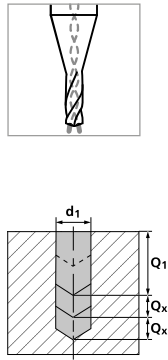


# CrazyDrill Cool 15 x d - coated

## DRILLING WITH INTERNAL COOLING | CUTTING DATA OVERVIEW

Materials group	Material	Mat. no.	DIN	AISI/ASTM/UNS	$v_c$ [m/min]   [SFM]	$Q_1$	$Q_x$			
	<b>P</b> Unalloyed carbon steel $R_m < 800 \text{ N/mm}^2$	1.0301	C10	AISI 1010	80   <b>262</b>	6xd1	2xd1			
		1.0401	C15	AISI 1015						
		1.1191	C45E/CK45	AISI 1045						
		1.0044	S275JR	AISI 1020						
		1.0715	11SMn30	AISI 1215						
	Low alloyed steel $R_m > 900 \text{ N/mm}^2$	1.5752	15NiCr13	ASTM 3415 / AISI 3310	80   <b>262</b>	6xd1	2xd1			
		1.7131	16MnCr5	AISI 5115						
		1.3505	100Cr6	AISI 52100						
		1.7225	42CrMo4	AISI 4140						
	High alloyed tool steel $R_m < 1200 \text{ N/mm}^2$	1.2842	90MnCrV8	AISI O2	60   <b>197</b>	6xd1	2xd1			
		1.2379	X153CrMoV12	AISI D2						
		1.2436	X210CrW12	AISI D4/D6						
1.3343		H56-5-2C	AISI M2 / UNS T11302							
<b>M</b>	Stainless steel ferritic	1.3355	H518-0-1	AISI T1 / UNS T12001	50   <b>164</b>	0.5xd1	0.25xd1			
		1.4016	X6Cr17	AISI 430 / UNS S43000						
	1.4105	X6CrMoS17	AISI 430F							
	Stainless steel martensitic	1.4034	X46Cr13	AISI 420C				40   <b>131</b>	0.5xd1	0.25xd1
		1.4112	X90CrMoV18	AISI 440B						
	Stainless steel martensitic – PH	1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH				40   <b>131</b>	0.5xd1	0.25xd1
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH						
	Stainless steel austenitic	1.4301	X5CrNi 18-10	AISI 304				40   <b>131</b>	0.5xd1	0.25xd1
1.4435		X2CrNiMo 18-14-3	AISI 316L							
1.4441		X2CrNiMo 18-15-3	AISI 316LM							
<b>K</b>	Cast iron	1.4539	X1NiCrMoCu 25-20-5	AISI 904L	80   <b>262</b>	15xd1	-			
		0.6020	GG20	ASTM 30						
		0.6030	GG30	ASTM 40B						
		0.7040	GGG40	ASTM 60-40-18						
<b>N</b>	Aluminium alloy wrought	0.7060	GGG60	ASTM 80-60-03	300   <b>984</b>	5xd1	1xd1			
		3.2315	AlMgSi1	ASTM 6351						
	3.4365	AlZnMgCu1.5	ASTM 7075	200   <b>656</b>	5xd1	1xd1				
	3.2163	GD-AlSi9Cu3	ASTM A380							
	3.2381	GD-AlSi10Mg	UNS A03590	100   <b>328</b>	1.5xd1	1xd1				
	2.004	Cu-OF / CW008A	UNS C10100							
	Copper	2.0065	Cu-ETP / CW004A	UNS C11000	140   <b>459</b>	1xd1	0.5xd1			
		2.0321	CuZn37 CW508L	UNS C27400						
	Brass lead free	2.036	CuZn40 CW509L	UNS C28000	120   <b>394</b>	2xd1	1xd1			
		2.0401	CuZn39Pb3 / CW614N	UNS C38500						
	Brass, Bronze $R_m < 400 \text{ N/mm}^2$	2.102	CuSn6	UNS C51900	200   <b>656</b>	10xd1	5xd1			
		2.0966	CuAl10Ni5Fe4	UNS C63000						
Bronze $R_m < 600 \text{ N/mm}^2$	2.096	CuAl9Mn2	UNS C63200	20   <b>66</b>	0.5xd1	0.25xd1				
	2.4856		Inconel 625							
<b>S<sub>1</sub></b>	Super alloys	2.4668		Inconel 718	20   <b>66</b>	0.5xd1	0.25xd1			
		2.4617	NiMo28	Hastelloy B-2						
		2.4665	NiCr22Fe18Mo	Hastelloy X						
		3.7035	Gr.2	ASTM B348 / F67						
<b>S<sub>2</sub></b>	Titanium pure	3.7065	Gr.4	ASTM B348 / F68	20   <b>66</b>	0.5xd1	0.25xd1			
		3.7165	TiAl6V4	ASTM B348 / F136						
<b>S<sub>3</sub></b>	Titanium alloys	9.9367	TiAl6Nb7	ASTM F1295	20   <b>66</b>	0.5xd1	0.25xd1			
		2.4964	CoCr20W15Ni	Haynes 25						
<b>H<sub>1</sub></b> <b>H<sub>2</sub></b>	CrCo alloys		CrCoMo28	ASTM F1537	40   <b>131</b>	0.5xd1	0.25xd1			
		1.2510	100MnCrMoW4	AISI O1						
	Hardened steel $\geq 55 \text{ HRC}$	1.2379	X153CrMoV12	AISI D2						

RECOMMENDATION FOR USE

● Excellent | ● Good | ○ Acceptable | ⊗ Not recommended



f [mm/rev] | [IPR]

Ød1 0.80 mm   .032"	Ød1 1.00 mm   .039"	Ød1 1.25 mm   .049"	Ød1 1.50 mm   .059"	Ød1 2.00 mm   .079"	Ød1 2.50 mm   .098"	Ød1 3.00 mm   .118"	Ød1 4.00 mm   .156"	Ød1 5.00 mm   .197"	Ød1 6.00 mm   .236"
f	f	f	f	f	f	f	f	f	f
0.050   .0020	0.080   .0031	0.110   .0043	0.140   .0055	0.180   .0071	0.210   .0083	0.240   .0094	0.280   .0110	0.310   .0122	0.340   .0134
0.050   .0020	0.080   .0031	0.100   .0039	0.120   .0047	0.150   .0059	0.170   .0067	0.190   .0075	0.220   .0087	0.240   .0094	0.260   .0102
0.020   .0008	0.050   .0020	0.065   .0026	0.080   .0031	0.110   .0043	0.130   .0051	0.150   .0059	0.180   .0071	0.200   .0079	0.220   .0087
0.011   .0004	0.030   .0012	0.045   .0018	0.060   .0024	0.080   .0031	0.090   .0035	0.100   .0039	0.120   .0047	0.130   .0051	0.140   .0055
0.020   .0008	0.050   .0020	0.065   .0026	0.080   .0031	0.110   .0043	0.130   .0051	0.150   .0059	0.180   .0071	0.200   .0079	0.220   .0087
0.010   .0004	0.020   .0008	0.030   .0012	0.040   .0016	0.050   .0020	0.060   .0024	0.080   .0031	0.100   .0039	0.110   .0043	0.120   .0047
0.010   .0004	0.020   .0008	0.030   .0012	0.040   .0016	0.050   .0020	0.060   .0024	0.080   .0031	0.100   .0039	0.110   .0043	0.120   .0047
0.055   .0022	0.080   .0031	0.100   .0039	0.120   .0047	0.150   .0059	0.170   .0067	0.190   .0075	0.220   .0087	0.240   .0094	0.260   .0102
0.030   .0012	0.040   .0016	0.050   .0020	0.065   .0026	0.070   .0028	0.090   .0035	0.110   .0043	0.130   .0051	0.160   .0063	0.190   .0075
0.050   .0020	0.060   .0024	0.070   .0028	0.090   .0035	0.110   .0043	0.140   .0055	0.160   .0063	0.190   .0075	0.210   .0083	0.240   .0094
0.035   .0014	0.045   .0018	0.060   .0024	0.070   .0028	0.080   .0031	0.090   .0035	0.100   .0039	0.120   .0047	0.140   .0055	0.180   .0071
0.035   .0014	0.045   .0018	0.060   .0024	0.070   .0028	0.080   .0031	0.090   .0035	0.100   .0039	0.120   .0047	0.140   .0055	0.180   .0071
0.060   .0024	0.080   .0031	0.090   .0035	0.110   .0043	0.125   .0049	0.140   .0055	0.160   .0063	0.180   .0071	0.190   .0075	0.210   .0083
0.010   .0004	0.020   .0008	0.030   .0012	0.045   .0018	0.060   .0024	0.080   .0031	0.090   .0035	0.110   .0043	0.130   .0051	0.180   .0071
0.005   .0002	0.008   .0003	0.010   .0004	0.013   .0005	0.016   .0006	0.018   .0007	0.020   .0008	0.030   .0012	0.035   .0014	0.040   .0016
0.005   .0002	0.010   .0004	0.025   .0010	0.040   .0016	0.055   .0022	0.070   .0028	0.080   .0031	0.090   .0035	0.110   .0043	0.130   .0051
0.005   .0002	0.010   .0004	0.025   .0010	0.040   .0016	0.055   .0022	0.070   .0028	0.080   .0031	0.090   .0035	0.110   .0043	0.130   .0051
0.005   .0002	0.008   .0003	0.010   .0004	0.015   .0006	0.020   .0008	0.025   .0010	0.030   .0012	0.035   .0014	0.040   .0016	0.050   .0020
0.008   .0003	0.010   .0004	0.012   .0005	0.015   .0006	0.020   .0008	0.025   .0010	0.030   .0012	0.040   .0016	0.050   .0020	0.060   .0024