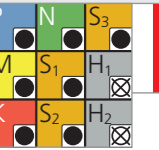


NEW

Type C - Z4 - Side milling - Finishing

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

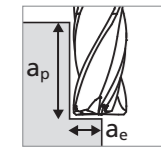
RECOMMENDATION FOR USE
● Excellent | ● Good | ○ Acceptable | ⊗ Not recommended



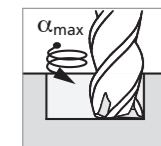
MILLING WITH INTEGRATED COOLING | CUTTING DATA OVERVIEW

Side milling

Finishing

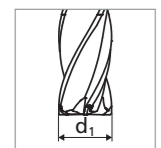
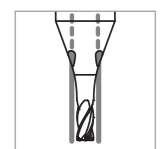


■ $a_p = 1.5 \times d_1$
■ $a_e = 0.02 \times d_1$



Note:

In case of helical interpolation milling see α_{max} on page 35



Materials group	Material	Mat. no.	DIN	AISI/ASTM/UNS	Cutting edge geometry	Ød ₁													
						1/64"		.020" 0.5 mm		.024" 0.6 mm		.028" 0.7 mm		1/32"		.031" 0.8 mm		.035" - .039" 0.9 - 1.0 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
P	Unalloyed carbon steel Rm < 800 N/mm ²	1.0301	C10	AISI 1010	GEOMETRY S	148 - 246	.00028	180 - 312	.00031	213 - 377	.00039	246 - 426	.00047	295 - 492	.00055	328 - 558	.00063		
		1.0401	C15	AISI 1015		45 - 75	0.007	55 - 95	0.008	65 - 115	0.010	75 - 130	0.012	90 - 150	0.014	100 - 170	0.016		
		1.1191	C45E/CK45	AISI 1045		148 - 246	.00028	180 - 312	.00031	213 - 377	.00039	246 - 426	.00047	295 - 492	.00055	328 - 558	.00063		
		1.0044	S275JR	AISI 1020		45 - 75	0.007	55 - 95	0.008	65 - 115	0.010	75 - 130	0.012	90 - 150	0.014	100 - 170	0.016		
		1.0715	11SMn30	AISI 1215		148 - 246	.00028	180 - 312	.00031	213 - 377	.00039	246 - 426	.00047	295 - 492	.00055	328 - 558	.00063		
		1.5752	15NiCr13	ASTM 3415 / AISI 3310		45 - 75	0.007	55 - 95	0.008	65 - 115	0.010	75 - 130	0.012	90 - 150	0.014	100 - 170	0.016		
	Low alloyed steel Rm > 900 N/mm ²	1.7131	16MnCr5	AISI 5115		148 - 246	.00028	180 - 312	.00031	213 - 377	.00039	246 - 426	.00047	295 - 492	.00055	328 - 558	.00063		
		1.3505	100Cr6	AISI 52100		45 - 75	0.007	55 - 95	0.008	65 - 115	0.010	75 - 130	0.012	90 - 150	0.014	100 - 170	0.016		
		1.7225	42CrMo4	AISI 4140		148 - 246	.00028	180 - 312	.00031	213 - 377	.00039	246 - 426	.00047	295 - 492	.00055	328 - 558	.00063		
		1.2842	90MnCrV8	AISI O2		45 - 75	0.007	55 - 95	0.008	65 - 115	0.010	75 - 130	0.012	90 - 150	0.014	100 - 170	0.016		
		1.2379	X153CrMoV12	AISI D2		148 - 246	.00016	180 - 312	.00024	213 - 377	.00031	246 - 426	.00035	295 - 492	.00043	328 - 558	.00047		
		1.2436	X210CrW12	AISI D4/D6		45 - 75	0.004	55 - 95	0.006	65 - 115	0.008	75 - 130	0.009	90 - 150	0.011	100 - 170	0.012		
M	Stainless steel ferritic	1.4016	X6Cr17	AISI 430 / UNS S43000	148 - 246	.00024	180 - 312	.00031	213 - 377	.00039	246 - 426	.00047	295 - 492	.00055	328 - 558	.00063			
		1.4105	X6CrMoS17	AISI 430F	45 - 75	0.006	55 - 95	0.008	65 - 115	0.010	75 - 130	0.012	90 - 150	0.014	100 - 170	0.016			
	Stainless steel martensitic	1.4034	X46Cr13	AISI 420C	148 - 246	.00024	180 - 312	.00031	213 - 377	.00039	246 - 426	.00047	295 - 492	.00055	328 - 558	.00063			
		1.4112	X90CrMoV18	AISI 440B	45 - 75	0.006	55 - 95	0.008	65 - 115	0.010	75 - 130	0.012	90 - 150	0.014	100 - 170	0.016			
	Stainless steel martensitic - PH	1.4542	X5CrNiCuNb16-4	AISI 630 / ASTM 17-4 PH	148 - 246	.00024	180 - 312	.00031	213 - 377	.00039	246 - 426	.00047	295 - 492	.00055	328 - 558	.00063			
		1.4545	X5CrNiCuNb15-5	ASTM 15-5 PH	45 - 75	0.006	55 - 95	0.008	65 - 115	0.010	75 - 130	0.012	90 - 150	0.014	100 - 170	0.016			
	Stainless steel austenitic	1.4301	X5CrNi18-10	AISI 304	148 - 246	.00016	180 - 312	.00024	213 - 377	.00031	246 - 426	.00035	295 - 492	.00043	328 - 558	.00047			
		1.4435	X2CrNiMo18-14-3	AISI 316L	45 - 75	0.004	55 - 95	0.006	65 - 115	0.008	75 - 130	0.009	90 - 150	0.011	100 - 170	0.012			
K	Cast iron	0.6020	GG20	ASTM 30	148 - 246	.00028	180 - 312	.00031	213 - 377	.00039	246 - 426	.00047	295 - 492	.00055	328 - 558	.00063			
		0.6030	GG30	ASTM 40B	45 - 75	0.007	55 - 95	0.008	65 - 115	0.010	75 - 130	0.012	90 - 150	0.014	100 - 170	0.016			
		0.7040	GGG40	ASTM 60-40-18	148 - 246	.00028	180 - 312	.00031	213 - 377	.00039	246 - 426	.00047	295 - 492	.00055	328 - 558	.00063			
		0.7060	GGG60	ASTM 80-60-03	45 - 75	0.007	55 - 95	0.008	65 - 115	0.010	75 - 130	0.012	90 - 150	0.014	100 - 170	0.016			
N	Aluminium alloy wrought	3.2315	AlMgSi1	ASTM 6351	148 - 246	.00031	180 - 312	.00031	213 - 377	.00039	246 - 426	.00043	295 - 492	.00047	328 - 558	.00047			
		3.4365	AlZnMgCu1.5	ASTM 7075	45 - 75	0.008	55 - 95	0.008	65 - 115	0.010	75 - 130	0.011	90 - 150	0.012	100 - 170	0.012			
	Aluminium alloy cast	3.2163	GD-AlSi9Cu3	ASTM A380	148 - 246	.00031	180 - 312	.00031	213 - 377	.00039	246 - 426	.00043	295 - 492	.00047	328 - 558	.00047			
		3.2381	GD-AlSi10Mg	UNS A03590	45 - 75	0.008	55 - 95	0.008	65 - 115	0.010	75 - 130	0.011	90 - 150	0.012	100 - 170	0.012			
	Copper	2.0040	Cu-OF / CW008A	UNS C10100	148 - 246	.00031	180 - 312	.00031	213 - 377	.00039	246 - 426	.00043	295 - 492	.00047	328 - 558	.00047			
		2.0065	Cu-ETP / CW004A	UNS C11000	45 - 75	0.008	55 - 95	0.008	65 - 115	0.010	75 - 130	0.011	90 - 150	0.012	100 - 170	0.012			
	Brass lead free	2.0321	CuZn37 CW508L	UNS C27400	148 - 246	.00031	180 - 312	.00031	213 - 377	.00039	246 - 426	.00043	295 - 492	.00047	328 - 558	.00047			
		2.0360	CuZn40 CW509L	UNS C28000	45 - 75	0.008	55 - 95	0.008	65 - 115	0.010	75 - 130	0.011	90 - 150	0.012	100 - 170	0.012			
	Brass, Bronze Rm < 400 N/mm ²	2.0401	CuZn39Pb3 / CW614N	UNS C38500	148 - 246	.00031	180 - 312	.00031	213 - 377	.00039	246 - 426	.00043	295 - 492	.00047	328 - 558	.00047			
		2.1020	CuSn6	UNS C51900	45 - 75	0.008	55 - 95	0.008	65 - 115	0.010	75 - 130	0.011	90 - 150	0.012	100 - 170	0.012			
Bronze Rm < 600 N/mm ²	2.0966	CuAl10Ni5Fe4	UNS C63000	148 - 246	.00031	180 - 312	.00031	213 - 377	.00039	246 - 426	.00043	295 - 492	.00047	328 - 558	.00047				
	2.0960	CuAl9Mn2	UNS C63200	45 - 75	0.008	55 - 95	0.008	65 - 115	0.010	75 - 130	0.011	90 - 150	0.012	100 - 170	0.012				
S ₁	Super alloys	2.4856		Inconel 625	148 - 246	.00008	180 - 312	.00016	213 - 377	.00016	246 - 426	.00020	295 - 492	.00024	328 - 558	.00028			
		2.4668		Inconel 718	45 - 75	0.002	55 - 95	0.004	65 - 115	0.004	75 - 130	0.005	90 - 150	0.006	100 - 170	0.007			
		2.4617	NiMo28	Hastelloy B-2	148 - 246	.00016	180 - 312	.00024	213 - 377	.00031	246 - 426	.00035	295 - 492	.00043	328 - 558	.00047			
		2.4665	NiCr22Fe18Mo	Hastelloy X	45 - 75	0.004	55 - 95	0.006	65 - 115	0.008	75 - 130	0.009	90 - 150	0.011	100 - 170	0.012			
S ₂	Titanium pure	3.7035	Gr.2	ASTM B348 / F67	148 - 246	.00016	180 - 312	.00024	213 - 377	.00031	246 - 426	.00035	295 - 492	.00043	328 - 558	.00047			
		3.7065	Gr.4	ASTM B348 / F68	45 - 75	0.004	55 - 95	0.006	65 - 115	0.008	75 - 130	0.009	90 - 150	0.011	100 - 170	0.012			
S ₂	Titanium alloys	3.7165	TiAl6V4	ASTM B348 / F136	148 - 246	.00016	180 - 312	.00024	213 - 377	.00031	246 - 426	.00035	295 - 492	.00043	328 - 558	.00047			
		9.9367	TiAl6Nb7	ASTM F1295	45 - 75	0.004	55 - 95	0.006	65 - 115	0.008	75 - 130	0.009	90 - 150	0.011	100 - 170	0.012			
S ₃	CoCr alloys	2.4964	CoCr20W15Ni	Haynes 25	148 - 246	.00008	180 - 312	.00016	213 - 377	.00016	246 - 426	.00020	295 - 492	.00024	328 - 558	.00028			
			CrCoMo28	ASTM F1537	45 - 75	0.002	55 - 95	0.004	65 - 115	0.004	75 - 130	0.005	90 - 150	0.006	100 - 170	0.007			
H ₁ H ₂	Hardened steel ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1															
		1.2379	X153CrMoV12	AISI D2															