

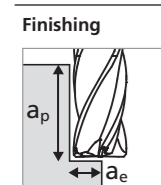
**NEW** Type A - Finishing

$v_c$  [m/min]  
 $f_z$  [mm]

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

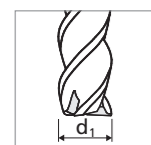
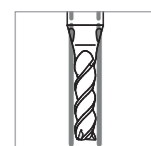


MILLING WITH INTEGRATED COOLING | CUTTING DATA OVERVIEW



①  
■  $a_p = 2 \times d_1$   
■  $a_e = 0.04 \times d_1$

②  
■  $a_p = 2 \times d_1$   
■  $a_e = 0.02 \times d_1$



Materials group	Material	Mat. no.	DIN	AISI/ASTM/UNS	1.0 mm		1.5 mm 1/16"		2.0 mm 3/32"		3.0 mm 1/8"		4.0 mm 5/32"		5.0 mm 3/16" - 7/32"		6.0 mm 1/4"		8.0 mm									
					$v_c$	$f_z$	$v_c$	$f_z$	$v_c$	$f_z$	$v_c$	$f_z$	$v_c$	$f_z$	$v_c$	$f_z$	$v_c$	$f_z$	$v_c$	$f_z$								
P	Unalloyed carbon steel Rm < 800 N/mm <sup>2</sup>	1.0301	C10	AISI 1010	130	0.008	0.009	180	0.012	0.014	200	0.017	0.020	210	0.023	0.026	220	0.025	0.029	220	0.028	0.032	220	0.033	0.038	220	0.038	0.044
		1.0401	C15	AISI 1015																								
		1.1191	C45E/CK45	AISI 1045																								
		1.0044	S275JR	AISI 1020																								
		1.0715	11SMn30	AISI 1215																								
	Low alloyed steel Rm > 900 N/mm <sup>2</sup>	1.5752	15NiCr13	ASTM 3415 / AISI 3310	130	0.007	0.008	180	0.011	0.013	200	0.016	0.018	210	0.022	0.025	220	0.024	0.028	220	0.026	0.030	220	0.029	0.033	220	0.034	0.040
		1.7131	16MnCr5	AISI 5115																								
		1.3505	100Cr6	AISI 52100																								
		1.7225	42CrMo4	AISI 4140																								
		1.2842	90MnCrV8	AISI O2																								
High alloyed tool steel Rm < 1200 N/mm <sup>2</sup>	1.2379	X153CrMoV12	AISI D2	130	0.006	0.007	180	0.010	0.012	200	0.015	0.017	210	0.020	0.023	220	0.021	0.024	220	0.023	0.026	220	0.025	0.029	220	0.030	0.035	
	1.2436	X210CrW12	AISI D4/D6																									
	1.3343	HS6-5-2C	AISI M2 / UNS T11302																									
	1.3355	HS18-0-1	AISI T1 / UNS T12001																									
M	Stainless steel ferritic	1.4016	X6Cr17	AISI 430 / UNS S43000	130	0.008	0.009	180	0.012	0.014	200	0.017	0.020	210	0.022	0.025	220	0.024	0.028	220	0.026	0.030	220	0.029	0.033	260	0.034	0.040
		1.4105	X6CrMoS17	AISI 430F																								
	Stainless steel martensitic	1.4034	X46Cr13	AISI 420C	130	0.008	0.009	180	0.011	0.013	200	0.016	0.018	210	0.022	0.025	220	0.023	0.027	220	0.025	0.029	220	0.028	0.032	260	0.033	0.038
		1.4112	X90CrMoV18	AISI 440B																								
	Stainless steel martensitic – PH	1.4542	X5CrNiCuNb16-4	AISI 630 / ASTM 17-4 PH	130	0.008	0.009	180	0.011	0.013	200	0.016	0.018	210	0.022	0.025	220	0.023	0.027	220	0.025	0.029	220	0.028	0.032	260	0.033	0.038
		1.4545	X5CrNiCuNb15-5	ASTM 15-5 PH																								
	Stainless steel austenitic	1.4301	X5CrNi18-10	AISI 304	130	0.006	0.007	180	0.008	0.009	200	0.015	0.017	210	0.020	0.023	220	0.022	0.025	220	0.024	0.028	220	0.026	0.030	260	0.032	0.037
1.4435		X2CrNiMo18-14-3	AISI 316L																									
1.4441		X2CrNiMo18-15-3	AISI 316LM																									
		1.4539	X1NiCrMoCu25-20-5	AISI 904L																								
K	Cast iron	0.6020	GG20	ASTM 30	110	0.006	0.007	130	0.012	0.014	150	0.014	0.016	160	0.022	0.025	170	0.025	0.029	170	0.029	0.033	170	0.031	0.036	200	0.036	0.042
		0.6030	GG30	ASTM 40B																								
		0.7040	GGG40	ASTM 60-40-18																								
		0.7060	GGG60	ASTM 80-60-03																								
N	Aluminium alloy wrought	3.2315	AlMgSi1	ASTM 6351	130	0.009	0.010	180	0.013	0.015	200	0.018	0.021	210	0.029	0.033	220	0.030	0.035	220	0.033	0.038	220	0.036	0.041	270	0.041	0.047
		3.4365	AlZnMgCu1.5	ASTM 7075																								
	Aluminium alloy cast	3.2163	GD-AlSi9Cu3	ASTM A380	130	0.009	0.010	180	0.013	0.015	200	0.018	0.021	210	0.029	0.033	220	0.030	0.035	220	0.033	0.038	220	0.036	0.041	270	0.041	0.047
		3.2381	GD-AlSi10Mg	UNS A03590																								
	Copper	2.0040	Cu-OF / CW008A	UNS C10100	130	0.010	0.012	180	0.013	0.015	200	0.018	0.021	210	0.029	0.033	220	0.030	0.035	220	0.033	0.038	220	0.036	0.041	270	0.041	0.047
		2.0065	Cu-ETP / CW004A	UNS C11000																								
	Brass lead free	2.0321	CuZn37 CW508L	UNS C27400	130	0.010	0.012	180	0.013	0.015	200	0.018	0.021	210	0.029	0.033	220	0.030	0.035	220	0.033	0.038	220	0.036	0.041	270	0.041	0.047
		2.0360	CuZn40 CW509L	UNS C28000																								
	Brass, Bronze Rm < 400 N/mm <sup>2</sup>	2.0401	CuZn39Pb3 / CW614N	UNS C38500	130	0.010	0.012	180	0.013	0.015	200	0.018	0.021	210	0.029	0.033	220	0.030	0.035	220	0.033	0.038	220	0.036	0.041	270	0.041	0.047
		2.1020	CuSn6	UNS C51900																								
Bronze Rm < 600 N/mm <sup>2</sup>	2.0966	CuAl10Ni5Fe4	UNS C63000	130	0.009	0.010	180	0.013	0.015	200	0.018	0.021	210	0.029	0.033	220	0.030	0.035	220	0.033	0.038	220	0.036	0.041	270	0.041	0.047	
	2.0960	CuAl9Mn2	UNS C63200																									
S <sub>1</sub>	Super alloys	2.4856		Inconel 625	110	0.004	0.005	120	0.005	0.006	130	0.005	0.006	130	0.008	0.009	140	0.010	0.012	140	0.011	0.013	150	0.012	0.014	160	0.017	0.020
		2.4668		Inconel 718																								
		2.4617	NiMo28	Hastelloy B-2																								
		2.4665	NiCr22Fe18Mo	Hastelloy X																								
S <sub>2</sub>	Titanium pure	3.7035	Gr.2	ASTM B348 / F67	110	0.008	0.009	120	0.010	0.012	130	0.014	0.016	130	0.020	0.023	140	0.022	0.025	140	0.024	0.028	150	0.026	0.030	160	0.031	0.036
		3.7065	Gr.4	ASTM B348 / F68																								
S <sub>2</sub>	Titanium alloys	3.7165	TiAl6V4	ASTM B348 / F136	110	0.008	0.009	120	0.010	0.012	130	0.014	0.016	130	0.020	0.023	140	0.022	0.025	140	0.024	0.028	150	0.026	0.030	160	0.031	0.036
		9.9367	TiAl6Nb7	ASTM F1295																								
S <sub>3</sub>	CrCo alloys	2.4964	CoCr20W15Ni CrCoMo28	Haynes 25 ASTM F1537	110	0.004	0.005	120	0.005	0.006	130	0.005	0.006	130	0.008	0.009	140	0.010	0.012	140	0.011	0.013	150	0.012	0.014	160	0.017	0.020
H <sub>1</sub>	Hardened steel < 55 HRC	1.2510	100MnCrMoW4	AISI O1																								
H <sub>2</sub>	Hardened steel ≥ 55 HRC	1.2379	X153CrMoV12	AISI D2																								