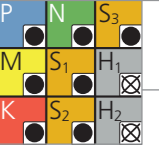


NEW

Type A - Pre-machining

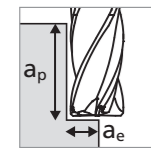
v_c [m/min] | [SFM]
 f_z [mm] | [IPT]

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



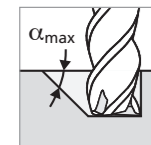
MILLING WITH INTEGRATED COOLING | CUTTING DATA OVERVIEW

Pre-machining

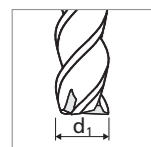
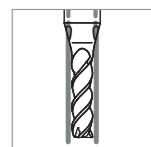


- ① $a_p = 1.5 \times d_1$
 $a_e = 0.3 \times d_1$

- ② $a_p = 2 \times d_1$
 $a_e = 0.2 \times d_1$



Note:
In case of linear ramp or helical interpolation milling reduce f_z by 35%



Materials group	Material	Mat. no.	DIN	AISI/ASTM/UNS	1.0 mm .039"		1/16"		3/32"		1/8"		Ød ₁ 5/32"		3/16" - 7/32"		1/4"		8.0 mm .315"				
					① ②		① ②		① ②		① ②		① ②		① ②		① ②		① ②				
					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																			
		1.0401	C15	AISI 1015																			
		1.1191	C45E/CK45	AISI 1045	140	0.011	0.013	200	0.024	0.017													
		1.0044	S275JR	AISI 1020	459	.00043	.00051	656	.00094	.00106													
		1.0715	11SMn30	AISI 1215																			
	Low alloyed steel Rm > 900 N/mm ²	1.5752	15NiCr13	ASTM 3415 / AISI 3310																			
		1.7131	16MnCr5	AISI 5115																			
		1.3505	100Cr6	AISI 52100	140	0.010	0.012	200	0.022	0.015													
		1.7225	42CrMo4	AISI 4140	459	.00039	.00047	656	.00087	.00098													
		1.2842	90MnCrV8	AISI O2																			
High alloyed tool steel Rm < 1200 N/mm ²	1.2379	X153CrMoV12	AISI D2																				
	1.2436	X210CrW12	AISI D4/D6	140	0.008	0.009	200	0.019	0.013														
	1.3343	HS6-5-2C	AISI M2 / UNS T11302	459	.00032	.00035	656	.00075	.00087														
	1.3355	HS18-0-1	AISI T1 / UNS T12001																				
M	Stainless steel ferritic	1.4016	X6Cr17	AISI 430 / UNS S43000	140	0.012	0.014	180	0.021	0.016													
		1.4105	X6CrMoS17	AISI 430F	459	.00047	.00055	591	.00083	.00063													
	Stainless steel martensitic	1.4034	X46Cr13	AISI 420C	140	0.011	0.013	180	0.021	0.016													
		1.4112	X90CrMoV18	AISI 440B	459	.00043	.00051	591	.00083	.00063													
	Stainless steel martensitic - PH	1.4542	X5CrNiCuNb16-4	AISI 630 / ASTM 17-4 PH	140	0.011	0.013	180	0.021	0.016													
		1.4545	X5CrNiCuNb15-5	ASTM 15-5 PH	459	.00043	.00051	591	.00083	.00063													
	Stainless steel austenitic	1.4301	X5CrNi18-10	AISI 304																			
		1.4435	X2CrNiMo18-14-3	AISI 316L	140	0.009	0.011	180	0.018	0.014													
1.4441		X2CrNiMo18-15-3	AISI 316LM	459	.00035	.00043	591	.00071	.00055														
	1.4539	X1NiCrMoCu25-20-5	AISI 904L																				
K	Cast iron	0.6020	GG20	ASTM 30																			
		0.6030	GG30	ASTM 40B																			
		0.7040	GGG40	ASTM 60-40-18	120	0.008	0.010	160	0.019	0.016													
		0.7060	GGG60	ASTM 80-60-03	394	.00032	.00039	525	.00075	.00063													
N	Aluminium alloy wrought	3.2315	AlMgSi1	ASTM 6351	160	0.013	0.015	200	0.026	0.018													
		3.4365	AlZnMgCu1.5	ASTM 7075	525	.00051	.00059	656	.00102	.00071													
	Aluminium alloy cast	3.2163	GD-AlSi9Cu3	ASTM A380	160	0.013	0.015	220	0.026	0.018													
		3.2381	GD-AlSi10Mg	UNS A03590	525	.00051	.00059	722	.00102	.00071													
	Copper	2.0040	Cu-OF / CW008A	UNS C10100	160	0.013	0.015	220	0.026	0.018													
		2.0065	Cu-ETP / CW004A	UNS C11000	525	.00051	.00059	722	.00102	.00071													
	Brass lead free	2.0321	CuZn37 CW508L	UNS C27400	160	0.013	0.015	220	0.026	0.018													
		2.0360	CuZn40 CW509L	UNS C28000	525	.00051	.00059	722	.00102	.00071													
	Brass, Bronze Rm < 400 N/mm ²	2.0401	CuZn39Pb3 / CW614N	UNS C38500	160	0.013	0.015	220	0.026	0.018													
		2.1020	CuSn6	UNS C51900	525	.00051	.00059	722	.00102	.00071													
Bronze Rm < 600 N/mm ²	2.0966	CuAl10Ni5Fe4	UNS C63000	160	0.013	0.015	220	0.026	0.018														
	2.0960	CuAl9Mn2	UNS C63200	525	.00051	.00059	722	.00102	.00071														
S ₁	Super alloys	2.4856		Inconel 625																			
		2.4668		Inconel 718	80	-	0.006	100	-	0.008													
		2.4617	NiMo28	Hastelloy B-2	262	-	.00024	328	-	.00030													
		2.4665	NiCr22Fe18Mo	Hastelloy X																			
S ₂	Titanium pure	3.7035	Gr.2	ASTM B348 / F67	100	0.010	0.012	100	0.017	0.014													
		3.7065	Gr.4	ASTM B348 / F68	328	.00039	.00047	328	.00067	.00055													
S ₃	Titanium alloys	3.7165	TiAl6V4	ASTM B348 / F136	100	0.010	0.012	100	0.017	0.014													
		9.9367	TiAl6Nb7	ASTM F1295	328	.00039	.00047	328	.00067	.00055													
H ₁	Hardened steel < 55 HRC	2.4964	CoCr20W15Ni	Haynes 25	80	-	0.006	100	-	0.008													
			CrCoMo28	ASTM F1537	262	-	.00024	328	-	.00030													
H ₂	Hardened steel ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1																			
		1.2379	X153CrMoV12	AISI D2																			