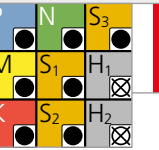


**NEW**

# Type B - Z3 - Side milling - Roughing

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

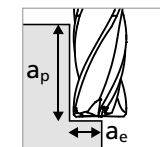
RECOMMENDATION FOR USE  
● Excellent | ● Good | ○ Acceptable | ⊗ Not recommended



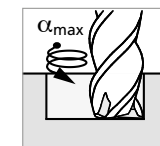
## MILLING WITH INTEGRATED COOLING | CUTTING DATA OVERVIEW

Side milling

Roughing

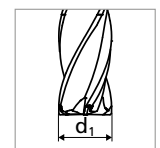
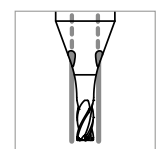


■  $a_p = 1 \times d_1$   
■  $a_e = 0.2 \times d_1$



Note:

In case of helical interpolation milling see  $\alpha_{max}$  on page 35



Materials group	Material	Mat. no.	DIN	AISI/ASTM/UNS	Cutting edge geometry	0.2 mm		0.3 mm		0.4 mm 1/64"		0.5 mm		$\phi d_1$ 0.6 mm		0.7 mm		0.8 mm 1/32"		0.9 - 1.0 mm		
						$v_c$	$f_z$	$v_c$	$f_z$	$v_c$	$f_z$	$v_c$	$f_z$	$v_c$	$f_z$	$v_c$	$f_z$	$v_c$	$f_z$	$v_c$	$f_z$	
P	Unalloyed carbon steel Rm < 800 N/mm <sup>2</sup>	1.0301	C10	AISI 1010	GEOMETRY S		15 - 25	0.003	20 - 40	0.005	25 - 50	0.007	30 - 65	0.010	40 - 75	0.012	45 - 90	0.014	50 - 100	0.016	55 - 115	0.018
		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																		
		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																			
	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	GEOMETRY S		15 - 25	0.003	20 - 40	0.005	25 - 50	0.007	30 - 65	0.010	40 - 75	0.012	45 - 90	0.014	50 - 100	0.016	55 - 115	0.018
		1.4105	X6CrMoS17	AISI 430F																		
	Stainless steel martensitic	1.4034	X46Cr13	AISI 420C																		
		1.4112	X90CrMoV18	AISI 440B																		
	Stainless steel martensitic - PH	1.4542	X5CrNiCuNb16-4	AISI 630 / ASTM 17-4 PH																		
		1.4545	X5CrNiCuNb15-5	ASTM 15-5 PH																		
	Stainless steel austenitic	1.4301	X5CrNi18-10	AISI 304																		
		1.4435	X2CrNiMo18-14-3	AISI 316L																		
1.4441		X2CrNiMo18-15-3	AISI 316LM																			
K	Cast iron	0.6020	GG20	ASTM 30	GEOMETRY S		15 - 25	0.002	20 - 40	0.004	25 - 50	0.006	30 - 65	0.008	40 - 75	0.009	45 - 90	0.011	50 - 100	0.013	55 - 115	0.015
		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	GEOMETRY S		15 - 25	0.004	20 - 40	0.007	25 - 50	0.009	30 - 65	0.012	40 - 75	0.013	45 - 90	0.015	50 - 100	0.016	55 - 115	0.017
		3.4365	AlZnMgCu1.5	ASTM 7075																		
	Aluminium alloy cast	3.2163	GD-AlSi9Cu3	ASTM A380																		
		3.2381	GD-AlSi10Mg	UNS A03590																		
	Copper	2.0040	Cu-OF / CW008A	UNS C10100																		
		2.0065	Cu-ETP / CW004A	UNS C11000																		
	Brass lead free	2.0321	CuZn37 CW508L	UNS C27400																		
		2.0360	CuZn40 CW509L	UNS C28000																		
	Brass, Bronze Rm < 400 N/mm <sup>2</sup>	2.0401	CuZn39Pb3 / CW614N	UNS C38500																		
		2.1020	CuSn6	UNS C51900																		
Bronze Rm < 600 N/mm <sup>2</sup>	2.0966	CuAl10Ni5Fe4	UNS C63000																			
	2.0960	CuAl9Mn2	UNS C63200																			
S <sub>1</sub>	Super alloys	2.4856		Inconel 625	GEOMETRY SX		15 - 25	0.002	20 - 40	0.003	25 - 50	0.004	30 - 65	0.005	40 - 75	0.007	45 - 90	0.008	50 - 100	0.009	55 - 115	0.010
		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	GEOMETRY S		15 - 25	0.002	20 - 40	0.004	25 - 50	0.006	30 - 65	0.008	40 - 75	0.009	45 - 90	0.011	50 - 100	0.013	55 - 115	0.015
		3.7065	Gr.4	ASTM B348 / F68																		
	Titanium alloys	3.7165	TiAl6V4	ASTM B348 / F136																		
9.9367		TiAl6Nb7	ASTM F1295																			
S <sub>3</sub>	CoCr alloys	2.4964	CoCr20W15Ni CrCoMo28	Haynes 25 ASTM F1537	GEOMETRY SX		15 - 25	0.002	20 - 40	0.003	25 - 50	0.004	30 - 65	0.005	40 - 75	0.007	45 - 90	0.008	50 - 100	0.009	55 - 115	0.010
H <sub>1</sub> H <sub>2</sub>	Hardened steel ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1																		
		1.2379	X153CrMoV12	AISI D2																		