CRAZYMILL™ by Mikron Tool Cool

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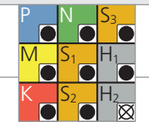
MILLING TOOLS
CRAZYMILL COOL BALL - Z2

Type A - Roughing

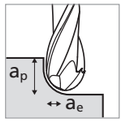
v_c [m/min] | **[SFM]**
f_z [mm] | **[IPT]**

RECOMMENDATION FOR USE
● Excellent | ◐ Good | ○ Acceptable | ⊠ Not recommended



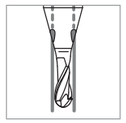
MILLING WITH INTEGRATED COOLING | CUTTING DATA OVERVIEW

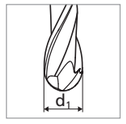
Roughing



- $a_p = 0.5 \times d_1$ (Ød$_1$ ≤ 0.5 mm | **.020"**)
- $a_p = 1 \times d_1$ (Ød$_1$ > 0.5 mm | **.020"**)
- $a_e = 0.3 \times d_1$

Machining angle = 0°





Materials group	Material	Mat. no.	DIN	AISI/ASTM/UNS	1/64" 0.3–0.4 mm | .012"–.016"		Ød1 1/32" 0.5–0.8 mm | .020"–.032"		1.0–1.2 mm | .039"–.047"		1/16" 1.5–1.8 mm | .059"–.071"		3/32" 2.0–2.5 mm | .079"–.098"		1/8" 3.0 mm | .118"		5/32–3/16–7/32–1/4" 4.0–6 mm | .158"–.236"		8.0 mm | .315"	
					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/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**	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**	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**	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**	280 | **919**	0.048 **.00189**
		1.4105	X6CrMoS17	AISI 430F																
	Stainless steel martensitic	1.4034	X46Cr13	AISI 420C	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**	280 | **919**	0.046 **.00181**
		1.4112	X90CrMoV18	AISI 440B																
	Stainless steel martensitic – PH	1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH	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**	280 | **919**	0.046 **.00181**
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH																
	Stainless steel austenitic	1.4301	X5CrNi 18-10	AISI 304	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**	280 | **919**	0.044 **.00173**
		1.4435	X2CrNiMo 18-14-3	AISI 316L																
		1.4441	X2CrNiMo 18-15-3	AISI 316LM																
		1.4539	X1NiCrMoCu 25-20-5	AISI 904L																
K	Cast iron	0.6020	GG20	ASTM 30	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**	200 | **656**	0.052–0.057 **.00205–.00224**
		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	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 **.00102–.00110**	220 | **722**	0.036–0.040 **.00142–.00157**	240 | **787**	0.058 **.00228**	280 | **919**	0.060 **.00236**	280 | **919**	0.060 **.00236**
		3.4365	AlZnMgCu1.5	ASTM 7075																
	Aluminium alloy cast	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 **.00102–.00110**	220 | **722**	0.036–0.040 **.00142–.00157**	240 | **787**	0.058 **.00228**	280 | **919**	0.060 **.00236**	280 | **919**	0.060 **.00236**
		3.2381	GD-AlSi10Mg	UNS A03590																
	Copper	2.004	Cu-OF / CW008A	UNS C10100	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 **.00102–.00110**	220 | **722**	0.036–0.040 **.00142–.00157**	240 | **787**	0.058 **.00228**	280 | **919**	0.060 **.00236**	280 | **919**	0.060 **.00236**
		2.0065	Cu-ETP / CW004A	UNS C11000																
	Brass lead free	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 **.00102–.00110**	220 | **722**	0.036–0.040 **.00142–.00157**	240 | **787**	0.058 **.00228**	280 | **919**	0.060 **.00236**	280 | **919**	0.060 **.00236**
		2.036	CuZn40 CW509L	UNS C28000																
	Brass, Bronze Rm < 400 N/mm²	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 **.00102–.00110**	220 | **722**	0.036–0.040 **.00142–.00157**	240 | **787**	0.058 **.00228**	280 | **919**	0.060 **.00236**	280 | **919**	0.060 **.00236**
		2.102	CuSn6	UNS C51900																
	Bronze Rm < 600 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 **.00102–.00110**	220 | **722**	0.036–0.040 **.00142–.00157**	240 | **787**	0.058 **.00228**	280 | **919**	0.060 **.00236**	280 | **919**	0.060 **.00236**
		2.096	CuAl9Mn2	UNS C63200																
S_1	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**	170 | **558**	0.020 **.00079**
		2.4668		Inconel 718																
		2.4617	NiMo28	Hastelloy B-2																
		2.4665	NiCr22Fe18Mo	Hastelloy X																
S_2	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**	170 | **558**	0.044 **.00173**
		3.7065	Gr.4	ASTM B348 / F68																
	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**	170 | **558**	0.044 **.00173**
		9.9367	TiAl6Nb7	ASTM F1295																
S_3	CrCo alloys	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**	240 | **787**	0.020 **.00079**
			CrCoMo28	ASTM F1537																
H_1	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 **.000639–.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**	240 | **787**	0.040 **.00157**
H_2	Hardened steel ≥ 55 HRC	1.2379	X153CrMoV12	AISI D2																