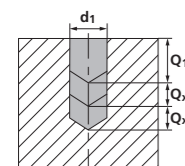
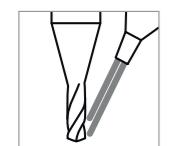


Type IN 8 x d / 12 x d

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]						
								1/64"	1/32"	Ød1		1/16"		
								0.2-0.5mm .008"- .020" f	0.6-0.8mm .024"- .032" f	0.9-1.1mm .035"- .043" f	1.2-1.4mm .047"- .055" f	1.5-1.7mm .059"- .067" f	1.8-2.0mm .071"- .079" f	
P	Unalloyed carbon steel Rm < 800 N/mm²	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/mm²	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/mm²	1.3343	HS6-5-2C	AISI M2 / UNS T11302											
	1.3355	HS18-0-1	AISI T1 / UNS T12001											
	Stainless steel ferritic	1.4016	X6Cr17	AISI 430 / UNS S43000	30-40 98 - 131	0.5xd1 - 1xd1	0.5xd1	0.010-0.015 .0004-.0006	0.015-0.025 .0006-.0010	0.025-0.030 .0010-.0012	0.030-0.040 .0012-.0016	0.040-0.050 .0016-.0020	0.050-0.060 .0020-.0024	
		1.4105	X6CrMoS17	AISI 430F										
	Stainless steel martensitic	1.4034	X46Cr13	AISI 420C	30-40 98 - 131	0.5xd1 - 1xd1	0.5xd1	0.015-0.025 .0006-.0010	0.025-0.035 .0010-.0014	0.035-0.040 .0014-.0016	0.040-0.050 .0016-.0020	0.050-0.060 .0020-.0024	0.060-0.070 .0024-.0028	
		1.4112	X90CrMoV18	AISI 440B										
Stainless steel martensitic - PH	1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH	30-40 98 - 131	0.5xd1 - 1xd1	0.5xd1	0.010-0.015 .0004-.0006	0.015-0.020 .0006-.0008	0.020-0.030 .0008-.0012	0.030-0.040 .0012-.0016	0.040-0.050 .0016-.0020	0.050-0.060 .0020-.0024		
	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	25-30 82 - 115	0.5xd1 - 1xd1	0.5xd1	0.010-0.015 .0004-.0006	0.015-0.020 .0006-.0008	0.020-0.030 .0008-.0012	0.030-0.040 .0012-.0016	0.040-0.045 .0016-.0018	0.040-0.060 .0016-.0024		
	1.4441	X2CrNiMo 18-15-3	AISI 316LM											
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	30-100 98 - 328	2xd1 - 4xd1	2xd1	0.030-0.060 .0012-.0024	0.040-0.080 .0016-.0031	0.050-0.100 .0020-.0039	0.060-0.120 .0024-.0047	0.070-0.150 .0028-.0059	0.080-0.180 .0031-.0071	
		2.0065	Cu-ETP / CW004A	UNS C11000										
	Brass lead free	2.0321	CuZn37 CW508L	UNS C27400	30-100 98 - 328	1xd1 - 4xd1	1xd1-2xd1	0.030-0.060 .0012-.0024	0.040-0.080 .0016-.0031	0.050-0.100 .0020-.0039	0.060-0.120 .0024-.0047	0.070-0.150 .0028-.0059	0.080-0.180 .0031-.0071	
		2.036	CuZn40 CW509L	UNS C28000										
	Brass, Bronze Rm < 400 N/mm²	2.0401	CuZn39Pb3 / CW614N	UNS C38500										
		2.102	CuSn6	UNS C51900										
Bronze Rm < 600 N/mm²	2.0966	CuAl10Ni5Fe4	UNS C63000											
	2.096	CuAl9Mn2	UNS C63200											
S ₁	Super alloys	2.4856		Inconel 625	15-25 49 - 82	0.25xd1 - 0.5xd1	0.25xd1	0.005-0.010 .0002-.0004	0.010-0.015 .0004-.0006	0.015-0.020 .0006-.0008	0.020-0.025 .0008-.0010	0.030-0.035 .0012-.0014	0.030-0.040 .0012-.0016	
		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	2.4964	CoCr20W15Ni	Haynes 25	25-35 82 - 115	0.5xd1 - 1xd1	0.5xd1	0.015-0.025 .0006-.0010	0.025-0.035 .0010-.0014	0.040-0.050 .0016-.0020	0.050-0.060 .0020-.0024	0.060-0.070 .0024-.0028	0.070-0.080 .0028-.0031	
			CrCoMo28	ASTM F1537										
H ₂	Hardened steel ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1										
		1.2379	X153CrMoV12	AISI D2										