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

[Option] 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

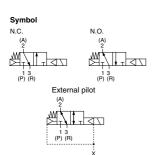
# Possible to use in vacuum or under low pressures

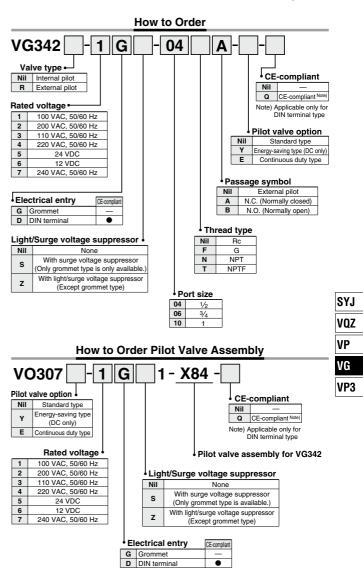
External pilot Vacuum: Up to -101.2 kPa Low pressure: 0 to 0.2 MPa

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

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







# VG342 Series

#### AC, 100 V or more Terminal no. 1 O 48 VDC or less Terminal no. 1 (+) DC AC, 100 V or more In the case of In the case of

Terminal no. 2 (-)

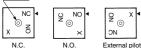
#### Electrical Connection

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

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 -101.2 kPa to 0.2 MPa		0.2 MPa	
pressure	Operating pressure 0.2 to 0.9 MPa	—	Equivalent operating pressure	
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 <sup>2</sup> ) (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

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 ch	naracter	istics				
Port size	1 →	2 (P –	→ 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

Port size	Effective area (mm <sup>2</sup> )				
	$1 \rightarrow 2 (P \rightarrow A)$	$2 \rightarrow 3 (A \rightarrow R)$			
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/Blac	
Enclosure			Dusttight	
Coil rated voltage (V)		50/60 Hz)	100, 200, 110, 220, 240	
Coll fated voltage (v)		DC	24, 12	
Allowable voltage fluctuation			-15 to +10% of rated voltage	
	AC	Inrush	12.7 (50), 10.7 (60)	
Apparent power VA (Hz)	AC	Holding	7.6 (50), 5.4 (60)	
Power consumption	tion DC		Without indicator light: 4 W With indicator light: 4.2 W	

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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.

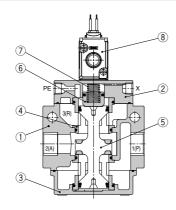
Apparent power VA (Hz)	AC	Inrush Holdina	7.9 (50), 6.2 (60) 5.8 (50), 3.5 (60)
Power consumption	DC		Without indicator light: 1.8 W With indicator light: 2 W

#### **DIN Connector part number**

Standard	B1BO9-2A
CE-compliant	GM209NJ-B17

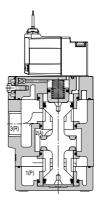


# Construction



#### **Component Parts**

No.	Description	Material	Note	
1	Body			
2	Adapter plate	Aluminum alloy	Color: Platinum silver	
3	End plate	-		
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 Bilet Value Accomplu" refer to page 1301					

Order Pilot Valve Assembly", refer to page 1301.

# A Caution

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.
- ▲ 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 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 (1), then pass the lead wire (1) through, then again tighten the screw 1
- Note 1) Tighten within the tightening torque of 0.5 N·m ±15%.

Note 2) Cable 7 outside diameter: ø6 to ø8 mm

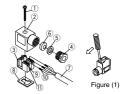
#### 3. Assembly

1) Passing through the cable 7, the cable gland 4, plain washer 5, and

SMC

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 (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.

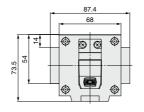


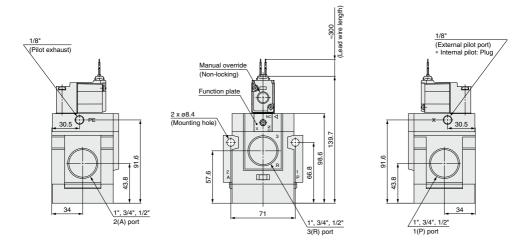


# VG342 Series

### Dimensions

# Grommet (G)

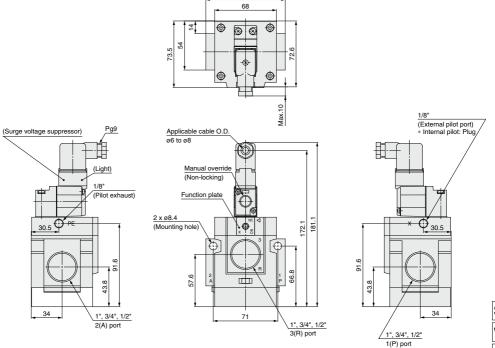




# 3 Port Solenoid Valve Pilot Operated Poppet Type **VG342** Series

### Dimensions

# DIN terminal (D)



87.4

SYJ
VQZ
VP
VG
VP3