5 Port Air Operated Valve
Series VPA4□50/4□70

How to Order

VPA4 1 5 0 10
Air operated valve
VP 5 port

Function
1 2 position single pilot
2 2 position double pilot
3 3 position closed center
4 3 position exhaust center

Note) 3 position is not available on Series VPA4/L50132.

Piping
0 Side ported
1 Bottom ported
4 W/o sub-plate

Body size
5 ¾ standard
7 1¼ standard

Specifications

Fluid
Air
Operating pressure range (MPa)
0.2 to 0.9
Pilot pressure range (MPa)
Refer to the pilot pressure graph shown in below.
Ambient and fluid temperature (°C)
0 to 60
Lubrication
Required (Use turbine oil Class 1 ISO VG32.)
Mounting orientation
Free
Impact/Vibration resistance (m/s²)
150/50

Note 1) Use turbine oil Class 1 (ISO VG32).
Note 2) Impact resistance: No malfunction from test using drop impact tester, to axis and right angle directions of main valve, each one time when pilot signal is ON and OFF. (Valve in the initial stage)
Vibration resistance: No malfunction from test with 45 to 1000 Hz one sweep, to axis and right angle direction of main valve, each one time when pilot signal ON and OFF. (Value in the initial stage)

Pilot Pressure Range

Be sure to read this 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.

Caution
1. Lubrication
Use turbine oil Class 1 (ISO VG32).
Refer to page 6 for brand names of manufacturers.
2. Refer to page 607 regarding piping, air quality, operating condition and 3 position closed center.
### Flow Characteristics/Mass

<table>
<thead>
<tr>
<th>Function</th>
<th>Valve model</th>
<th>Port size</th>
<th>Flow characteristics</th>
<th>Mass (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 → 4/2(P → A/B)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C (dm³/s·bar)</td>
<td>b</td>
</tr>
<tr>
<td>2 position</td>
<td>VPA4150</td>
<td>⅜</td>
<td>15</td>
<td>0.22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>⅝</td>
<td>17</td>
<td>0.15</td>
</tr>
<tr>
<td></td>
<td>VPA4250</td>
<td>⅚</td>
<td>15</td>
<td>0.22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>⅔</td>
<td>17</td>
<td>0.15</td>
</tr>
<tr>
<td>3 position</td>
<td>VPA4350</td>
<td>⅛</td>
<td>16</td>
<td>0.28</td>
</tr>
<tr>
<td></td>
<td></td>
<td>⅜</td>
<td>18</td>
<td>0.27</td>
</tr>
<tr>
<td></td>
<td>VPA4450</td>
<td>⅜</td>
<td>16</td>
<td>0.28</td>
</tr>
<tr>
<td></td>
<td></td>
<td>⅔</td>
<td>18</td>
<td>0.24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Function</th>
<th>Valve model</th>
<th>Port size</th>
<th>Effective area (mm²)</th>
<th>Mass (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 position</td>
<td>VPA4150</td>
<td>1</td>
<td>120</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td>VPA4170</td>
<td>1⅛</td>
<td>280</td>
<td>8.8</td>
</tr>
<tr>
<td></td>
<td>VPA4250</td>
<td>1⅛</td>
<td>280</td>
<td>8.8</td>
</tr>
<tr>
<td></td>
<td>VPA4270</td>
<td>1⅞</td>
<td>300</td>
<td>8.8</td>
</tr>
<tr>
<td>3 position</td>
<td>VPA4350</td>
<td>1</td>
<td>110</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>VPA4450</td>
<td>1</td>
<td>110</td>
<td>3.3</td>
</tr>
</tbody>
</table>

Note) (): Normal position
Series VPA4□50

Dimensions

VPA4150-□-□

Bottom ported

VPA4250-□-□, VPA4350-□-□, VPA4450-□-□

1780
Dimensions

VPA4170-\(\frac{3}{4}\)-\(\frac{1}{2}\)

3 x \(\frac{3}{8}\) pilot port

4 x \(\frac{13}{16}\) mounting hole

VPA4270-\(\frac{3}{4}\)-\(\frac{1}{2}\)

6 x \(\frac{3}{8}\) pilot port
### Series VPA4□50

**Manifold Specifications**

#### Specifications

<table>
<thead>
<tr>
<th>Manifold type</th>
<th>B mount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhaust type</td>
<td>Common exhaust, Individual exhaust (1)</td>
</tr>
<tr>
<td>Supply type</td>
<td>Common supply port</td>
</tr>
<tr>
<td>Stations</td>
<td>Max. 10 stations (VVPA460: Max. 8 stations) (2)</td>
</tr>
</tbody>
</table>

**Note**

1) When valves are closed with diaphragm, back pressure may cause malfunction. Use individual exhaust to prevent such a problem.

2) In the case of more than 4 stations, supply air to both sides of supply port and exhaust air from both sides.

#### Simultaneous Operation with Manifold Valves

**Note**

Pressure drop will occur by simultaneously using manifold valves.

#### Model

<table>
<thead>
<tr>
<th>Base model</th>
<th>Exhaust type</th>
<th>Port size</th>
<th>Applicable valve model</th>
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<tbody>
<tr>
<td>VVPA450</td>
<td>Common</td>
<td>3/4</td>
<td>VPA4154-00</td>
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<tr>
<td></td>
<td>Individual</td>
<td>1/2, 3/4</td>
<td>VPA4254-00</td>
</tr>
<tr>
<td>VVPA460</td>
<td>Individual</td>
<td>1</td>
<td>VPA4354-00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3/4, 1</td>
<td>VPA4454-00</td>
</tr>
</tbody>
</table>

#### Option

- Blanking plate assembly: XT038N-4A With Gasket, Bolt

#### How to Order

**How to Assemble Manifold**

To order valves and blanking plate assembly mounted onto the manifold, list valves and blanking plate assembly with manifold base part number.

(EX) Base: 6 stations, common EXH, A & B port 1/2

- VVPA450-061-04 ........................ 1 pc.
- VPA4154-00 ................. 3 pcs.
- VPA4254-00 ................. 2 pcs.
- XT038N-4A ................. 1 pc.

To order valves and options mounted onto the manifold at the factory, list the valve/option with an asterisk (*) in front of each part number.

- VVPA450 ........................ 5 pc.
- VPA4154-00 ................. 1 pc.
- VPA4254-00 ................. 2 pc.
- XT038N-4A ................. 1 pc.

**Caution**

Manifold specifications are not available for Series VPA4□70.
5 Port Air Operated Valve Series VPA4□50

Dimensions

Common EXH: VVPA450- Station 1- Port size - VVPA460- Station 1- Port size -

Individual EXH: VVPA450- Station 2- Port size - VVPA460- Station 2- Port size -

L Dimension

<table>
<thead>
<tr>
<th>Model</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>Formula</th>
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</thead>
<tbody>
<tr>
<td>VVPA450</td>
<td>L1</td>
<td>257</td>
<td>344</td>
<td>431</td>
<td>518</td>
<td>605</td>
<td>692</td>
<td>779</td>
<td>866</td>
<td>953</td>
</tr>
<tr>
<td></td>
<td>L2</td>
<td>307</td>
<td>394</td>
<td>481</td>
<td>568</td>
<td>655</td>
<td>742</td>
<td>829</td>
<td>916</td>
<td>1003</td>
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<tr>
<td>VVPA460</td>
<td>L3</td>
<td>306</td>
<td>414</td>
<td>522</td>
<td>630</td>
<td>738</td>
<td>846</td>
<td>954</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>L4</td>
<td>336</td>
<td>446</td>
<td>554</td>
<td>663</td>
<td>772</td>
<td>880</td>
<td>988</td>
<td>1096</td>
<td>1204</td>
</tr>
</tbody>
</table>

SYA  SYJA  VZA  VFA  VFRA  VI/A

() for VVPA460