

<http://www.koganei.co.jp>



## Micro 3-port Solenoid Valve 005 Series

**World's smallest!**

Valve width **5.9 mm** [0.232 in], effective area **0.1 mm<sup>2</sup>** [Cv 0.006],  
ultra compact 3-port solenoid valves!  
Effective for lighter and smaller devices and equipment!

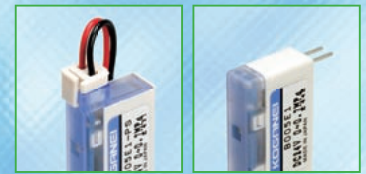
Valve width **5.9 mm** [0.232 in] and mass of **4.5 g** [0.159 oz] Note

Note: Excluding lead wire with connector.

**5.9 mm** [0.232 in] **Split manifold**  
1 to 20 stations available as standard

**Two types of wiring specifications**

Connector type and pin types are available.



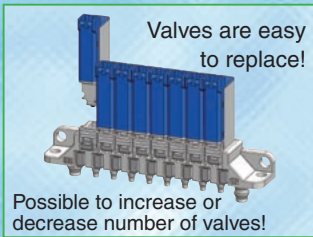
Connector type

Pin type

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!



**Linked with connection fitting**  
Adjusting number of valves without using screws is possible.

**Installation space is greatly reduced**

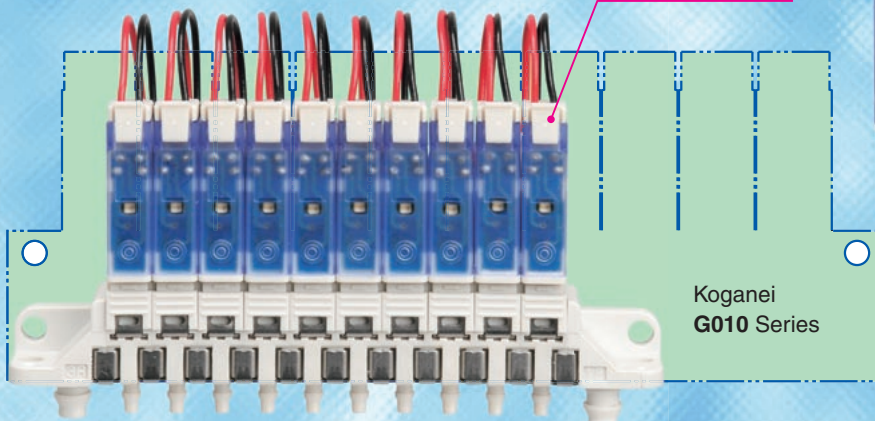
Valve unit (Dedicated for split manifold)



Valve unit (For base piping)

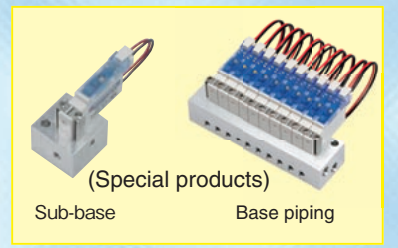


\*Use with sub-base or manifold. The sub-base or manifold must be built before use.



Koganei G010 Series

**Actual size**

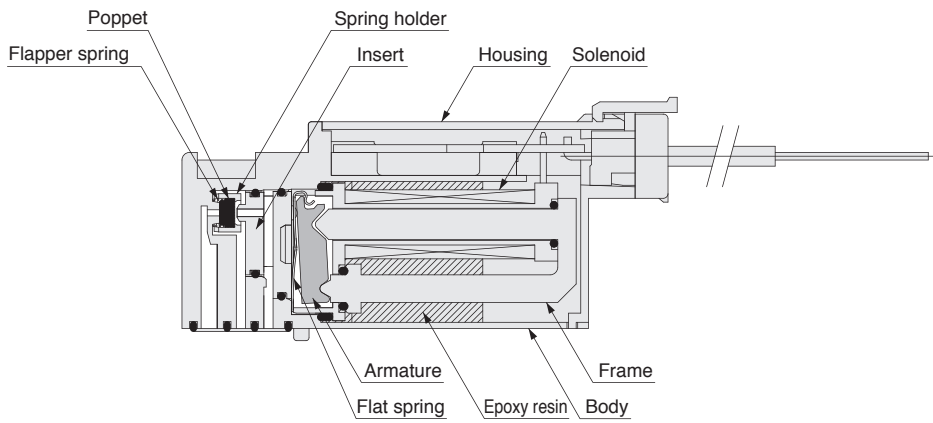


(Special products)

Sub-base

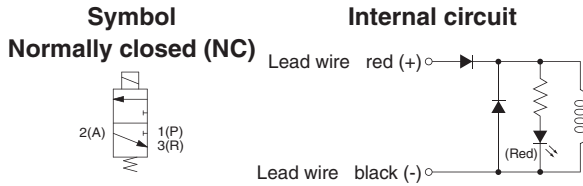
Base piping

# Operating principle and symbols



## Materials of major parts

	Name	Materials
Valve	Body	Plastic
	Poppet	Synthetic rubber
	Frame	Electromagnetic soft iron
	Armature	Electromagnetic soft iron
	Flat spring	Stainless steel
	Insert	Plastic
Manifold	Base	Plastic
	Connection fitting	Stainless steel
	Mounting bracket	Stainless steel
	O-ring	Synthetic rubber



# Specifications

Item	Basic model	A type Base piping A005E1-□	B type Dedicated for split manifold B005E1-□
	Number of positions	2 positions	
Number of ports	3		
Valve function	Normally closed (NC)		
Medium	Air		
Operation type	Direct acting type		
Flow rate characteristics	Sonic conductance C	0.02	
	dm <sup>3</sup> /(s·bar) <sup>Note 1</sup>		
Effective area [Cv value]	mm <sup>2</sup>	0.1 [0.006]	
Port size <sup>Note 2</sup>	mm [in]	—	1 (P), 3 (R): φ6 [0.236] (barb fitting), 2 (A): φ3.2 [1/8], φ4 [5/32] (barb fitting)
Lubrication		Not required	
Operating pressure range	MPa [psi]	0~0.7 [0 to 102]	
Proof pressure	MPa [psi]	1.05 [152]	
Response time <sup>Note 3</sup> , ON/OFF time	ms	6/6 or less	
Maximum operating frequency	Hz	10	
Operating temperature range (atmosphere and medium)	°C [°F]	5~50 [41 to 122]	
Shock resistance	m/s <sup>2</sup> [G]	294.2 [30]	294.2 [30] (for fewer than 10 stn.), 196.1 [20] (for more than 11 stn.)
Mounting direction		Any	

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

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

Note: Value at 500 VDC Megger

Remark: Specification values are based on Koganei test standards.

## Mass

### Mass of one valve unit

Model	Mass	g [oz]
A005E1	4.5 [0.159]	
B005E1		

\*Add the weight of the connector assembly (1.5 g [0.529 oz]) for -PS.

\*A type mass is without fittings for mounting (mounting plate and screws).

### Mass of manifold base

Model	Mass calculation of each manifold unit (n = number of units)	g [oz]
005M□N-J32	(1.1×n)+3 [(0.039×n)+0.106]	
005M□N-J4		

Calculation example: 005M8N-J32

stn.1~stn.8 B005E1-PS 24 VDC

(4.5+1.5)×8+(1.1×8)+3=59.8 g [2.109 oz]

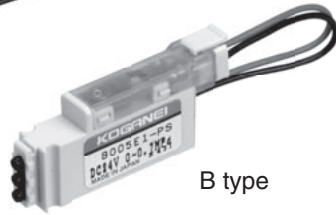
# Order codes

## ● Valve unit

A type

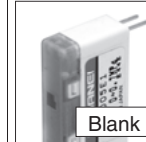


B type



### ■ Wiring specifications

Pin type



S type plug connector

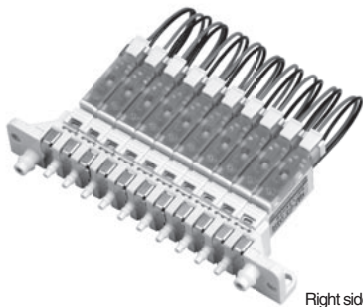


	Basic model	Wiring specifications	Voltage
A type <sup>Note 1</sup> Base piping	<b>A005E1</b>	<b>Blank</b> <b>-PS</b>	<b>24 VDC</b>
B type <sup>Note 2</sup> Dedicated for split manifold	<b>B005E1</b>	<b>Blank</b> <b>-PS</b>	<b>24 VDC</b>

Note 1: Valve unit cannot be used alone. The sub-base or manifold must be built before use (refer to dimensions on page 3).  
Each valve is provided with 2 mounting screws, 2 end mounting plates, and 1 intermediate mounting plate for installation.  
Note 2: Valve unit cannot be used alone. Mount it on a split manifold to use it.

## ● Manifold (split manifold)

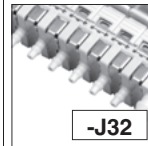
Left side



Right side

### ■ Manifold output specifications

Output fittings  $\phi 3.2$  [1/8 in]



Output fittings  $\phi 4$  [5/32 in]



### ■ Wiring specifications

Pin type



S type plug connector  
300 mm [11.8 in] lead wire



Model	Number of unit	Manifold output specifications	Stations	Basic model	Wiring specifications	Voltage	
Manifold model			Mounted valve model				
<b>005M</b>	<b>1</b> ⋮ <b>20</b>	<b>N</b>	<b>-J32</b> <b>-J4</b>	<b>stn. 1</b> ⋮ <b>stn. <input type="checkbox"/></b> <small>NOTE</small>	<b>B005E1</b>	<b>Blank</b> <b>-PS</b>	<b>24 VDC</b>

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  $\phi 3.2$  [1/8 in]  
**005Z-VJ4** : Valve base fitting  $\phi 4$  [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)



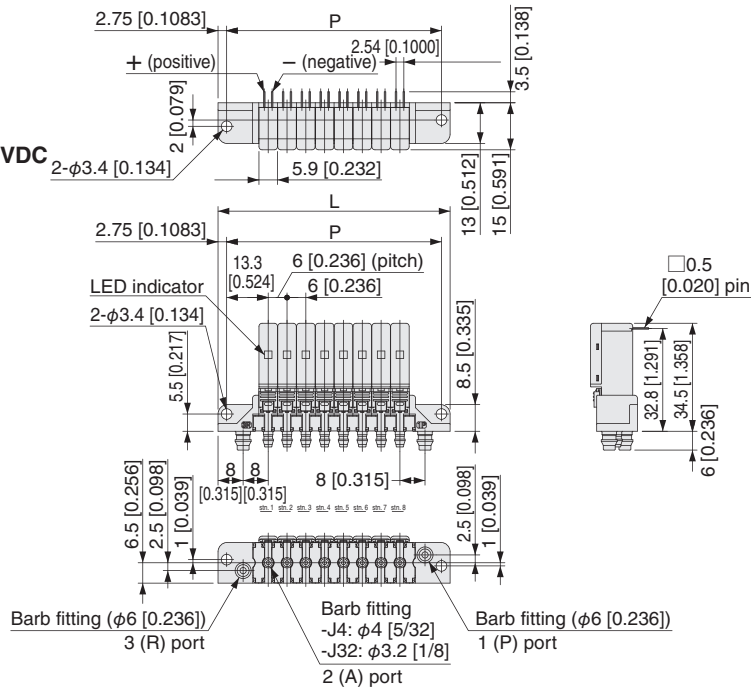
## Dimensions mm [in]

■ **Manifold (split type manifold)** \*Valve is for B type only.

**005M□N**

Pin type

(Mounting example)  
**005M8N-J4**  
 stn.1~8 B005E1 24 VDC

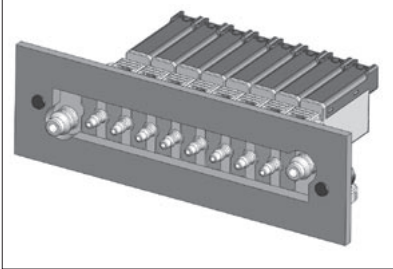


## Unit dimensions

Number of units	L	P
1	32.0 [1.260]	26.5 [1.043]
2	38.0 [1.496]	32.5 [1.280]
3	44.0 [1.732]	38.5 [1.516]
4	50.0 [1.969]	44.5 [1.752]
5	56.0 [2.205]	50.5 [1.988]
6	62.0 [2.441]	56.5 [2.224]
7	68.0 [2.677]	62.5 [2.461]
8	74.0 [2.913]	68.5 [2.697]
9	80.0 [3.150]	74.5 [2.933]
10	86.0 [3.386]	80.5 [3.169]
11	92.0 [3.622]	86.5 [3.406]
12	98.0 [3.858]	92.5 [3.642]
13	104.0 [4.094]	98.5 [3.878]
14	110.0 [4.331]	104.5 [4.114]
15	116.0 [4.567]	110.5 [4.350]
16	122.0 [4.803]	116.5 [4.587]
17	128.0 [5.039]	122.5 [4.823]
18	134.0 [5.276]	128.5 [5.059]
19	140.0 [5.512]	134.5 [5.295]
20	146.0 [5.748]	140.5 [5.531]

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

Image for installation surface for base piping



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  $\phi 6$  [0.236]). Tighten the manifold mounting screws to a tightening torque of 49.0 N·cm [4.337 in·lb].

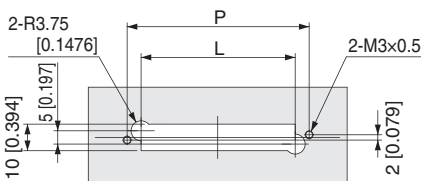
### Regarding dimensions of cutout for base piping

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:  $\phi 7$  [0.276] (for tube U6-□)

Output port tube connector outer diameter:  $\phi 5$  [0.197] (for tube U4-□)



## Unit dimensions

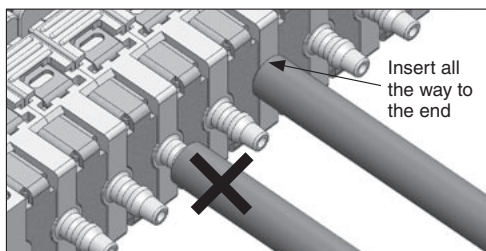
Number of units	L	P
1	16 [0.630]	26.5 [1.043]
2	22 [0.866]	32.5 [1.280]
3	28 [1.102]	38.5 [1.516]
4	34 [1.339]	44.5 [1.752]
5	40 [1.575]	50.5 [1.988]
6	46 [1.811]	56.5 [2.224]
7	52 [2.047]	62.5 [2.461]
8	58 [2.283]	68.5 [2.697]
9	64 [2.520]	74.5 [2.933]
10	70 [2.756]	80.5 [3.169]
11	76 [2.992]	86.5 [3.406]
12	82 [3.228]	92.5 [3.642]
13	88 [3.465]	98.5 [3.878]
14	94 [3.701]	104.5 [4.114]
15	100 [3.937]	110.5 [4.350]
16	106 [4.173]	116.5 [4.587]
17	112 [4.409]	122.5 [4.823]
18	118 [4.646]	128.5 [5.059]
19	124 [4.882]	134.5 [5.295]
20	130 [5.118]	140.5 [5.531]

## Handling instructions and precautions

### Precautions During Use

- 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.
- 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



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

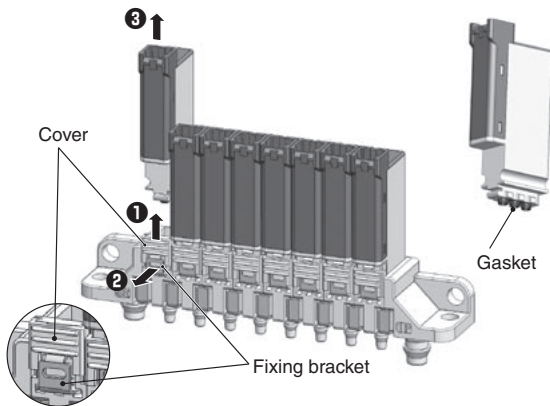
- Cut the tube straight across, perpendicular to the axis of the tube. Allow some leeway in the length.
- Slide the tube onto the barb fitting. If it is slid on only part way, air may leak out or the tube may fall off.
- When connecting the tube, be careful not to apply excessive lateral force to the barb fitting.
- 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.
- 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.

# 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

- Slide the cover in the direction of the arrow (up).
- Use a miniature flathead screwdriver or other thin object to pull out the fixing bracket.
- Pull the valve upward.

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.

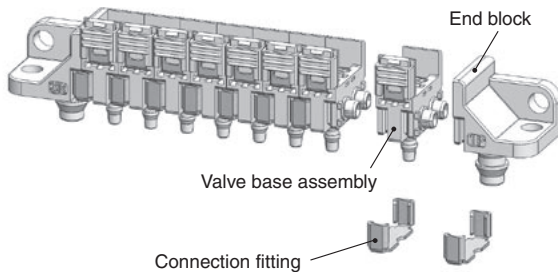
#### Attaching valves

- Confirm that the fixing bracket is pulled out.
- Confirm that the gasket is on the valve, and insert the valve in the base.
- Push in the fixing bracket.
- 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).

- 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.

- 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.
- 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

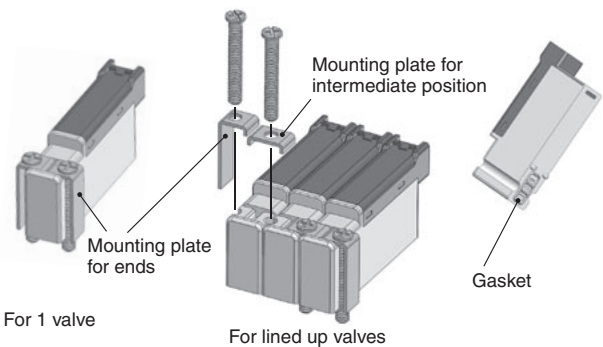
- Remove the connection fittings from both sides of the station that you want to remove.

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.

- Remove the station you want to remove.
- 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.
- 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

- Put the valve on the base, attach mounting plates for ends.
- 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

- Line up the valves on the base, attach the mounting plates for intermediate positions and for ends.
- 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.

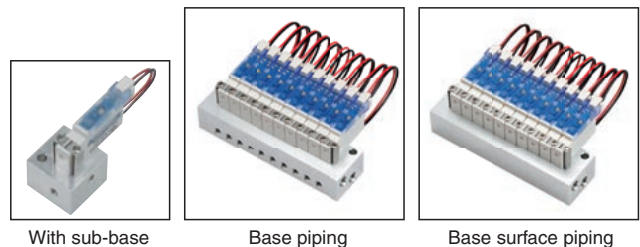
### Introducing special products (with sub-base/monoblock manifold)

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.

URL <http://www.koganei.co.jp>

E-mail: [overseas@koganei.co.jp](mailto:overseas@koganei.co.jp)



## KOGANEI CORPORATION

OVERSEAS DEPARTMENT

3-11-28, Midori-cho, Koganei City, Tokyo 184-8533, Japan  
Tel: 81-42-383-7271 Fax: 81-42-383-7276

12/14 100 ABAB  
©KOGANEI CORP. PRINTED IN JAPAN