

Speeds and Feeds



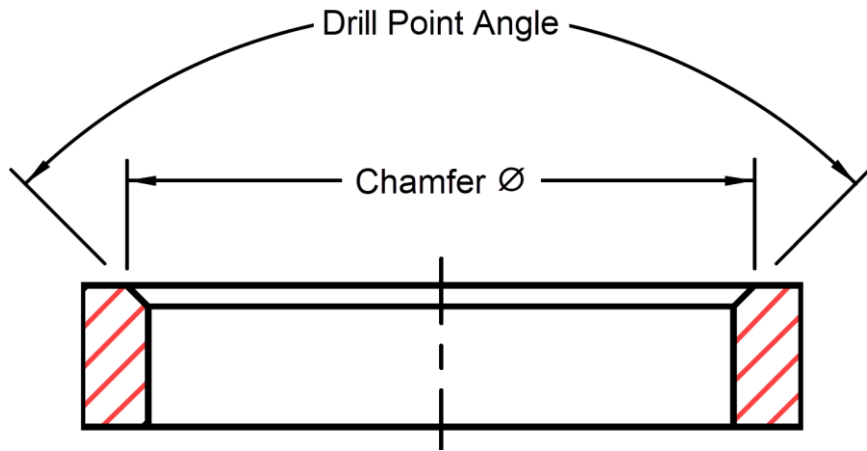
RPM: rev/min
FEED: mm/rev.

ISO	Material Description	Composition / Structure / Heat Treatment		HB	HRC	SMM	Drill Diameter														
							6.0 ~ 20.0	METRIC		6.0	-	-	8.0	-	10.0	12.0	-	-	16.0	-	20.0
							1/4 ~ 3/4	FRACTIONAL		-	1/4	5/16	-	3/8	-	-	1/2	5/8	-	3/4	-
							0.2362 ~ 0.7874	DECIMAL		.2362	.2500	.3125	.3150	.3750	.3937	.4724	.5000	.6250	.6299	.7500	.7874
P	Non-alloy steel	About 0.15% C	Annealed	125		●	75	RPM	3980	2980	2390	1990	1890	1490	1260	1190					
				190	13	●	70	FEED	0.071-0.099	0.079-0.119	0.089-0.140	0.109-0.170	0.109-0.170	0.130-0.191	0.130-0.191	0.150-0.211					
		About 0.45% C	Annealed			●	70	RPM	3710	2790	2230	1860	1760	1390	1170	1110					
				250	25	●	65	FEED	0.071-0.099	0.079-0.119	0.089-0.140	0.109-0.170	0.109-0.170	0.130-0.191	0.130-0.191	0.150-0.211					
	Low alloy steel			180	10	●	70	RPM	3710	2790	2230	1860	1760	1390	1170	1110					
						●	70	FEED	0.071-0.099	0.079-0.119	0.089-0.140	0.109-0.170	0.109-0.170	0.130-0.191	0.130-0.191	0.150-0.211					
				275	29	○	55	RPM	2920	2190	1750	1460	1380	1090	920	880					
						○	55	FEED	0.051-0.079	0.071-0.099	0.079-0.119	0.089-0.140	0.089-0.140	0.109-0.170	0.109-0.170	0.130-0.191					
M	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	35	RPM	1860	1390	1110	930	880	700	590	560					
								FEED	0.071-0.099	0.079-0.119	0.089-0.140	0.109-0.170	0.109-0.170	0.130-0.191	0.130-0.191	0.150-0.211					
K	Grey cast iron	Pearlitic / ferritic		180	10	●	90	RPM	4770	3580	2860	2390	2260	1790	1510	1430					
				260	26	○	70	FEED	0.079-0.109	0.099-0.130	0.119-0.160	0.150-0.000	0.150-0.000	0.180-0.239	0.180-0.239	0.221-0.279					
	Nodular cast iron	Ferritic			160	3	○	90	RPM	3710	2790	2230	1860	1760	1390	1170	1110				
							○	90	FEED	0.051-0.079	0.071-0.099	0.079-0.119	0.089-0.140	0.089-0.140	0.109-0.170	0.109-0.170	0.130-0.191				
	Malleable cast iron	Ferritic			160	3	○	90	RPM	4770	3580	2860	2390	2260	1790	1510	1430				
							○	60	FEED	0.079-0.109	0.099-0.130	0.119-0.160	0.150-0.000	0.150-0.000	0.180-0.239	0.180-0.239	0.221-0.279				
N	Aluminum-wrought alloy	Not Curable		60		○	166	RPM	3180	2390	1910	1590	1510	1190	1000	950					
						○	166	FEED	0.079-0.109	0.099-0.130	0.119-0.160	0.150-0.000	0.150-0.000	0.180-0.239	0.180-0.239	0.221-0.279					
	Curable	Hardened			100		○	130	RPM	8750	6570	5250	4380	4150	3280	2770	2630				
							○	130	FEED	0.099-0.130	0.119-0.150	0.150-0.191	0.180-0.231	0.180-0.231	0.211-0.269	0.211-0.269	0.249-0.310				
Aluminum-cast, alloyed	≤ 12% Si, Not Curable			75		○	110	RPM	6900	5170	4140	3450	3270	2590	2180	2070					
						○	110	FEED	0.099-0.130	0.119-0.150	0.150-0.191	0.180-0.231	0.180-0.231	0.211-0.269	0.211-0.269	0.249-0.310					
S	Titanium Alloys	Pure Titanium			400 Rm		○	35	RPM	5840	4380	3500	2920	2770	2190	1840	1750				
							○	35	FEED	0.099-0.130	0.119-0.150	0.150-0.191	0.180-0.231	0.180-0.231	0.211-0.269	0.211-0.269	0.249-0.310				
						○	35	RPM	1860	1390	1110	930	880	700	590	560					
						○	35	FEED	0.051-0.079	0.071-0.099	0.079-0.119	0.089-0.140	0.089-0.140	0.109-0.170	0.109-0.170	0.130-0.191					



●	Primary
○	Secondary

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Point Angle	Drill Point Z Depth
60°	0.866 × Chamfer Ø = Z Depth
82°	0.575 × Chamfer Ø = Z Depth
90°	0.500 × Chamfer Ø = Z Depth
118°	0.300 × Chamfer Ø = Z Depth
120°	0.288 × Chamfer Ø = Z Depth
135°	0.207 × Chamfer Ø = Z Depth

RPM	SMM
$\text{RPM} = \frac{\text{SMM} \times 1,000}{\pi \times [\text{ØDC}_{(\text{millimeter})}]}$	$\text{SMM} = \frac{\text{RPM} \times \pi \times [\text{ØDC}_{(\text{millimeter})}]}{1,000}$