3 Port Solenoid Valve **Pilot Operated Poppet Type** VG342 Series Rubber Seal

Note) CE-compliant: For DIN terminal only

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

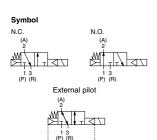
Can be used as a selector or divider valve (External pilot)

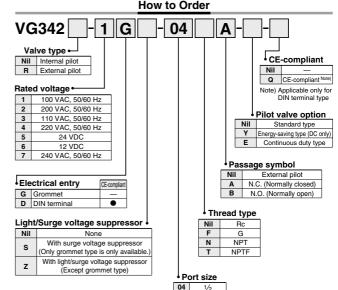
External Pilot

Use external pilot type in the following cases:

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



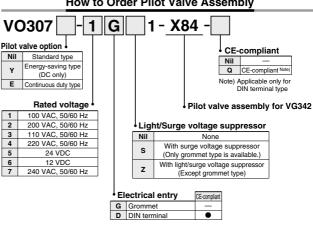




How to Order Pilot Valve Assembly

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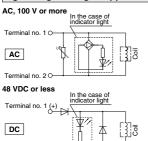
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VG342 Series

Light/Surge Voltage Suppressor



Electrical Connection

Terminal no. 2 (-)

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

M4×0.7



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

Unscrew the M4 x 0.7 hexagon socket head cap screw in the changeover plate and match the ◀ 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

| riping | | | | | |
|--------------|--|--------|--|--|--|
| Passage Port | P | 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

| 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 | | Same as the operating | | |
| pressure range | _ | pressure (Min. 0.2 MPa) | | |
| 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/s²) (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

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 → | $1 \rightarrow 2 (P \rightarrow A)$ | | $2 \rightarrow 3 (A \rightarrow R)$ | | $2 \rightarrow 1 (A \rightarrow P)$ | | $3 \rightarrow 2 (R \rightarrow A)$ | | | | |
| | C [dm³/(s-bar)] | b | Cv | C [dm³/(s-bar)] | b | Cv | C [dm ³ /(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 |

| Port size | Effective area (mm²) | | | |
|-----------|-------------------------------------|-------------------------------------|--|--|
| 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 | |
| Coil rated voltage (V) | AC (50/60 Hz) DC | | 100, 200, 110, 220, 240 | |
| Coll rated voltage (v) | | | 24, 12 | |
| Allowable voltage fluctuation | | | -15 to +10% of rated voltage | |
| Apparent power VA (Hz) | AC | Inrush | 12.7 (50), 10.7 (60) | |
| Apparent power va (nz) | AC | Holding | 7.6 (50), 5.4 (60) | |
| Power consumption DC | | DC | Without indicator light: 4 W | |
| rower consumption | DC | | With indicator light: 4.2 W | |

Energy-saving type: VG342 -- -- -- -- (-Q)

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

Specifications different from standard are as follows

| Power consumption | DC | Without indicator light: 1.8 W With indicator light: 2 W |
|-------------------|----|---|

Continuous duty type: VG342 -- -- -- -- -- (-Q)

Use "Continuous duty type" if energizing the valve for a long time

Specifications different from standard are as follows.

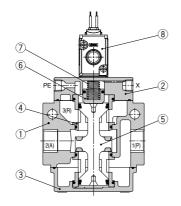
| Apparent power VA (Hz) | AC | Inrush Holding | 7.9 (50), 6.2 (60) 5.8 (50), 3.5 (60) |
|------------------------|----|-------------------|---|
| Power consumption | DC | | Without indicator light: 1.8 W With indicator light: 2 W |

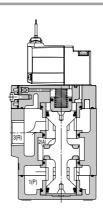
DIN Connector part number

| Standard | B1BO9-2A |
|--------------|-------------|
| CE-compliant | GM209NJ-B17 |



Construction





Component Parts

| No. | Description | Material | Note | |
|-----|---------------|--------------------|------------------------|--|
| 1 | Body | | | |
| (2) | Adapter plate | Aluminum alloy | Color: Platinum silver | |
| 3 | End plate | 1 | | |
| 4 | Retainer | Resin | | |
| (5) | Poppet valve | Aluminum alloy/NBR | | |
| 6 | Piston | Resin | | |
| 7 | Spring | Stainless steel | | |

Component Parts

| No. | Description | Material | Part no. |
|-----|----------------------|----------|----------------------|
| 8 | Pilot valve assembly | _ | VO307□-□□□1-X84(-Q)* |

* For "How to Order Pilot Valve Assembly", refer to page 1301.

Mounting Screw Tightening Torques M4: 1.4 N⋅m

Precautions

Be sure to read this before handling the products.

Refer to back page 50 for Safety Instructions and pages 3 to 9 for 3/4/5 Port Solenoid Valve Precautions.

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 "VG342□-□□□-□□-E" (Pilot valve assembly: "VO307E-UU1-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 front matter.

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 11, then pass the lead wire 10 through, then again tighten the screw

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.

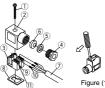
(Push it down until you hear the click sound.)

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 ® 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 2 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.





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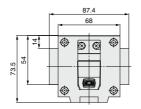
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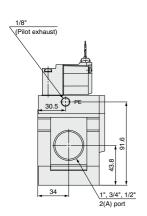
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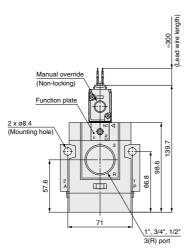
VG342 Series

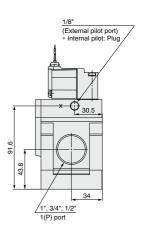
Dimensions

Grommet (G)





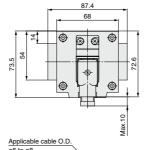


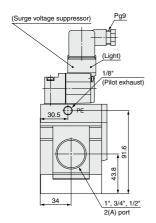


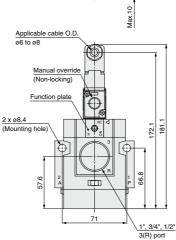
3 Port Solenoid Valve Pilot Operated Poppet Type VG342 Series

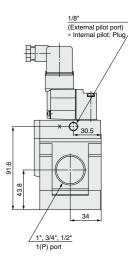
Dimensions

DIN terminal (D)









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