Recommended Cutting Data Series CXDCS and CXDCR - Inch

3xD & 5xD, Coolant-Fed Drilling

Material Group	ISO	Hardness	Vc - SFM	Drill Diameter (inch)			
				1/8	3/16	1/4	5/16
			Low - Mid - High	Feed (in/rev)			
Low Carbon Steels 12L14, 1018, A36	P	≤ 180 HB	500 - **625** - 750	.0031 - .0044	.0047 - .0066	.0063 - .0088	.0078 - .0109
Med Carbon / Alloy Steels 1045, 1050, 4140, 4340	P	≤ 38 HRC	360 - **450** - 540	.0031 - .0044	.0047 - .0066	.0063 - .0088	.0078 - .0109
Die / Tool Steels A2, D2, H13, P20	P	≤ 45 HRC	180 - **230** - 280	.0019 - .0031	.0028 - .0047	.0038 - .0063	.0047 - .0078
Ferritic / Martensitic Stainless 400 Series	M	≤ 28 HRC	320 - **400** - 480	.0025 - .0038	.0038 - .0056	.0050 - .0075	.0063 - .0094
Austenitic Stainless 300 Series	M	≤ 28 HRC	200 - **250** - 300	.0025 - .0038	.0038 - .0056	.0050 - .0075	.0063 - .0094
PH Stainless 15-5 PH, 17-4 PH, 17-7 PH	M	≤ 45 HRC	160 - **200** - 240	.0019 - .0031	.0028 - .0047	.0038 - .0063	.0047 - .0078
High Temp Alloys Inconel, Hastelloy, Monel	S	≤ 42 HRC	70 - **85** - 100	.0013 - .0019	.0019 - .0028	.0025 - .0038	.0031 - .0047
Titanium Alloys 6Al-4V	S	≤ 42 HRC	140 - **180** - 220	.0019 - .0025	.0028 - .0038	.0038 - .0050	.0047 - .0063
Cast Iron - Gray	K	≤ 240 HB	450 - **560** - 670	.0038 - .0050	.0056 - .0075	.0075 - .0100	.0094 - .0125
Cast Iron - Ductile & Malleable	K	> 240 HB	300 - **375** - 450	.0031 - .0044	.0047 - .0066	.0063 - .0088	.0078 - .0109

Material Group	ISO	Hardness	Vc - SFM	Drill Diameter (inch)			
				3/8	1/2	5/8	3/4
			Low - Mid - High	Feed (in/rev)			
Low Carbon Steels 12L14, 1018, A36	P	≤ 180 HB	500 - **625** - 750	.0094 - .0131	.0125 - .0175	.0156 - .0219	.0188 - .0263
Med Carbon / Alloy Steels 1045, 1050, 4140, 4340	P	≤ 38 HRC	360 - **450** - 540	.0094 - .0131	.0125 - .0175	.0156 - .0219	.0188 - .0263
Die / Tool Steels A2, D2, H13, P20	P	≤ 45 HRC	180 - **230** - 280	.0056 - .0094	.0075 - .0125	.0094 - .0156	.0113 - .0188
Ferritic /Martensitic Stainless 400 Series	M	≤ 28 HRC	320 - **400** - 480	.0075 - .0113	.0100 - .0150	.0125 - .0188	.0150 - .0225
Austenitic Stainless 300 Series	M	≤ 28 HRC	200 - **250** - 300	.0075 - .0113	.0100 - .0150	.0125 - .0188	.0150 - .0225
PH Stainless 15-5 PH, 17-4 PH, 17-7 PH	M	≤ 45 HRC	160 - **200** - 240	.0056 - .0094	.0075 - .0125	.0094 - .0156	.0113 - .0188
High Temp Alloys Inconel, Hastelloy, Monel	S	≤ 42 HRC	70 - **85** - 100	.0038 - .0056	.0050 - .0075	.0063 - .0094	.0075 - .0113
Titanium Alloys 6Al-4V	S	≤ 42 HRC	140 - **180** - 220	.0056 - .0075	.0075 - .0100	.0094 - .0125	.0113 - .0150
Cast Iron - Gray	K	≤ 240 HB	450 - **560** - 670	.0113 - .0150	.0150 -.0200	.0118 - .0250	.0225 - .0300
Cast Iron - Ductile & Malleable	K	> 240 HB	300 - **375** - 450	.0094 - .0131	.0125 - .0175	.0156 - .0219	.0188 - .0263

Recommended Cutting Data Series CXDCS and CXDCR - Metric

3xD & 5xD, Coolant-Fed Drilling

Material Group	ISO	Hardness	Vc - M/Min	Drill Diameter (mm)			
				3	5	6	8
			Low - **Mid** - High	Feed (mm/rev)			
Low Carbon Steels 12L14, 1018, A36	P	≤ 180 HB	150 - **190** - 230	0.075 - 0.105	0.125 - 0.175	0.150 - 0.210	0.200 - 0.280
Med Carbon / Alloy Steels 1045, 1050, 4140, 4340	P	≤ 38 HRC	110 - **135** - 160	0.075 - 0.105	0.125 - 0.175	0.150 - 0.210	0.200 - 0.280
Die / Tool Steels A2, D2, H13, P20	P	≤ 45 HRC	55 - **70** - 85	0.045 - 0.075	0.075 - 0.125	0.090 - 0.150	0.120 - 0.200
Ferritic / Martensitic Stainless 400 Series	M	≤ 28 HRC	95 - **120** - 145	0.060 - 0.090	0.100 - 0.150	0.120 - 0.180	0.160 - 0.240
Austenitic Stainless 300 Series	M	≤ 28 HRC	60 - **75** - 90	0.060 - 0.090	0.100 - 0.150	0.120 - 0.180	0.160 - 0.240
PH Stainless 15-5 PH, 17-4 PH, 17-7 PH	M	≤ 45 HRC	50 - **60** - 70	0.045 - 0.075	.0.075 - 0.125	0.090 - 0.150	0.120 - 0.200
High Temp Alloys Inconel, Hastelloy, Monel	S	≤ 42 HRC	20 - **25** - 30	0.030 - 0.045	0.050 - 0.075	0.060 - 0.090	0.080 - 0.120
Titanium Alloys 6Al-4V	S	≤ 42 HRC	45 - **55** - 65	0.045 - 0.060	0.075 - 0.100	0.090 - 0.120	0.120 - 0.160
Cast Iron - Gray	K	≤ 240 HB	135 - **170** - 205	0.090 - 0.120	0.150 - 0.200	0.180 - 0.240	0.240 - 0.320
Cast Iron - Ductile & Malleable	K	> 240 HB	90 - **115** - 140	0.075 - 0.105	0.125 - 0.175	0.150 - 0.210	0.200 - 0.280

Material Group	ISO	Hardness	Vc - M/Min	Drill Diameter (mm)			
				10	12	16	20
			Low - **Mid** - High	Feed (mm/rev)			
Low Carbon Steels 12L14, 1018, A36	P	≤ 180 HB	150 - **190** - 230	0.250 - 0.350	0.300 - 0.420	0.400 - 0.560	0.500 - 0.700
Med Carbon / Alloy Steels 1045, 1050, 4140, 4340	P	≤ 38 HRC	110 - **135** - 160	0.250 - 0.350	0.300 - 0.420	0.400 - 0.560	0.500 - 0.700
Die / Tool Steels A2, D2, H13, P20	P	≤ 45 HRC	55 - **70** - 85	0.150 - 0.250	0.180 - 0.300	0.240 - 0.400	0.300 - 0.500
Ferritic /Martensitic Stainless 400 Series	M	≤ 28 HRC	95 - **120** - 145	0.200 - 0.300	0.240 - 0.360	0.320 - 0.480	0.400 - 0.600
Austenitic Stainless 300 Series	M	≤ 28 HRC	60 - **75** - 90	0.200 - 0.300	0.240 - 0.360	0.320 - 0.480	0.400 - 0.600
PH Stainless 15-5 PH, 17-4 PH, 17-7 PH	M	≤ 45 HRC	50 - **60** - 70	0.150 - 0.250	0.180 - 0.300	0.240 - 0.400	0.300 - 0.500
High Temp Alloys Inconel, Hastelloy, Monel	S	≤ 42 HRC	20 - **25** - 30	0.100 - 0.150	0.120 - 0.180	0.160 - 0.240	0.200 - 0.300
Titanium Alloys 6Al-4V	S	≤ 42 HRC	45 - **55** - 65	0.150 - 0.200	0.180 - 0.240	0.240 - 0.320	0.300 - 0.400
Cast Iron - Gray	K	≤ 240 HB	135 - **170** - 205	0.300 - 0.400	0.360 - 0.480	0.480 - 0.640	0.600 - 0.800
Cast Iron - Ductile & Malleable	K	> 240 HB	90 - **115** - 140	0.250 - 0.350	0.300 - 0.420	0.400 - 0.560	0.500 - 0.700