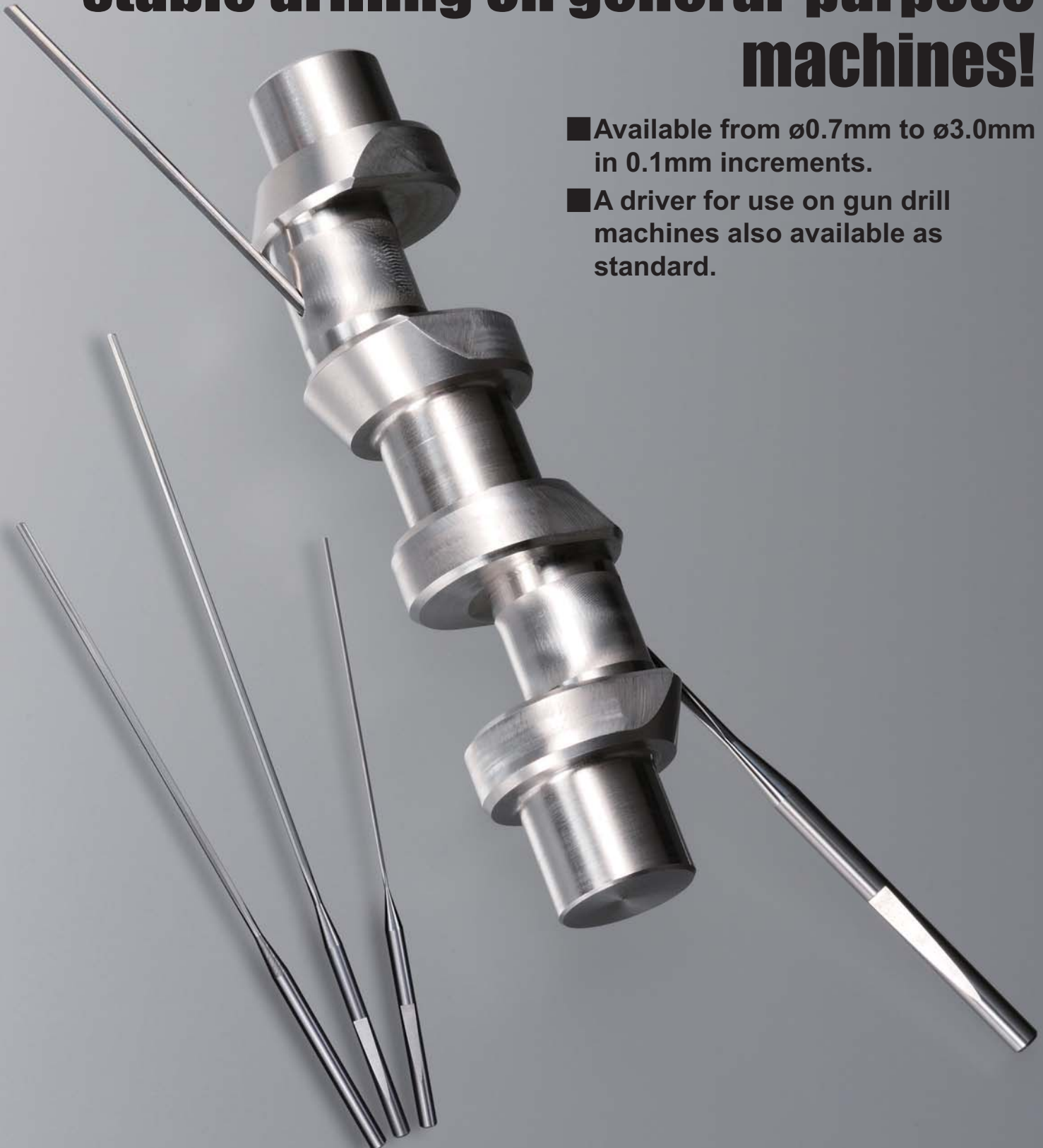


Micro Solid Carbide Gun Drill

## ***MICRO-MGS***

# Excellent runout accuracy ensures stable drilling on general-purpose machines!

- Available from  $\varnothing 0.7\text{mm}$  to  $\varnothing 3.0\text{mm}$  in 0.1mm increments.
- A driver for use on gun drill machines also available as standard.



# Micro Solid Carbide Gun Drill

# MICRO-MGS



## Features

Solid carbide with through coolant holes achieves high precision drilling

Smooth rake face & Sharp cutting edge

Driver available for use on gun drill machines

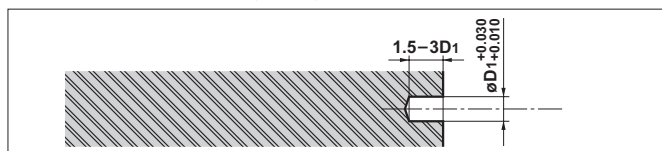


High precision carbide shank suitable for use with collets and shrink fit holders

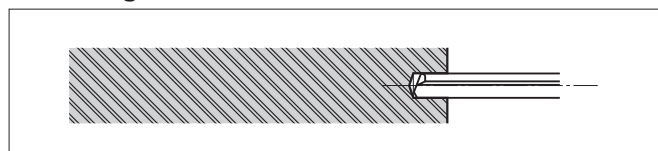
**VP, GP or UP** coated carbide is available (produced to order only)

## How to Use

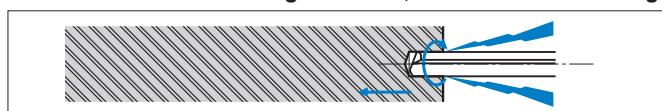
1. Pilot hole drilling.  
(Mitsubishi's MZE, MZS, MWE or MWS is recommended.)



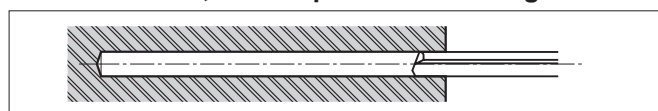
2. Drill is inserted into the pilot hole without being rotated.



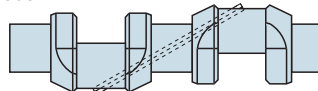
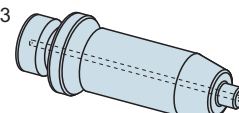
3. Turn the coolant on, raise cutting speed and feed to the recommended cutting condition, and commence drilling.



4. Return to "Pos 2" after drilling, turn the coolant off, and stop the drill rotating.

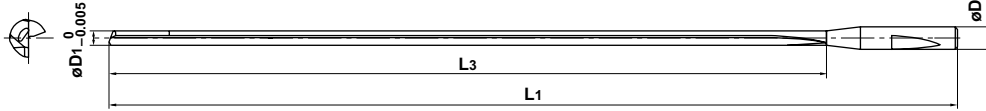
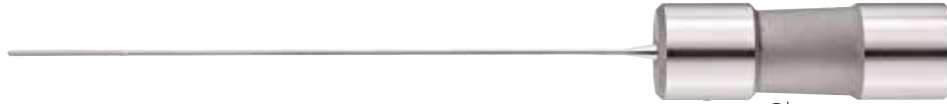


## Application Examples

Tool		MGS0150L100B	MGS0150L080B
Grade		HTi10	HTi10
Machine Type		Turret type turning mill	Turret type turning mill
Component		Machine part	Fuel injection nozzle
Workpiece		JIS SUS303 	JIS SUS303 
Cutting Conditions	Cutting Speed (m/min)	28.3	28.3
	Feed (mm/rev)	0.003	0.003
	Revolution (min <sup>-1</sup> )	6000	6000
	Feed Rate (mm/min)	18	18
	Hole Depth (mm)	65 (L/D=43D)	45 (L/D=30D)
Coolant		W.S.O. : 7MPa	W.S.O. : 7MPa

# MICRO-MGS

**Drill Standard**



MGS type can be used with shrink fit holders.

Drill Dia. D1 (mm)	Coolant	Stock HT110	Order Number	Dimensions (mm)		
				L3	L1	D4
0.7	Int.	●	MGS0070L040B	40	80	3
	Int.	●	0070L060B	60	100	3
0.8	Int.	●	0080L040B	40	80	3
	Int.	●	0080L060B	60	100	3
0.9	Int.	●	0090L040B	40	80	3
	Int.	●	0090L060B	60	100	3
1.0	Int.	●	0100L040B	40	80	3
	Int.	●	0100L060B	60	100	3
	Int.	●	0100L080B	80	120	3
1.1	Int.	●	0110L040B	40	80	3
	Int.	●	0110L060B	60	100	3
	Int.	●	0110L080B	80	120	3
1.2	Int.	●	0120L040B	40	80	3
	Int.	●	0120L060B	60	100	3
	Int.	●	0120L080B	80	120	3
1.3	Int.	●	0130L060B	60	100	3
	Int.	●	0130L080B	80	120	3
	Int.	●	0130L100B	100	140	3
1.4	Int.	●	0140L060B	60	100	3
	Int.	●	0140L080B	80	120	3
	Int.	●	0140L100B	100	140	3
1.5	Int.	●	0150L060B	60	100	3
	Int.	●	0150L080B	80	120	3
	Int.	●	0150L100B	100	140	3
1.6	Int.	●	0160L060B	60	100	3
	Int.	●	0160L080B	80	120	3
	Int.	●	0160L100B	100	140	3
1.7	Int.	●	0170L060B	60	100	3
	Int.	●	0170L080B	80	120	3
	Int.	●	0170L100B	100	140	3

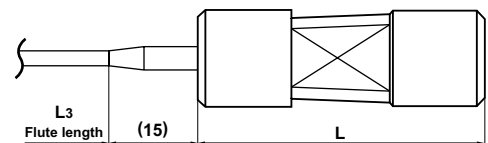
Drill Dia. D1 (mm)	Coolant	Stock HT110	Order Number	Dimensions (mm)		
				L3	L1	D4
1.8	Int.	●	MGS0180L060B	60	100	3
	Int.	●	0180L080B	80	120	3
1.9	Int.	●	0180L100B	100	140	3
	Int.	●	0190L060B	60	100	3
	Int.	●	0190L080B	80	120	3
2.0	Int.	●	0190L100B	100	140	3
	Int.	●	0200L060B	60	100	3
	Int.	●	0200L080B	80	120	3
2.1	Int.	●	0200L100B	100	140	3
	Int.	●	0210L080B	80	120	3
	Int.	●	0210L100B	100	140	3
2.2	Int.	●	0220L080B	80	120	3
	Int.	●	0220L100B	100	140	3
2.3	Int.	●	0230L080B	80	120	3
	Int.	●	0230L100B	100	140	3
2.4	Int.	●	0240L080B	80	120	3
	Int.	●	0240L100B	100	140	3
2.5	Int.	●	0250L080B	80	120	3
	Int.	●	0250L100B	100	140	3
2.6	Int.	●	0260L080B	80	120	3
	Int.	●	0260L100B	100	140	3
2.7	Int.	●	0270L080B	80	120	3
	Int.	●	0270L100B	100	140	3
2.8	Int.	●	0280L080B	80	120	3
	Int.	●	0280L100B	100	140	3
2.9	Int.	●	0290L080B	80	120	3
	Int.	●	0290L100B	100	140	3
3.0	Int.	●	0300L080B	80	120	3
	Int.	●	0300L100B	100	140	3

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

**Driver**

Order Number	Dimensions (mm)					Set Screw	Wrench
	D4	D8	L1	L3	L4		
<b>MGD38</b>	12.7	3.0	38.1	12.6	12.7	HSS04004	HKY20F
<b>MGD70</b>	12.7	3.0	70.0	25.0	20.0	HSS04004	HKY20F

**When Using with a Driver**



● : Inventory maintained.

## Recommended Cutting Conditions

Work Material	Drill Diameter	φ0.7—φ3.0		Recommended Coolant
	Conditions	Cutting Speed (m/min)	Feed (mm/rev)	
	Hardness			
P Mild Steel	≤180HB	70	—0.001	Water insoluble
	Carbon Steel Alloy Steel	180—280HB	60	
		280—350HB	40	
M Stainless Steel	≤200HB	40	—0.005	Water insoluble
K Cast Iron	Tensile Strength ≤350MPa	70	—0.02	Water insoluble
	Ductile Cast Iron	Tensile Strength ≤450MPa	50	—0.015
N Aluminium Alloy	—	110	—0.02	Water Soluble Oil
	Copper alloy	—	70	

### Special Application Notes :

- A pilot hole or guide bushing is required.
- Coolant filter must be less than 5 microns.  
Fine filtration is necessary to prevent blockage of the coolant holes.
- High pressure coolant is required. At least 10MPa.  
(If the pressure is too low, chip blockage can occur.)

#### For Your Safety

●Don't handle inserts and chips without gloves. ●Please machine within the recommended application range and exchange expired tools with new ones in advance of breakage. ●Please use safety covers and wear safety glasses. ●When using compounded cutting oils, please take fire precautions. ●When using rotating tools, please make a trial run to check run-out, vibration and abnormal sounds etc. ●Grinding or heating of cutting tools produces dust and mist. Inhaling large amount of dust or contacting with eyes and skins may harm your body.

## MITSUBISHI MATERIALS CORPORATION



The Scope of the Registration:  
Design, Development, and  
Production of General  
Carbide Tools and Carbide  
Blanks



The Scope of the Registration:  
Design, Development and  
Production of Cutting Tools,  
Wear-resistant Tools, Rock  
Drilling Tools, Cemented  
Carbide Blanks and Coated  
Products



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(Tools specifications subject to change without notice.)