

Drill Speeds (m/min)

Material	H.S.S.		Coolant FED H.S.S.		Carbide		Coolant FED Carbide	
	Aluminium & Aluminium Alloys.	46 - 80	80 - 100	70 - 137	150 - 200			
Brass and Bronze (free cutting)	46 - 92	80 - 105	70 - 120	125 - 180				
Brass and Bronze (high tensile)	21 - 37	32 - 45	42 - 61	58 - 90				
Cast Iron (<260 B.H.)	24 - 49	29 - 58	55 - 80	60 - 90				
Cast Iron (>260 B.H.)	9 - 15	10 - 18	20 - 46	40 - 53				
Copper Alloys	21 - 31	52 - 76	40 - 95	90 - 150				
Lead and Lead Alloys	60 - 90	90 - 120	90 - 150	180 - 245				
Magnesium	50 - 100	90 - 135	105 - 185	190 - 245				
Nickel Based Alloys	6 - 15	20 - 26	12 - 27	30 - 46				
Plastic and Related Materials	31 - 61	70 - 90	46 - 91	150 - 180				
Tin and Tin Alloys	60 - 90	90 - 120	90 - 150	180 - 245				
Zinc and Zinc Alloys	60 - 80	70 - 95	70 - 120	150 - 185				
Composites								
Carbonfibre	-	-	75 - 110	-				
Fibreglass	-	-	80 - 90	-				
Kevlar*	-	-	120 - 150	-				
Steel								
Alloyed - under 200 B.H.	18 - 27	35 - 45	40 - 55	70 - 90				
Alloyed - 200 - 300 B.H.	10 - 20	25 - 38	21 - 40	50 - 65				
Alloyed - 300 - 350 B.H.	6 - 9	17 - 25	12 - 18	40 - 52				
Cast and Forged	12 - 21	25 - 35	21 - 40	50 - 60				
Heat Treated - 35 - 40 R.C.	9 - 12	12 - 15	16 - 26	24 - 32				
Heat Treated - 40 45 R.C.	-	6 - 10	15 - 22	24 - 28				
Heat Treated - 45 - 50 R.C.	-	5 - 9	6 - 12	15 - 21				
Mild - 0.2 - 0.3% Carbon	21 - 31	18 - 34	25 - 47	53 - 58				
Mild - 0.4 - 0.5% Carbon	15 - 24	12 - 29	20 - 45	24 - 69				
Stainless - 300 Series	6 - 15	11 - 18	12 - 27	24 - 38				
Stainless - 400 Series	9 - 12	17 - 24	15 - 35	38 - 46				
Tool - Over 1.0% Carbon	10 - 15	12 - 18	16 - 26	24 - 34				
Titanium Alloys	21 - 31	9 - 34	12 - 27	30 - 70				

*Kevlar is a registered trademark of Du Pont

Drill Feeds

Diameter Range (mm)	Normal Feed (mm/rev)	Heavy Feed (mm/rev)
1.5 - 3	0.025 - 0.05	0.05 - 0.1
3 - 6	0.05 - 0.1	0.1 - 0.2
6 - 12	0.1 - 0.2	0.2 - 0.4
12 - 25	0.2 - 0.4	0.4 - 0.6
over 25	0.4 - 0.6	0.6 - 0.8

The above are suggested starting ranges, but due to the many variables in an operation, such as tool construction, fixturing, machine, coolants, etc., a more optimum speed and feed rate may be established through trial.