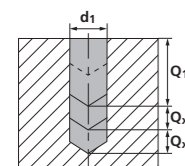
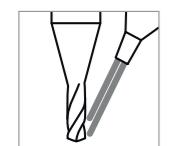


Steel - 20 x d - coated

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



DRILLING WITH EXTERNAL COOLING | CUTTING DATA OVERVIEW



Materials group	Material	Mat. no.	DIN	AISI/ASTM/UNS	v _c [m/min]		f [mm/rev]																	
					∅d1 ≤ 0.4	∅d1 > 0.4	Q ₁	Q ₂	∅d1															
							0.2 mm	0.3 mm	0.4 mm	0.6 mm	0.8 mm	1.0 mm–1.2 mm												
						f	f	f	f	f	f													
P	Unalloyed carbon steel Rm < 800 N/mm ²	1.0301	C10	AISI 1010	5 – 40	40 – 60	7xd1	0.5xd1	0.005	0.010	0.015	0.030	0.040	0.060										
		1.0401	C15	AISI 1015																				
		1.1191	C45E/CK45	AISI 1045																				
		1.0044	S275JR	AISI 1020																				
		1.0715	11SMn30	AISI 1215																				
		1.5752	15NiCr13	ASTM 3415 / AISI 3310																				
	Low alloyed steel Rm > 900 N/mm ²	1.7131	16MnCr5	AISI 5115	5 – 25	25 – 50	7xd1	0.5xd1	0.003 – 0.005	0.008 – 0.010	0.012 – 0.015	0.020 – 0.025	0.035	0.050										
		1.3505	100Cr6	AISI 52100																				
		1.7225	42CrMo4	AISI 4140																				
		1.2842	90MnCrV8	AISI O2																				
		1.2379	X153CrMoV12	AISI D2																				
		1.2436	X210CrW12	AISI D4/D6																				
High alloyed tool steel Rm < 1200 N/mm ²	1.3343	HS6-5-2C	AISI M2 / UNS T11302	5 – 20	20 – 35	7xd1	1xd1	0.004	0.008	0.010	0.015	0.025	0.040											
	1.3355	HS18-0-1	AISI T1 / UNS T12001																					
	1.4016	X6Cr17	AISI 430 / UNS S43000											Recommended: CrazyDrill Flex SST-Inox 30 x d1										
	1.4105	X6CrMoS17	AISI 430F																					
	1.4034	X46Cr13	AISI 420C																					
	1.4112	X90CrMoV18	AISI 440B																					
1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH																						
1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH																						
1.4301	X5CrNi 18-10	AISI 304																						
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	5 – 40	50 – 100	7xd1	1xd1	0.005	0.010	0.015	0.020	0.035		0.050									
		0.6030	GG30	ASTM 40B																				
		0.7040	GGG40	ASTM 60-40-18																				
		0.7060	GGG60	ASTM 80-60-03																				
		40 – 80																						
N	Aluminium alloy wrought	3.2315	AlMgSi1	ASTM 6351	5 – 40	60 – 120	7xd1	1xd1	0.015	0.040	0.050	0.080	0.100	0.120										
		3.4365	AlZnMgCu1.5	ASTM 7075																				
	Aluminium alloy cast	3.2163	GD-AlSi9Cu3	ASTM A380	5 – 40	50 – 80	7xd1	1xd1	0.015	0.040	0.050	0.080	0.100	0.120										
		3.2381	GD-AlSi10Mg	UNS A03590																				
	Copper	2.004	Cu-OF / CW008A	UNS C10100	5 – 40	60 – 100	7xd1	1xd1	0.010	0.030	0.040	0.060	0.080	0.100										
		2.0065	Cu-ETP / CW004A	UNS C11000																				
	Brass lead free	2.0321	CuZn37 CW508L	UNS C27400																				
		2.036	CuZn40 CW509L	UNS C28000																				
	Brass, Bronze Rm < 400 N/mm ²	2.0401	CuZn39Pb3 / CW614N	UNS C38500																				
		2.102	CuSn6	UNS C51900																				
Bronze Rm < 600 N/mm ²	2.0966	CuAl10Ni5Fe4	UNS C63000																					
	2.096	CuAl9Mn2	UNS C63200																					
S ₁	Super alloys	2.4856		Inconel 625											5 – 20	20 – 40	2.5xd1	0.5xd1	0.004	0.006	0.010	0.015	0.025	0.040
		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	5 – 20	20 – 40	2.5xd1	0.5xd1	0.004	0.006	0.010	0.015	0.025	0.040										
		3.7065	Gr.4	ASTM B348 / F68																				
S ₃	Titanium alloys	3.7165	TiAl6V4	ASTM B348 / F136	5 – 20	20 – 40	2.5xd1	0.5xd1	0.004	0.006	0.010	0.015	0.025	0.040										
		9.9367	TiAl6Nb7	ASTM F1295																				
H ₁	Hardened steel < 55 HRC	2.4964	CoCr20W15Ni	Haynes 25	5 – 20	20 – 40	2.5xd1	0.5xd1	0.004	0.006	0.010	0.015	0.025	0.040										
			CrCoMo28	ASTM F1537																				
H ₂	Hardened steel ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1	5 – 20	20 – 40	2.5xd1	0.5xd1	0.004	0.006	0.010	0.015	0.025	0.040										
		1.2379	X153CrMoV12	AISI D2																				