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/VO325V)

VT325

How to Order

For manifold:
Enter “VO”, Valve option
Port size:
- 02 1/4
- 08 5/8
- Without connection port (For manifold)

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
Vibration resistance (2): 150/50 m/s²

Solenoid Specifications

<table>
<thead>
<tr>
<th>Electrical entry</th>
<th>Grommet, Conduit, DIN terminal, Conduit terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coil rated voltage</td>
<td>100, 200 VAC, 50/60 Hz, 24 VDC</td>
</tr>
<tr>
<td>Allowable voltage fluctuation</td>
<td>±15 to +15% of rated voltage</td>
</tr>
<tr>
<td>Apparent power (2)</td>
<td>AC: 50 Hz 75 VA, 60 Hz 60 VA, 50 Hz 27 VA, 60 Hz 17 VA</td>
</tr>
<tr>
<td>Power consumption (3)</td>
<td>DC: 12 W</td>
</tr>
</tbody>
</table>

Note 1) Based on dynamic performance test, JIS B 8374-1981. (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 the right angles to the main valve and armature at both energized and de-energized states every one for each condition. (Values at the initial period)

SMT International Corporation
1617(1600) at rated voltage

© 2009 SMC Corporation

VT325-00G-02 C 0.61 dm³/(s·bar)
**Series VT325**

### Flow Characteristics/Mass

<table>
<thead>
<tr>
<th>Valve model</th>
<th>Port size</th>
<th>1 → 2 (P → A)</th>
<th>2 → 3 (A → R)</th>
<th>3 → 2 (R → A)</th>
<th>2 → 1 (A → P)</th>
<th>Mass (Grommet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VT325</td>
<td>1/4</td>
<td>5.5</td>
<td>3.7</td>
<td>1.4</td>
<td>5.9</td>
<td>0.55 kg (AC)</td>
</tr>
<tr>
<td>VT325V (Vacuum spec. type)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.60 kg (DC)</td>
</tr>
<tr>
<td>VT325</td>
<td>3/8</td>
<td>6.6</td>
<td>3.7</td>
<td>1.6</td>
<td>6.6</td>
<td>0.55 kg (AC)</td>
</tr>
<tr>
<td>VT325V (Vacuum spec. type)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.60 kg (DC)</td>
</tr>
</tbody>
</table>

Note: Values for a single valve unit. It differs in the manifold case. Refer to manifold specifications on page 1620.

### Construction

#### De-energized

- Plunger
- Cover
- Coil
- O-ring
- Spool valve
- Retainer
- Over travel assembly

#### Energized

- Plunger is pushed upward by the force of the spring and the air passage between port and port is opened and port is blocked.

### Operation principle

**De-energized**

The spool is pushed upward by the force of the spring and the air passage between port and port is opened and port is blocked.

**Energized**

When the coil is energized the plunger is pulled down depressing the spool via the overtravel assembly and the air passage between port and port is opened and port is blocked.

### Component Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>Aluminum die-casted</td>
<td>Platinum silver</td>
</tr>
<tr>
<td>2</td>
<td>Cover</td>
<td>Aluminum die-casted</td>
<td>Platinum silver</td>
</tr>
<tr>
<td>3</td>
<td>Spool valve</td>
<td>Aluminum, NBR</td>
<td></td>
</tr>
</tbody>
</table>

### 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

1. Since this valve has slight air leakage, it cannot be used for holding vacuum (including positive pressure holding) in the pressure container.

2. **With surge voltage suppressor, with indicator light**

#### Surge Voltage Suppressor

<table>
<thead>
<tr>
<th>Grommet (GS)</th>
<th>AC</th>
<th>DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduit (CS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conduit terminal (TS)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Circuit for Indicator Light

<table>
<thead>
<tr>
<th>DIN terminal with indicator light (DL)</th>
<th>AC</th>
<th>DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduit terminal with indicator light (TL)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Grommet type**

Surge voltage suppressor

3. **Manual override with lock**

1. 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.

2. With the button remaining pushed down, turn it approximately 90° clockwise or counterclockwise to maintain the manual override locked state.

3. To revert to the original state, keep the button pushed down and turn it approximately 90° clockwise.
3 Port Solenoid Valve
Direct Operated Poppet Type **Series VT325**

**Dimensions**

**Grommet (G)**

- Manual override (Non-locking)
- 2 x mounting groove
- 3 x Rc 1/4, 3/8
- Width across flats

**Conduit (C)**

- Manual override (Non-locking)
- Lead wire length 180
- 2 x mounting groove
- 3 x Rc 1/4, 3/8
- Width across flats

**DIN terminal (D)**

- Applicable cable O.D. ø6 to ø12
- Manual override (Non-locking)
- Connector
- 3 x mounting groove
- Width across flats

**Conduit terminal (T)**

- Manual override (Non-locking)
- 2 x mounting groove
- 3 x Rc 1/4, 3/8
- Width across flats

**With locking manual override**

- ø26

**Conduit terminal with indicator light (TL)**

- Manual override (Non-locking)
- Light
- 2 x mounting groove
- 3 x Rc 1/4, 3/8
- Width across flats

---

**Series VT325**

- 3 Port Solenoid Valve
- Direct Operated Poppet Type
- Dimensions
- Grommet (G)
- Conduit (C)
- DIN terminal (D)
- Conduit terminal (T)
- With locking manual override
- Conduit terminal with indicator light (TL)

---

**Courtesy of Steven Engineering, Inc.**

Steven Engineering, Inc.
230 Ryan Way, South San Francisco, CA 94080
Main Office: (650) 588-9200
Outside Local Area: (800) 258-9200
www.stevenengineering.com
How to Order Manifold

Common exhaust

Series VT325 Manifold Specifications

Series VT325 Manifold Model has a B mount style with common exhaust.

How to Order Manifold

VVT34 0-05 1 -

Valve stations

02 2 stations
17 17 stations

Exhaust port type


Common exhaust

Manifold Specifications

Manifold type | B mount
Max. number of stations | 17 stations
Applicable solenoid valve | VO325-OS1 (-Q)

Exhaust port type | Port location | Port size | Port direction
--- | --- | --- | ---
Common | Top | 3/8, 5/8 | Side

Option | Blanking plate (With gasket, screw) | DXT083-21A

Accessory for Applicable

<table>
<thead>
<tr>
<th>Description</th>
<th>Part no.</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manifold gasket</td>
<td>DXT083-13-1</td>
<td>1 pc.</td>
</tr>
<tr>
<td>Hexagon socket head screw</td>
<td>DXT083-19-1</td>
<td>2 pcs.</td>
</tr>
</tbody>
</table>

Flow Characteristics/Mass

<table>
<thead>
<tr>
<th>Valve model</th>
<th>Flow characteristics</th>
<th>Mass</th>
</tr>
</thead>
</table>
| VO325 |  | Grommet
| VO325V |  | 0.58 kg (For AC)
| (Vacuum spec. type) |  | 0.63 kg (For DC)

<table>
<thead>
<tr>
<th>Valve model</th>
<th>Flow characteristics</th>
<th>Mass</th>
</tr>
</thead>
</table>
| VO325 |  | 0.58 kg (For AC)
| VO325V |  | 0.63 kg (For DC)
| (Vacuum spec. type) |  | 

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 1621. 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.

Approved

Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com
3 Port Solenoid Valve
Direct Operated Poppet Type Series VT325

Dimensions

Common exhaust

![Diagram of 3 Port Solenoid Valve]

<table>
<thead>
<tr>
<th>Station</th>
<th>L1</th>
<th>L2</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>131</td>
<td>111</td>
</tr>
<tr>
<td>3</td>
<td>177</td>
<td>157</td>
</tr>
<tr>
<td>4</td>
<td>223</td>
<td>203</td>
</tr>
<tr>
<td>5</td>
<td>269</td>
<td>249</td>
</tr>
<tr>
<td>6</td>
<td>315</td>
<td>295</td>
</tr>
<tr>
<td>7</td>
<td>361</td>
<td>341</td>
</tr>
<tr>
<td>8</td>
<td>407</td>
<td>387</td>
</tr>
<tr>
<td>9</td>
<td>453</td>
<td>433</td>
</tr>
<tr>
<td>10</td>
<td>499</td>
<td>479</td>
</tr>
</tbody>
</table>

Formula: \(L1 = 46n + 39, L2 = 46n + 19\)
Caution
1. The bottom of the solenoid valve has a breather hole for the main valve. Take proper measures to prevent this hole from being blocked as this will lead to a malfunction.
   ∗ Ordinarily, when the solenoid valve is mounted on a metal surface, it can breathe through the breather hole, via the breather groove. However, in particular, if the surface to be mounted is made of the rubber, the rubber could deform and block the hole.
2. Make sure that dust and/or other foreign materials do not enter the valve from the unused port (e.g. exhaust port).
The grommet portion contains a breather hole for the core. Take proper measures to prevent dust or foreign matter from accumulating in this area.

Electrical Connection
For wiring to DIN terminal, connect the positive (+) polar side with connector terminal no. 1 and the negative (–) side with connector terminal no. 2 when the rated voltage is DC type.

How to Calculate the Flow Rate
For obtaining the flow rate, refer to front matters 44 to 47.

How to Wire DIN Terminal

1. Disassembly
   1) After loosening the thread (1), then if the cover (4) is pulled in the direction of the thread, the connector will be removed from the body of equipment (solenoid, etc.).
   2) Pull the screw (1), and then remove gasket (2a) or (2b).
   3) On the bottom part of the terminal block (3), there’s a cut-off part (indication of an arrow) (3a). If a small flat head screwdriver is inserted between the opening in the bottom, terminal block (3) will be removed from the cover (4). (Refer to the figure below.)
   4) Remove the cable gland (5) and plain washer (6) and rubber seal (7).
2. Wiring
   1) Pass them through the cable (8) in the order of cable ground (5), washer (6), rubber seal (7), and then insert into the housing (4).
   2) Dimensions of the cable (8) are the figure as below. Skin the cable and crimp the crimped terminal (9) to the edges.
   3) Remove the screw with washer (3e) from the bracket (3d). (Loosen in the case of Y shape type terminal.) As shown in the below figure, mount a crimped terminal (9), and then again tighten the screw (3e).
   Note) Tighten within the tightening torque of 0.5 N·m ±15%.
   Note: a It is possible to wire even in the state of bare wire. In that case, loosen the screw with washer (3e) and place a lead wire into the bracket (3d), and then tighten it once again.
   b The maximum size for the round terminal (9) is 1.25 mm²—3.5 and for the Y terminal is 1.25 mm²—4.
   c Cable (8) external: ø6 to ø12
   Note) For the one with the external dimension ranged between ø9 to ø12 remove the inside parts of the rubber seal (7) before using.
3. Assembly
   1) Terminal box (3) connected with housing (4) should be reinstated. (Push it down until you hear the click sound.)
   2) Putting rubber seal (7), plain washer (6), in this order into the cable introducing slit on the housing (4), then further tighten the cable gland (5) securely.
   3) By inserting gasket (2a) or (2b) between the bottom part of the terminal box (3) and a plug on an equipment, screw in (1) on top of the housing (4) and tighten it.
   Note) Tighten within the tightening torque of 0.5 N·m ±20%.
   Note: The orientation of a connector can be changed arbitrarily, depending on the combination of a housing (4) and a terminal box (3).

Connector for DIN Terminal

<table>
<thead>
<tr>
<th>Description</th>
<th>Part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIN connector</td>
<td>GDM2C</td>
</tr>
</tbody>
</table>

Series VT325
Specific Product Precautions
Be sure to read before handling. Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.