

# Rubber Seal 3 Port Pilot Poppet Solenoid Valve Series VG342

**Light Weight: 1.1kg**  
**Large Flow Capacity:**  
**1/N/min 12857.65**

**Low Power Consumption**  
4.8WDC (Standard)  
2WDC (Energy saver)

**No lubrication required**

**Possible to use in vacuum or under low pressures**

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

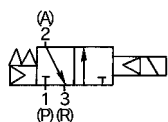
**Changeable actuation: N.C., N.O. or External pilot**

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

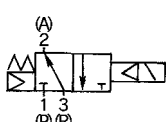


JIS Symbol

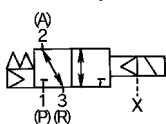
N.C.



N.O.



External pilot



## Specifications

| Actuation                                  | Common to NC, NO   |  |
|--|--|--|
|  | Internal pilot type  | External pilot type                      |
| Operation                                  | 0.2 to 0.9MPa  | -101.2kPa to 0.9MPa                      |
| Operating pressure range                   | —  | Equivalent operating pressure Min.0.2MPa |
| External pilot pressure                    | 30ms or less (at 0.5MPa)   |  |
| Response time <sup>(1)</sup>               | 5c/s (Min. operating frequency: 1c/30days as per JIS B8374-1981)           |  |
| Max. operating frequency                   | Max.50°C   |  |
| Ambient and fluid temperature              | Not requirer (Use turbine oil class 1 ISO VG32 if lubrication is required) |  |
| Lubrication                                | Non-locking push style   |  |
| Manual override                            | Free   |  |
| Mounting position                          | 150/50   |  |
| Impact/Vibration resistance <sup>(2)</sup> | 1.1kg  |  |
| Weight                                     |  |  |



Note 1) Based on dynamic performance test JIS B8374-1981.(Coil temperature 20°C,at rated voltage,without surge voltage suppressor)

Note 2) 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,for both energized and de-energized states.

Vibration resistance: No malfunction resulted from occurred in a one-sweep test between 45 and 1000 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)

## Effective Area/N/min

| Port size                         | 1/2 |         |          | 3/4      |          |          | 1        |          |          |
|-----------------------------------|-----|---------|----------|----------|----------|----------|----------|----------|----------|
|                                   | P→A | A→R     | N/min    | P→A      | A→R      | N/min    | P→A      | A→R      | N/min    |
| Effective area (mm <sup>2</sup> ) | P→A | 140     | 185      | 210      | 145      | 195      | 235      | 270      | 315      |
|                                   | A→R | 145     | 195      | 235      | 180      | 225      | 270      | 315      | 360      |
| N/min                             | P→A | 7655.7  | 10109.45 | 11483.55 | 7950.15  | 10600.2  | 12857.65 | 14832.75 | 17146.85 |
|                                   | A→R | 7950.15 | 10600.2  | 12857.65 | 10109.45 | 13443.75 | 15879.75 | 19295.85 | 22747.95 |

## Pilot Valve Assembly Specifications

|                          |  |                                      |                      |
|--------------------------|--|--------------------------------------|----------------------|
| Electrical entry         | DIN connector (D)                              |                                      |                      |
| Lead wire color          | 100V AC: Blue, 200V AC: Red, 24V DC: Red/Black |                                      |                      |
| Enclosure                | Dust proof                                     |                                      |                      |
| Coil rated voltage (V)   | AC (50/60 Hz)                                  | 100, 200, 24*, 48*, 110*, 220*, 240* |                      |
|                          | DC   | 24, 6*, 12*, 48*, 100*               |                      |
| Allowable voltage        | -15% to +10% of rated voltage                  |                                      |                      |
| Apparent power VA (Hz)** | AC   | Inrush                               | 12.7 (50), 10.7 (60) |
|                          |  | Holding                              | 7.6 (50), 5.4 (60)   |
| Power consumption**      | DC   | 4.8W, 5W (with light)                |                      |



\*Option

\*\*At rated voltage

## Option Specifications

### Energy Saver Style: VO307Y

Use "VO307Y" (2W DC) when an electronic control requires low power consumption.

The following specification is different from standard.

|                   |                          |
|-------------------|--------------------------|
| Power consumption | 2WDC*, 2.2W (with light) |
|-------------------|--------------------------|



\*100V DC: 2.4W, 2.6W (with light)

### Continuous Duty Style: VG342□-□□□-□□□-E-Q

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

The following specification is different from standard.

|                                       |    |                       |                    |
|---------------------------------------|----|-----------------------|--------------------|
| Apparent power VA (Hz) <sup>(1)</sup> | AC | Inrush                | 7.9 (50), 6.2 (60) |
|                                       |    | Holding               | 5.8 (50), 3.5 (60) |
| Power consumption <sup>(1)</sup>      | DC | 2W, 2.2W (with light) |                    |



Note 1) At rated voltage



## How to Order

**E** VG342 **1** **G** **04** **A** **-Q**

### Valve specification

|          |                |
|----------|----------------|
| —        | Internal pilot |
| <b>R</b> | External pilot |

### Rated voltage

|           |                 |
|-----------|-----------------|
| <b>1</b>  | 100V AC 50/60Hz |
| <b>2</b>  | 200V AC 50/60Hz |
| <b>3*</b> | 110V AC 50/60Hz |
| <b>4*</b> | 220V AC 50/60Hz |
| <b>5</b>  | 24V DC          |
| <b>6*</b> | 12V DC          |
| <b>7*</b> | 240V AC 50/60Hz |
| <b>9*</b> | Others          |



\*Option  Contact SMC for other voltages (9)

### Electrical entry

|           |                                   |
|-----------|-----------------------------------|
| <b>D</b>  | DIN connector (with connector)    |
| <b>DO</b> | DIN connector (without connector) |

### Ordering source area code

| Code     | areas                    |
|----------|--------------------------|
| -        | Japan, Asia<br>Australia |
| <b>E</b> | Europe                   |
| <b>N</b> | North America            |

 Protective class class I (Mark: )

### Pilot valve option

|           |                 |
|-----------|-----------------|
| —         | Standard        |
| <b>Y*</b> | Energy saver    |
| <b>E*</b> | Continuous duty |

\*Option

### Flow path

|          |                            |
|----------|----------------------------|
| —        | External pilot (N.O./N.L.) |
| <b>A</b> | N.C. (Normally closed)     |
| <b>B</b> | N.O. (Normally open)       |

### Thread

|           |         |
|-----------|---------|
| —         | Rc (PT) |
| <b>F*</b> | G (PF)  |
| <b>N*</b> | NPT     |
| <b>T*</b> | NPTF    |

\*Option

### Port size

|           |     |
|-----------|-----|
| <b>04</b> | 1/2 |
| <b>06</b> | 3/4 |
| <b>10</b> | 1   |

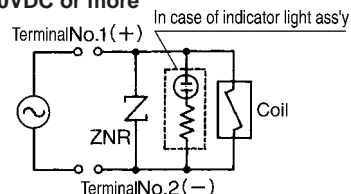
### Indicator light and surge voltage suppressor

|          |  |
|----------|--|
| —        | None   |
| <b>Z</b> | With indicator light and surge voltage suppressor (Except for Grommet) |

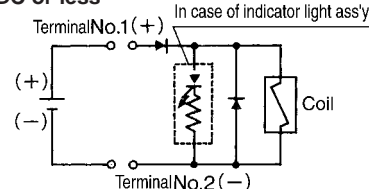
## Caution

### Indicator Light and Surge Voltage Suppressor

AC, 100VDC or more



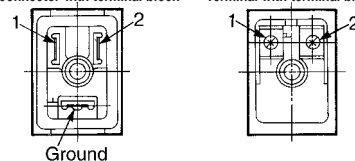
48VDC or less



## Electrical Connection

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

DIN connector with terminal block      Terminal with terminal block



| Terminal NO.  | 1 | 2 |
|---------------|---|---|
| DIN connector | + | - |
| Terminal      | + | - |

## How to Order Pilot Valve Assembly

**VO307** **1** **G** **X84** **-Q**

### Valve option

|           |                 |
|-----------|-----------------|
| —         | Standard        |
| <b>Y*</b> | Energy saver    |
| <b>E*</b> | Continuous duty |

\*Option

### Rated Voltage (Standard)

|           |                 |
|-----------|-----------------|
| <b>1</b>  | 100V AC 50/60Hz |
| <b>2</b>  | 200V AC 50/60Hz |
| <b>3*</b> | 110V AC 50/60Hz |
| <b>4*</b> | 220V AC 50/60Hz |
| <b>5</b>  | 24V DC          |
| <b>6*</b> | 12V DC          |
| <b>7*</b> | 240V AC 50/60Hz |

\*Option

### Pilot valve assembly for VG342

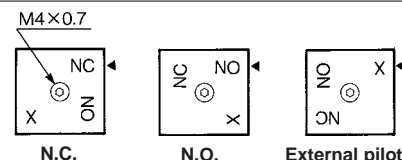
### Indicator light and surge voltage suppressor

|          |  |
|----------|--|
| —        | None   |
| <b>S</b> | With surge voltage suppressor (Grommet only)                           |
| <b>Z</b> | With indicator light and surge voltage suppressor (Except for Grommet) |

### Electrical entry

|           |                                   |
|-----------|-----------------------------------|
| <b>D</b>  | DIN connector (with connector)    |
| <b>DO</b> | DIN connector (without connector) |

## How to Change the Passing 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 ◀ mark on the adapter plate with the character on the changeover plate. Piping is as follows.

### Piping

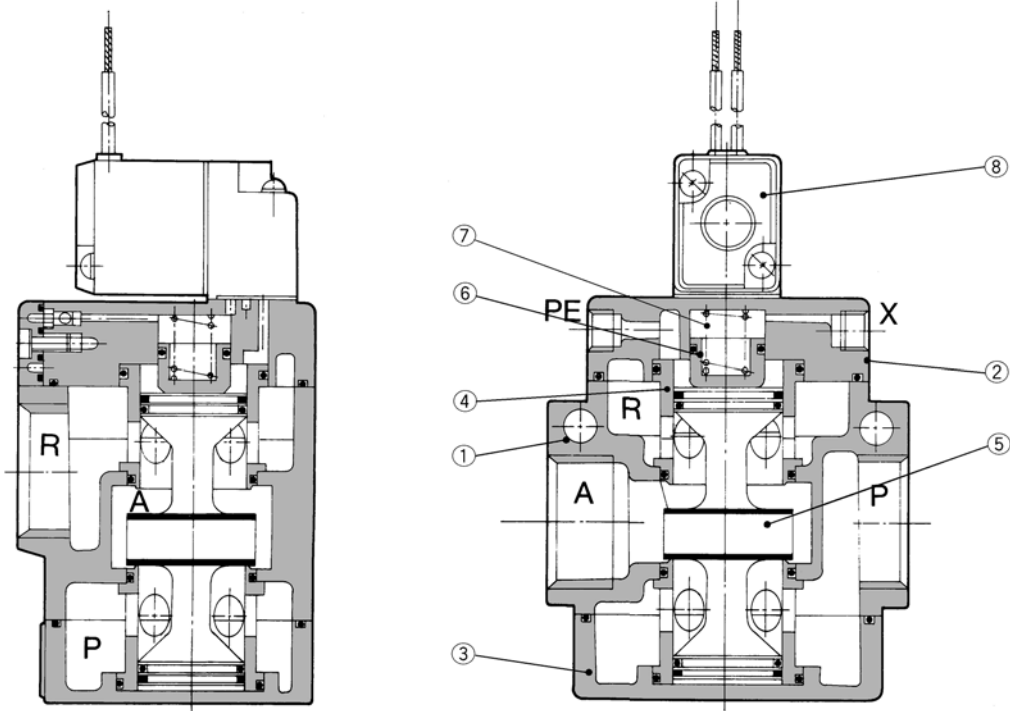
| Passage         | Port | P  | A                       | R                                       |
|-----------------|------|--|-------------------------|---|
| <b>NC</b>       |      | Primary pressure side  | Secondary pressure side | Exhaust (Plug, in case of 2 port valve) |
| <b>NO</b>       |      | Exhaust (Plug, in case of 2 port valve)                                  | Secondary pressure side | Primary pressure side                   |
| <b>External</b> |      | Universal porting (Piping of primary pressure side is possible anywhere) |                         |   |

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

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

# VG342

## Construction



### Component Parts

| No. | Description   | Material           | Notes                           |
|-----|---------------|--------------------|---------------------------------|
| ①   | Body          | Aluminum alloy     | Paint color:<br>Platinum silver |
| ②   | Adapter plate |                    |                                 |
| ③   | End plate     |                    |                                 |
| ④   | Retainer      | Brass              |                                 |
| ⑤   | Spool valve   | Aluminum alloy/NBR |                                 |
| ⑥   | Piston        | Resin              |                                 |
| ⑦   | Spring        | Stainless steel    |                                 |

### Replacement Parts

| No. | Description       | Material | Part No.     |
|-----|-------------------|----------|--------------|
| ⑧   | Pilot valve ass'y | —        | VO307□-□□□-Q |



\* Refer to p.2.7-2 for "How to Order Pilot Valve Assembly"

## Precautions

**Be sure to read before handling. Refer to p.0-33 to 0-36 for Safety Instruction and common precautions.**

### Caution Operation

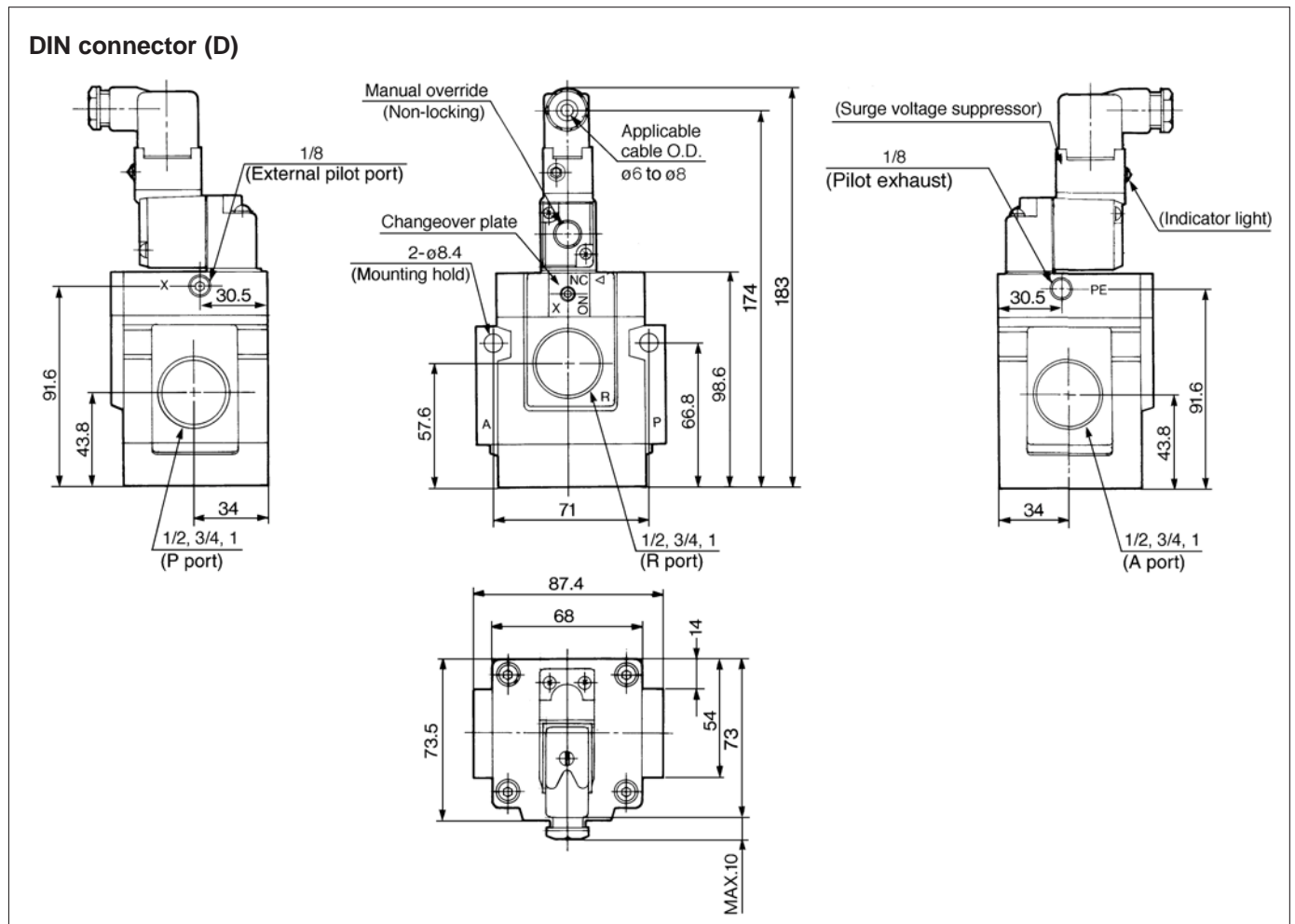
- Since PE port is the exhaust port of the pilot valve, do not attach a plug or reduce the port diameter.
- X port is the pressure supply port of the pilot valve and EP port is the exhaust port of the pilot valve. Avoid mismatching when piping.
- The manual portion contains a breather hole for the core. Take proper measures to prevent dust or foreign matter from accumulating in this area.

### Continuous Duty

If energizing the valve for a long time, use "VG342□-□□□-□□□-E-Q" (Pilot valve assembly: "VO307E□□□-Q").

- This is for continuous duty, not for high cycle rates. If the cycle rate is more than once a day, consult SMC.
- Make sure to cycle valve at least once every 30 days.

## Dimensions



- SY
- SYJ
- VK
- VZ
- VT
- VT
- VP
- VG**
- VQ
- VQZ

# VG342