

TECHNICAL DATA

SPEED AND FEEDS FOR XCD DRILLS



*Please decrease starting feed & speed by 30% if not using 1000 plus PSI Coolant System

Size		Medium - Low Carbon Steels		Alloy Steels		Die Steels		Cast Iron		Aluminum Cast		Stainless Steel	
		1035, 1045		4140, 4340		H13 (HRC20)						303-17-4PH	
		100-140 SFM		83-120 SFM		50-90 SFM		150-200 SFM		250-400 SFM		80-105 SFM	
Fractional	Decimal	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR
1/4	0.2500	1830	.005-.007	1530	.005-.007	1070	.005-.007	2680	.008-.010	4970	.013-.019	1605	.004-.005
9/32	0.2813	1630	.006-.008	1360	.006-.008	950	.006-.008	2380	.008-.011	4420	.014-.020	1426	.004-.006
5/16	0.3125	1470	.007-.009	1220	.007-.009	860	.007-.009	2140	.008-.012	3970	.015-.021	1283	.005-.006
11/32	0.3438	1330	.007-.009	1110	.007-.009	780	.007-.009	1950	.009-.013	3610	.016-.022	1167	.005-.006
3/8	0.3750	1220	.008-.011	1020	.008-.011	710	.008-.011	1780	.010-.014	3310	.017-.025	1070	.006-.007
13/32	0.4062	1130	.008-.011	940	.008-.011	660	.008-.011	1650	.010-.014	3060	.018-.026	987	.006-.007
7/16	0.4375	1050	.009-.012	870	.009-.012	610	.009-.012	1530	.011-.015	2840	.019-.027	917	.006-.007
15/32	0.4688	980	.009-.012	820	.009-.012	570	.009-.012	1430	.011-.015	2650	.020-.028	822	.006-.007
1/2	0.5000	920	.010-.013	760	.010-.013	540	.010-.013	1340	.013-.017	2480	.021-.030	802	.007-.008
9/16	0.5625	820	.011-.014	680	.011-.014	480	.011-.014	1190	.013-.017	2210	.022-.031	713	.007-.008
5/8	0.6250	730	.012-.015	610	.012-.015	430	.011-.014	1070	.014-.018	1990	.023-.032	642	.007-.008
11/16	0.6875	670	.013-.016	560	.013-.016	390	.012-.015	970	.014-.018	1810	.024-.033	584	.008-.009
3/4	0.7500	610	.014-.017	510	.014-.017	360	.013-.016	890	.015-.019	1660	.025-.0347	535	.008-.009

Specific Problems	Causes	Solution
Corners Break Down	Cutting Speed too fast, poor lubrication	Reduce RPM, improve coolant flow
Chipping	Feed rate too high, (IPR), relief angle too high	Reduce feed rate (IPR), adjust relief angle of regrind
Poor Surface Finish	Feed rate too high, (IPR), time to regrind	Reduce feed rate (IPR), regrind
Rifling Mark	Feed rate too high, (IPR), relief angle too high	Reduce feed rate (IPR), adjust relief angle of regrind
Over Sized Holes	Uneven lip height, poor spindle or holder	Inspect lip height, check run-out of drill in spindle

Formulas

Cutting Speed (SFM) = $\frac{\text{Drill Dia. (inch)} \times 3.14 \times \text{RPM}}{12}$ Feed Rate (in/min) = IPR x RPM Metric Conversion (mm) = 25.4 x inch (drill dia.)

SPEED AND FEEDS FOR XCT TAPS

Material	Cutting Speed (SFM)
Aluminum	150-300 SFM
Stainless Steels	50-120 SFM
Tool Steels	120 SFM
Low Carbon Steels	150-250 SFM
Med Carbon Steels	100-200 SFM