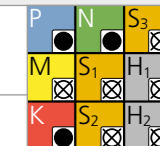
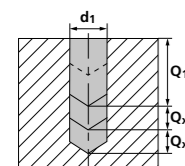
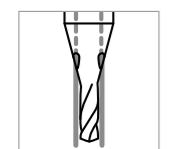


Steel - 50 x d - uncoated

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



DRILLING WITH INTEGRATED COOLING | CUTTING DATA OVERVIEW



Materials group	Material	Mat. no.	DIN	AISI/ASTM/UNS	v _c [m/min] [SFM]				Q ₁	Q _x	f [mm/rev] [IPR]						
					∅d1 ≤ 0.4 .016"		∅d1 > 0.4 .016"				0.3 mm .012"	1/64"	∅d1	1/32"	1.0-1.2 mm .039"-.047"		
					Mid	High	Mid	High			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	0.010 .0004	0.015 .0006	0.030 .0012	0.040 .0016	0.060 .0024		
		1.0044	S275JR	AISI 1020													
		1.0715	11SMn30	AISI 1215													
	Low alloyed steel Rm > 900 N/mm ²	1.5752	15NiCr13	ASTM 3415 / AISI 3310													
		1.7131	16MnCr5	AISI 5115													
		1.3505	100Cr6	AISI 52100	5 16	25 82	25 82	50 164	2xd1	0.5xd1	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													
	High alloyed tool steel Rm < 1200 N/mm ²	1.2379	X153CrMoV12	AISI D2													
		1.2436	X210CrW12	AISI D4/D6													
1.3343		HS6-5-2C	AISI M2 / UNS T11302	5 16	20 66	20 66	35 115	2xd1	1xd1	0.008 .0003	0.010 .0004	0.015 .0006	0.025 .0010	0.040 .0016			
1.3355		HS18-0-1	AISI T1 / UNS T12001														
M	Stainless steel ferritic	1.4016	X6Cr17	AISI 430 / UNS S43000													
		1.4105	X6CrMoS17	AISI 430F													
	Stainless steel martensitic	1.4034	X46Cr13	AISI 420C													
		1.4112	X90CrMoV18	AISI 440B													
	Stainless steel martensitic - PH	1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH													
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH													
	Stainless steel austenitic	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													
		0.6030	GG30	ASTM 40B													
		0.7040	GGG40	ASTM 60-40-18	5 16	40 131	5 164	100 328	2xd1	1xd1	0.010 .0004	0.015 .0006	0.020 .0008	0.035 .0014	0.050 .0020		
		0.7060	GGG60	ASTM 80-60-03			40 131	80 262									
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	0.040 .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	0.040 .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													
		2.102	CuSn6	UNS C51900	5 16	40 131	60 197	100 328	2xd1	1xd1	0.030 .0012	0.040 .0016	0.060 .0024	0.080 .0031	0.100 .0039		
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	0.006 .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													