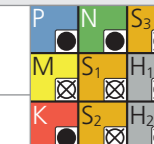
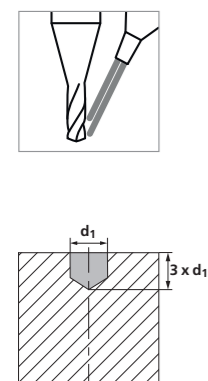


Steel - 3 x d - coated / uncoated

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]						
					$\varnothing d_1 \leq 0.4$	$\varnothing d_1 > 0.4$	$\varnothing d_1$						
							0.1 mm	0.2 mm	0.3 mm	0.4 mm 1/64"	0.6 mm	0.8 mm 1/32"	1.0 mm - 1.2 mm
				f	f	f	f	f	f	f			
P	Unalloyed carbon steel $R_m < 800 \text{ N/mm}^2$	1.0301	C10	AISI 1010	5 - 40	40 - 60	0.002	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									
	Low alloyed steel $R_m > 900 \text{ N/mm}^2$	1.5752	15NiCr13	ASTM 3415 / AISI 3310	5 - 25	25 - 50	0.002	0.003 - 0.005	0.008 - 0.010	0.012 - 0.015	0.020 - 0.025	0.035	0.050
		1.7131	16MnCr5	AISI 5115									
		1.3505	100Cr6	AISI 52100									
		1.7225	42CrMo4	AISI 4140									
		1.2842	90MnCrV8	AISI O2									
	High alloyed tool steel $R_m < 1200 \text{ N/mm}^2$	1.2379	X153CrMoV12	AISI D2	5 - 20	20 - 35	0.0005	0.004	0.008	0.010	0.015	0.025	0.040
		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	5 - 40	50 - 100	0.002	0.005	0.010	0.015	0.020	0.035	0.050
		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	5 - 40	40 - 80	0.002	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									
N	Aluminium alloy wrought	3.2315	AlMgSi1	ASTM 6351	5 - 40	60 - 120	0.003	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	0.003	0.015	0.040	0.050	0.080	0.100	0.120
		3.2381	GD-AlSi10Mg	UNS A03590									
	Copper	2.0040	Cu-OF / CW008A	UNS C10100	Recommended: CrazyDrill Flexpilot Titanium								
		2.0065	Cu-ETP / CW004A	UNS C11000									
	Brass lead free	2.0321	CuZn37 CW508L	UNS C27400	Recommended: CrazyDrill Flexpilot Titanium								
		2.0360	CuZn40 CW509L	UNS C28000									
	Brass, Bronze $R_m < 400 \text{ N/mm}^2$	2.0401	CuZn39Pb3 / CW614N	UNS C38500	5 - 40	60 - 100	0.004	0.010	0.030	0.040	0.060	0.080	0.100
		2.1020	CuSn6	UNS C51900									
Bronze $R_m < 600 \text{ N/mm}^2$	2.0966	CuAl10Ni5Fe4	UNS C63000	5 - 20	20 - 40	0.002	0.004	0.006	0.010	0.015	0.025	0.040	
	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	Recommended: CrazyDrill Flexpilot Titanium								
		3.7065	Gr.4	ASTM B348 / F68									
S ₃	Titanium alloys	3.7165	TiAl6V4	ASTM B348 / F136	Recommended: CrazyDrill Flexpilot Titanium								
		9.9367	TiAl6Nb7	ASTM F1295									
H ₁	Hardened steel < 55 HRC	1.2510	100MnCrMoW4	AISI O1									
		1.2379	X153CrMoV12	AISI D2									