

RECOMMENDED CUTTING CONDITIONS

MZE (External coolant)

Work Material		Mild Steel ($\leq 180\text{HB}$) AISI 1010 etc.		Carbon Steel, Alloy Steel (180—280HB) AISI 1045, 4140 etc.	
Drill Dia. DC		Cutting Speed (Min.—Max.) (SFM)	Feed (Min.—Max.) (IPR)	Cutting Speed (Min.—Max.) (SFM)	Feed (Min.—Max.) (IPR)
inch	mm				
.0394	1.0	130 (100—150)	.0014 (.0008—.0020)	115 (80—130)	.0014 (.0008—.0020)
.0472	1.2	130 (100—150)	.0018 (.0012—.0024)	115 (80—130)	.0018 (.0012—.0024)
.0630	1.6	150 (115—165)	.0022 (.0014—.0031)	130 (100—150)	.0022 (.0014—.0031)
.0787	2.0	150 (115—165)	.0028 (.0016—.0039)	130 (100—150)	.0028 (.0016—.0039)
.0984	2.5	150 (115—165)	.0033 (.0020—.0049)	130 (100—150)	.0033 (.0020—.0049)
.1181	3.0	150 (115—165)	.0039 (.0024—.0051)	130 (100—150)	.0039 (.0024—.0051)

Work Material		Carbon Steel, Alloy Steel (280—350HB) AISI 4340 etc.		Austenitic Stainless Steel ($\leq 200\text{HB}$) AISI 304, 316 etc.	
Drill Dia. DC		Cutting Speed (Min.—Max.) (SFM)	Feed (Min.—Max.) (IPR)	Cutting Speed (Min.—Max.) (SFM)	Feed (Min.—Max.) (IPR)
inch	mm				
.0394	1.0	100 (65—115)	.0014 (.0008—.0020)	50 (35—65)	.0012 (.0008—.0017)
.0472	1.2	100 (65—115)	.0018 (.0012—.0024)	50 (35—65)	.0016 (.0012—.0021)
.0630	1.6	115 (80—130)	.0022 (.0014—.0031)	65 (50—80)	.0020 (.0014—.0028)
.0787	2.0	115 (80—130)	.0028 (.0016—.0039)	65 (50—80)	.0024 (.0016—.0031)
.0984	2.5	115 (80—130)	.0033 (.0020—.0049)	65 (50—80)	.0030 (.0020—.0039)
.1181	3.0	115 (80—130)	.0039 (.0024—.0047)	65 (50—80)	.0031 (.0020—.0031)

Work Material		Gray Cast Iron ($\leq 350\text{MPa}$) No45B etc.		Ductile Cast Iron ($\leq 450\text{MPa}$) 60-40-8 etc.	
Drill Dia. DC		Cutting Speed (Min.—Max.) (SFM)	Feed (Min.—Max.) (IPR)	Cutting Speed (Min.—Max.) (SFM)	Feed (Min.—Max.) (IPR)
inch	mm				
.0394	1.0	150 (115—165)	.0014 (.0008—.0020)	130 (100—150)	.0014 (.0008—.0020)
.0472	1.2	150 (115—165)	.0018 (.0012—.0024)	130 (100—150)	.0018 (.0012—.0024)
.0630	1.6	165 (130—180)	.0022 (.0014—.0031)	150 (115—165)	.0022 (.0014—.0031)
.0787	2.0	165 (130—180)	.0028 (.0016—.0039)	150 (115—165)	.0028 (.0016—.0039)
.0984	2.5	165 (130—180)	.0033 (.0020—.0049)	150 (115—165)	.0033 (.0020—.0049)
.1181	3.0	165 (130—180)	.0039 (.0024—.0051)	150 (115—165)	.0039 (.0024—.0051)

Work Material		Aluminium Alloy (Si<5%) ASTM A6061, A7075 etc.		Heat Resistant Alloy Inconel718 etc.	
Drill Dia. DC		Cutting Speed (Min.—Max.) (SFM)	Feed (Min.—Max.) (IPR)	Cutting Speed (Min.—Max.) (SFM)	Feed (Min.—Max.) (IPR)
inch	mm				
.0394	1.0	165 (130—180)	.0020 (.0012—.0030)	35 (15—50)	.0008 (.0006—.0011)
.0472	1.2	165 (130—180)	.0026 (.0018—.0035)	35 (15—50)	.0010 (.0009—.0013)
.0630	1.6	195 (150—230)	.0033 (.0021—.0047)	35 (15—50)	.0012 (.0010—.0016)
.0787	2.0	195 (150—230)	.0041 (.0024—.0059)	50 (35—65)	.0016 (.0013—.0020)
.0984	2.5	230 (180—260)	.0053 (.0030—.0079)	50 (35—65)	.0020 (.0016—.0024)
.1181	3.0	260 (195—295)	.0091 (.0024—.0051)	65 (50—80)	.0028 (.0020—.0035)

(Note) For the spindle revolution of diameters not shown in the table, please adjust to the conditions of larger and closest diameter, or calculate from the cutting speed of the closest diameter. For the feed rate per revolution, please set up within the recommended feed rate of the closest diameter appropriately.

MICRO-MZE/MZS

RECOMMENDED CUTTING CONDITIONS

■ MZE (External coolant)

Work Material		Hardened Steel (40—55HRC)	
		AISI H13, L6 etc.	
Drill Dia. DC		Cutting Speed (Min.—Max.) (SFM)	Feed (Min.—Max.) (IPR)
inch	mm		
.0394	1.0	35 (15—50)	.0008 (.0006—.0012)
.0472	1.2	35 (15—50)	.0012 (.0009—.0015)
.0630	1.6	35 (15—50)	.0012 (.0010—.0016)
.0787	2.0	50 (35—65)	.0016 (.0013—.0020)
.0984	2.5	50 (35—65)	.0020 (.0016—.0024)
.1181	3.0	65 (50—80)	.0028 (.0020—.0035)

(Note) For the spindle revolution of diameters not shown in the table, please adjust to the conditions of larger and closest diameter, or calculate from the cutting speed of the closest diameter. For the feed rate per revolution, please set up within the recommended feed rate of the closest diameter appropriately.