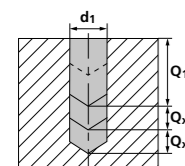
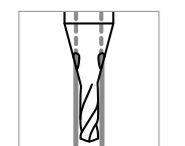


Titanium - 50 x d

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

P	N	S ₃
M	S ₁	H ₁
K	S ₂	H ₂

DRILLING WITH INTEGRATED COOLING | CUTTING DATA OVERVIEW



Materials group	Material	Mat. no.	DIN	AISI/ASTM/UNS	v _c [m/min]				Q ₁	Q ₂	f [mm/rev]				
					Ød1 ≤ 0.4		Ød1 > 0.4				Ød1				
					Mid	High	Mid	High			0.3 mm	0.4 mm	0.6 mm	0.8 mm	1.0 mm – 1.2 mm
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											
		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											
		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												
	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	2.0040	Cu-OF / CW008A	UNS C10100	5	40	20	40	2xd1	0.5xd1	0.015	0.020	0.030	0.040	0.060
		2.0065	Cu-ETP / CW004A	UNS C11000											
	Brass lead free	2.0321	CuZn37 CW508L	UNS C27400											
		2.0360	CuZn40 CW509L	UNS C28000											
	Brass, Bronze Rm < 400 N/mm ²	2.0401	CuZn39Pb3 / CW614N	UNS C38500											
		2.1020	CuSn6	UNS C51900											
Bronze Rm < 600 N/mm ²	2.0966	CuAl10Ni5Fe4	UNS C63000												
	2.0960	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	20	20	30	2xd1	0.25xd1	0.003	0.004	0.006	0.008	0.012
		3.7065	Gr.4	ASTM B348 / F68											
S ₂	Titanium alloys	3.7165	TiAl6V4	ASTM B348 / F136	5	20	20	40	2xd1	0.25xd1	0.005	0.006	0.009	0.012	0.018
		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											