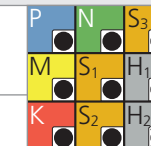


# Type A - Side and trochoidal slot milling

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

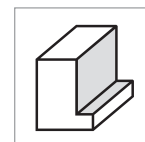
RECOMMENDATION FOR USE  
● Excellent | ● Good | ○ Acceptable | ☒ Not recommended



## MILLING WITH INTEGRATED COOLING | CUTTING DATA OVERVIEW

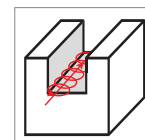
Materials group	Material	Mat. no.	DIN	AISI/ASTM/UNS	1/64"		1/32"		1/16"		3/32"		1/8"		5/32-3/16-7/32-1/4"				
					$v_c$	$f_z$	$v_c$	$f_z$	$v_c$	$f_z$	$v_c$	$f_z$	$v_c$	$f_z$	$v_c$	$f_z$			
P	Unalloyed carbon steel Rm < 800 N/mm²	1.0301	C10	AISI 1010	60   197	0.005-0.007 .00020-.00028	100   328	0.010-0.014 .00039-.00055	140   459	0.015-0.017 .00059-.00067	200   656	0.024-0.026 .00094-.00102	220   722	0.034-0.036 .00134-.00142	240   787	0.048 .00189	280   919	0.050 .00197	
		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/mm²	1.5752	15NiCr13	ASTM 3415 / AISI 3310	60   197	0.004-0.006 .00016-.00024	100   328	0.009-0.012 .00035-.00047	140   459	0.014-0.016 .00055-.00063	200   656	0.022-0.024 .00087-.00094	220   722	0.032-0.034 .00126-.00134	240   787	0.046 .00181	280   919	0.048 .00189	
		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/mm²	1.2379	X153CrMoV12	AISI D2	60   197	0.004-0.006 .00016-.00024	100   328	0.008-0.011 .00031-.00043	140   459	0.011-0.013 .00043-.00051	200   656	0.020-0.022 .00079-.00087	220   722	0.030-0.032 .00118-.00126	240   787	0.042 .00165	280   919	0.044 .00173	
		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	60   197	0.005-0.007 .00020-.00028	100   328	0.010-0.014 .00039-.00055	140   459	0.016-0.018 .00063-.00071	200   656	0.024-0.026 .00094-.00102	220   722	0.034-0.036 .00134-.00142	240   787	0.046 .00181	280   919	0.048 .00189	
		1.4105	X6CrMoS17	AISI 430F															
		1.4034	X46Cr13	AISI 420C															
	Stainless steel martensitic	1.4112	X90CrMoV18	AISI 440B	60   197	0.004-0.006 .00016-.00024	100   328	0.009-0.012 .00035-.00047	140   459	0.015-0.017 .00059-.00067	200   656	0.022-0.024 .00087-.00094	220   722	0.032-0.034 .00126-.00134	240   787	0.044 .00173	280   919	0.046 .00181	
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH															
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH															
	Stainless steel martensitic - PH	1.4301	X5CrNi 18-10	AISI 304	60   197	0.004-0.006 .00016-.00024	100   328	0.009-0.012 .00035-.00047	140   459	0.015-0.017 .00059-.00067	200   656	0.022-0.024 .00087-.00094	220   722	0.032-0.034 .00126-.00134	240   787	0.044 .00173	280   919	0.046 .00181	
		1.4435	X2CrNiMo 18-14-3	AISI 316L															
		1.4441	X2CrNiMo 18-15-3	AISI 316LM															
Stainless steel austenitic	1.4539	X1NiCrMoCu 25-20-5	AISI 904L	60   197	0.004-0.006 .00016-.00024	100   328	0.008-0.011 .00031-.00043	140   459	0.012-0.014 .00047-.00055	200   656	0.016-0.018 .00063-.00071	220   722	0.030-0.032 .00118-.00126	240   787	0.042 .00165	280   919	0.044 .00173		
	0.6020	GG20	ASTM 30																
	0.6030	GG30	ASTM 40B																
K	Cast iron	0.7040	GGG40	ASTM 60-40-18	60   197	0.003-0.005 .00012-.00020	100   328	0.006-0.009 .00024-.00035	120   394	0.011-0.022 .00043-.00087	140   459	0.024-0.026 .00094-.00102	160   525	0.028-0.036 .00110-.00142	180   591	0.042-0.048 .00165-.00189	200   656	0.052-0.057 .00205-.00224	
		0.7060	GGG60	ASTM 80-60-03															
		3.2315	AlMgSi1	ASTM 6351															
		3.4365	AlZnMgCu1.5	ASTM 7075															
N	Aluminium alloy wrought	3.2163	GD-AlSi9Cu3	ASTM A380	60   197	0.006-0.008 .00024-.00031	100   328	0.012-0.016 .00047-.00063	140   459	0.018-0.020 .00071-.00079	200   656	0.026-0.028 .0102-.00110	220   722	0.036-0.040 .00142-.00157	240   787	0.058 .00228	280   919	0.060 .00236	
		3.2381	GD-AlSi10Mg	UNS A03590															
	Aluminium alloy cast	2.004	Cu-OF / CW008A	UNS C10100	60   197	0.006-0.008 .00024-.00031	100   328	0.012-0.016 .00047-.00063	140   459	0.018-0.020 .00071-.00079	200   656	0.026-0.028 .0102-.00110	220   722	0.036-0.040 .00142-.00157	240   787	0.058 .00228	280   919	0.060 .00236	
		2.0065	Cu-ETP / CW004A	UNS C11000															
	Copper	2.0321	CuZn37 CW508L	UNS C27400	60   197	0.006-0.008 .00024-.00031	100   328	0.014-0.018 .00055-.00071	140   459	0.020-0.022 .00079-.00087	200   656	0.026-0.028 .0102-.00110	220   722	0.036-0.040 .00142-.00157	240   787	0.058 .00228	280   919	0.060 .00236	
		2.036	CuZn40 CW509L	UNS C28000															
	Brass lead free	2.0401	CuZn39Pb3 / CW614N	UNS C38500	60   197	0.006-0.008 .00024-.00031	100   328	0.014-0.018 .00055-.00071	140   459	0.020-0.022 .00079-.00087	200   656	0.026-0.028 .0102-.00110	220   722	0.036-0.040 .00142-.00157	240   787	0.058 .00228	280   919	0.060 .00236	
		2.102	CuSn6	UNS C51900															
	Brass, Bronze Rm < 400 N/mm²	2.0966	CuAl10Ni5Fe4	UNS C63000	60   197	0.006-0.008 .00024-.00031	100   328	0.012-0.016 .00047-.00063	140   459	0.018-0.020 .00071-.00079	200   656	0.026-0.028 .0102-.00110	220   722	0.036-0.040 .00142-.00157	240   787	0.058 .00228	280   919	0.060 .00236	
		2.096	CuAl9Mn2	UNS C63200															
	S1	Super alloys	2.4856		Inconel 625	60   197	0.003-0.004 .00012-.00016	100   328	0.004-0.006 .00016-.00024	120   394	0.007-0.008 .00028-.00031	130   427	0.009-0.010 .00035-.00039	140   459	0.010-0.012 .00039-.00047	150   492	0.015 .00059	170   558	0.020 .00079
			2.4668		Inconel 718														
2.4617			NiMo28	Hastelloy B-2															
2.4665			NiCr22Fe18Mo	Hastelloy X															
S2	Titanium pure	3.7035	Gr.2	ASTM B348 / F67	60   197	0.004-0.006 .00016-.00024	100   328	0.008-0.011 .00031-.00043	120   394	0.016-0.018 .00063-.00071	130   427	0.020-0.022 .00079-.00087	140   459	0.028-0.030 .00110-.00118	150   492	0.042 .00165	170   558	0.044 .00173	
		3.7065	Gr.4	ASTM B348 / F68															
S3	Titanium alloys	3.7165	TiAl6V4	ASTM B348 / F136	60   197	0.004-0.006 .00016-.00024	100   328	0.008-0.011 .00031-.00043	120   394	0.016-0.018 .00063-.00071	130   427	0.020-0.022 .00079-.00087	140   459	0.028-0.030 .00110-.00118	150   492	0.042 .00165	170   558	0.044 .00173	
		9.9367	TiAl6Nb7	ASTM F1295															
H1	Hardened steel < 55 HRC	2.4964	CoCr20W15Ni	Haynes 25	60   197	0.003-0.004 .00012-.00016	100   328	0.004-0.006 .00016-.00024	140   459	0.007-0.008 .00028-.00031	180   591	0.009-0.010 .00035-.00039	200   656	0.010-0.012 .00039-.00047	220   722	0.015 .00059	240   787	0.020 .00079	
			CrCoMo28	ASTM F1537															
H2	Hardened steel ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1	60   197	0.004-0.006 .00016-.00024	80   262	0.007-0.009 .00028-.00035	100   328	0.010-0.012 .00039-.00047	140   459	0.014-0.018 .00055-.00071	180   591	0.020-0.026 .00079-.00102	200   656	0.035 .00138	240   787	0.040 .00157	
		1.2379	X153CrMoV12	AISI D2															

Side milling



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

Trochoidal Slot Milling



$a_p = 1 \times d_1$   
 $a_e = 0.1 \times d_1$

