

Miniature Guide Rod Cylinder

MGJ Series

ø6, ø10

How to Order

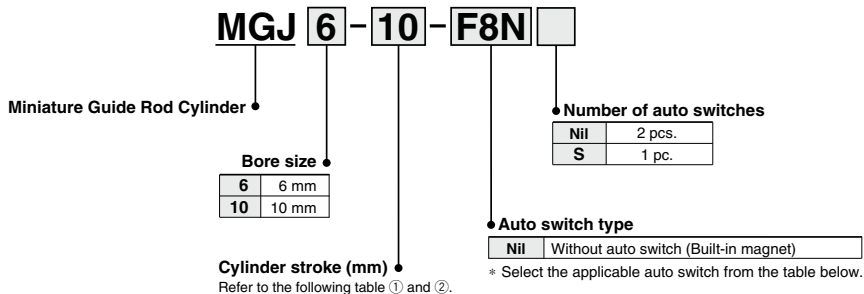


Table ① Standard Strokes

Bore size (mm)	Standard stroke (mm)
6	5, 10, 15
10	5, 10, 15, 20

Table ② Intermediate Stroke (by the 1 mm stroke)

Bore size (mm)	Applicable stroke (mm)
6	1 to 15 (Spacer type)
10	1 to 20 (Spacer type)
Example	Model no.: MGJ6-9 Installing a 1 mm width spacer for MGJ6-10 External size: same as MGJ6-10

* When mounting an auto switch, the min. stroke is 4 mm.
However, only 1 auto switch can be mounted in this case.

Applicable Auto Switches/Refer to pages 1289 to 1383 for detailed auto switch specifications.

Type	Special function	Electrical entry	Indicator light	Wiring (output)	Load voltage		Auto switch part no.			Applicable load		
							Direct mounting	Lead wire length (m)				
					DC	5 V		3	5	IC circuit	Relay PLC	
Solid state auto switch	-	Grommet (Perpendicular)	Yes	3-wire (NPN)	24 V	12 V	F8N	●	●			○
				3-wire (PNP)			F8P	●	●	○		
				2-wire	12 V	F8B	●	●	○			

* Lead wire length symbols: 0.5 m Nil (Example) F8N
 3 m L (Example) F8NL
 5 m Z (Example) F8NZ

* Auto switches marked with ○ are produced upon receipt of order.
 * When using non-applicable auto switches, please consult with SMC.
 * Auto switch is shipped together (not assembled).

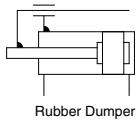
Specifications



Caution

This product should not be used as a stopper.

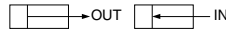
Symbol



Bore size (mm)	6	10
Action	Double acting	
Fluid	Air	
Proof pressure	1.05 MPa	
Maximum operating pressure	0.7 MPa	
Minimum operating pressure	0.15 MPa	
Ambient and fluid temperature	-10 to 60°C (No freezing)	
Cushion	Rubber bumper at both ends	
Lubrication	Non-lube	
Piston speed	50 to 500 mm/s ^(Note)	
Stroke length tolerance	+1.0 0 mm	
Port size	M3 x 0.5	
Guide size	ø5	ø6

(Note) Within allowable kinetic energy use only

Theoretical Output



Bore size (mm)	Rod size (mm)	Operating direction	Piston area (mm ²)	Operating pressure (MPa)			
				0.15	0.3	0.5	0.7
6	3	OUT	28.3	4.24	8.48	14.15	19.81
		IN	21.2	3.18	6.36	10.60	14.84
10	5	OUT	78.5	11.77	23.55	39.25	54.95
		IN	58.9	8.83	17.67	29.45	41.23

Unit: N

Weight

Bore size (mm)	Standard stroke (mm)			
	5	10	15	20
6	27.3	33.0	38.4	—
10	40.6	48.0	55.6	63.2

Unit: g

Allowable Rotational Torque of Plate

For the rotational torque (T) added to the plate (rod end), use a value no more than the values in the table. Operation outside of this range may cause excessive impact, which may result in the damage to the devices.

Bore size (mm)	Stroke (mm)			
	5	10	15	20
6	0.92	0.73	0.61	—
10	4.75	3.96	3.36	2.87

Unit: cN·m

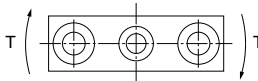


Plate Non-rotating Accuracy

Bore size (mm)	Non-rotating accuracy θ
6	$\pm 0.1^\circ$
10	

* When extending the cylinder (initial value), non-rotating accuracy θ , without loads and deflection of guide rods, it should be a value no more than the value in the table as a guide.

Moisture Control Tube IDK Series



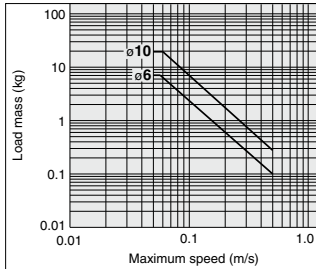
When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to the [Web Catalog](#).

Allowable Kinetic Energy

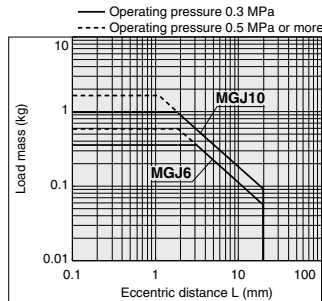
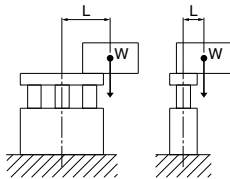
When driving the cylinder with inertial load, keep kinetic energy no more than the allowable value. The area between bold lines in the below graphic shows the relation between load mass and maximum speed.

Bore size (mm)	6	10
Operating piston speed (m/s)	0.05 to 0.5	
Allowable kinetic energy (J)	0.012	0.035



Allowable Eccentric Load

Make sure that the load mass (W) is within the range in the graph below when there is an eccentric distance (L) from the center of the cylinder. Using cylinders are beyond the limit may shorten the product service life or cause damage.



Construction

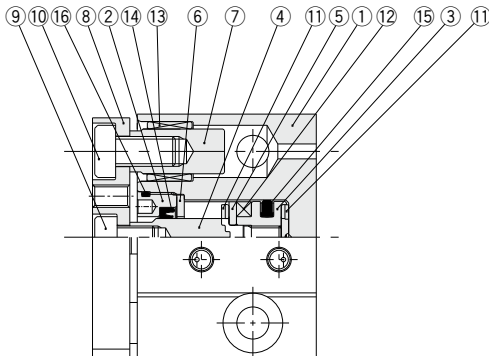
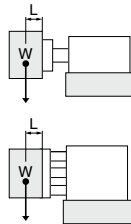
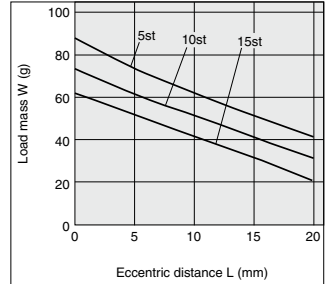


Plate Allowable Lateral Load

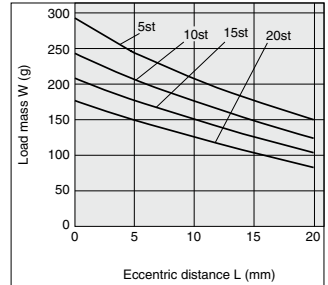
When the eccentric distance (L) generates from the plate (rod end), be sure to keep the load mass (W) no more than a value in the below graphic. Operation outside of this range may cause excessive impact, which may result in the damage to the devices.



ø6



ø10

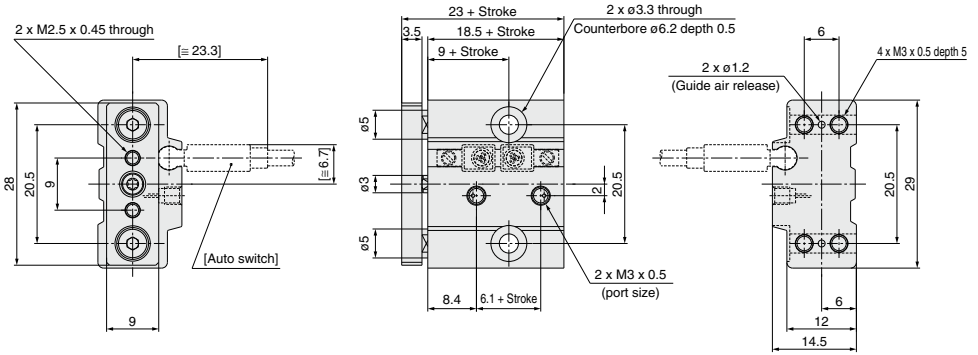


Parts list

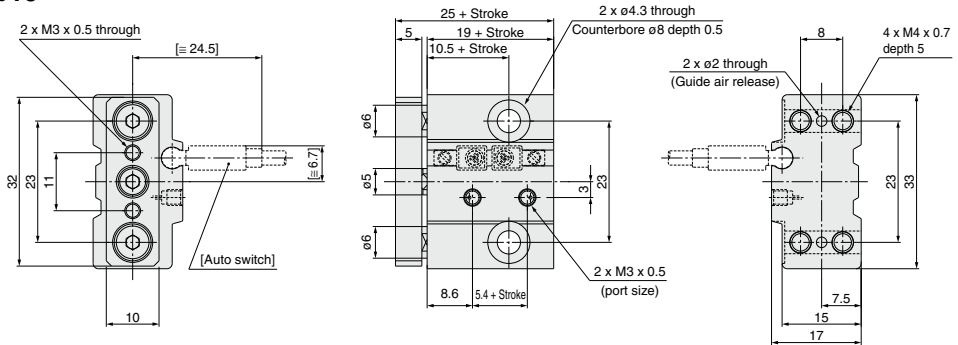
No.	Description	Material	Note
1	Body	Aluminum alloy	Hard anodized
2	Rod cover	Aluminum alloy	Chromated
3	Piston	Aluminum alloy	Chromated
4	Piston rod	Stainless steel	
5	Magnet retainer	Aluminum alloy	Chromated, in case of ø6
		Stainless steel	In case of ø10
6	Seal retainer	Aluminum alloy	Chromated, in case of ø6
		Stainless steel	In case of ø10
7	Guide rod	Carbon steel	Hard chromium electroplated
8	Plate	Aluminum alloy	Hard anodized
9	Torque socket head bolt Hexagon socket head cap screw	Carbon steel	Nickel plated, in case of ø6
		Carbon steel	Nickel plated, in case of ø10
10	Brazier head hexagon socket bolt	Carbon steel	Nickel plated
11	Bumper	Resin	
12	Magnet	—	
13	Bushing	Bearing alloy	
14	Rod seal	NBR	
15	Piston seal	NBR	
16	O-ring	NBR	

Dimensions

ø6



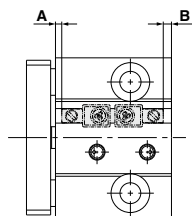
ø10



* For intermediate strokes other than standard strokes, refer to the Manufacture of Intermediate Stroke on page 520.

MGJ Series Auto Switch Mounting

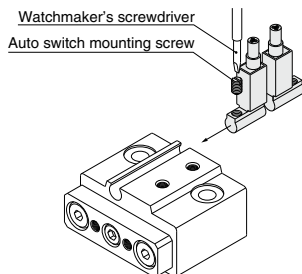
Auto Switch Proper Mounting Position (Detection at Stroke End)



Bore size	A	B	Operating range
$\phi 6$	1.6	0.9	3
$\phi 10$	1.3	1.7	4

(mm)

Auto Switch Mounting



- Use a watchmaker's screwdriver with a handle about 5 to 6 mm in diameter when tightening the auto switch mounting screw.
- Tightening torque of auto switch mounting screw should be set 0.10 to 0.20 N·m.