3 Port Solenoid Valve Pilot Operated Poppet Type VG342 Series Bubber Seal



Low power consumption

4 W DC (Standard type) 1.8 W DC (Energy-saving type)

No lubrication required

Possible to use in vacuum or under low pressures

External pilot Vacuum: Up to -101.2 kPa Low pressure: 0 to 0.2 MPa

Changeable actuation: N.C., N.O., or external pilot

Can be used as a selector or divider valve (External pilot)

External Pilot

Use external pilot type in the following cases:

- For vacuum or for low pressure 0.2 MPa or less
- When having P port downsized in diameter
- When using A port as the atmospheric releasing port, e.g. air blower



Symbol N.C. N.O. (A) (A) M W 13 (P) (R) 13 (P) (B) External pilot (A) $\triangleleft \setminus$ 13 (P) (B) ×



VG342 Series

AC, 100 V or more Terminal no. 1 48 VDC or less Terminal no. 1 1 the case of in the case of interview o

Terminal no. 2 (-)

Electrical Connection

In the case of DIN terminal (with light/surge voltage suppressor), the connection is as follows. Connect each to the power supply side.



How to Change Passage State





When changing the passage state, confirm that pressure has been removed from the valve.

Unscrew the M4 x 0.7 hexagon socket head cap screw in the changeover plate and match the 4 mark on the adapter plate with the character on the changeover plate. Piping is as follows.

Mounting Screw Tightening Torques M4: 1.4 N·m

Piping

Passage Port	Р	Α	R	
N.C.	Inlet	Outlet	Exhaust side (Plug, in case of 2 port valve)	
N.O.	Exhaust side (Plug, in case of 2 port valve)	Outlet	Inlet	
External	Universal porting (Piping of inlet pressure side is possible anywhere)			

Note 1) In the case of internal pilot, confirm that a plug is inserted to X port. If not, insert a R 1/8 plug.

Note 2) In the case of external pilot, supply air pressure from X port.

Confirm the safety sufficiently and conduct carefully when changing the passage state or restarting after changes.

Specifications

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Type of actuation	In common between N.C. and N.O.			
Fluid	Air			
Operation	Internal pilot type External pilot type			
Operating pressure range	0.2 to 0.9 MPa	-101.2 kPa to 0.9 MPa		
External pilot operating pressure range	Same as the operat pressure (Min. 0.2 M			
Response time (1)	30 ms or less (at the pressure of 0.5 MPa)			
Max. operating frequency	5 c/s (Min. operating frequency: 1 c/30 days based on JIS B 8374-1981)			
Ambient and fluid temperature	-10 to 50°C (No freezing)			
Lubrication	Not required (Use turbine oil Class 1 ISO VG32, if lubricated.)			
Manual override	Push type (Non-locking)			
Mounting orientation	Unrestricted			
Impact/Vibration resistance (m/s ²) (2)	150/50			
Weight	1.0 kg			

Note 1) Based on dynamic performance test JIS B 8419: 2010. (Coil temperature 20°C, at rated voltage, without surge voltage suppressor)

Note 2) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)

Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 1000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)

Flow Rate Characteristics

	Flow rate characteristics											
Port size	$1 \rightarrow 2 (P \rightarrow A)$			$2 \rightarrow 3 (A \rightarrow R)$		$2 \rightarrow 1 (A \rightarrow P)$		$3 \rightarrow 2 (R \rightarrow A)$				
	C [dm³/(s-bar)]	b	Cv	C [dm³/(s-bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv	C [dm³/(s-bar)]	b	Cv
1/2	26	0.38	7.0	27	0.37	7.4	27	0.36	7.3	25	0.37	6.8
3/4	38	0.30	9.8	38	0.32	9.8	40	0.22	9.8	40	0.20	9.6

Derteine	Effective area (mm ²)					
Port size	$1 \rightarrow 2 (P \rightarrow A)$	$2 \rightarrow 3 (A \rightarrow R)$				
1	210	235				

Pilot Valve Assembly Specifications

Electrical entry			Grommet (G), DIN terminal (D)	
Lead wire color			100 VAC: Blue, 200 VAC: Red, 24 VDC: Red/Black	
Enclosure			Dusttight	
Call retail valtage (11)		50/60 Hz)	100, 200, 110, 220, 240	
Con rated voltage (V)	DC		24, 12	
Allowable voltage fluctuation			-15 to +10% of rated voltage	
		Inrush	12.7 (50), 10.7 (60)	
Apparent power VA (Hz)	AC	Holding	7.6 (50), 5.4 (60)	
Power consumption	DC		Without indicator light: 4 W With indicator light: 4.2 W	

Use "Energy-saving type" if low power consumption is required for electronic control. \ast DC only

Specifications different from standard are as follows.

Power consumption	DC	Without indicator light: 1.8 W With indicator light: 2 W
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Use "Continuous duty type" if energizing the valve for a long time.

Specifications different from standard are as follows.

Apparent power VA (Hz)	10	Inrush	7.9 (50), 6.2 (60)
	AC	Holding	5.8 (50), 3.5 (60)
Power consumption	DC		Without indicator light: 1.8 W With indicator light: 2 W

DIN Connector part number

Standard	B1BO9-2A	
CE/UKCA-compliant	GM209NJ-B17	



Construction



Component Parts

Description	Material	Note
Body		
Adapter plate	Aluminum alloy	Color: Platinum silver
End plate		
Retainer	Resin	
Poppet valve	Aluminum alloy/NBR	
Piston	Resin	
Spring	Stainless steel	
	Body Adapter plate End plate Retainer Poppet valve Piston Spring	Body Internal Adapter plate Aluminum alloy End plate Resin Poppet valve Aluminum alloy/NBR Piston Resin Spring Stainless steel



Component Parts

No.	Description	Material	Part no.			
8	Pilot valve assembly	-	VO307□-□□1-X84(-Q)*			
+ Eor	+ For "How to Order Bilet Volve Assembly" refer to page 1100					

Order Pilot Valve Assembly", refer to page 1109.

Mounting Screw Tightening Torques M4: 1.4 N·m

Precautions

- Be sure to read this before handling the products.

Refer to page 8 for safety instructions and pages 9 to 15 for 3/4/5 port solenoid valve precautions.

▲ Caution Precautions

- 1. Since PE port is the exhaust port of the pilot valve, do not attach a plug or reduce the port diameter.
- 2. X port is the pressure supply port of the pilot valve and PE port is the exhaust port of the pilot valve. Avoid mismatching when piping.

Continuous Duty

If energizing the valve for a long time, use assembly: "VO307E-DDD1-X84").

- 1. This model is for continuous duty, not for high cycle rates. But even in low cycle rates, if energizing the valve more than once a day, please consult with SMC.
- 2. Make sure to cycle valve at least once every 30 days.

How to Calculate the Flow Rate

For obtaining the flow rate, refer to the Web Catalog.

How to Use DIN Terminal

1. Disassembly

- 1) After loosening the screw ①, then if the housing 2 is pulled in the direction of the screw, the connector will be removed from the body of equipment (solenoid, etc.).
- 2) Pull the screw 1 out of the housing 2.
- 3) On the bottom part of the terminal block 3, there's a cut-off part 9. If a small flat head screwdriver is inserted between the opening in the bottom, terminal block (3) will be removed from the cover 2. (Refer to Figure 1.)
- 4) Remove the cable gland ④ and plain washer (5) and rubber seal (6).
- 2. Wiring
 - 1) Pass them through the cable 7 in the order of cable ground (4), washer (5), rubber seal 6, and then insert into the housing 2).
 - 2) From the terminal block 3, loosen the screw (1), then pass the lead wire (1) through, then again tighten the screw 11).
- Note 1) Tighten within the tightening torque of 0.5 N·m ±15%.
- Note 2) Cable 7 outside diameter: ø6 to ø8 mm (ø4.5 to ø7 mm for CE-compliant products)

3. Assembly

1) Passing through the cable 7, the cable gland 4, plain washer 5, and rubber seal 6, housing 2 in this order, and then connect with the terminal block 3. After that, set the terminal block 3 on the housing 2.

(Push it down until you hear the click sound.)

- 2) Putting rubber seal 6, plain washer 5, in this order into the cable introducing slit on the housing 2, then further tighten the cable gland ④ securely.
- 3) Insert the gasket (8) or between the bottom part of terminal block (3) and a plug attached to equipment, and then screw (1) in from the top of the housing to tighten it.
- Note 1) Tighten within the tightening torque of 0.5 N·m ±20%.
- Note 2) Connector orientation can be changed by 180 degrees depending on how to assemble the housing 2 and the terminal block 3.



VG342 Series

Dimensions

Grommet (G)





SMC

Dimensions

DIN terminal (D)

