

## RECOMMENDED CUTTING CONDITIONS

### ● MPS DRILL (3xDC, 5xDC, 8xDC, 12xDC)

Work Material	Drill Diameter Conditions Hardness	φ3.0-φ6.0		φ6.0-φ10.0		φ10.0-φ14.0		φ14.0-φ20.0		
		Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	
P	Mild Steel	≤180HB	110 (50-120)	0.20 (0.15-0.25)	130 (80-140)	0.25 (0.20-0.35)	150 (90-170)	0.30 (0.20-0.40)	160 (100-180)	0.35 (0.20-0.40)
	Carbon Steel Alloy Steel	180-280HB	90 (50-100)	0.20 (0.15-0.25)	110 (70-120)	0.25 (0.20-0.35)	130 (80-140)	0.25 (0.20-0.40)	140 (100-150)	0.30 (0.20-0.40)
		280-350HB	80 (40-90)	0.20 (0.15-0.30)	90 (60-110)	0.25 (0.15-0.30)	110 (70-130)	0.25 (0.15-0.40)	120 (90-140)	0.30 (0.20-0.40)
M	Stainless Steel	≤200HB	50 (20-100)	0.10 (0.05-0.15)	60 (40-120)	0.20 (0.10-0.25)	70 (50-120)	0.25 (0.15-0.30)	80 (60-120)	0.25 (0.15-0.30)
K	Cast Iron	Tensile Strength ≤350MPa	100 (70-120)	0.25 (0.15-0.30)	130 (100-140)	0.30 (0.20-0.35)	150 (110-160)	0.35 (0.25-0.40)	160 (120-170)	0.35 (0.25-0.40)
	Ductile Cast Iron	Tensile Strength ≤450MPa	60 (30-80)	0.20 (0.15-0.25)	70 (40-90)	0.20 (0.15-0.30)	90 (50-110)	0.25 (0.20-0.40)	100 (60-110)	0.3 (0.20-0.40)
S	Heat Resistant Alloy	-	20 (10-25)	0.10 (0.05-0.15)	25 (15-30)	0.12 (0.05-0.15)	25 (15-30)	0.15 (0.10-0.20)	30 (25-35)	0.15 (0.10-0.20)

### ● MPS DRILL (L/D=15-30), MSL DRILL (L/D=20-30)

Work Material	Drill Diameter Conditions Hardness	φ3.0-φ6.0		φ6.0-φ10.0		φ10.0-φ14.0		
		Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	
P	Mild Steel	≤180HB	85 (35-100)	0.20 (0.15-0.25)	85 (45-120)	0.25 (0.15-0.35)	90 (55-120)	0.30 (0.20-0.35)
	Carbon Steel Alloy Steel	180-280HB	80 (40-95)	0.20 (0.15-0.25)	90 (50-120)	0.25 (0.20-0.35)	90 (60-130)	0.30 (0.15-0.35)
		280-350HB	75 (35-80)	0.15 (0.15-0.20)	80 (45-115)	0.20 (0.15-0.25)	85 (55-115)	0.25 (0.15-0.30)
M	Stainless Steel	≤200HB	50 (20-80)	0.10 (0.05-0.15)	60 (20-90)	0.12 (0.05-0.15)	70 (20-90)	0.15 (0.10-0.20)
K	Cast Iron	Tensile Strength ≤350MPa	70 (40-85)	0.25 (0.15-0.30)	75 (50-90)	0.30 (0.20-0.35)	80 (50-95)	0.35 (0.20-0.40)
	Ductile Cast Iron	Tensile Strength ≤450MPa	65 (35-80)	0.20 (0.15-0.25)	70 (45-85)	0.25 (0.15-0.30)	75 (45-90)	0.30 (0.20-0.35)
S	Heat Resistant Alloy	-	20 (10-25)	0.10 (0.05-0.15)	25 (15-30)	0.12 (0.05-0.15)	25 (15-30)	0.15 (0.10-0.20)

### ● MPS DRILL (L/D=35-40)

Work Material	Drill Diameter Conditions Hardness	φ3.0-φ4.0		φ5.0-φ6.0		φ6.0-φ9.0		
		Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	
P	Mild Steel	≤180HB	60 (50-70)	0.18 (0.13-0.20)	70 (55-80)	0.20 (0.15-0.23)	75 (60-85)	0.25 (0.18-0.28)
	Carbon Steel Alloy Steel	180-280HB	55 (40-65)	0.15 (0.10-0.18)	65 (45-75)	0.18 (0.13-0.22)	70 (55-80)	0.23 (0.15-0.25)
		280-350HB	50 (40-60)	0.12 (0.08-0.15)	55 (40-65)	0.17 (0.13-0.20)	60 (40-75)	0.20 (0.15-0.23)
M	Stainless Steel	≤200HB	35 (30-45)	0.10 (0.07-0.15)	40 (30-50)	0.12 (0.08-0.15)	45 (30-60)	0.15 (0.13-0.20)
K	Cast Iron	Tensile Strength ≤350MPa	55 (35-70)	0.15 (0.10-0.20)	60 (40-65)	0.20 (0.15-0.23)	60 (45-70)	0.23 (0.18-0.28)
	Ductile Cast Iron	Tensile Strength ≤450MPa	45 (30-60)	0.12 (0.08-0.15)	50 (40-60)	0.17 (0.13-0.20)	55 (40-65)	0.20 (0.15-0.23)
S	Heat Resistant Alloy	-	15 (10-25)	0.07 (0.05-0.10)	20 (10-25)	0.07 (0.05-0.10)	20 (10-25)	0.10 (0.06-0.12)

Machining conditions can vary greatly, please use the above tables as a reference starting point only and adjust the values according to the conditions.

For drill lengths greater than L/D=10 it is recommended to drill a pilot hole.



With immediate effect, please change all future orders of the items marked in grey (MPS, MSL) to the MPS1 series. This is because production will gradually be discontinued and will cease in March 2023.