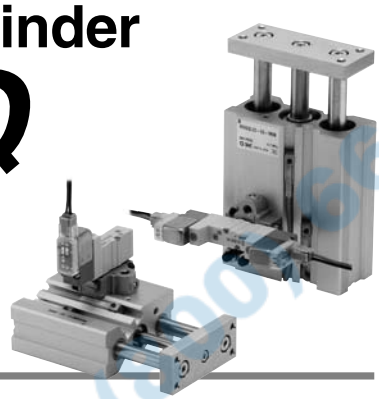
Valve Mounted Guide Cylinder

Series MVGQ

ø12, ø16, ø20



How to Order

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When ordering valve mounted guide cylinder, Series MVGQ, specify the models of both the cylinder and the valve.

Ex.) MVGQM12-30-M9BWM-B ····· 1
SYJ3130-5LZ-MA ····· 1

Cylinder stroke (mm)
Refer to page 1649 for standard strokes.

Bore size

12	12 mm
16	16 mm
20	20 mm

Bearing

M	Slide bearing
L	Ball bushing bearing

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	n pcs.

Auto switch

Nil	Without auto switch (Built-in magnet)

∗ For the applicable auto switch model, refer to page 1649.

Rod extended/retracted when energized Note)

Nil	Rod extended when energized
B	Rod retracted when energized

Note) Based on the case of 2 position single solenoid valve.

Cylinder MVGQ M 12 – 30 – M9BW □ – □ – □

Valve SYJ3 1 3 0 □ – 5 L Z □ – MA – □

Type of actuation

1	2 position single solenoid
2	2 position double solenoid

∗ Please consult with SMC for 3 position type.

Speed controller specifications

MA	Meter-out
MB ∗	Meter-in

∗ Option

Made to Order
∗ Refer to page 1649 for datails.

Coil specification

Nil	Standard
T	With energy saving circuit (24/12 VDC only)

∗ The energy saving circuit is not available for W□.

DC specifications

5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC

AC specifications (50/60 Hz)

1	100 VAC
2	200 VAC
3	110 VAC [115 VAC]
4	220 VAC [230 VAC]

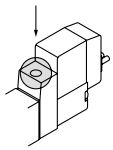
∗ W□: DC only

200 VAC, 220 VAC specifications

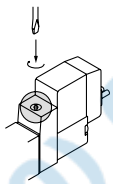
An AC specification solenoid valve using a grommet, L, or M plug connector has a built-in rectifier circuit in its pilot valve section to activate the DC coil.
The 200 VAC or 220 VAC specification pilot valve contains a rectifier circuit that generates heat when it is energized. Therefore, do not touch its exterior surface because it could be very hot, depending on the energizing conditions.

Manual override

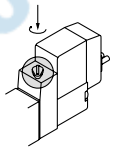
Nil: Non-locking push type



D: Push-turn locking slotted type

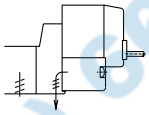


E: Push-turn locking lever type

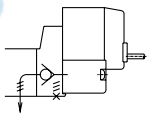


Body option

0: Pilot valve individual exhaust type

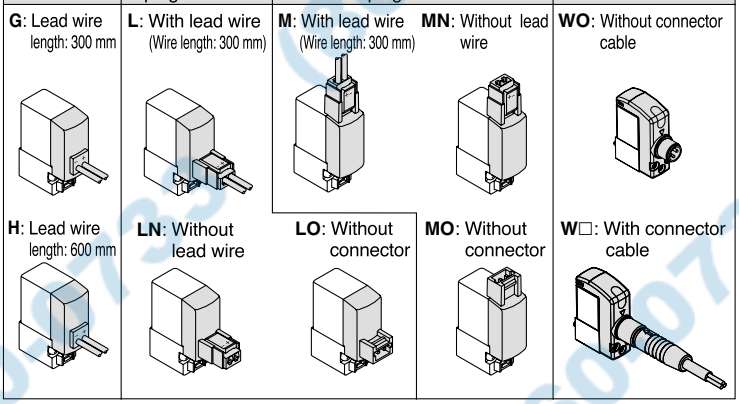


3: Main/Pilot valve common exhaust type



Electrical entry

24 V, 12 V, 6 V, 5 V, 3 VDC 100 V, 110 V, 200 V, 220VAC				24 V, 12 VDC 6 V, 5 V, 3 VDC
Grommet	L plug connector	M plug connector		M8 connector
G: Lead wire length: 300 mm	**L**: With lead wire (Wire length: 300 mm)	**M**: With lead wire (Wire length: 300 mm)	**MN**: Without lead wire	**WO**: Without connector cable
H: Lead wire length: 600 mm	**LN**: Without lead wire	**LO**: Without connector	**MO**: Without connector	**W□**: With connector cable



∗ 2 sockets are attached to "LN" and "MN" types.
∗ Refer to page 1646 for the connector cable for M8.
Note 1) □: Cable length symbol. Insert the symbol referring to page 1646.

Light/Surge voltage suppressor

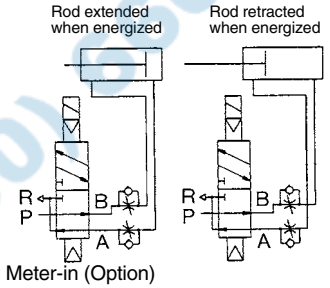
Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor
R	With surge voltage suppressor (No polarity)
U	With light/surge voltage suppressor (No polarity)

∗ In the case of AC, since the rectifier prevents the production of surge voltage, there is no type "S".
∗ R, U: DC only
∗ With energy saving circuit: For type "Z" only

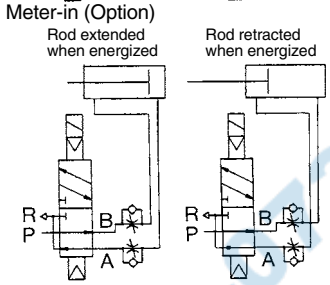
SMC

JIS Symbol

Meter-out



Meter-in (Option)



The allowable lateral load, the allowable rotational torque for a plate, and the operation range of a stopper are the same as these of Series MGQ. For details, refer to pages 337 to 351.

Standard Stroke

Model	Standard stroke (mm)
MVGQ$^{M}_{L}$12/16	10, 20, 30, 40, 50, 75, 100
MVGQ$^{M}_{L}$20	20, 30, 40, 50, 75, 100 125, 150, 175, 200

Intermediate stroke (mm)
As for the intermediate strokes (by the 1 mm interval) other than the standard strokes above are manufactured by means of installing a spacer. Example) In the case of MVGQM20-35 st, a 5 mm width spacer is installed in the MVGQM20-40 st body; thus, the full length dimension are the same as the 40 st.

Made to Order Specifications

(For details, refer to pages 1847.)

Symbol	Specifications
-XA□	Change of guide rod end shape
-XC79	Tapped hole, drilled hole, pinned hole machined additionally

Specifications

Bore size (mm)		**12, 16, 20**
Action		Double acting
Fluid		Air
Bearing type		Slide bearing (MVGQM), Ball bushing bearing (MVGQL)
Operating pressure range (MPa)	**2 position single**	0.15 to 0.7
	2 position double	ø12, ø16: 0.12 to 0.7, ø20: 0.1 to 0.7
Ambient and fluid temperature (°C)		–10 to 50°C (No freezing)
Piston speed (mm/s)		50 to 500 (Refer to the page 1643.)
Cushion		Rubber bumper on both ends
Lubrication		Non-lube
Stroke length tolerance (mm)		$^{+1.5}_{0}$

Solenoid Valve Specifications

Model			**Series SYJ3000**
Manual override			Non-locking push type, Push-turn locking slotted type, Push-turn locking lever type
Pilot exhaust			Pilot valve individual exh. style, Main/Pilot valve common exh. style
Shock/Impact resistance (m/s²) (1)			150/30
Enclosure			Dustproof (∗ M8 connector: IP65)
Electrical entry			Grommet (G)/(H), L plug connector (L), M plug connector (M), M8 connector (W)
Coil rated voltage (V)	**DC**		24, 12, 6, 5, 3
	AC50/60 Hz		100*, 110*, 200*, 220*
Allowable voltage			±10% of the rated voltage*
Power consumption (2)	**DC**	**Standard type**	0.35 (With indicator light: 0.4)
		With energy saving circuit	0.1 (With indicator light only)
Apparent power (2) **(VA)**	**AC**	**100 V**	0.78 (With indicator light: 0.81)
		110 V [115 V]	0.86 (With indicator light: 0.89) [0.94 (With indicator light: 0.97)]
		200 V	1.18 (With indicator light: 1.22)
		220 V [230 V]	1.30 (With indicator light: 1.34) [1.42 (With indicator light: 1.46)]
Surge voltage suppressor			Diode (Non-polar type: Varistor)
Indicator light			LED

∗ Conforming to IEC60529
∗ 100 VAC and 115 VAC, 200 VAC and 230 VAC are common.
∗ Allowable voltage fluctuation for 115 VAC or 230 VAC is –15 to +5% of the rated voltage.
∗ For types S, Z and T with an energy saving circuit, the voltage will drop due to the internal circuit. Allowable voltage fluctuation must be in the range below.
Types S, Z 24 VDC: –7 to +10 %, 12 VDC: –4 to +10 %
Type T 24 VDC: –8 to +10 %, 12 VDC: –6 to +10 %

Note 1) Impact resistance: No malfunction resulted from the impact test using a drop impact tester. The test was performed on the axis and right angle directions of the main valve and armature, one time each in both energized and de-energized states.
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states to the axis and right angle directions of the main valve and armature. (Value in the initial stage.)

Note 2) At the rated voltage.

Applicable Auto Switch/Refer to pages 1719 to 1827 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC		Load voltage AC	Auto switch model Perpendicular	Auto switch model In-line	Lead wire length (m) 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state switch	——	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**M9NV**	**M9N**	●	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				**M9PV**	**M9P**	●	●	●	○	○		
				2-wire		12 V		**M9BV**	**M9B**	●	●	●	○	○	—	
	Diagnostic indication (2-color indication)			3-wire (NPN)		5 V, 12 V		**M9NWV**	**M9NW**	●	●	●	○	○	IC circuit	
				3-wire (PNP)				**M9PWV**	**M9PW**	●	●	●	○	○		
				2-wire		12 V		**M9BWV**	**M9BW**	●	●	●	○	○	—	
Reed switch	——	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**A96V**	**A96**	●	–	●	–	–	IC circuit	—
			No	2-wire	24 V	12 V	100 V	**A93V**	**A93**	●	–	●	–	–	—	Relay, PLC
							100 V or less	**A90V**	**A90**	●	–	●	–	–	IC circuit	

∗ Lead wire length symbols: 0.5 m ····· Nil (Example) M9NW
1 m ····· M (Example) M9NWM
3 m ····· L (Example) M9NWL
5 m ····· Z (Example) M9NWZ

∗ Solid state auto switches marked with "○" are produced upon receipt of order.

∗ Since there are other applicable auto switches than listed, refer to page 1665 for details.
∗ For details about auto switches with pre-wired connector, refer to pages 1784 and 1785.
∗ Auto switches are shipped together (not assembled).

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