316LM																																	
	1.4539	X1NiCrMoCu 25-20-5	AISI 904L																																	
	0.6020	GG20	ASTM 30	60																	0.003–0.005	100	0.006–0.009	120	0.011–0.022	140	0.024–0.026	160	0.028–0.036	180	0.042	200	0.052	200	0.052	
	0.6030	GG30	ASTM 40B																																	
0.7040	GGG40	ASTM 60-40-18																																		
0.7060	GGG60	ASTM 80-60-03																																		
3.2315	AlMgSi1	ASTM 6351	60		0.006–0.008	100	0.012–0.016	140	0.018–0.020	200	0.026–0.028	220	0.036–0.040	240	0.058	280	0.055	280	0.055																	
3.4365	AlZnMgCu1.5	ASTM 7075																																		
3.2163	GD-AlSi9Cu3	ASTM A380																																		
3.2381	GD-AlSi10Mg	UNS A03590																																		
2.004	Cu-OF / CW008A	UNS C10100																																		
2.0065	Cu-ETP / CW004A	UNS C11000																																		
K	Cast iron	2.0321	CuZn37 CW508L	UNS C27400	60	0.006–0.008	100	0.014–0.018	140	0.020–0.022	200	0.026–0.028	220	0.036–0.040	240	0.058	280	0.055	280	0.055																
		2.036	CuZn40 CW509L	UNS C28000																																
		2.0401	CuZn39Pb3 / CW614N	UNS C38500																																
		2.102	CuSn6	UNS C51900																																
	2.0966	CuAl10Ni5Fe4	UNS C63000																																	
	2.096	CuAl9Mn2	UNS C63200																																	
N	Aluminium alloy wrought	2.4856		Inconel 625	60	0.003–0.004	100	0.004–0.006	120	0.007–0.008	130	0.009–0.010	140	0.010–0.012	150	0.015	170	0.020	170	0.020																
		2.4668		Inconel 718																																
	2.4617	NiMo28	Hastelloy B-2																																	
	2.4665	NiCr22Fe18Mo	Hastelloy X																																	
	3.7035	Gr.2	ASTM B348 / F67	60																	0.004–0.006	100	0.008–0.011	120	0.016–0.018	130	0.020–0.022	140	0.028–0.030	150	0.034	170	0.042	170	0.042	
	3.7065	Gr.4	ASTM B348 / F68																																	
3.7165	TiAl6V4	ASTM B348 / F136																																		
9.9367	TiAl6Nb7	ASTM F1295																																		
2.4964	CoCr20W15Ni	Haynes 25	60		0.003–0.004	100	0.004–0.006	140	0.007–0.008	180	0.009–0.010	200	0.010–0.012	220	0.015	240	0.020	240	0.020																	
	CrCoMo28	ASTM F1537																																		
S₁	Super alloys	1.2510		100MnCrMoW4																AISI O1	60	0.004–0.006	80	0.007–0.009	100	0.010–0.012	140	0.014–0.018	180	0.020–0.026	200	0.030	240	0.032	240	0.032
		1.2379		X153CrMoV12																AISI D2																
S₂	Titanium pure	1.2379		X153CrMoV12																AISI D2																
S₃	CrCo alloys																																			
H₁	Hardened steel < 55 HRC																																			
H₂	Hardened steel ≥ 55 HRC																																			