

Recommended Speed, Coolant and Lip Clearance Angle					
Material to be drilled	Speed		Coolant	Point Angle	Lip Clearance Angle
	Metres per Minute	Feet per Minute			
Alluminium & Aluminium Alloys	61 - 92	200 - 300	Soluble Oil or Paraffin	118°	12°
Brass	46 - 76	150 - 250	Dry or Soluble Oil	118°	15°
Brass - Leaded	61 - 92	200 - 300	Dry or Soluble Oil	118°	15°
Bronze	30 - 61	100 - 200	Soluble Oil	118°	15°
Bronze - High Tensile	22 - 30	70 - 100	Soluble Oil	118°	15°
Cast Iron - Soft	30 - 46	100 - 150	Dry or use air	90°	12° - 15°
Cast Iron - Malleable	22 - 24	70 - 80	Soluble Oil	118°	10° - 12°
Cast Iron - Hard	15 - 22	50 - 70	Dry or use air	118°	10° - 12°
Cast Iron - Chilled	8 - 11	25 - 35	Soluble Oil	118°	10° - 12°
Copper	30 - 61	100 - 200	Soluble Oil	100°	15°
Manesium	Up to 122	Up to 400	Soluble Oil or Paraffin	118°	12°
Monel	12 - 15	40 - 50	Soluble Oil or Sulphurised Oil	125°	10° - 12°
Steel - Plate, Bar, Cast, Forged Free Cutting Mild	30 - 61	100 - 200	Soluble Oil or Sulphurised Oil	118°	10° - 12°
Steel - Up to 620 N/mm ² (175 HB)	24 - 33	80 - 110	Soluble Oil or Sulphurised Oil	118°	10° - 12°
Steel - >620 N/mm ² (175 HB), <910 N/mm ² (250 HB)	14 - 22	45 - 70	Soluble Oil or Sulphurised Oil	118°	10°
Steel - >910 N/mm ² (250 HB), <1220 N/mm ² (350 HB)	9 - 14	30 - 45	Soluble Oil or Sulphurised Oil	125°	12°
Steel - >1220 N/mm ² (350 HB)	5 - 8	15 - 25	Soluble Oil or Sulphurised Oil	130°	10°
Steel - Manganese (Low)	5 - 6	15 - 20	Sulphurised Oil	130°	10°
Steels - Stainless - Free Cutting	15 - 18	50 - 60	Soluble Oil or Sulphurised Oil	118°	10° - 12°
Steel - Tough Grades	6 - 15	20 - 50	Soluble Oil or Sulphurised Oil	130° - 140°	6° - 12°

Recommended Speed, Coolant and Lip Clearance Angle			
Metric Sizes		Imperial Sizes	
Drill Diameter (mm)	Feed per Rev. (mm)	Drill Diameter	Feed per Rev. (inches)
6 - 8	0.10 - 0.25	1/4" - 5/16"	0.004" - 0.010"
>8 - 11	0.15 - 0.30	>5/16" - 7/16"	0.006" - 0.012"
>11 - 14	0.20 - 0.35	>7/16" - 9/16"	0.008" - 0.014"
>14 - 17.5	0.25 - 0.40	>9/16" - 11/16"	0.010" - 0.015"
>17.5 - 20.5	0.30 - 0.45	>11/16" - 13/16"	0.012" - 0.018"
>20.5 - 28.5	0.30 - 0.50	>13/16" - 1-1/8"	0.012" - 0.020"
>28.5 - 38	0.35 - 0.75	>1-1/8" - 1-1/2"	0.014" - 0.030"
>38	0.40 - 0.90	>1-1/2"	0.016" - 0.035"

Feed is an important aspect in successful performance. When drilling a new material, start at the lower end of the recommended feed and increase until optimum results are obtained. Optimum results are the lowest cost in producing the hole, tool life being just one factor. Emphasis should be placed on production rate, with tool life considered a partial cost of production, rather than the end result.