

3 Port Solenoid Valve Direct Operated Poppet Type VT325 Series

Rubber Seal



Note) CE/UKCA-compliant. Electroloral entry is applicable only for the DIN terminal.

Compact yet provides a large flow capacity

Dimensions (W x H x D)....55 x 118 x 53 (Grommet)

C: 0.61 dm³/(s-bar)
{Rc 3/8 (Passage 2 → 3)}

A single valve with 6 valve functions

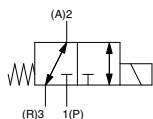
(Universal porting type)
Six valve functions can be attained by selecting the piping ports. (Enabling the N.C. valve, N.O. valve, divider valve, selector valve, etc. to be used as desired.)

Suitable for use in vacuum applications

-101.2 kPa
(For vacuum specifications type: VT/O325V)



Symbol



How to Order

VT325 - **02** **1** **G** - - - -

For manifold:
Enter "VO".

Valve option

| | |
|-----|------------|
| Nil | Standard |
| V | For vacuum |

Port size

| | |
|----|--|
| 02 | 1/4 |
| 03 | 3/8 |
| 00 | Without connection port (For manifold) |

Rated voltage

| | |
|---|-------------------|
| 1 | 100 VAC, 50/60 Hz |
| 2 | 200 VAC, 50/60 Hz |
| 3 | 110 VAC, 50/60 Hz |
| 4 | 220 VAC, 50/60 Hz |
| 5 | 24 VDC |
| 6 | 12 VDC |
| 7 | 240 VAC, 50/60 Hz |

Note) For other rated voltages, please consult with SMC.

Thread type

| | |
|-----|------|
| Nil | Rc |
| F | G |
| N | NPT |
| T | NPTF |

Manual override

| | |
|-----|------------------------------|
| Nil | Non-locking type |
| M | Locking type (Tool required) |

Surge voltage suppressor

| | | | | | | | | | | | | | |
|--------|------------------|---|---|---|----|----|-----|---|----|---|----|----|-----|
| Symbol | Electrical entry | G | C | D | DO | DL | DOL | T | TL | D | DO | DL | DOL |
| Nil | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| S | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

S: With surge voltage suppressor

Electrical entry

| | | |
|-----|--|---|
| G | Grommet, Lead wire length 200 mm | — |
| C | Conduit | — |
| D | DIN terminal | ● |
| DO | DIN terminal, Without connector | ● |
| T | Conduit terminal | — |
| TL* | Terminal with indicator light | — |
| DL | DIN terminal with indicator light | ● |
| DOL | DIN terminal with indicator light, Without connector | ● |

Manifold

| Model | Applicable manifold | Accessory |
|----------------|-----------------------------|---|
| VO325-00□□(-Q) | B mount common exhaust type | Gasket (DXT083-13-1) Bolts (DXT083-19-1, 2 pcs.) |

Specifications

| | |
|--|---|
| Type of actuation | Direct operated type 2 position single solenoid |
| Fluid | Air |
| Operating pressure range | 0 to 1.0 MPa |
| Ambient and fluid temperature | 5 to 50°C |
| Max. operating frequency | 5 Hz |
| Response time ⁽¹⁾ | 30 ms or less (at the pressure of 0.5 MPa) |
| Lubrication | Not required (Use turbine oil Class 1 ISO VG32, if lubricated.) |
| Manual override | Non-locking push type |
| Impact/Vibration resistance ⁽²⁾ | 150/50 m/s ² |
| Enclosure | Dustproof |

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

Solenoid Specifications

| | | | |
|-------------------------------|--|---------|------------------------------|
| Electrical entry | Grommet, Conduit, DIN terminal, Conduit terminal | | |
| Coil rated voltage | 100, 200 VAC, 50/60 Hz, 24 VDC | | |
| Allowable voltage fluctuation | -15 to +10% of rated voltage | | |
| Apparent power ⁽³⁾ | AC | Inrush | 50 Hz: 75 VA 60 Hz: 60 VA |
| | | Holding | 50 Hz: 27 VA 60 Hz: 17 VA |
| | DC | 12 W | |

Note 3) At rated voltage



VT325 Series

Flow Rate Characteristics/Weight

| Valve model | Port size | Flow rate characteristics | | | | | | | | | | | | Weight |
|----------------------------|-----------|------------------------------|------|-----|------------------------------|------|-----|------------------------------|------|-----|------------------------------|------|-----|---|
| | | 1 → 2 (P → A) | | | 2 → 3 (A → R) | | | 3 → 2 (R → A) | | | 2 → 1 (A → P) | | | |
| | | C [dm ³ /(s·bar)] | b | Cv | C [dm ³ /(s·bar)] | b | Cv | C [dm ³ /(s·bar)] | b | Cv | C [dm ³ /(s·bar)] | b | Cv | |
| VT325 | 1/4 | 5.5 | 0.37 | 1.4 | 5.9 | 0.35 | 1.5 | 5.5 | 0.33 | 1.4 | 5.7 | 0.32 | 1.4 | Grommet 0.55 kg (For AC) 0.60 kg (For DC) |
| VT325V (Vacuum spec. type) | | 5.5 | 0.37 | 1.4 | 6.1 | 0.37 | 1.6 | 5.7 | 0.34 | 1.4 | 6.6 | 0.25 | 1.5 | |
| VT325V (Vacuum spec. type) | 3/8 | 5.5 | 0.37 | 1.4 | 6.1 | 0.37 | 1.6 | 5.7 | 0.34 | 1.4 | 6.6 | 0.25 | 1.5 | |

Note) Values for a single valve unit. It differs in the manifold case. Refer to manifold specifications on page 1262.

Valve Option

1. For vacuum

| | |
|----------------|-----------------------|
| Pressure range | -101.2 kPa to 0.1 MPa |
|----------------|-----------------------|

This vacuum model has less air leakage than the standard model under low pressure. It is recommended for vacuum application.

⚠ Caution

- Since this valve has slight air leakage, it can not be used for holding vacuum (including positive pressure holding) in the pressure container.
- With surge voltage suppressor, with indicator light

Surge Voltage Suppressor

| | AC | DC |
|-----------------------|----|----|
| Grommet (GS) | | |
| Conduit terminal (CS) | | |
| DIN terminal (DS) | | |
| Conduit terminal (TS) | | |

Circuit for Indicator Light

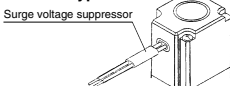
| | AC | DC |
|--|----|----|
| DIN terminal with indicator light (DL) | | |
| Conduit terminal with indicator light (TL) | | |

Surge Voltage Suppressor + Circuit for Indicator Light

| | AC | DC |
|---|----|----|
| DIN terminal with indicator light (DLS) | | |
| Conduit terminal with indicator light (TLS) | | |

The DIN terminal has a surge voltage suppressor inside the connector.

• Grommet type

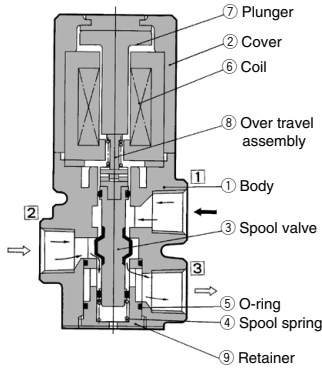


3. Manual override with lock

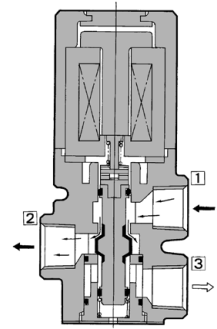
- Using a screwdriver, push the manual override button that is located in the head portion of the solenoid valve in order to directly push the spool valve downward, thus causing the valve to switch.
- With the button remaining pushed down, turn it approximately 90° clockwise or counterclockwise to maintain the manual override locked state.
- To revert to the original state, keep the button pushed down and turn it approximately 90° clockwise.

Construction

De-energized



Energized



Operation principle

<De-energized>

The spool (3) is pushed upward by the force of the spring (4) and the air passage between port (2) and port (3) is opened and port (1) is blocked.
Air flow direction: 1 ↔ Block, 2 ↔ 3

<Energized>

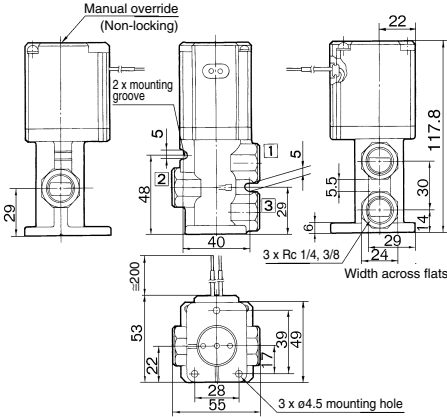
When the coil (6) is energized the plunger (7) is pulled down depressing the spool (3) via the overtravel assembly (8) and the air passage between port (1) and port (2) is opened and port (3) is blocked.
Air flow direction: 1 ↔ 2, 3 ↔ Block

Component Parts

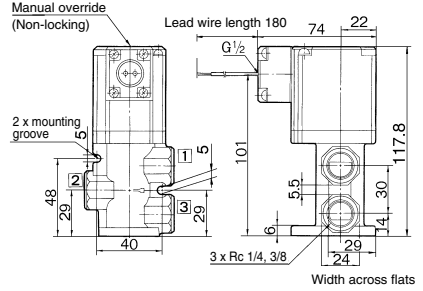
| No. | Description | Material | Note |
|-----|-------------|---------------------|-----------------|
| 1 | Body | Aluminum die-casted | Platinum silver |
| 2 | Cover | Aluminum die-casted | Platinum silver |
| 3 | Spool valve | Aluminum, NBR | |

Dimensions

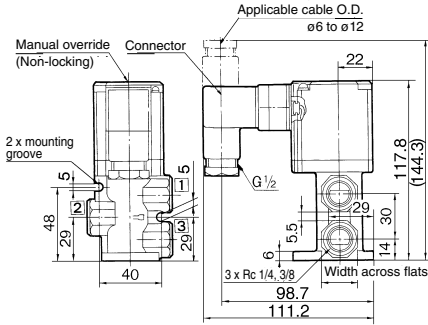
Grommet (G)



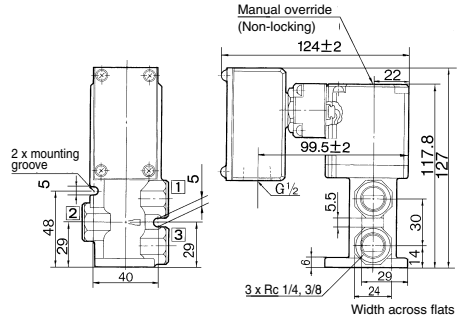
Conduit (C)



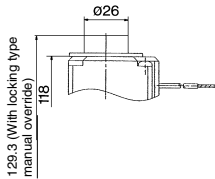
DIN terminal (D)



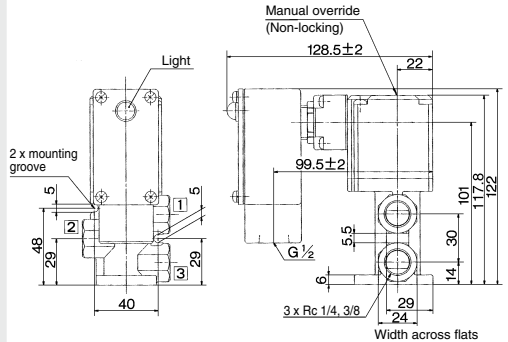
Conduit terminal (T)



With locking manual override



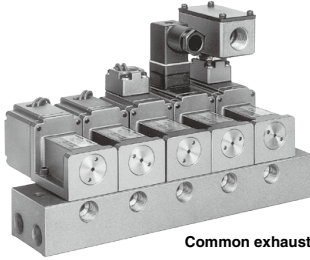
Conduit terminal with indicator light (TL)



VT325 Series

Manifold Specifications

The VT325 series Manifold Model has a B mount type with common exhaust.



Common exhaust

How to Order Manifold

VVT34 0-05 1 - [] - [] - []

Porting specifications

| Symbol | P | A | R |
|--------|------|--------|------|
| 0 | Side | Side | Side |
| 1 | Side | Bottom | Side |

Valve stations

| | |
|----|-------------|
| 02 | 2 stations |
| ⋮ | ⋮ |
| 17 | 17 stations |

Port size

| Symbol | Port size |
|--------|-----------|
| 02 | 1/4 |
| 03 | 3/8 |

Exhaust port type

| | |
|---|----------------|
| 1 | Common exhaust |
|---|----------------|

CE/UKCA-compliant

| | |
|-----|-------------------|
| Nil | — |
| Q | CE/UKCA-compliant |

Thread type

| | |
|-----|------|
| Nil | Rc |
| F | G |
| N | NPT |
| T | NPTF |

*Instruct by specifying the valves and blanking plate to be mounted on the manifold along with the manifold base model no.
 <Example>
 VVT340-051..... 1 pc.
 *VO325-001G..... 4 pcs.
 *DXT083-21A..... 1 pc.

↳ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

Manifold Specifications

| Manifold type | B mount | | | | | |
|---------------------------|-------------------------------------|----------|----------|----------------|-------------|------|
| Max. number of stations | 17 stations ^(Note) | | | | | |
| Applicable solenoid valve | VO325-00□□(-Q) | | | | | |
| Exhaust port type | Port location/Port size | | | Port direction | | |
| | P | A | R | P | A | R |
| Common | Base | Base | Base | Side | Side/Bottom | Side |
| | 1/4, 3/8 | 1/4, 3/8 | 1/4, 3/8 | | | |
| Option | Blanking plate (With gasket, screw) | | | | DXT083-21A | |

(Note) If there are more than 4 stations, supply air from both P ports and exhaust from both R ports.

Accessory for Applicable

| Description | Part no. | Qty. |
|---------------------------|-------------|--------|
| Manifold gasket | DXT083-13-1 | 1 pc. |
| Hexagon socket head screw | DXT083-19-1 | 2 pcs. |

Flow Rate Characteristics/Weight

| Valve model | Flow rate characteristics | | | | | | | | | | | | Weight |
|-------------------------------|------------------------------|------|-----|------------------------------|------|-----|------------------------------|------|-----|------------------------------|------|-----|--------------------------------|
| | 1 → 2 (P → A) | | | 2 → 3 (A → R) | | | 3 → 2 (R → A) | | | 2 → 1 (A → P) | | | |
| | C [dm ³ /(s·bar)] | b | Cv | C [dm ³ /(s·bar)] | b | Cv | C [dm ³ /(s·bar)] | b | Cv | C [dm ³ /(s·bar)] | b | Cv | |
| VO325 | 4.1 | 0.24 | 1.0 | 4.4 | 0.18 | 1.0 | 4.5 | 0.15 | 1.0 | 4.3 | 0.23 | 1.0 | Grommet 0.58 kg (For AC) |
| VO325V (Vacuum spec. type) | | | | | | | | | | | | | 0.63 kg (For DC) |

⚠ Precautions

⚠ Warning

When mounting valves on the manifold base, the mounting orientation is decided. If it is mounted in the wrong direction, connected equipment may malfunction. Mount it by referring to external dimensions on page 1263. Besides, the external dimensions are showing the case of N.C. specifications.

⚠ Caution

Changing from N.C. to N.O.

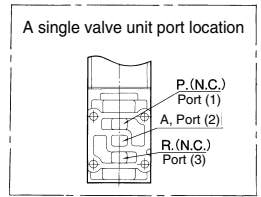
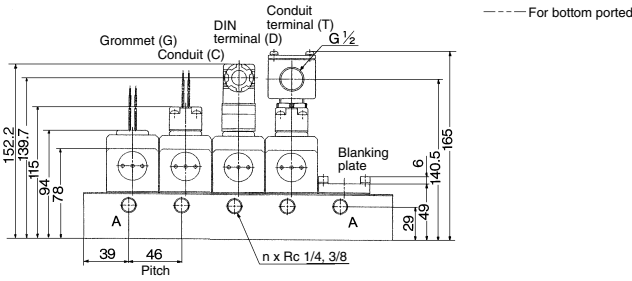
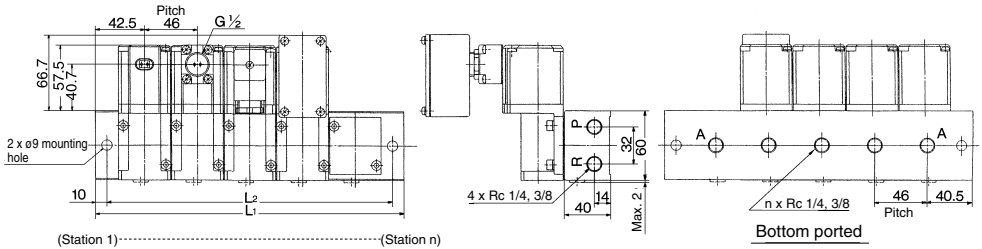
The valves are assembled as N.C. valves at the time of shipment.

By removing the two retaining screws from the desired valves, and rotating each valve body 180° and reassembling it on the manifold base, it is possible to reassemble an N.C. valve as an N.O. valve. (When doing so, make sure that a gasket is attached to the mounting surface of the valve.) Properly tighten the screws.

The tightening torque of the retaining screws is 3 N·m.

Dimensions

Common exhaust



n: Stations

| Symbol | n | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|--------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L1 | | 131 | 177 | 223 | 269 | 315 | 361 | 407 | 453 | 499 |
| L2 | | 111 | 157 | 203 | 249 | 295 | 341 | 387 | 433 | 479 |

Formula: L1 = 46n + 39, L2 = 46n + 19