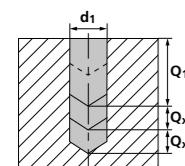
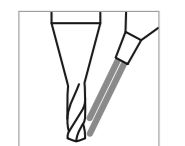


Steel - 20 x d - coated

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] [SFM]				Q ₁	Q ₂	f [mm/rev] [IPR]							
					∅d1 ≤ 0.4 .016"		∅d1 > 0.4 .016"				0.2 mm .008"		0.3 mm .012"		1/64" ∅d1		1/32"	
					Mid	High	Mid	High			f	f	f	f	f	f		
P	Unalloyed carbon steel Rm < 800 N/mm ²	1.0301	C10	AISI 1010														
		1.0401	C15	AISI 1015														
		1.1191	C45E/CK45	AISI 1045	5 16	40 131	40 131	60 197	2xd1	0.5xd1	0.005 .0002	0.010 .0004	0.015 .0006	0.030 .0012	0.040 .0016	0.060 .0024		
		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														
		1.3505	100Cr6	AISI 52100	5 16	25 82	25 82	50 164	2xd1	0.5xd1	0.003 – 0.005 .00012 – .00020	0.008 – 0.010 .0003 – .0004	0.012 – 0.015 .0005 – .0006	0.020 – 0.025 .0008 – .0010	0.035 .0014	0.050 .0020		
		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 16	20 66	20 66	35 115	2xd1	1xd1	0.004 .00016	0.008 .0003	0.010 .0004	0.015 .0006	0.025 .0010	0.040 .0016			
	1.3355	HS18-0-1	AISI T1 / UNS T12001															
	1.4016	X6Cr17	AISI 430 / UNS S43000															
M	Stainless steel ferritic	1.4105	X6CrMoS17	AISI 430F														
		1.4034	X46Cr13	AISI 420C														
	Stainless steel martensitic	1.4112	X90CrMoV18	AISI 440B														
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH														
	Stainless steel martensitic – PH	1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH														
		1.4301	X5CrNi 18-10	AISI 304														
	Stainless steel austenitic	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			5 164	100 328										
		0.6030	GG30	ASTM 40B														
		0.7040	GGG40	ASTM 60-40-18	5 16	40 131	40 131	80 262	2xd1	1xd1	0.005 .0002	0.010 .0004	0.015 .0006	0.020 .0008	0.035 .0014	0.050 .0020		
		0.7060	GGG60	ASTM 80-60-03														
N	Aluminium alloy wrought	3.2315	AlMgSi1	ASTM 6351														
		3.4365	AlZnMgCu1.5	ASTM 7075	5 16	40 131	60 197	120 394	2xd1	1xd1	0.015 .0006	0.040 .0016	0.050 .0020	0.080 .0031	0.100 .0039	0.120 .0047		
	Aluminium alloy cast	3.2163	GD-ALSi9Cu3	ASTM A380														
		3.2381	GD-ALSi10Mg	UNS A03590	5 16	40 131	50 164	80 262	2xd1	1xd1	0.015 .0006	0.040 .0016	0.050 .0020	0.080 .0031	0.100 .0039	0.120 .0047		
	Copper	2.004	Cu-OF / CW008A	UNS C10100														
		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	5 16	40 131	60 197	100 328	2xd1	1xd1	0.010 .0004	0.030 .0012	0.040 .0016	0.060 .0024	0.080 .0031	0.100 .0039		
		2.102	CuSn6	UNS C51900			40 131	60 197										
Bronze Rm < 600 N/mm ²	2.0966	CuAl10Ni5Fe4	UNS C63000															
	2.096	CuAl9Mn2	UNS C63200	5 16	20 66	20 66	40 131	2xd1	0.5xd1	0.004 .00016	0.006 .00024	0.010 .0004	0.015 .0006	0.025 .0010	0.040 .0016			
S ₁	Super alloys	2.4856		Inconel 625														
		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														
		3.7065	Gr.4	ASTM B348 / F68														
S ₃	Titanium alloys	3.7165	TiAl6V4	ASTM B348 / F136														
		9.9367	TiAl6Nb7	ASTM F1295														
H ₁	Hardened steel < 55 HRC	1.2510	100MnCrMoW4	AISI O1														
		1.2379	X153CrMoV12	AISI D2														