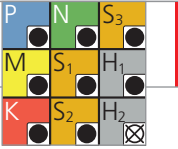


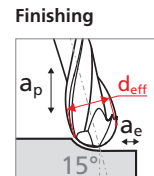
CrazyMill Cool Ball - Type A - Finishing

v_c [m/min] | [SFM]
 f_z [mm] | [IPT]
 d_{eff} [mm] | [inch]

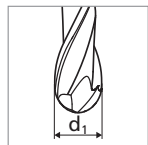
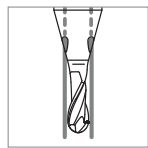
RECOMMENDATION FOR USE
● Excellent | ● Good | ○ Acceptable | ☒ Not recommended



MILLING WITH INTEGRATED COOLING | CUTTING DATA OVERVIEW



■ $a_p = 0.1 \times d_1$
■ $a_e = 0.05 \times d_1$
Machining angle = 15°
 $n_{max} = 60'000$ rpm



Materials group	Material	Mat. no.	DIN	AISI/ASTM/UNS	Ød1 0.3 mm .012"			Ød1 0.4 mm .016"			Ød1 0.5 mm .020"			Ød1 0.6 mm .024"			Ød1 0.8 mm .032"			Ød1 1.0 mm .039"			Ød1 1.2 mm .047"			Ød1 1.5 .059"			Ød1 1.8 mm .071"			Ød1 2.0 mm .079"			Ød1 2.5 mm .098"			Ød1 3.0 mm .118"			Ød1 4.0 mm .158"			Ød1 6.0 mm .236"			Ød1 8.0 mm .315"		
					v_c	d_{eff}	f_z	v_c	d_{eff}	f_z	v_c	d_{eff}	f_z	v_c	d_{eff}	f_z	v_c	d_{eff}	f_z	v_c	d_{eff}	f_z	v_c	d_{eff}	f_z	v_c	d_{eff}	f_z	v_c	d_{eff}	f_z	v_c	d_{eff}	f_z	v_c	d_{eff}	f_z	v_c	d_{eff}	f_z	v_c	d_{eff}	f_z						
P	Unalloyed carbon steel Rm < 800 N/mm²	1.0301	C10	AISI 1010																																													
		1.0401	C15	AISI 1015																																													
		1.1191	C45E/CK45	AISI 1045	45	0.24	0.006	59	0.31	0.008	74	0.39	0.012	89	0.47	0.014	100	0.63	0.017	140	0.79	0.018	140	0.94	0.020	200	1.18	0.029	200	1.42	0.031	220	1.57	0.041	220	1.97	0.043	240	2.36	0.058	260	3.15	0.060	260	4.72	0.060	260	6.29	0.060
	1.0044	S275JR	AISI 1020	148	.009	.00024	194	.012	.00033	243	.015	.00047	292	.019	.00057	328	.025	.00066	459	.031	.00071	459	.037	.00080	656	.046	.00113	656	.056	.00123	722	.062	.00161	722	.077	.00170	787	.093	.00227	853	.124	.00236	853	.186	.00236	853	.248	.00236	
	1.0715	11SMn30	AISI 1215																																														
	1.5752	15NiCr13	ASTM 3415																																														
	1.7131	16MnCr5	AISI 5115																																														
	Low alloyed steel Rm > 900 N/mm²	1.3505	100Cr6	AISI 52100	45	0.24	0.005	59	0.31	0.007	74	0.39	0.011	89	0.47	0.013	100	0.63	0.014	140	0.79	0.017	140	0.94	0.019	200	1.18	0.026	200	1.42	0.029	220	1.57	0.038	220	1.97	0.041	240	2.36	0.055	260	3.15	0.058	260	4.72	0.058	260	6.29	0.058
		1.7225	42CrMo4	AISI 4140	148	.009	.00019	194	.012	.00028	243	.015	.00043	292	.019	.00052	328	.025	.00057	459	.031	.00066	459	.037	.00076	656	.046	.00104	656	.056	.00113	722	.062	.00151	722	.077	.00161	787	.093	.00217	853	.124	.00227	853	.186	.00227	853	.248	.00227
1.2842		90MnCrV8	AISI O2																																														
1.2379	X153CrMoV12	AISI D2																																															
High alloyed tool steel Rm < 1200 N/mm²	1.2436	X210CrW12	AISI D4/D6	45	0.24	0.005	59	0.31	0.007	74	0.39	0.010	89	0.47	0.011	100	0.63	0.013	140	0.79	0.013	140	0.94	0.016	200	1.18	0.024	200	1.42	0.026	220	1.57	0.036	220	1.97	0.038	240	2.36	0.050	260	3.15	0.053	260	4.72	0.053	260	6.29	0.053	
	1.3343	HS6-5-2C	AISI M2	148	.009	.00019	194	.012	.00028	243	.015	.00038	292	.019	.00043	328	.025	.00052	459	.031	.00052	459	.037	.00061	656	.046	.00094	656	.056	.00104	722	.062	.00142	722	.077	.00151	787	.093	.00198	853	.124	.00208	853	.186	.00208	853	.248	.00208	
	1.3355	HS18-0-1	AISI T1																																														
M	Stainless steel ferritic	1.4016	X6Cr17	AISI 430	45	0.24	0.006	59	0.31	0.008	74	0.39	0.012	89	0.47	0.014	100	0.63	0.014	140	0.79	0.019	140	0.94	0.022	200	1.18	0.029	200	1.42	0.031	220	1.57	0.041	220	1.97	0.043	240	2.36	0.055	260	3.15	0.058	260	4.72	0.058	260	6.29	0.058
		1.4105	X6CrMoS17	AISI 430F	148	.009	.00024	194	.012	.00033	243	.015	.00047	292	.019	.00057	328	.025	.00057	459	.031	.00076	459	.037	.00085	656	.046	.00113	656	.056	.00123	722	.062	.00161	722	.077	.00170	787	.093	.00217	853	.124	.00227	853	.186	.00227	853	.248	.00227
	Stainless steel martensitic	1.4034	X46Cr13	AISI 420C	45	0.24	0.005	59	0.31	0.007	74	0.39	0.011	89	0.47	0.012	100	0.63	0.014	140	0.79	0.018	140	0.94	0.020	200	1.18	0.026	200	1.42	0.029	220	1.57	0.038	220	1.97	0.041	240	2.36	0.053	260	3.15	0.055	260	4.72	0.055	260	6.29	0.055
		1.4112	X90CrMoV18	AISI 440B	148	.009	.00019	194	.012	.00028	243	.015	.00043	292	.019	.00047	328	.025	.00057	459	.031	.00071	459	.037	.00080	656	.046	.00104	656	.056	.00113	722	.062	.00151	722	.077	.00161	787	.093	.00208	853	.124	.00217	853	.186	.00217	853	.248	.00217
	Stainless steel martensitic - PH	1.4542	X5CrNiCuNb 16-4	AISI 630	45	0.24	0.005	59	0.31	0.007	74	0.39	0.011	89	0.47	0.012	100	0.63	0.013	140	0.79	0.018	140	0.94	0.020	200	1.18	0.026	200	1.42	0.029	220	1.57	0.038	220	1.97	0.041	240	2.36	0.053	260	3.15	0.055	260	4.72	0.055	260	6.29	0.055
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5PH	148	.009	.00019	194	.012	.00028	243	.015	.00043	292	.019	.00047	328	.025	.00052	459	.031	.00071	459	.037	.00080	656	.046	.00104	656	.056	.00113	722	.062	.00151	722	.077	.00161	787	.093	.00208	853	.124	.00217	853	.186	.00217	853	.248	.00217
	Stainless steel austenitic	1.4301	X5CrNi 18-10	AISI 304																																													
1.4435		X2CrNiMo 18-14-3	AISI 316L	45	0.24	0.005	59	0.31	0.007	74	0.39	0.010	89	0.47	0.012	100	0.63	0.011	140	0.79	0.014	140	0.94	0.017	200	1.18	0.019	200	1.42	0.022	220	1.57	0.036	220	1.97	0.038	240	2.36	0.050	260	3.15	0.053	260	4.72	0.053	260	6.29	0.053	
1.4441		X2CrNiMo 18-15-3	AISI 316LM	148	.009	.00019	194	.012	.00028	243	.015	.00038	292	.019	.00047	328	.025	.00043	459	.031	.00057	459	.037	.00066	656	.046	.00076	656	.056	.00085	722	.062	.00142	722	.077	.00151	787	.093	.00198	853	.124	.00208	853	.186	.00208	853	.248	.00208	
	1.4539	X1NiCrMoCu25-20-5	AISI 904L																																														
K	Cast iron	0.6020	GG20	ASTM 30																																													
		0.6030	GG30	ASTM 40B																																													
		0.7040	GGG40	ASTM60-40-18	45	0.24	0.004	59	0.31	0.006	74	0.39	0.007	89	0.47	0.009	100	0.63	0.011	120	0.79	0.013	120	0.94	0.026	140	1.18	0.029	140	1.42	0.031	160	1.57	0.034	160	1.97	0.043	180	2.36	0.053	200	3.15	0.066	200	4.72	0.066	200	6.29	0.066
		0.7060	GGG60	ASTM80-60-03	148	.009	.00014	194	.012	.00024	243	.015	.00028	292	.019	.00035	328	.025	.00048	394	.031	.00052	394	.037	.00104	459	.046	.00113	459	.056	.00123	525	.062	.00132	525	.077	.00170	591	.093	.00208	656	.124	.00260	656	.186	.00260	656	.248	.00260
N	Aluminium alloy wrought	3.2315	AlMgSi1	ASTM 6351	45	0.24	0.007	59	0.31	0.010	74	0.39	0.014	89	0.47	0.017	100	0.63	0.019	140	0.79	0.022	140	0.94	0.024	200	1.18	0.031	200																				