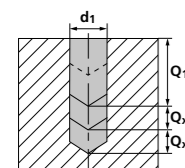
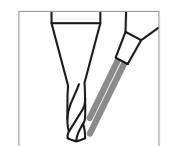


Titanium - 30 x d

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

P	N	S ₃
M	S ₁	H ₁
K	S ₂	H ₂

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]										
					Ød1 ≤ 0.4 .016"		Ød1 > 0.4 .016"				Ød1										
					Mid	High	Mid	High			0.1 mm .004"	0.2 mm .008"	0.3 mm .012"	0.4 mm .016"	0.6 mm .024"	0.8 mm .032"	1.0-1.2 mm .039"-.047"				
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																	
		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																	
		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																	
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																	
		0.7060	GGG60	ASTM 80-60-03																	
N	Aluminium alloy wrought	3.2315	AlMgSi1	ASTM 6351																	
		3.4365	AlZnMgCu1.5	ASTM 7075																	
	Aluminium alloy cast	3.2163	GD-AlSi9Cu3	ASTM A380																	
		3.2381	GD-AlSi10Mg	UNS A03590																	
	Copper	2.004	Cu-OF / CW008A	UNS C10100	5 16	40 131	20 66	40 131	2xd1	0.5xd1	0.005 .00020	0.010 .00039	0.015 .00059	0.020 .00079	0.030 .00118	0.040 .00157	0.060 .00236				
		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																	
		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 16	20 66	20 66	30 98	2xd1	0.25xd1	0.001 .00004	0.002 .00008	0.003 .00012	0.004 .00016	0.006 .00024	0.008 .00031	0.012 .00047				
		3.7065	Gr.4	ASTM B348 / F68																	
S ₂	Titanium alloys	3.7165	TiAl6V4	ASTM B348 / F136	5 16	20 66	20 66	40 131	2xd1	0.25xd1	0.002 .00006	0.003 .00012	0.005 .00018	0.006 .00024	0.009 .00035	0.012 .00047	0.018 .00071				
		9.9367	TiAl6Nb7	ASTM F1295																	
S ₃	CrCo alloys	2.4964	CoCr20W15Ni	Haynes 25																	
			CrCoMo28	ASTM F1537																	
H ₁ H ₂	Hardened steel ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1																	
		1.2379	X153CrMoV12	AISI D2																	