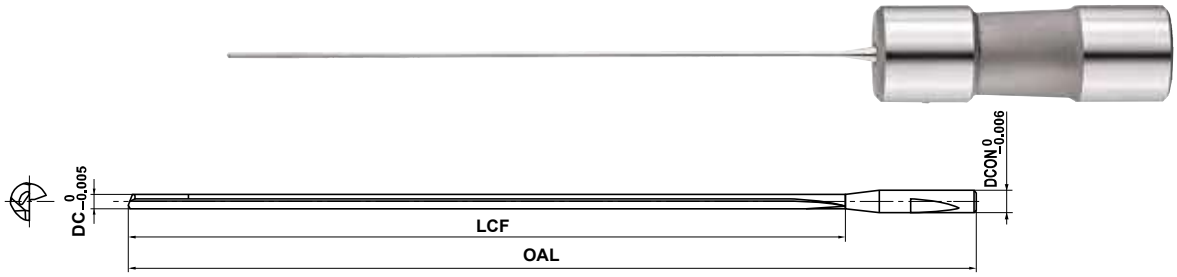
MICRO-MGS

- Small diameter deep hole drilling.
- High hole accuracy is possible.
- Can be used with machining and turning center.

P | M | K | N | S | H

METRIC STANDARD



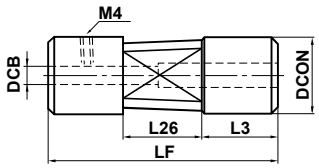
(Note) MGS type can be used for shrink fit holders.

DC (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock HTi10	Order Number	Dimensions (mm) LCF	OAL	DCON
0.7	50	Int.	★	MGS0070L040B	40	80	3
	80	Int.	★	MGS0070L060B	60	100	3
0.8	45	Int.	★	MGS0080L040B	40	80	3
	70	Int.	★	MGS0080L060B	60	100	3
0.9	40	Int.	★	MGS0090L040B	40	80	3
	60	Int.	★	MGS0090L060B	60	100	3
1.0	35	Int.	★	MGS0100L040B	40	80	3
	55	Int.	★	MGS0100L060B	60	100	3
	75	Int.	★	MGS0100L080B	80	120	3
1.1	30	Int.	★	MGS0110L040B	40	80	3
	50	Int.	★	MGS0110L060B	60	100	3
	65	Int.	★	MGS0110L080B	80	120	3
1.2	30	Int.	★	MGS0120L040B	40	80	3
	45	Int.	★	MGS0120L060B	60	100	3
	60	Int.	★	MGS0120L080B	80	120	3
1.3	40	Int.	★	MGS0130L060B	60	100	3
	55	Int.	★	MGS0130L080B	80	120	3
	70	Int.	★	MGS0130L100B	100	140	3
1.4	35	Int.	★	MGS0140L060B	60	100	3
	50	Int.	★	MGS0140L080B	80	120	3
	65	Int.	★	MGS0140L100B	100	140	3
1.5	35	Int.	★	MGS0150L060B	60	100	3
	50	Int.	★	MGS0150L080B	80	120	3
	60	Int.	★	MGS0150L100B	100	140	3
1.6	30	Int.	★	MGS0160L060B	60	100	3
	45	Int.	★	MGS0160L080B	80	120	3
	55	Int.	★	MGS0160L100B	100	140	3
1.7	30	Int.	★	MGS0170L060B	60	100	3
	40	Int.	★	MGS0170L080B	80	120	3
	55	Int.	★	MGS0170L100B	100	140	3
1.8	30	Int.	★	MGS0180L060B	60	100	3
	40	Int.	★	MGS0180L080B	80	120	3
	50	Int.	★	MGS0180L100B	100	140	3
1.9	25	Int.	★	MGS0190L060B	60	100	3
	35	Int.	★	MGS0190L080B	80	120	3
	45	Int.	★	MGS0190L100B	100	140	3
2.0	25	Int.	★	MGS0200L060B	60	100	3
	35	Int.	★	MGS0200L080B	80	120	3
	45	Int.	★	MGS0200L100B	100	140	3
2.1	35	Int.	★	MGS0210L080B	80	120	3
	40	Int.	★	MGS0210L100B	100	140	3
2.2	30	Int.	★	MGS0220L080B	80	120	3
	40	Int.	★	MGS0220L100B	100	140	3
2.3	30	Int.	★	MGS0230L080B	80	120	3
	40	Int.	★	MGS0230L100B	100	140	3
2.4	30	Int.	★	MGS0240L080B	80	120	3
	35	Int.	★	MGS0240L100B	100	140	3
2.5	25	Int.	★	MGS0250L080B	80	120	3
	35	Int.	★	MGS0250L100B	100	140	3
2.6	25	Int.	★	MGS0260L080B	80	120	3
	35	Int.	★	MGS0260L100B	100	140	3
2.7	25	Int.	★	MGS0270L080B	80	120	3
	30	Int.	★	MGS0270L100B	100	140	3
2.8	25	Int.	★	MGS0280L080B	80	120	3
	30	Int.	★	MGS0280L100B	100	140	3
2.9	20	Int.	★	MGS0290L080B	80	120	3
	30	Int.	★	MGS0290L100B	100	140	3
3.0	20	Int.	★	MGS0300L080B	80	120	3
	30	Int.	★	MGS0300L100B	100	140	3

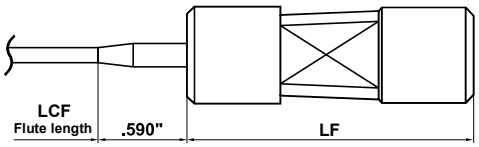
(Note) Contact Mitsubishi Materials regarding coated products (*VP*, *GP* and *UP* coated carbide).

★ : Inventory maintained in Japan.

DRIVER



When connected with a driver.



Order Number	Stock	Dimensions (inch)						
		DCON	DCB	LF	L3	L26	Clamp Screw	Wrench
MGD38	★	.500	.118	1.500	.496	.500	HSS04004	HKY20F
MGD70	★	.500	.118	2.756	.984	.787	HSS04004	HKY20F

RECOMMENDED CUTTING CONDITIONS

Work Material		Mild Steel (≤180HB) AISI 1010 etc.		Carbon Steel, Alloy Steel (180—280HB) AISI 1045, 4140 etc.	
Drill Dia. **DC** inch	mm	Cutting Speed (Min.—Max.) (SFM)	Feed (Min.—Max.) (IPR)	Cutting Speed (Min.—Max.) (SFM)	Feed (Min.—Max.) (IPR)
.0315	**0.8**	165 (130—195)	.0004 (.0002—.0006)	130 (100—165)	.0004 (.0002—.0006)
.0394	**1.0**	165 (130—195)	.0004 (.0003—.0008)	130 (100—165)	.0004 (.0003—.0008)
.0472	**1.2**	195 (150—245)	.0006 (.0003—.0009)	165 (130—195)	.0006 (.0003—.0009)
.0630	**1.6**	195 (150—245)	.0008 (.0004—.0013)	165 (130—195)	.0008 (.0004—.0013)
.0787	**2.0**	195 (150—245)	.0010 (.0005—.0016)	165 (130—195)	.0010 (.0005—.0016)
.0984	**2.5**	230 (180—280)	.0012 (.0007—.0020)	195 (150—245)	.0012 (.0007—.0020)
.1181	**3.0**	230 (180—280)	.0016 (.0008—.0024)	195 (150—245)	.0016 (.0008—.0024)

Work Material		Carbon Steel, Alloy Steel (280—350HB) AISI 4340 etc.		Austenitic Stainless Steel (≤200HB) AISI 304, 316 etc.	
Drill Dia. **DC** inch	mm	Cutting Speed (Min.—Max.) (SFM)	Feed (Min.—Max.) (IPR)	Cutting Speed (Min.—Max.) (SFM)	Feed (Min.—Max.) (IPR)
.0315	**0.8**	100 (65—130)	.0002 (.0002—.0002)	100 (65—130)	.0004 (.0002—.0006)
.0394	**1.0**	100 (65—130)	.0002 (.0002—.0003)	100 (65—130)	.0004 (.0003—.0008)
.0472	**1.2**	130 (100—165)	.0002 (.0002—.0003)	100 (65—130)	.0006 (.0003—.0009)
.0630	**1.6**	130 (100—165)	.0004 (.0003—.0004)	130 (100—165)	.0008 (.0004—.0013)
.0787	**2.0**	130 (100—165)	.0004 (.0004—.0005)	130 (100—165)	.0010 (.0005—.0016)
.0984	**2.5**	165 (130—195)	.0006 (.0005—.0007)	130 (100—165)	.0012 (.0007—.0020)
.1181	**3.0**	165 (130—195)	.0006 (.0006—.0008)	130 (100—165)	.0016 (.0008—.0024)

(Note 1) A pilot hole or guide bushing is required.
(Note 2) Coolant filter must be less than 5 microns. Fine filtration is necessary to prevent blockage of the coolant holes.
(Note 3) For safety and success, high pressure coolant is required. **(Minimum coolant pressure = 1,000PSI)**
(Note 4) 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.

HOW TO USE ➤ L164
TECHNICAL DATA ➤ N001

MICRO-MGS

Work Material		Gray Cast Iron (≤350MPa) No45B etc.		Ductile Cast Iron (≤450MPa) 60-40-8 etc.	
Drill Dia. **DC** inch	mm	Cutting Speed (Min.—Max.) (SFM)	Feed (Min.—Max.) (IPR)	Cutting Speed (Min.—Max.) (SFM)	Feed (Min.—Max.) (IPR)
.0315	**0.8**	165 (130—195)	.0004 (.0003—.0006)	130 (100—165)	.0002 (.0002—.0003)
.0394	**1.0**	165 (130—195)	.0006 (.0004—.0008)	130 (100—165)	.0002 (.0003—.0004)
.0472	**1.2**	195 (150—245)	.0006 (.0005—.0009)	165 (130—195)	.0004 (.0003—.0005)
.0630	**1.6**	195 (150—245)	.0008 (.0006—.0013)	165 (130—195)	.0004 (.0004—.0006)
.0787	**2.0**	195 (150—245)	.0012 (.0008—.0016)	165 (130—195)	.0006 (.0005—.0008)
.0984	**2.5**	230 (180—280)	.0014 (.0010—.0020)	195 (150—245)	.0008 (.0007—.0010)
.1181	**3.0**	230 (180—280)	.0018 (.0012—.0024)	195 (150—245)	.0010 (.0008—.0012)

Work Material		Aluminium Alloy (Si<5%) ASTM A6061, 7075 etc.		Copper, Copper alloys	
Drill Dia. **DC** inch	mm	Cutting Speed (Min.—Max.) (SFM)	Feed (Min.—Max.) (IPR)	Cutting Speed (Min.—Max.) (SFM)	Feed (Min.—Max.) (IPR)
.0315	**0.8**	165 (130—195)	.0004 (.0003—.0006)	130 (100—165)	.0004 (.0003—.0006)
.0394	**1.0**	195 (150—245)	.0006 (.0004—.0008)	165 (130—195)	.0006 (.0004—.0008)
.0472	**1.2**	230 (180—280)	.0006 (.0005—.0009)	195 (150—245)	.0006 (.0005—.0009)
.0630	**1.6**	260 (195—330)	.0008 (.0006—.0013)	230 (180—280)	.0008 (.0006—.0013)
.0787	**2.0**	295 (230—360)	.0012 (.0008—.0016)	260 (195—330)	.0012 (.0008—.0016)
.0984	**2.5**	330 (260—395)	.0014 (.0010—.0020)	295 (230—360)	.0014 (.0010—.0020)
.1181	**3.0**	330 (260—395)	.0018 (.0012—.0024)	330 (260—395)	.0018 (.0012—.0024)

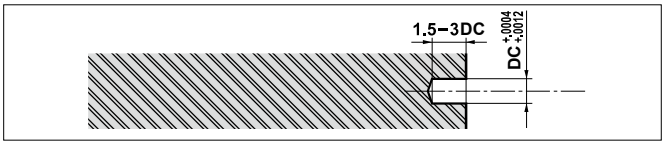
(Note 1) A pilot hole or guide bushing is required.
(Note 2) Coolant filter must be less than **5 microns.** Fine filtration is necessary to prevent blockage of the coolant holes.
(Note 3) For safety and success, high pressure coolant is required. **(Minimum coolant pressure = 1,000PSI)**
(Note 4) For 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.

Special Application Notes :

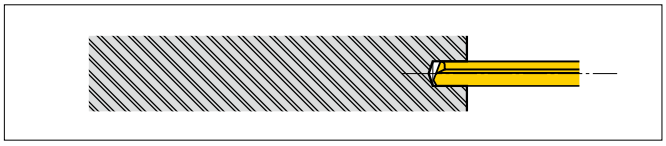
- For safety and success, high pressure coolant is required. **(Minimum coolant pressure = 1000PSI)**
- Coolant filter must be less than **5 microns.** Fine filtration is necessary to prevent blockage of the coolant holes.
- A pilot hole or guide bushing is required.

HOW TO USE

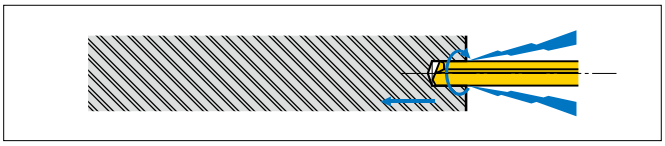
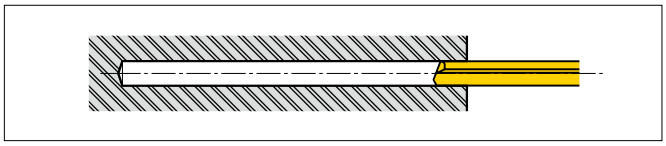
1. Pilot hole drilling.
(Mitsubishi's MZE, MZS, MWE or MWS is recommended.)



2. Drill is inserted into the pilot hole with the MGS drill rotation stopped or rotating CCW at 300rpm or less.
(Drill is not rotating.)



3. Coolant is turned ON, raise cutting speed and feed to the recommended cutting condition.



4. Return to "Pos 2" after drilling end, coolant turned OFF and drill rotation is stopped.