Micro 3-port Solenoid Valve
005 Series

Valve width 5.9 mm [0.232 in], effective area 0.1 mm² [Cv 0.006],
ultra compact 3-port solenoid valves!
Effective for lighter and smaller devices and equipment!

Valve width 5.9 mm [0.232 in] and mass of 4.5 g [0.159 oz]
Note: Excluding lead wire with connector.

Two types of wiring specifications
Connector type and pin types are available.

Easy to see LED

Can be mounted in two orientations
Can be mounted in two orientations to match piping direction.

Valves are easy to replace!
Possible to increase or decrease number of valves!

Installation space is greatly reduced

Split manifold
1 to 20 stations available as standard

Valve unit
(Dedicated for split manifold)

Valve unit
(For base piping)

*Use with sub-base or manifold. The sub-base or manifold must be built before use.

World’s smallest!

Models with monoblock manifold base piping are available.
Models with monoblock manifold bottom piping are available.

For multiple valves that are lined up

For 1 valve

Check to make sure that the fixing bracket is firmly holding the valve
Slide the cover down until it clicks.
Confirm that the gasket is on the valve, and insert the valve in the base.
Note: If you cannot pull the valve out, the fixing bracket was not pulled out

Fixing bracket
Gasket

Before connecting the bases, confirm there are no foreign debris in the
To prevent dirt or foreign debris are present, it may result in air leakage.

Connect the bases.
Adding manifolds
Remove the connection fitting from between the stations where you

Note:  Hold the main body and the manifold when

Connecting or disconnecting tubes.

Use the manifold up to 20 stations (within one end block set).

Effective for lighter and smaller devices and equipment!}

Valve unit
(For base piping)

Actual size

Sub-base
Base piping

Special products

Koganei G010 Series
Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Basic model</th>
<th>A type</th>
<th>Base piping</th>
<th>B type</th>
<th>Dedicated for split manifold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of positions</td>
<td>2 positions</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Number of ports</td>
<td>3</td>
<td></td>
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<tr>
<td>Valve function</td>
<td>Normally closed (NC)</td>
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<td></td>
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</tr>
<tr>
<td>Medium</td>
<td>Air</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation type</td>
<td>Direct acting type</td>
<td></td>
<td></td>
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<td>Flow rate characteristics</td>
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<tr>
<td>Sonic conductance C</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>dm³/(s·bar)</td>
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<td></td>
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<td></td>
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<tr>
<td>Effective area [Cv value]</td>
<td>mm²</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Port size</td>
<td>mm [in]</td>
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<td></td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not required</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Operating pressure range</td>
<td>MPa [psi]</td>
<td>0~0.7 [0 to 102]</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Proof pressure</td>
<td>MPa [psi]</td>
<td>1.05 [152]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response time</td>
<td>ms</td>
<td>6/6 or less</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum operating frequency</td>
<td>Hz</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature range (atmosphere and medium)</td>
<td>°C</td>
<td>5~50 [41 to 122]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock resistance</td>
<td>m/s² [G]</td>
<td>294.2 [30]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mounting direction</td>
<td>Any</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. The effective area is a calculated value and is not a measured value.
2. The A type can be set flexibly by the user according to user specifications. Be careful not to go lower than sonic conductance. Applicable tubes when using split manifold (outer/inner diameters): φ6/φ4, φ4/φ2.5, φ1/8"/φ0.079".
3. Value when air pressure is 0.5 MPa [73 psi].

Remark: Specification values are based on Koganei test standards.

Electrical specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Rated voltage</th>
<th>24 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable voltage range</td>
<td>V</td>
<td>21.6~26.4 [24±10%]</td>
</tr>
<tr>
<td>Current (when rated voltage applied)</td>
<td>mA</td>
<td>21</td>
</tr>
<tr>
<td>Power consumption</td>
<td>W</td>
<td>0.5</td>
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<tr>
<td>Allowable circuit leakage current</td>
<td>mA</td>
<td>1.0</td>
</tr>
<tr>
<td>Type of insulation</td>
<td>B type</td>
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<tr>
<td>Insulation resistance</td>
<td>MD</td>
<td>100 or over</td>
</tr>
<tr>
<td>Color of LED indicator</td>
<td>Red</td>
<td></td>
</tr>
<tr>
<td>Surge protection (standard equipment)</td>
<td>Flywheel diode</td>
<td></td>
</tr>
</tbody>
</table>

Note: Value at 500 VDC Megger

Remark: Specification values are based on Koganei test standards.

Mass

Mass of one valve unit

<table>
<thead>
<tr>
<th>Model</th>
<th>Mass</th>
<th>g [oz]</th>
</tr>
</thead>
<tbody>
<tr>
<td>A005E1</td>
<td>4.5 [0.159]</td>
<td></td>
</tr>
<tr>
<td>B005E1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Add the weight of the connector assembly (1.5 g [0.052 oz]) for -PS.
*A type mass is without fittings for mounting (mounting plate and screws).

Mass of manifold base

<table>
<thead>
<tr>
<th>Model</th>
<th>Mass calculated of each manifold unit (n = number of units)</th>
<th>g [oz]</th>
</tr>
</thead>
<tbody>
<tr>
<td>005MN-J32</td>
<td>(1.1xv)+3 [0.039x+(0.106)</td>
<td></td>
</tr>
<tr>
<td>005MN-J4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Calculation example: 005M8N-J32

stn.1~stn.8 B005E1-PS 24 VDC
(4.5+1.5)x8+(1.1x8)+3=59.8 g [2.109 oz]
Order codes

Valve unit

A type

B type

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port size</td>
<td>mm [in]</td>
</tr>
<tr>
<td>Operation type</td>
<td>Direct acting type</td>
</tr>
<tr>
<td>Medium</td>
<td>Air</td>
</tr>
<tr>
<td>Valve function</td>
<td>Normally closed (NC)</td>
</tr>
<tr>
<td>Number of ports</td>
<td>3</td>
</tr>
<tr>
<td>Proof pressure</td>
<td>MPa [psi] 1.05 [152]</td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not required</td>
</tr>
<tr>
<td>Applicable voltage</td>
<td>V 21.6 +24 VDC</td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>M</td>
</tr>
</tbody>
</table>

Mounting direction: Any

Applicable tubes when using split manifold (outer/inner diameters):
- Armature
- Lead wire: black (-), red (+)
- 5

Internal circuit:
- A type
- Base piping B type
- Body

Calculation example:
- **A type** mass is without fittings for mounting (mounting plate and screws).
- **PS**.
- **-PS**.

Basic model | Wiring specifications | Voltage
---|---|---
A005E1 | Blank -PS | 24 VDC
B005E1 | Blank -PS | 24 VDC

Note 1: Valve unit cannot be used alone. The sub-base or manifold must be built before use (refer to dimensions on page 3).
Note 2: Valve unit cannot be used alone. Mount it on a split manifold to use it.

Manifold (split manifold)

Model | Number of unit | Manifold output specifications | Stations | Basic model | Wiring specifications | Voltage
---|---|---|---|---|---|---
005M | 1 ... 20 | N -J32 -J4 | stn. 1 ... | B005E1 | Blank -PS | 24 VDC

Mounting direction: Any

Wiring specifications:
- Pin type
- Blank
- S type plug connector
- 300 mm [11.8 in] lead wire

Wiring specifications Pin type

Model | Number of unit | Manifold output specifications | Stations | Basic model | Wiring specifications | Voltage
---|---|---|---|---|---|---
005M | 1 ... 20 | N -J32 -J4 | stn. 1 ... | B005E1 | Blank -PS | 24 VDC

Mounting example:
- **A type** mass is without fittings for mounting (mounting plate and screws).
- **PS**.
- **-PS**.

Wiring specifications Pin type

Model | Number of unit | Manifold output specifications | Stations | Basic model | Wiring specifications | Voltage
---|---|---|---|---|---|---
005M | 1 ... 20 | N -J32 -J4 | stn. 1 ... | B005E1 | Blank -PS | 24 VDC

Note: Valve mounting location is from the left sided of the manifold.

Additional Parts

Lead wire with connector

**005Z-P**: Lead wire with connector, length 300 mm [11.8 in]

End block

**005Z-E**: End block (set of left-right) (with one connection fitting)

Valve base

**005Z-VJ3.2**: Valve base fitting φ3.2 [1/8 in]
**005Z-VJ4**: Valve base fitting φ4 [5/32 in] (with one connection fitting)

Gasket

**005Z-GS1**: Gasket (for A005E1) (10 pieces a set)
**005Z-GS2**: Gasket (for B005E1) (10 pieces a set)
### Valve unit (A type)

**A005E1-PS**

**S type plug connector**

- **LED indicator**
- **2-φ1 [0.039]**
- **Locating nub**

**Specifications**

- **Operating principle and symbols**
- **Order codes**

#### Flow rate

**Valve function**

- Normally closed (NC)

**Number of positions**

- 2 positions

**Response time**

- Note 3, ON/OFF time: 6/6 or less

**Proof pressure**

- MPa [psi]: 1.05 [152]

**Lubrication**

- Not required

**Applicable voltage range**

- V: 21.6
  - 24 VDC

**Flywheel diode**

- **Allowable circuit leakage current**
- **Current (when rated voltage applied)**
- **Type of insulation**
- **Power consumption**
- **Color of LED indicator**
  - Red

**Maximum operating frequency**

- Hz: 10

### Manifold (split manifold)

*Valve is for B type only.*

**005MN**

**S type plug connector**

- (Mounting example) 005MN-J32
- str.1—8 B005E1-PS 24 VDC

### Unit dimensions

<table>
<thead>
<tr>
<th>Number of units</th>
<th>L</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>32.6</td>
<td>26.5</td>
</tr>
<tr>
<td>2</td>
<td>38.5</td>
<td>32.5</td>
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<tr>
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<td>50.0</td>
<td>44.5</td>
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<td>5</td>
<td>56.0</td>
<td>50.5</td>
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<td>62.0</td>
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<td>68.0</td>
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<td>104.5</td>
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<tr>
<td>15</td>
<td>116.0</td>
<td>110.5</td>
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<td>16</td>
<td>122.0</td>
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<td>128.0</td>
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<td>140.0</td>
<td>134.5</td>
</tr>
<tr>
<td>20</td>
<td>146.0</td>
<td>140.5</td>
</tr>
</tbody>
</table>

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**Materials of major parts**

- **Poppet**
  - Synthetic rubber
- **Body**
  - Plastic
- **O-ring**
  - Synthetic rubber
- **Connection fitting**
  - Stainless steel
- **Flat spring**
  - Stainless steel
- **Armature**
- **Lead wire**
  - Black (-)

### Additional Parts

- **Dedicated for split manifold**
- Each valve is provided with 2 mounting screws, 2 end mounting plates, and 1 intermediate mounting plate for installation.

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**Remark:** Specification values are based on Koganei test standards.
**Dimensions mm [in]**

### Manifold (split type manifold)

**005MN**

**Pin type**

(Mounting example)

| 005M8N-J4 | stn.1〜8 | B005E1 | 24 VDC |

How to connect tubing

1. Cut the tube straight across, perpendicular to the axis of the tube. Allow some leeway in the length.
2. Slide the tube onto the barb fitting. If it is slid on only part way, air may leak out or the tube may fall off.
3. When connecting the tube, be careful not to apply excessive lateral force to the barb fitting.
4. When disconnecting the tube, be careful not to apply excessive lateral force to the barb fitting. If you are using a razor knife, be careful not to damage the barb fitting.
5. If you are using urethane tubes in high temperatures, the tubes lose elasticity as they age, which may lead to air leakage or the tube falling off. We recommend using soft nylon tubes in high temperatures. Avoid using nylon tubes because they require too much force to connect.

**Cutout dimensions in mounting surface for base piping (recommended)**

Drill and tap M3 threads on mounting surface for base piping. If you drill a through hole and use a nut, it may interfere with the tubes.

When you are using washers on the mounting screws, use only ISO small round washers (outer diameter φ6 [0.236]). Tighten the manifold mounting screws to a tightening torque of 49.0 N・cm [4.337 in・lb].

**Regarding dimensions of cutout for base piping**

The 10 mm [0.394 in] dimension in the diagram below is the maximum dimension. If the user wants to set smaller dimensions for the cutout, refer to the outside diameter of the tube connectors below and set the dimensions so there is no interference with the piping.

*There is no problem if the corners shown in the cutout dimensions are rounded during the cutting work.*

Air supply/exhaust port tube connector outer diameter: φ7 [0.276] (for tube U6-□)

Output port tube connector outer diameter: φ5 [0.197] (for tube U4-□)

**Handling instructions and precautions**

**Precautions During Use**

1. When using a split manifold, hold the valve body and the manifold if external force is applied when connecting or disconnecting connectors or tubes. Otherwise, the manifold may be bent.
2. When connecting a lead wire connector, hold the connector in your fingers and insert the pin, until the hook on the lever catches on the protrusion on the housing. To remove a lead wire connector, pinch the lever and the connector together, and when the hook on the lever disengages from the protrusion on the housing, and then pull it out.

**How to connect tubing**

1. Insert all the way to the end

Note: Hold the main body and the manifold when connecting or disconnecting tubes.

**Number of units**

<table>
<thead>
<tr>
<th>L</th>
<th>P</th>
</tr>
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<tbody>
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<td>3.2</td>
</tr>
<tr>
<td>20</td>
<td>3.2</td>
</tr>
</tbody>
</table>

**Unit dimensions**
Handling instructions and precautions

Precautions when using the pin type connectors

The pin type connectors are at a pin pitch of 2.54 mm [0.1000 in]. Before using the pin type connectors, carefully check the connection conditions and select connectors that match the pitch of the pins.

How to replace valves on the split manifold

Always turn off the power and the air supplies before starting work.

Removing valves

1. Slide the cover in the direction of the arrow (up).
2. Use a miniature flathead screwdriver or other thin object to pull out the fixing bracket.
   Note: If you cannot pull the valve out, the fixing bracket was not pulled out completely in step two.
   Do not pull the valve out by force, pull the fixing bracket out again.

Attaching valves

1. Confirm that the fixing bracket is pulled out.
2. Confirm that the gasket is on the valve, and insert the valve in the base.
3. Push in the fixing bracket.
4. Slide the cover down until it clicks.
Check to make sure that the fixing bracket is firmly holding the valve before supplying air to the manifold.

How to add and remove valves from the split manifold

Disconnect the tubes and remove the manifold from the equipment, so you can easily handle the job.

Adding manifolds
Use the manifold up to 20 stations (within one end block set).
①: Remove the connection fitting from between the stations where you want to add manifolds.
   For example, if you want to add a manifold to the end station, remove the connection fitting from between the end station and the end block.
   Note: When removing the fitting, move it forward and backward little by little to remove it.
   If you pull it off in one pull, you may bend the fitting or damage the base.
②: Attach the valve base assembly in the position you want to add.
   Note: Before assembly, confirm there are no foreign debris in the assembly, if dirt or foreign debris are present, it may result in air leakage.
③: Lightly press on both sides so there is no gap at the base, then align the connection fitting with the groove in the base, and insert it. Press the connection fitting in until it is even with, or below, the surface of the base.

Removing manifolds

①: Remove the connection fittings from both sides of the station that you want to remove.
   Note: When removing the fitting, move it forward and backward little by little to remove it.
   If you pull it off in one pull, you may bend the fitting or damage the base.
②: Remove the station you want to remove.
③: Connect the bases.
   Note: Before connecting the bases, confirm there are no foreign debris in the assembly, if dirt or foreign debris are present, it may result in air leakage.
④: Lightly press on both sides so there is no gap at the base, then align the connection fitting with the groove in the base, and insert it. Press the connection fitting in until it is even with, or below, the surface of the base.

Attaching A type valves

For 1 valve

①: Put the valve on the base, attach mounting plates for ends.
②: Tighten the screws provided to a tightening torque of 17.6 N·cm [1.558 in·lbf].
   Note: Tighten the screws evenly so the valve does not tilt.

For multiple valves that are lined up

①: Line up the valves on the base, attach the mounting plates for intermediate positions and for ends.
②: Tighten the screws provided to a tightening torque of 17.6 N·cm [1.558 in·lbf].
   Note: Use the valves in a line at a 6 mm [0.236 in] pitch. The mounting plates provided (intermediate) are for a 6 mm [0.236 in] pitch.

Introducing special products (with sub-base/monoblock manifold)

Models with sub-base included are available.
Models with monoblock manifold base piping are available.
Models with monoblock manifold bottom piping are available.
*Contact your nearest Koganei sales office for details.

*Before use, be sure to read the "Safety Precautions" and "General Precautions" in the general catalog.

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E-mail: overseas@koganei.co.jp