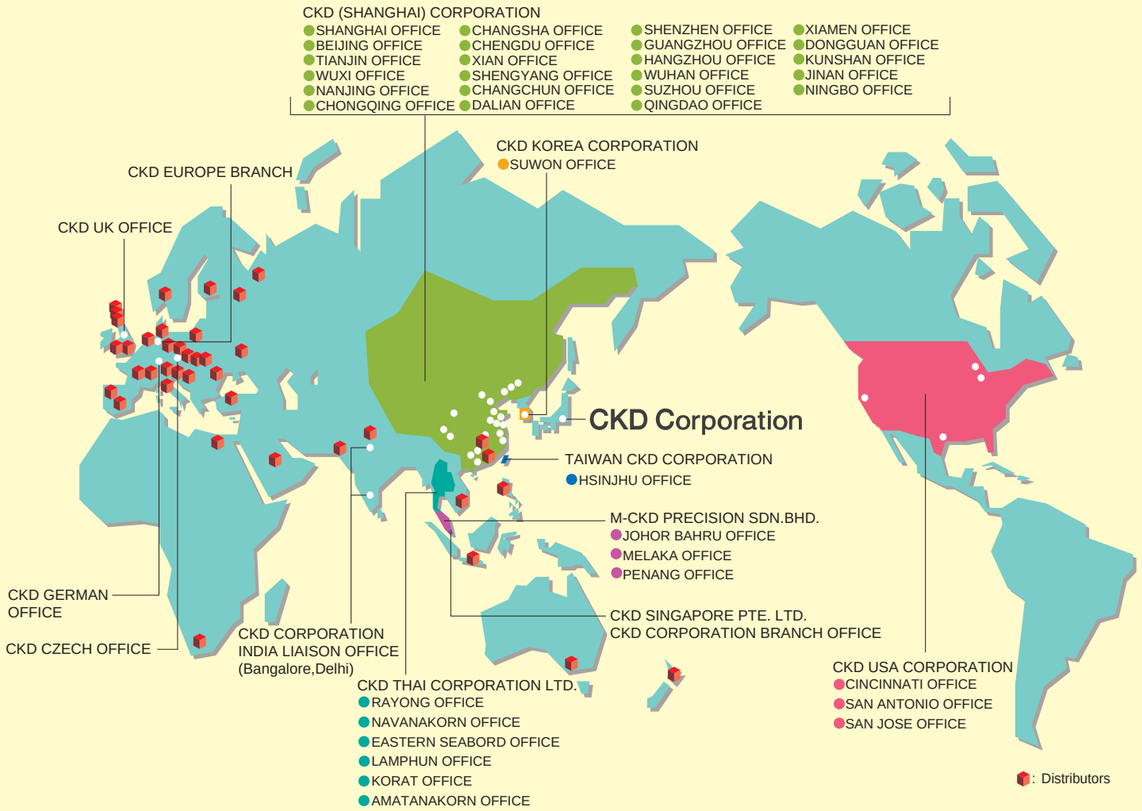
## WORLD-NETWORK





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2012.1.DBC


CKD

High Purity Chemical Liquid System Component

CKD

Suitable for the most demanding semiconductor manufacturing process control

# High Purity Chemical Liquid System Component General Catalog

## WET FINE SYSTEM

CKD Corporation

CB-031A 7

# Responding to Needs for High Purity • Super

# Wet Fine Control System

CKD's high purity chemical liquid system components are the answer to advanced needs for semiconductor manufacturing process control.

Class 100 clean room

# Clean Technologies

## Wet Fine Control System — Integrated in-house production

### Advanced production technology provided by the industry's leader

CKD boasts the industry's top results and superior reliability in process control system components. We provide high-quality products from advanced super-clean rooms with integrated production covering all steps from design and assembly to packaging.

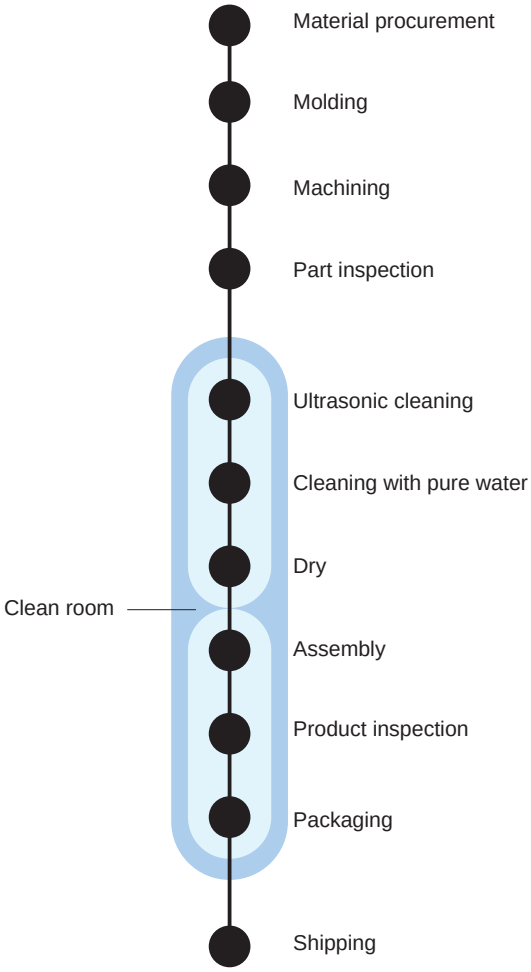
### Diverse product groups and custom orders

A wide range of system components is available, including chemical liquid valves, manual valves, regulators, units, and sensors.
Customized orders are welcomed.

### Assorted fitting variations

Six types of fittings by four different manufactures are available as integrated components for use with various equipment and applications.

| Fitting system | Manufacturer |
|---|---|
| Super type Pillar fitting | NIPPON PILLAR PACKING |
| Super 300 type Pillar fitting P series | NIPPON PILLAR PACKING |
| F-LOCK20A series fitting | Flowell |
| F-LOCK60 series fitting | Flowell |
| Final lock fitting | KURABO |
| FLARETEK fitting | Entegris,Inc. |




### Targeting higher purity

CKD pursues a high degree of cleanness and fine quality by reducing contamination from all angles.

### Eco-friendly materials

CKD selects eco-friendly materials by eliminating polyvinyl chlorides, etc., which generate harmful gases.

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| ⚠ Precautions | Intro 7 |

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# Series variation

| Valve types | Air-operated valve | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2 port | | | | | | | | | |
| Appearance, reference page | AMDZ/0  …Page 2 | AMD0*2  …Page 6 | AMD3*2  PFA body type …Page 10  Stainless steel body type …Page 16 | | AMD4*2  PFA body type …Page 20  Stainless steel body type …Page 24 | | AMD5*2  PFA body type …Page 28  Stainless steel body type …Page 32 | | AMD*1H  …Page 36 | |
| Body material | PFA/PTFE body | PFA/PTFE body | PFA/PTFE body | Stainless steel body | PFA/PTFE body | Stainless steel body | PFA/PTFE body | Stainless steel body | PFA body | |
| Orifice diameter or suction rate | ø1.6 to ø4 | ø3 to ø4 | ø6.3 to ø10 | ø8, ø10 | ø14.7 to ø16 | ø16 | ø20 | ø20 | ø10 to ø25 | |
| Connection (fitting type): Super type Pillar fitting | ● | ● | ● | | ● | | ● | | | |
| Super 300 type Pillar fitting | ● | ● | ● | | ● | | ● | | ● | |
| F-LOCK 20 series fitting | ● | ● | | | | | | | | |
| F-LOCK 20A series fitting | | | ● | | ● | | ● | | | |
| F-LOCK 60 series fitting | ● | ● | ● | | ● | | ● | | | |
| Final lock fitting | ● | ● | ● | | ● | | ● | | | |
| FLARETEK fitting | ● | ● | ● | | ● | | ● | | ● | |
| Welded PFA tube extended | | | | | | | | | ● | |
| PVC union fitting | | | | | | | ● | | | |
| Rc thread | ● | ● | | ● | | ● | | | | |
| SUS tube extended | | | | ● | | ● | | ● | | |
| Double barbed fitting | | | | ● | | ● | | ● | | |
| Option | With flow rate adjustment | With flow rate adjustment With indicator For liquid ammonia For liquid nitric acid | With flow rate adjustment With indicator With by pass For liquid ammonia For liquid nitric acid/hydrofluoric acid For high temperature (5 to 160°C) | With flow rate adjustment With indicator | With flow rate adjustment With indicator With by pass For liquid ammonia For liquid nitric acid/hydrofluoric acid For high temperature (5 to 160°C) | With flow rate adjustment With indicator | With flow rate adjustment With indicator With by pass For liquid ammonia For liquid nitric acid/ hydrofluoric acid | With flow rate adjustment With indicator | Ammonia specification | |
| Applications | Coater/ developer | Chemical supply system Cleaning system | Chemical supply system Cleaning system | | Chemical supply system Cleaning system | | Chemical supply system Cleaning system | | Chemical supply system | |

## Sister product

| Air operated valve | Manual valve |
|---|---|
| 2 port | 2 port |
| AMD2/3/4/5* ... Page 70  | MMD ... Page 110  |
| Application: Chemical supply system Cleaning system | Application: Chemical supply system Cleaning system |

## Peripheral devices

| Toggle valve | Flow rate control valve | Regulator |
|---|---|---|
| 2 port | 2 port | |
| TMD ... Page 114  | FMD00 ... Page 120  | PMP202 ... Page 134 PMP402 ... Page 134  PYM ... Page 138  PMM20 ... Page 140  PMM50 ... Page 142  •Connection: Rc1/8, Rc1/4 (ø8, ø10 for PMM20) •Setting pressure range: 0.02 to 0.2 MPa |
| Application: Chemical supply system Cleaning system | Application: Chemical supply system Cleaning system | Application: Coater/developer |

| | 3 port | | Manifold | | Manual valve 2 port | | Manifold | Drip prevention valve | Air-operated valve and drip prevention valve integrated type |
|---|---|---|---|---|---|---|---|---|---|
| | AMGZ/0 | AMG3/4/502 | GAMD0*2A | GAMD3/4/5*2 | MMD3/4/502 | MMD*0H | GMMD3/4/502 | AMS | AMDS |
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| | …Page 40 | …Page 44 | …Page 52 | …Page 60 | | …Page 98 | …Page 102 | …Page 124 | …Page 128 |
| | PFA/PTFE body | PTFE body | PTFE body | PTFE body | PFA/PTFE body | Stainless steel body | PFA body | PTFE body | PFA/PTFE body | PFA/PTFE body |
| | ø1.6 to ø4 | ø6 to ø20 | ø6 | ø6 to ø20 | ø6.3 to ø20 | ø8 to ø20 | ø10 to ø25 | ø6 to ø20 | 0.04cm³/0.12cm³ | 0.04cm³/0.12cm³ |
| | ● | ● | | ● | ● | | | ● | ● | ● |
| | ● | ● | ● | ● | ● | | ● | ● | ● | ● |
| | ● | | | | | | | | ● | ● |
| | | ● | | ● | ● | | | ● | | |
| | ● | ● | | ● | ● | | | ● | ● | ● |
| | ● | ● | | ● | ● | | | ● | ● | ● |
| | ● | ● | | ● | ● | | ● | ● | ● | ● |
| | | | | | | | ● | | | |
| | | | | | ● | | | ● | | |
| | | | | | | ● | | | ● | |
| | | | | | | ● | | | | |
| | | | | | | ● | | | | |
| | - | With flow rate adjustment<br>With indicator<br>For liquid ammonia<br>For liquid nitric acid/ hydrofluoric acid<br>For high temperature (5 to 160°C) | With flow rate adjustment<br>For liquid ammonia | With flow rate adjustment<br>With indicator<br>For liquid ammonia<br>For liquid nitric acid/ hydrofluoric acid<br>For high temperature (5 to 160°C) | For liquid ammonia<br>For liquid nitric acid/hydrofluoric acid | Actuator Material: Aluminum | Ammonia specification | For liquid ammonia<br>For liquid nitric acid/hydrofluoric acid | - | - |
| | Coater/ developer | Chemical supply system<br>Cleaning system | Chemical supply system<br>Cleaning system | | Chemical supply system<br>Cleaning system | | Chemical supply system<br>Cleaning system | Coater/ developer | Coater/developer | |

## Other high purity chemical liquid components

### Microflow adjustment valve

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### Large bore size chemical liquids valve

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### Dump valve

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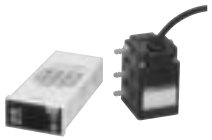
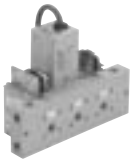
### Sensor: Fine level switch

KML702 … Page 146



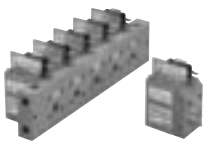
- Detection points: 8-point setting
- Integrated communication function (RS485)

KML60 … Page 150



- Detection point : 4-point settable

KML50 Series …… Page 154



- Repeatability : ±1 mm

Application: Cleaning system

# Safety Precautions

Always read this section before use.

When designing and manufacturing a device using CKD products, the manufacturer is obligated to check that device safety mechanism, pneumatic control circuit, or water control circuit and the system operated by electrical control that controls the devices is secured.
It is important to select, use, handle, and maintain the product appropriately to ensure that the CKD product is used safely.
Observe warnings and precautions to ensure device safety.
Check that device safety is ensured, and manufacture a safe device.

## ⚠ WARNING

**1** This product is designed and manufactured as a general industrial machine part.
It must be handled by an operator having sufficient knowledge and experience in handling.

**2** Use this product in accordance with specifications.

This product must be used within its stated specifications. Do not attempt to modify oradditionally machine the product. This product is intended for use as a general-purpose industrial device or part. It is not intended for use outdoors or for use under the following conditions or environment.
(Note that this product can be used when CKD is consulted prior to use and the customer consents to CKD product specifications. The customer must provide safety measures to avoid risks in the event of problems.)
(1) Use for special applications including nuclear energy, railway, aircraft, marine vessel, vehicle, medicinal devices, devices or applications coming into contact with beverages or foodstuffs, amusement devices, emergency shutoff circuits, press machine, brake circuits, or for safeguard.
(2) Use for applications where life or assets could be adversely affected, and special safety measures are required.

**3** Observe corporate standards and regulations, etc., related to the safety of device design and control, etc.

ISO 4414, JIS B 8370 (pneumatic system rules)
JFPS 2008 (Principles for pneumatic cylinder selection and use)
Including High Pressure Gas Maintenance Law, Occupational Safety and Sanitation Laws, other safety rules, body standards and regulations, etc.

**4** Do not handle, pipe, or remove devices before confirming safety.

(1) Inspect and service the machine and devices after confirming safety of the entire system related to this product.
(2) Note that there may be hot or charged sections even after operation is stopped.
(3) When inspecting or servicing the device, turn off the energy source (air supply or water supply), and turn off power to the facility. Discharge any compressed air from the system, and pay attention to possible water leakage and leakage of electricity.
(4) When starting or restarting a machine or device that incorporates pneumatic components, make sure that the system safety, such as pop-out prevention measures, is secured.

**5** Observe warnings and cautions on the pages below to prevent accidents.

■ The safety cautions are ranked as "DANGER", "WARNING" and "CAUTION" in this section.

⚠ DANGER: When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries, or when there is a high degree of emergency to a warning.

⚠ WARNING: When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries.

⚠ CAUTION: When a dangerous situation may occur if handling is mistaken leading to minor injuries or physical damage.

Note that some items described as “CAUTION” may lead to serious results depending on the situation.
In any case, important information that must be observed is explained.

# Disclaimer

## 1 Warranty period

“Warranty period" is 18 months from the first delivery to the customer.

## 2 Scope of warranty

In case any defect attributable to CKD is found during the warranty period, CKD shall, at its own discretion, repair the defect or replace the relevant product in whole or in part, without charge.

Note that the following faults are excluded from the scope of warranty:
(1) Product abuse/misuse contrary to conditions/environment recommended in its catalogs/specifications
(2) Failure caused by other than the delivered product
(3) Use other than original design purposes
(4) Third-party repair/modification
(5) Faults caused by reasons that are unforeseble with technology put into practial use at the time of delivery
(6) Failure attributable to force majeure

In no event shall CKD be liable for business interruptions, loss of profits, personal injury, costs of delay or for any other special, indirect, incidental or consequential losses, costs or damages.

## 3 Compatibility confirmation

In no event shall CKD be liable for merchantability or fitness for a particular purpose, notwithstanding any disclosure to CKD of the use to which the product is to be put.

# Precautions in Export

## 1 Security Trade Control

Products in this catalog and their related technology may require approval before export or provision. To contribute to world peace and safety, there may be cases in which approval under the Foreign Exchange and Foreign Trade Control Law is required depending on the country where the product or related technology is being exported or provided.
The scope of products and related technologies requiring approval are listed in "Export Trade Control Ordinance Appendix Table 1" or "Foreign Exchange and Foreign Trade Control Law Appendix Table".
“Export Trade Control Ordinance Appendix Table 1” and “Foreign Exchange Order Appendix Table” contain the following two types of information:

- “List controls” indicating items 1 to 15 for each section
- “Catchall controls” that do not specify specifications by item, but restrict by application (Item 16)


Application for Approval:
The application is received by the Ministry of Economy, Trade, and Industry, Security Trade Control Review Section or local bureaus of the Ministry of Economy, Trade, and Industry.

## 2 Products and related technologies in this catalog

Products and related technologies in this catalog include those subject to List Control of the Foreign Exchange and Foreign Trade Control Law.
For products and related technologies that are subject to List Control of the Foreign Exchange and Foreign Trade Control Law are so indicated in the pages of those products.
Please obtain an export permit of the Foreign Exchange and Foreign Trade Control Law when you export or provide a product or related technology subject to List Control.
Also, when exporting or providing products or related technologies in this catalog, ensure that they are not used for arms or weapons.

## 3 Contact

Contact your local CKD Sales Office for information on the Security Trade Control of products and related technologies in this technology.

# Safety Precautions

Always read before use

## Design & Selection

### 1. Confirmation of specifications

**⚠ WARNING**

■ This product can not be used as an emergency shut off valve.
Valves in this catalog are not designed to ensure safety such as emergency shutoff. When using in such a system, provide other measures to ensure safety.

■ Incorrect selection and handling of devices could result in product problems and user system problems. The user is responsible for confirming the compatibility of the product specification and their system before selecting and handling the product.

■ Working fluid
The compatibility check list on page 13 provides basic information on compatibility. Refer to it to check whether the material of each component is compatible with the working fluid and working environment. For a fluid not listed on the check list or a newly introduced fluid (including those with high concentration), contact CKD before using it. The PYM and PMM Series cannot be used for corrosive fluids.
The PMM Series cannot be used for solvents or alcohol.

■ Temperature of fluid
Use the product in the specified fluid temperature range.

■ Working pressure range
Use the product within the working pressure range specified in the catalog.

■ Working environment
(1)Check compatibility between the material of each component and the working environment before using the product. (Do not use it in a corrosive environment or flammable environment.)
(2)Make sure that fluids do not adhere to the product body.
(3)Use the product within the specified ambient temperature range.
(4)Do not use the product in a place with vibration or shock, a heat source neighborhood, or outdoors.

### 2. Design

**⚠ WARNING**

■ For a fluid that may cause personal injury, place the valve at a location where people cannot access.

■ Liquid ring
Opening and closing movement of the valve makes the diaphragm go up and down, changing the inner volume of the valve. Therefore, since the fluid is incompressible (liquid), operation with the fluid sealed within the valve (liquid ring) places an abnormal pressure on the valve. In such cases, install a relief valve on the primary or secondary side of the valve to avoid a liquid ring circuit.

■ Securing maintenance space
Secure sufficient space for maintenance and inspection.

■ The Rc thread is piped as explained in (1) For Rc thread. Leakage may occur from screw-in sections because of the heat cycle. Under these conditions, select models with an integrated fitting.

# Installation & Adjustment

## 1. Installation

### ⚠ WARNING

■ Incorrect installation and piping cause product problems and may cause problems in the user's system, resulting in death or serious injury. The user is responsible for ensuring that the system is operated by someone who understands safety precautions concerning the system, the fluid characteristics, compatibility of the fluid and the related products, and who has read the instruction manual thoroughly.

### ⚠ CAUTION

■ After installing, check for leaks from pipes, and check that the product is correctly installed.

## 2. Piping

### ⚠ WARNING

■ Always flush the piping before installing the valve. Dirt or foreign matter in fluid may prevent the valve from functioning correctly. If dirt or foreign matter may come inside, install a filter on the primary side of the valve in a way suiting the circuit used.

■ For a product with the arrow symbol, make sure that the flow direction of the fluid coincides with the arrow direction.

■ Pipe so that tension, compression, bending, etc., caused by the piping is not applied to the valve body.

■ For NC and NO types, ports to which control pressure is not placed are released to the atmosphere. If direct intake and emission of air is not desirable due to the problem of working environment or dirt, release the set screw and do piping work so that intake and emission of air is made at a proper location.

■ Use the driving solenoid valve connected to the drive section in accordance with the specification and the use application.

### ⚠ CAUTION

■ For fittings for PFA tubes, refer to the instruction manual provided by each fitting manufacturer and follow the description for its application. Application of a fitting requires a specialized jig. Consult the fitting manufacturer about it. For AMG, GAMD, and GMMD, the distance between the adjacent fittings is short, so it may be difficult to connect the fitting with regular tools. The fitting manufacturer's dedicated installation jig may also be unusable. Contact CKD in this case. (Super 300 type pillar fitting, final lock fitting)

■ When constructing a union fitting, confirm that o-ring of the union nut is inside the groove of the body and make sure to firmly tighten until the o-ring is squashed. When the nut is not tightened firmly, liquid may leak out, creating a hazard.

■ When performing welding for the welded PFA tube extended, make sure that a person who has knowledge of pipe welding performs the task.

■ Check that stress, such as bending, tension, or compression, is not applied to the valve when connecting main pipes. Consider the position and method of supporting pipes in such a way that they do not impose the pipe weight on valves.

■ When installing a valve, do not support it only by the fitting, but fasten the mounting plate and the equipment.

■ Follow the procedures described below to construct the Rc thread section.

(1) For Rc thread

(1)Wind PTFE sealing tape three or four times around the fitting complying with the JIS B 0203 piping tapered screw.
(2)Tighten to the following tightening torque:

| Port size | PFA fitting | PVC fitting |
|---|---|---|
| Rc1/8 | 0.5 to 0.8 | - |
| Rc3/8 | 1.0 to 1.5 | - |
| Rc1/2 | 1.5 to 2.0 | 2.0 to 2.5 |
| Rc3/4 | 2.0 to 2.5 | 2.5 to 3.0 |
| Rc1 | 2.5 to 3.5 | 3.0 to 4.0 |

(N・m)

(2) Operation port

Tighten at 0.4 to 0.6 N·m because a crack of the port or damage on the screw may occur.
Select AMD3/4/5*2, AMG3/4/502, GAMD3/4/5*2 with stiffening ring, if it is used with metal or PPS fitting (refer to the page for each model).
Do not use metal or PPS fitting for AMD4/5/61H.

# Safety Precautions

Always read before use

## During Use & Maintenance

### 1. Before Use of Product

#### WARNING

■ Use within the maximum service pressure and maximum working pressure range.

#### CAUTION

■ The compatibility check list on page 13 provides basic information on compatibility. Refer to it to check whether the material of each component is compatible with the working fluid and working environment. For a fluid not listed on the check list or a newly introduced fluid (including those with different concentration), contact CKD before using it.

- A fluid, such as slurry and UV hardener, that includes particles or that may become solid or gelatinous may affect the performance.
- When using fluids containing a surface acting agent or highly permeable fluids such as a peeling agent, the fluid could permeate the part.

Conduct regular inspections, and in the event of abnormality being found, take action such as replacement.

■ $N_2$ gas and air may cause maximum of 1 $cm^3/min$ of valve seat leakage (by air pressure).

■ It should be noted that sudden changes of fluid temperature may have the valve seat distorted resulting in valve seat leakage.

■ For control air, use air or inert gas that has gone through a filter with filtration rating of 5 μm or over.

■ The product is provided after precision cleaning and with clean packing expecting it to be installed in a clean room. Please be careful in handling it.

■ Do not over-clamp the knob for flow control or bypass control.

■ Do not step the valve, nor put the heavy things on it.

■ If the product has not been used for a long period, carry out trial operation before use.

■ There occurs turbulent flow on the secondary side of the valve.
When you place, on the secondary side of the valve, a device such as a flow meter that requires the flow to be laminar, place it some distance away from the valve where the device is not affected by the turbulent flow.

■ This product must not be disassembled by the user. It is dangerous since some products have high load springs.

■ Make sure that fluids do not adhere to the product body.

### 2. Air operated valves and manual valves for chemical liquid AMD/MMD Series

#### CAUTION

■ For AMD Series with regulator and MMD Series, set the adjustment knob at a position of the specified number of rotations or more to the open direction from the complete closed position. Using the product with less opening may cause vibration or fluctuation in flow depending on the working conditions. (Refer to pages 78 to 82.) There may be flow fluctuation caused by fluid temperature fluctuation depending on the use condition.
Use MMD**2 Series fully closed or fully opened. Can not be used at mid position

### 3. Air operated valve for chemical liquid AMD/GAMD Series

#### CAUTION

■ For AMD/GAMD Series, water-hammer or vibration may happen depending on the media pressure condition. Most cases will be improved by adjusting the open/close speed by the flow control valve. If the condition still does not improve, check the media pressure and piping conditions.

### 4. Air operated valves and manual valves for chemical liquid AMD*1H/MMD*0H Series

#### CAUTION

■ When collecting transparent gas from the diaphragm or detecting leakage, remove the set screw and use the detection port as a piping port. At this point, it is assumed that fluorine resin is used for piping, therefore, tighten with 0.4 N·m or less.
Use MMD** 0H Series fully closed or fully opened. Can not be used at mid position.

# During Use & Maintenance

## 5. Fine regulator PMM/PYM/PMP Series

### ⚠ CAUTION

■ With the PMM/PYM/PMP Series, vibration could occur due to conditions such as fluctuations in fluid pressure, flow or supply pressure, or piping, etc., which may affect product life.
Review conditions of fluid pressure and flow if vibration occurs.

■ Because the regulator is operated with minute opening, if liquid mixed with foreign materials is poured, the valve seat is scratched and performance may lessen. In case there is a risk of having foreign materials mixed, it is recommended to install a filter in the primary side of the regulator.

■ When the set output pressure of regulator is exceeded, if damage and malfunction of devices at the secondary side could be caused, always provide a safety device.

## 6. Maintenance & Inspection

### ⚠ DANGER

■ When replacing a valve, evacuate enough the fluid inside with pure water or air beforehand so that remaining chemical liquids will not affect devices and people around.
Although the top of the diaphragm (on the cylinder side) is not a wet area, the area is chemical atmosphere due to gas permeation from the thin film section. Observe the following precautions when handling it for the sake of safety.

(1)The valve operation makes a little amount of permeated gas discharged from the bleed hole on the cylinder side surface. Make sure that people do not approach the neighborhood of the bleed hole when the valve is in operation.
(2)Crystal may adhere to the bleed hole or its neighborhood.
(3)Use a corrosion resistant glove when touching the valve; do not touch it barehanded.

■ A valve that has been used for chemical liquids may have chemical liquid atmosphere remaining between its actuator and diaphragm. This product must not be disassembled by the user.
Contact CKD or a distributor when disassembling is required.

■ To ensure optimum operation of the valve, conduct the following regular inspection once or twice a year.

(1)Checking leakage outside the valve
(2)Checking leakage from the fitting section
(3)Checking abnormality such as discoloration, deformation, and corrosion of a component

### ⚠ WARNING

■ Read the instruction manual thoroughly before starting maintenance to ensure correct operation.

■ Always release operation air or any fluids before starting maintenance.

■ When conducting a maintenance or inspection work, read the material safety data sheet (MSDS) of the chemical liquids used, and wear the required protective clothing.

■ Long-term use of chemical liquids with high permeability such as hydrochloric acid, hydrofluoric acid, and nitric acid will have the permeated gas deteriorate not only wet areas but parts of other areas, which may result in an accident such as external leakage. For the sake of safety, be sure to conduct periodic inspections once or twice a year to check if there is any abnormality such as discoloration, deformation, or corrosion of a component.

### ⚠ CAUTION

■ Use a product of the same model number when replacing a product. There are some products that have the same exterior appearance and different specifications.

■ Store any unused product at a location where direct sunlight is not shed and the temperature is not high. When handling the product, do not give shock or flaw to it by throwing, dropping, or catching it.

# Safety Precautions

Always read before use

## Compatibility check list of the product and working fluid

* The check list has been created based on the past evaluations and experiences, but does not ensure a performance.
* When using this regulator for a substance other than pure water, the user is responsible for confirming the compatibility of the working fluid and product materials. A person familiar with chemicals should confirm the compatibility.

| Fluid name | | Major applications: For cleaning system/ chemical liquid supply system | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Air-operated valve | | | | | | Manual valve | | | |
| | | 2 port | | | 3 port | Manifold | | 2 port | | Manifold | Flow control valve |
| | | AMD0*2  ...Page 6 | AMD3*2<br>AMD4*2<br>AMD5*2  ...Page 10  ...Page 16 | AMD41H<br>AMD51H<br>AMD61H  ...Page 36 | AMG3*2<br>AMG4*2<br>AMG5*2  ...Page 44 | GAMD0*2A  ...Page 52 | GAMD3*2<br>GAMD4*2<br>GAMD5*2  ...Page 60 | MMD302<br>MMD402<br>MMD502  ...Page 84  ...Page 92 | MMD40H<br>MMD50H<br>MMD60H  ...Page 98 | GMMD302<br>GMMD402<br>GMMD502  ...Page 102 | FMD00  ...Page 120 |
| Pure water | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Oxidized fluid | Sulfuric acid | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | Hydrochloric acid | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | Nitric acid | ● (Note 5) | ● (Note 5) | ● | ● (Note 5) | △ | ● (Note 5) | ● | ● | ● | ● |
| | Hydrofluoric acid (Note 2) | ● | ● (Note 5) | ● | ● (Note 5) | ● | ● (Note 5) | ● (Note 5) | ● | ● (Note 5) | ● |
| | Phosphoric acid | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | Ammonium fluoride (Note 2) | ● | ● (Note 5) | ● | ● (Note 5) | ● | ● (Note 5) | ● (Note 5) | ● | ● (Note 5) | ● |
| | Hydrogen peroxide | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | Ozone water | △ | △ | △ | △ | △ | △ | △ | × | △ | × |
| | Sulfuric acid + Hydrogen peroxide water (Note 3) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | Sulfuric acid + ozone | △ | △ | △ | △ | △ | △ | △ | × | △ | × |
| Basic fluid | Sodium hydroxide | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | Potassium hydroxide | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | Aqueous ammonia | ● (Note 6) | ● (Note 6) | ● (Note 6) | ● (Note 6) | ● (Note 6) | ● (Note 6) | ● (Note 6) | ● (Note 6) | ● (Note 6) | ● |
| Organic fluid | Acetone | ● (Note 6) | ● (Note 7) | ● (Note 6) | ● (Note 6) | ● (Note 6) | ● (Note 6) | ● (Note 7) | ● (Note 6) | ● (Note 6) | × |
| | Butyl acetate | ● (Note 6) | ● (Note 7) | ● (Note 6) | ● (Note 6) | ● (Note 6) | ● (Note 6) | ● (Note 7) | ● (Note 6) | ● (Note 6) | × |
| | Isopropyl alcohol | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Other/mixed fluid (Note 1) | Thinner | ● | ● | ● | ● | ● | ● | ● | ● | ● | × |
| | Resist | ● | ● | ● | ● | ● | ● | ● | ● | ● | × |
| | Developer | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | Slurry | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | Plating liquid | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | Peeling liquid (Note 4) | ● | ● | ● | ● | ● | ● | ● | ● | ● | △ |
| Gas | Air, nitrogen gas | In the case of gas, maximum of 1 $cm^3$/min valve seat leakage (by air pressure) may occur. | | | | | | | | | |

| Judgment | | |
|---|---|---|
| | ● | Available (Check the details at the page of the product.) |
| | △ | Contact CKD for details. (Can be supported for some cases.) |
| | × | Not available |

Note 1: In most cases the fluid is a mixture of many chemical liquids so that we cannot grasp all ramifications.
Check the compatibility between the material of each component and the working fluid thoroughly to judge whether the product can be used.
Note 2: Contact CKD if using hydrofluoric acids or fluid including hydrofluoric acid and if fluid temperature is over 40°C.
Note 3: Select PTFE body when using sulfuric acid + hydrogen peroxide water at a temperature of 100°C or over.
Note 4: Regular replacement is required for the case where an amine peeling liquid is used at a temperature of 80°C or over.
The replacement is required at lease once a year.
Note 5: Select option "P".
Note 6: Select the option "M".
Note 7: Select the stainless steel body type for metal piping.
Select the option "M" for fluorine resin piping.
Note 8: Select the option "Y" for high temperature type.
Note 9: Select the option "K" for high temperature type.
Note 10: Because of the high permeability chemical liquid, transparent gas may mix into the pilot air, adversely affecting the operation component.
Cotact CKD if the operation component needs to be protected.
Note 11: Custom order with measures for supporting oxidized fluid and transparent gas is available. Contact CKD separately.

| Major applications: For cleaning system/ chemical liquids supply system | | | | Application: Coater/developer | | | | | Peripheral devices | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sister product | | | Air-operated valve | | Manual valve | Drip prevention valve | Air-operated valve and drip prevention valve integrated type | Fine regulator | | | | |
| | Toggle valve | Air-operated valve | | Manual valve | 2 port | 3 port | Toggle valve | | | Pilot operated | | Manual | | |
| | TMD302 | AMD2* | AMD3*<br>AMD4*<br>AMD5* | MMD20<br>MMD30<br>MMD40 | AMDZ*<br>AMD0* | AMGZ0<br>AMG00 | TMDZ02<br>TMD002 | AMSZ2<br>AMS022 | AMDSZ0<br>AMDS00 | PMP202 | PMP402 | PYM10 | PMM20 | PMM50 |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| | ...Page 114 | ...Page 70 | ...Page 70 | ...Page 110 | ...Page 2 | ...Page 40 | ...Page 114 | ...Page 124 | ...Page 128 | ...Page 134 | ...Page 134 | ...Page 138 | ...Page 140 | ...Page 142 |
| | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | ● | ● | ● (Note 8) | ● | × | × | × | △ | △ | ● | △ (Note 11) | × | × | × |
| | ● | ● | ● | ● | × | × | × | △ | △ | △ (Note 10) | △ (Note 11) | × | × | × |
| | ● | ● | ● (Note 9) | ● | × | × | × | △ | △ | △ (Note 10) | △ (Note 11) | × | × | × |
| | ● | ● | ● | ● | × | × | × | △ | △ | △ (Note 10) | △ (Note 11) | × | × | × |
| | ● | ● | ● | ● | × | × | × | △ | △ | ● | △ (Note 11) | × | × | × |
| | ● | ● | ● | ● | × | × | × | △ | △ | ● (Note 10) | △ (Note 11) | × | × | × |
| | ● | ● | ● | ● | × | × | × | △ | △ | ● | △ (Note 11) | × | × | × |
| | × | × | × | × | × | × | × | △ | △ | △ | △ (Note 11) | × | × | × |
| | ● | ● | ● (Note 8) | ● | × | × | × | △ | △ | ● | △ (Note 11) | × | × | × |
| | × | × | × | × | × | × | × | △ | △ | △ | △ (Note 11) | × | × | × |
| | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | △ | △ | △ | × |
| | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | △ | △ | △ | × |
| | ● | ● (Note 6) | ● (Note 6) | ● | △ | △ | ● | △ | △ | △ (Note 10) | △ (Note 11) | △ | × | × |
| | △ | × | × | × | ● | ● | △ | ● | ● | △ | △ | △ | △ | × |
| | △ | × | × | × | ● | ● | △ | ● | ● | △ | △ | △ | △ | × |
| | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | △ | △ | × |
| | △ | × | × | × | ● | ● | △ | ● | ● | △ | △ | △ | △ | × |
| | △ | × | × | × | ● | ● | △ | ● | ● | ● | △ | △ | △ | × |
| | ● | ● | ● | ● | ● | ● | △ | ● | ● | ● | △ | △ | △ | × |
| | ● | ● | ● | ● | △ | △ | △ | △ | △ | ● | △ | △ | △ | × |
| | ● | ● | ● | ● | × | × | × | △ | △ | ● | △ (Note 11) | × | × | × |
| | △ | × | × | × | ● | ● | △ | ● | ● | ● | △ | △ | △ | × |
| In the case of gas, maximum of 1 cm³/min valve seat leakage (by air pressure) may occur. | | | | | | | | | | | | | | |

## ■ Metal piping and stainless steel body

- Select stainless steel body for metal piping.
  (Contact CKD for the model without an option of stainless steel body. Can be supported for some models.)
- Stainless steel body can not be used for oxidized fluid.

## ■ Safety and performance precautions

- When an organic solvent is used with fluorine resin pipes, take measures against fire caused by static electricity.
- A fluid, such as slurry and UV hardener, that includes particles or that may become solid or gelatinous may affect the performance.
- When using fluids containing a surface acting agent or highly permeable fluids such as a peeling agent, the fluid could permeate the part.
- Long-term use of chemical liquids with high permeability such as hydrochloric acid, hydrofluoric acid, and nitric acid will have the permeated gas deteriorate parts not even in wet areas.
- For the sake of safety, be sure to conduct periodic inspections once or twice a year to check if there is any abnormality such as discoloration, deformation, or corrosion of a component.

# AMD

## Overview

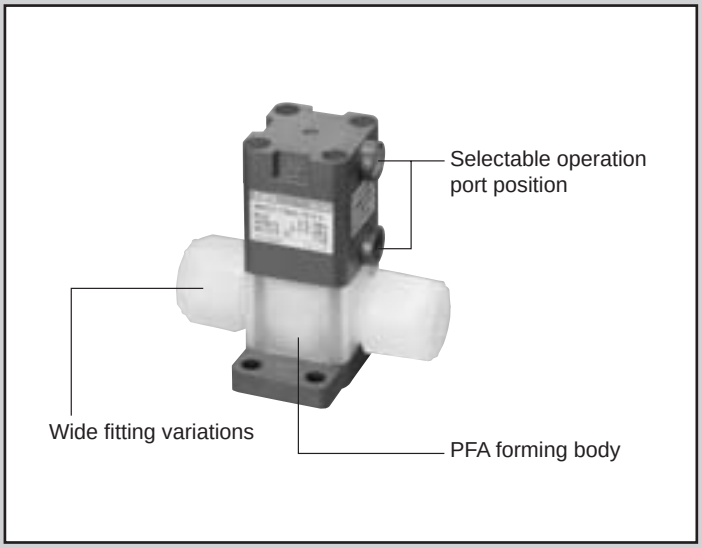
This compact high-performance air-operated valve for chemical liquids is available in port sizes from 1/8 to 1 inch for use in semiconductor manufacturing equipment.

## Features

- Compatible with fluid temperature up to 160°C
  As standard, the valve controls fluids up to 90°C.
  (AMD**2, AMG**2, GAMD**2 Series)
- Wide fitting variations
- Fitting integrated type PFA forming body
  The special resin body eliminates cause of particle formation.
- Selectable operation port position
  The operation port position is selectable from four directions.
  (AMD**2 Series)
- Improved corrosion resistance

GAMD0*2A
(Variation<New>)

- This is a manifold valve, which allows various combinations by blocking of the body





| | |
|---|---|
| ⚠ Safety precautions | Intro 7 |
| **2 port valve** | |
| AMDZ*/AMD0* | 2 |
| AMD0*2 | 6 |
| AMD3*2 (Fluorine resin body) | 10 |
| AMD3*2 (Stainless steel body) | 16 |
| AMD4*2 (Fluorine resin body) | 20 |
| AMD4*2 (Stainless steel body) | 24 |
| AMD5*2 (Fluorine resin body) | 28 |
| AMD5*2 (Stainless steel body) | 32 |
| AMD*1H (Liquid supply) | 36 |
| Sister product AMD2/3/4/5* | 70 |
| **3 port valve** | |
| AMGZ/AMG00 | 40 |
| AMG*02 | 44 |
| **Manifold** | |
| GAMD0*2A (Variation<New>) | 52 |
| GAMD**2 | 60 |
| **High-pressure specifications** | |
| AMD3/4/5*2<br>AMG3/4/502<br>GAMD3/4/5*2 | 68 |
| Flow characteristics | 78 |

Air-operated valve for chemical liquid

# AMDZ$^{1}_{2}$/AMD0$^{1}_{2}$ Series

PFA molded body reduces the factor of particle generation.
Small and high capacity

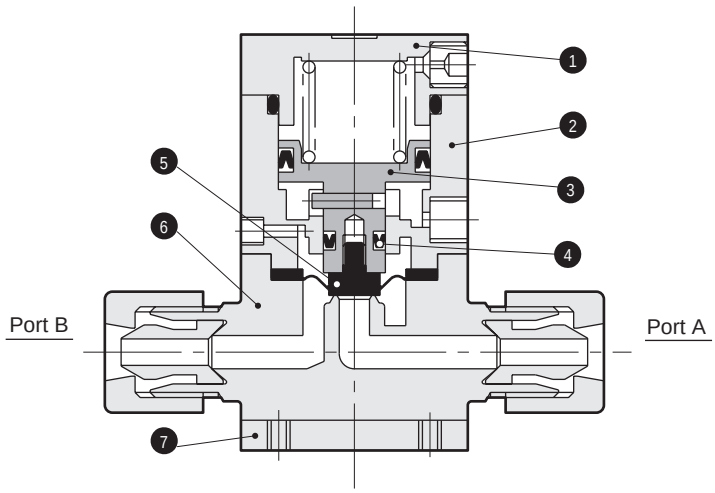
- Orifice: ø1.6 to ø4

## Specifications

| Descriptions | | AMDZ*-*-2 | AMDZ*-*-4 | AMD0*-*-4 |
|---|---|---|---|---|
| Working fluid | | Chemical liquids, pure water, $N_2$ gas, air (Note 3) | | |
| Fluid temperature | °C | 5 to 80 | | |
| Withstanding pressure | MPa | 1 | | |
| Working pressure range (A → B) | MPa | 0 to 0.5 | 0 to 0.3 | 0 to 0.5 |
| Working pressure range (B → A) | MPa | 0 to 0.3 | | |
| Valve seat leakage | $cm^3$/min | 0 (under water pressure) | | |
| Back pressure | MPa | 0 to 0.3 | 0 to 0.1 | 0 to 0.3 |
| Ambient temperature | °C | 0 to 60 | | |
| Frequency | | 30 times/min or less | | |
| Installation attitude | | Free | | |
| Connection | | Rc1/8<br>ODø3 tube connection<br>OD1/8″ tube connection | ODø6 tube connection<br>OD1/4″ tube connection | Rc1/8<br>ODø6 tube connection<br>OD1/4″ tube connection |
| Orifice | | ø2 | ø3.5 | ø4 |
| Cv value | | 0.08 (Note 1, 2) | 0.25 | 0.32 (Note 2) |
| Operation portion | Operation pressure range MPa | NC/NO 0.3 to 0.5,<br>double acting 0.2 to 0.3 | NC/NO 0.35 to 0.5,<br>double acting 0.2 to 0.3 | NC/NO 0.3 to 0.5,<br>double acting 0.2 to 0.3 |
| | Operation pressure connection port | M5 | | |

Note 1: The Cv for the PFA body connection Rc 1/8 is 0.12.
Note 2: The Cv of the SUS body is 80% of the Cv for the PFA body connection Rc 1/8.
Note 3: This product can not be used for oxidized fluid. See page 6 for using this valve for oxidized fluids.
Check the compatibility of the material of each component, working fluid, and ambient atmosphere before use.
Note 4: See pages 80 and 81 for flow characteristics.

## Internal structure and parts list



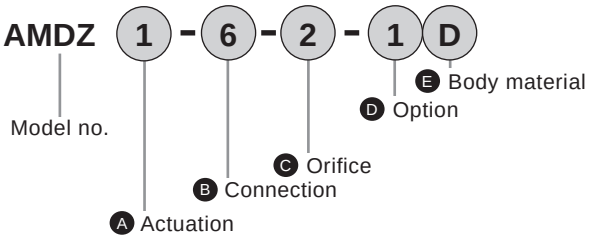

| No. | Parts name | Material ( body material) | |
|---|---|---|---|
| | | Standard | D |
| 1 | Cover | PPS | |
| 2 | Cylinder | PPS | |
| 3 | Piston rod | SUS303 | |
| 4 | Y packing seal | NBR | |
| 5 | Diaphragm | PTFE | |
| 6 | Body | PFA/PTFE | SUS316 |
| 7 | Mounting plate | SUS304 | — |

The material and structure may differ with the model.
Contact CKD for details.

⚠ Read the precautions on Intro 7 to 14 before use.

## How to order

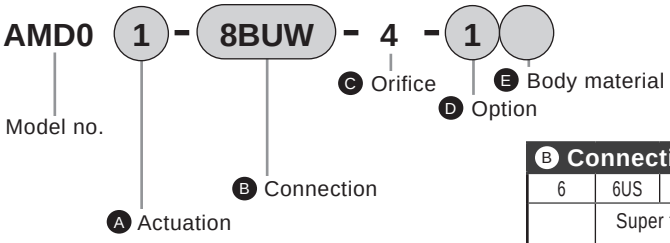
● AMDZ Series




| B Connection | | | | | | | |
|---|---|---|---|---|---|---|---|
| 6 | 3US | 6BUS | 3UF | 3UR | 6BUR | 6UR | 8BUR |
| Rc 1/8 | Super type Pillar fitting integrated type | | F-LOCK 20 series fitting integrated type | F-LOCK 60 series fitting integrated type | | | |
| | ø3 × ø2 tube connection | 1/8" × 0.086" tube connection | ø3 × ø2 tube connection | ø3 × ø2 tube connection | 1/8" × 1/16" tube connection | ø6 × ø4 tube connection | 1/4" × 5/32" tube connection |

| Symbol | Descriptions | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **A Actuation** | | | | | | | | | |
| **1** | NC (Normally closed) | ● | ● | ● | ● | ● | ● | ● | ● |
| **2** | NO (Normally open) | ● | ● | ● | ● | ● | ● | ● | ● |
| **3** | Double acting | ● | ● | ● | ● | ● | ● | ● | ● |
| **C Orifice** | | | | | | | | | |
| **2** | Refer to the right. | ø2 | ø2 | ø2 | ø2 | ø1.6 | ø1.6 | | |
| **4** | Refer to the right. | | | | | | | ø3.5 | ø3.5 |
| **D Option** | | | | | | | | | |
| **Blank** | ON-OFF only | ● | ● | ● | ● | ● | ● | ● | ● |
| **1** | With flow adjustment (Only NC type) | ● | ● | ● | ● | ● | ● | ● | ● |
| **E Body material** | | | | | | | | | |
| **Blank** | PFA molded body or PTFE machined body | PFA | PFA | | PTFE | PTFE | | PFA | |
| **D** | Stainless steel body | ● | | | | | | | |

● AMD0 Series




| B Connection | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 6US | 8BUS | 6UP | 8BUP | 6UF | 8BUF | 6UR | 8BUR | 6UK | 8BUK | 8BUW |
| Rc 1/8 | Super type Pillar fitting integrated type | | Super 300 type Pillar fitting P Series integrated type | | F-LOCK 20 series fitting integrated type | | F-LOCK 60 series fitting integrated type | | Final lock fitting integrated type | | FLARETEK fitting integrated type |
| | ø6 × ø4 tube connection | 1/4" × 5/32" tube connection | ø6 × ø4 tube connection | 1/4" × 5/32" tube connection | ø6 × ø4 tube connection | ø6.35 × ø4.3 tube connection | ø6 × ø4 tube connection | 1/4" × 5/32" tube connection | ø6 × ø4 tube connection | 1/4" × 5/32" tube connection | 1/4" × 5/32" tube connection |

| Symbol | Descriptions | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A Actuation** | | | | | | | | | | | | | |
| **1** | NC (Normally closed) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **2** | NO (Normally open) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **3** | Double acting | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **C Orifice** | | | | | | | | | | | | | |
| **4** | Refer to the right | ø4 | ø4 | ø4 | ø4 | ø4 | ø4 | ø4 | ø3.5 | ø3.5 | ø4 | ø4 | ø3 |
| **D Option** | | | | | | | | | | | | | |
| **Blank** | ON/OFF only | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **1** | With flow adjustment | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **E Body material** | | | | | | | | | | | | | |
| **Blank** | PFA molded body or PTFE machined body | PFA | PFA | | PFA | | PFA | | PFA | | PFA | | PTFE |
| **D** | Stainless steel body | ● | | | | | | | | | | | |

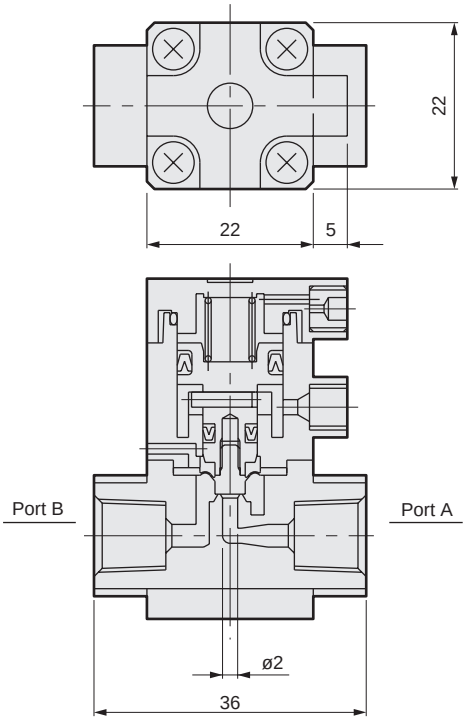
## Note on model no. selection

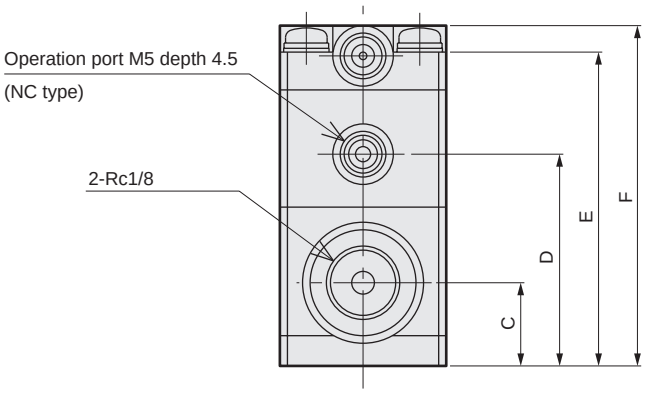
Note 1: See page 6 when selecting a resin mold type used with oxidized fluids.
Note 2: The actuator soft-shut (diaphragm) model is also available to reduce foaming and improve drip prevention. Contact CKD for details.

## Dimensions

● Rc thread type

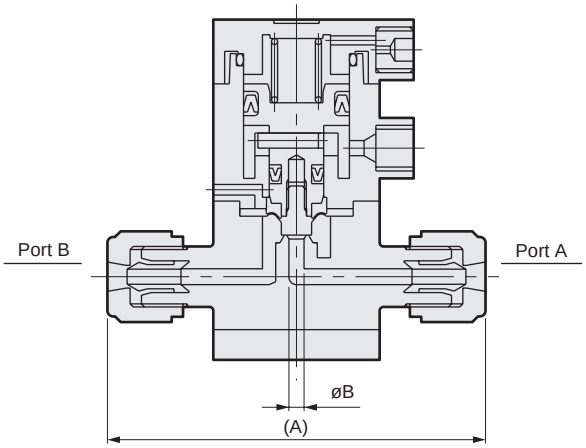
• AMDZ*-6-2



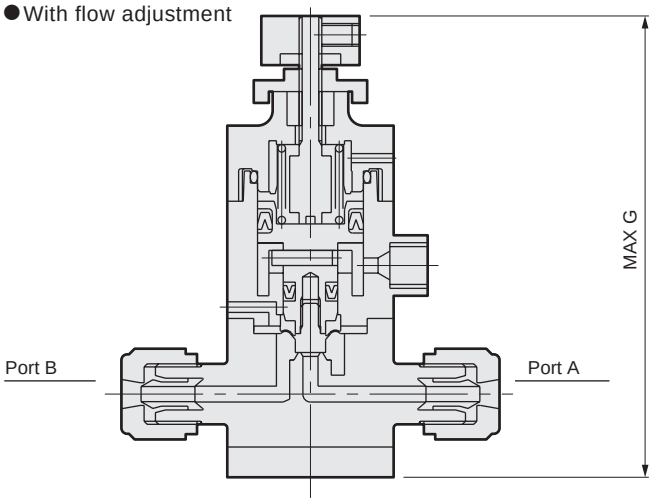




● Fitting integrated type

• AMDZ*- *1 -2




● With flow adjustment

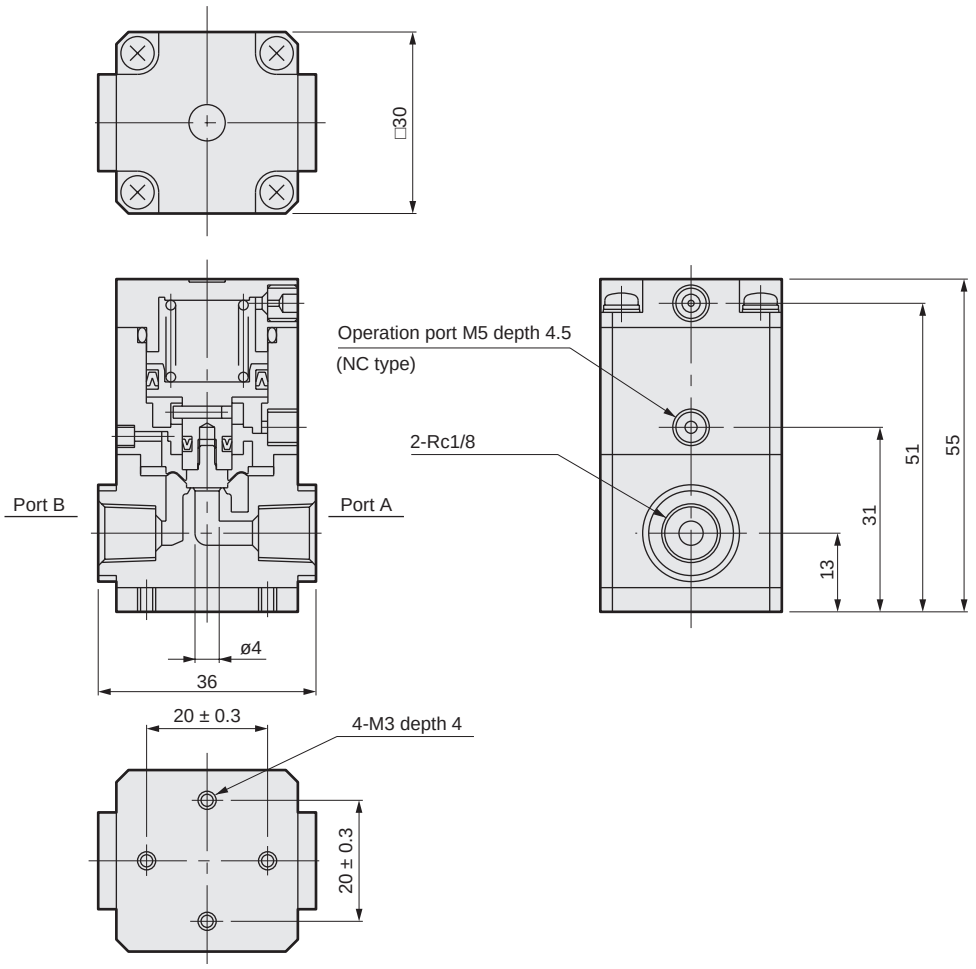



| Dimensions / *1 (Connection model No.) | A | B | C | D | E | F | MAX G |
|---|---|---|---|---|---|---|---|
| 3US | 50 | 2 | 11 | 28 | 41 | 45 | 63 |
| 6BUS | 50 | 2 | 11 | 28 | 41 | 45 | 63 |
| 3UF | 40 | 2 | 11 | 28 | 41 | 45 | 63 |
| 3UR | 57 | 1.6 | 11 | 28 | 41 | 45 | 63 |
| 6BUR | 57 | 1.6 | 11 | 28 | 41 | 45 | 63 |
| 6UR | 82 | 3.5 | 12 | 31 | 44 | 48 | 66 |
| 8BUR | 84 | 3.5 | 12 | 31 | 44 | 48 | 66 |

## Dimensions

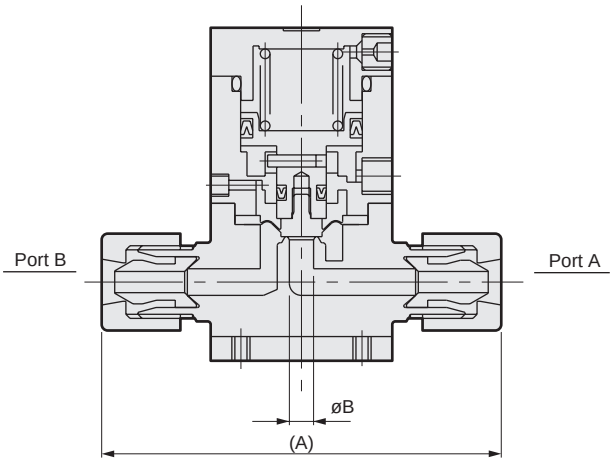
● Rc thread type

• AMD0*-6-4

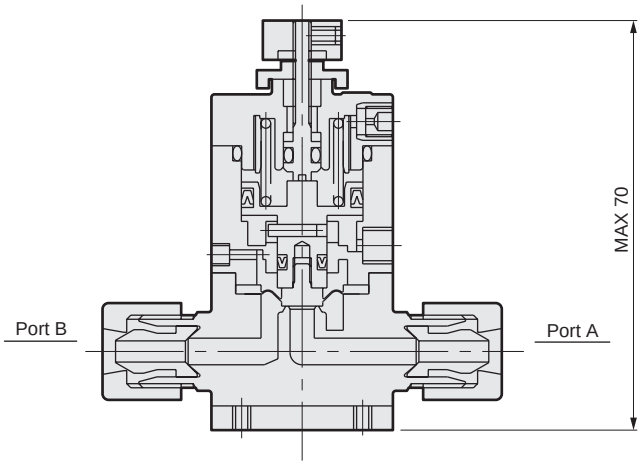



● Fitting integrated type

• AMD0*- *1 -4




● With flow adjustment




| Dimensions / *1 (Connection model No.) | A | B |
|---|---|---|
| 6US | 66 | 4 |
| 8BUS | 66 | 4 |
| 6UP | 68 | 4 |
| 8BUP | 68 | 4 |

| Dimensions / *1 (Connection model No.) | A | B |
|---|---|---|
| 6UF | 64 | 4 |
| 8BUF | 64 | 4 |
| 6UR | 90 | 3.5 |
| 8BUR | 92 | 3.5 |
| 6UK | 71 | 4 |
| 8BUK | 71 | 4 |
| 8BUW | 86 | 3 |

Air-operated valve for chemical liquid

# AMD0$^{1}_{2}_{3}$2 Series

Special PPS enables standard types to be used with hydrofluoric acids.

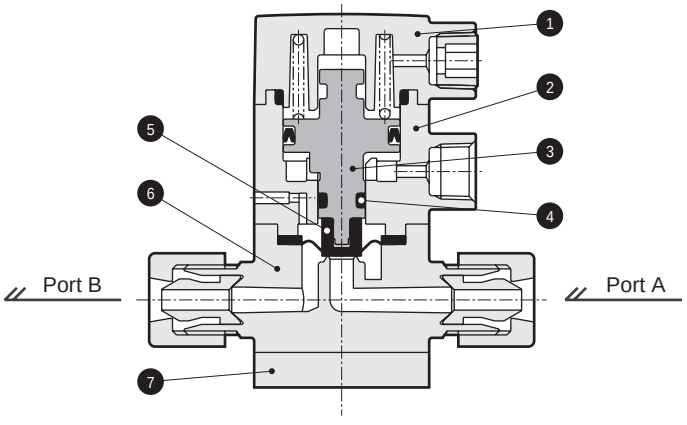
● Orifice: ø3 to ø4

## Specifications

| Descriptions | | AMD0$^{1}_{2}_{3}$2-*-4 | |
|---|---|---|---|
| Working fluid | | Pure water, chemical liquids air, $N_2$ gas (Note 1) | |
| Fluid temperature °C | | 5 to 100 (Note 2) | |
| Withstanding pressure MPa | | 1 | |
| Working pressure range (A → B) MPa | | 0 to 0.5 | |
| Working pressure range (B → A) MPa | | 0 to 0.3 | |
| Valve seat leakage $cm^3$/min | | 0 (under water pressure) | |
| Back pressure MPa | | 0 to 0.3 | |
| Ambient temperature °C | | 0 to 60 | |
| Frequency | | 30 times/min or less | |
| Installation attitude | | Free | |
| Connection | | Rc1/8, OD ø6 tube connection (fitting integrated type), OD 1/4″ tube connection (fitting integrated type) | |
| Orifice | | ø3.5 | ø4 |
| Cv value | | 0.28 | 0.32 |
| Operation portion | Operation pressure range MPa | NC/NO 0.35 to 0.5, double acting 0.3 to 0.4 (0.2 to 0.3 if fluid symbol is "P") | |
| | Operation pressure connection port | Rc1/8 | |

Note 1: Check compatibility of the material of each component, the working fluid and the working environment.
Note 2: Contact CKD if hydrofluoric acid is used and fluid temperature is over 40°C.

## Internal structure and parts list




| No. | Parts name | Material (Fluid symbol) | | |
|---|---|---|---|---|
| | | Standard | M | P |
| 1 | Cover | PPS | | PP |
| 2 | Cylinder | PPS | | PP |
| 3 | Piston rod | PPS | | PVDF |
| 4 | O ring | FKM | EPDM | FKM |
| 5 | Diaphragm | PTFE | | |
| 6 | Body | PFA/PTFE | | |
| 7 | Mounting plate | PPS | | PP |

The material and structure may differ with the model. Contact CKD for details.

⚠ Read the precautions on Intro 7 to 14 before use.

## How to order

AMD0 (1) 2 - (6US) - 4 - (1) - (4) (M)

- Model no.
- Actuation
- Connection
- Orifice
- Option
- Operation port direction
- Fluid

### Ⓐ Actuation

| | |
|---|---|
| 1 | NC (Normally closed) |
| 2 | NO (Normally open) |
| 3 | Double acting |

### Ⓑ Connection

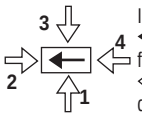
| Symbol / Descriptions \ Orifice | 6 | 6US | 8BUS | 6UP | 8BUP | 6UF | 8BUF | 6UR | 8BUR | 6UK | 8BUK | 8BUW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Rc 1/8 | Super type Pillar fitting integrated type | | Super 300 type Pillar fitting P Series integrated type | | F-LOCK 20 series fitting integrated type | | F-LOCK 60 series fitting integrated type | | Final lock fitting integrated type | | FLARETEK fitting integrated type |
| | | ø6 × ø4 tube connection | 1/4″ × 5/32″ tube connection | ø6 × ø4 tube connection | 1/4″×5/32″ tube connection | ø6 × ø4 tube connection | ø6.35 × ø4.3 tube connection | ø6 × ø4 tube connection | 1/4″ × 5/32″ tube connection | ø6 × ø4 tube connection | 1/4″ × 5/32″ tube connection | 1/4″ × 5/32″ tube connection |
| | ø4 | ø4 | | ø4 | | ø4 | | ø3.5 | | ø4 | | ø3 |

### Ⓒ Option / Body material

PFA: PFA molded body or PTFE: PTFE machined body

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | ON-OFF only | PFA | PFA | | PFA | | PFA | | PFA | | PFA | | PTFE |
| 1 | With flow adjustment | | | | | | | | | | | | |
| 6 | ON-OFF/with indicator | | | | | | | | | | | | |

### Ⓓ Operation port direction




In the overhead view, ← indicates the fluid flow direction, ⇦ the operation port direction.

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| 1 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| 2 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| 3 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |

### Ⓔ Fluid symbol

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Blank | Standard | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| M | For ammonia | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| P | For nitric acid | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

● Model no. for bottom installation type
(Orifice indication and hyphen (-) between Ⓒ and Ⓓ are not required.)

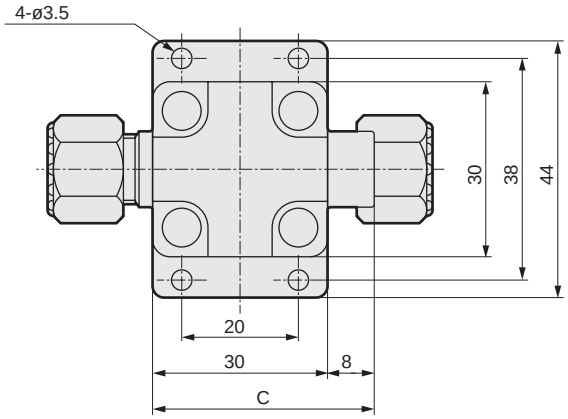
AMD0 (A) 2 - (B) - (C) (D) (E) X

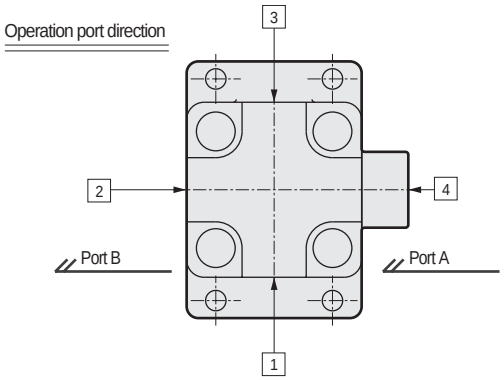
- Bottom installation

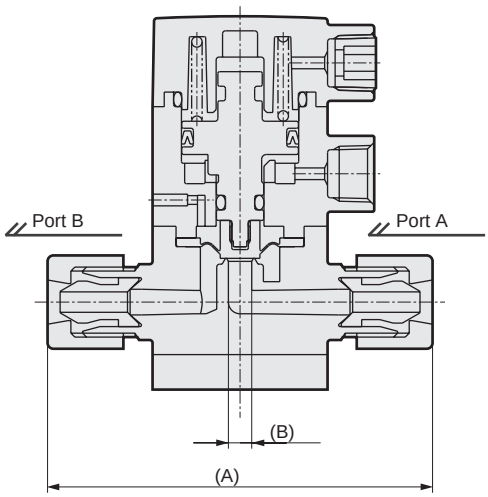
## Dimensions

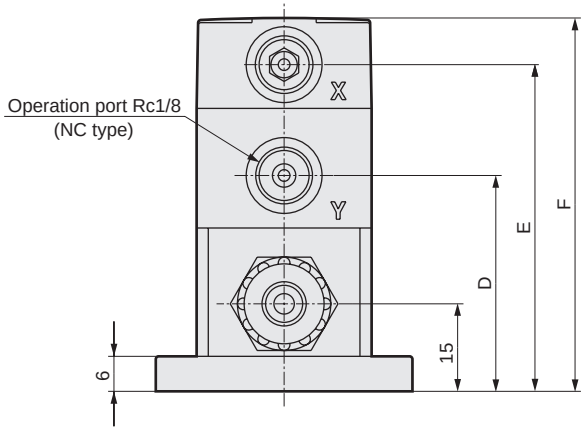
● ON-OFF type only

• AMD0$^{1}_{2}$2- *1 -4-0-□



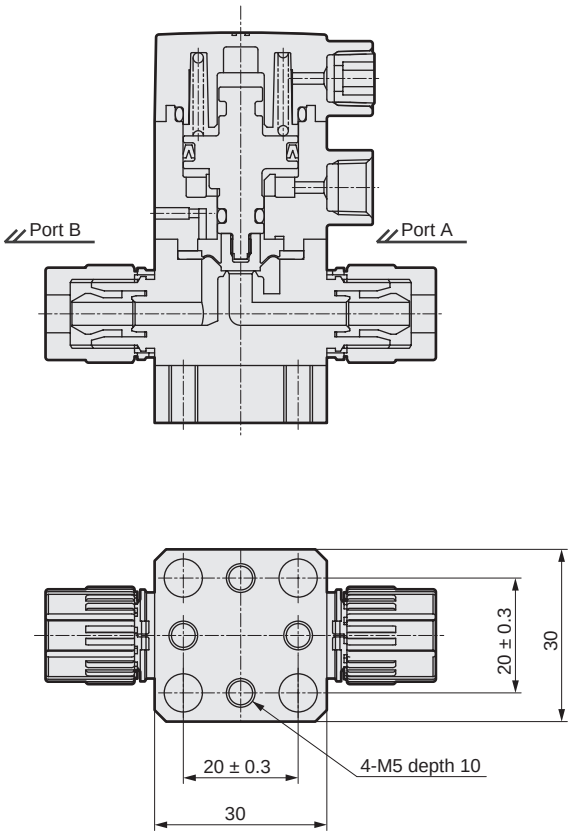

| *1 (Connection model No.) | A | B |
|---|---|---|
| 6 | 36 | 4 |
| 6US | 66 | 4 |
| 8BUS | 66 | 4 |
| 6UP | 68 | 4 |
| 8BUP | 68 | 4 |

| *1 (Connection model No.) | A | B |
|---|---|---|
| 6UF | 64 | 4 |
| 8BUF | 64 | 4 |
| 6UR | 90 | 3.5 |
| 8BUR | 92 | 3.5 |
| 6UK | 71 | 4 |
| 8BUK | 71 | 4 |
| 8BUW | 86 | 3 |

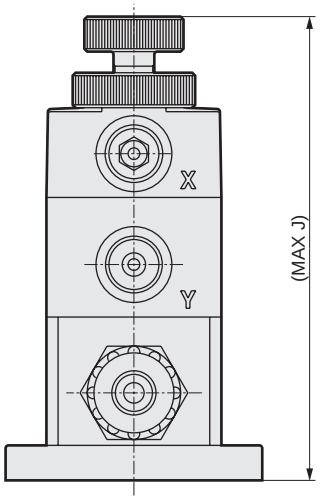
| Fluid symbol | C | D | E | F |
|---|---|---|---|---|
| Blank, M | 38 | 37 | 56 | 64 |
| P | 35 | 36 | 57 | 65 |

## Dimensions

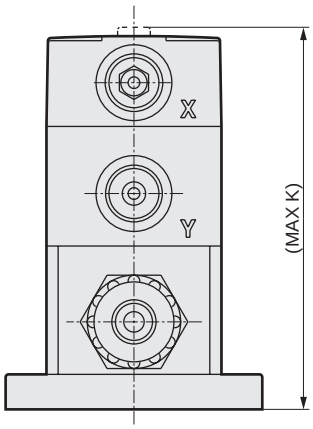
● Bottom installation type




● With flow adjustment




● With indicator




| Fluid symbol | G | H | I | J | K |
|---|---|---|---|---|---|
| Blank, M | 41 | 60 | 68 | 81 | 66 |
| P | 40 | 61 | 69 | 87 | 67 |

J and K dimensions are 4 mm higher when the bottom installation type is selected.

Air-operated valve for chemical liquid

# AMD3$^{1}_{2}_{3}$2 Series

● Orifice: ø6.3 to ø10

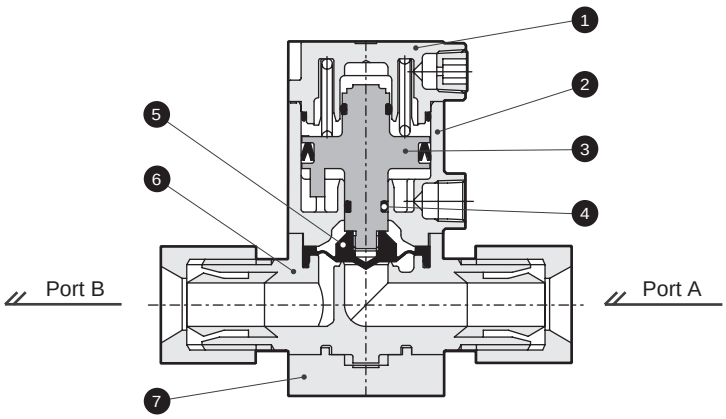
RoHS CAD

## Specifications

| Descriptions | | AMD3$^{1}_{2}_{3}$2-*-8 | | | | AMD3$^{1}_{2}_{3}$2-*-10 | | |
|---|---|---|---|---|---|---|---|---|
| Working fluid | | Chemical liquids, pure water (Note 1) | | | | | | |
| Fluid temperature | °C | 5 to 90 (For high temperature: 5 to 160) (Note 5) | | | | | | |
| Withstanding pressure | MPa | 0.9 | | | | | | |
| Working pressure range (A → B) | MPa | 0 to 0.3 (Note 3) | | | | | | |
| Working pressure range (B → A) | MPa | 0 to 0.1 (Note 3) | | | | | | |
| Valve seat leakage | cm$^3$/min | 0 (under water pressure) | | | | | | |
| Back pressure | MPa | 0 to 0.1 (Note 3) | | | | | | |
| Ambient temperature | °C | 0 to 60 | | | | | | |
| Frequency | | 30 times/min or less | | | | | | |
| Installation attitude | | Free | | | | | | |
| Connection | | OD ø10 tube connection (fitting integrated type)<br>OD 3/8" tube connection (fitting integrated type) | | | | OD ø12 tube connection (fitting integrated type)<br>OD 1/2" tube connection (fitting integrated type) | | |
| Orifice | | ø6.3 | ø6.4 | ø7.5 | ø8 | ø9.4 | ø9.5 | ø10 |
| Cv value | | 0.8 | | 1.25 | | 1.8 | | |
| Bypass orifice (with bypass) | | ø2.3 | | | | | | |
| Operation portion | Operation pressure range MPa | NC 0.3 to 0.5, NO 0.3 to 0.5 (0.3 to 0.35 for high temperature type)<br>Double acting 0.3 to 0.4 (0.2 to 0.25 for high temperature type) | | | | | | |
| | Operation pressure connection port | Rc1/8 (Note 2) | | | | | | |

Note 1: Check compatibility of the material of each component, the working fluid and the working environment .
Note 2: Connect a resin fitting when connecting to the operation port.
(When using a metal fitting, select one with a reinforcement ring. However, a reinforcement ring is not required for nitric acid and hydrofluoric acid of fluid symbol "P".)
Note 3: See page 68 for high-pressure specifications.
Note 4: See pages 78 and 79 for flow characteristics.
Note 5: Contact CKD if hydrofluoric acid is used and fluid temperature is over 40°C.

## Internal structure and parts list




| No. | Parts name | Material (Fluid symbol) | | |
|---|---|---|---|---|
| | | Standard | M | P |
| 1 | Cover | PPS | | PP |
| 2 | Cylinder | PPS | | PP |
| 3 | Piston rod | PPS | | PVDF |
| 4 | O ring | FKM | EPDM | FKM |
| 5 | Diaphragm | PTFE | | |
| 6 | Body | PFA/PTFE | | |
| 7 | Mounting plate | PPS | | PP |

The material and structure may differ with the model. Contact CKD for details.

## How to order

● AMD3*2 Series (connection: ø10, 3/8" tube connection)

**AMD3** (1) **2** - (10UA) - **8** - (1) - (4) (Y)

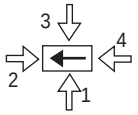
- Model no.
- Actuation (1)
- Connection (10UA)
- Orifice (8)
- Option (1)
- Operation port direction (4)
- Fluid (Y)

| Actuation | |
|---|---|
| 1 | NC (Normally closed) |
| 2 | NO (Normally open) |
| 3 | Double acting |

| Connection | 10US | 10BUS | 10UP | 10BUP | 10UA | 10BUA | 10UR | 10BUR | 10UK | 10BUK | 10BUW |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Super type Pillar fitting integrated type | | Super 300 type Pillar fitting P Series integrated type | | F-LOCK 20A series fitting integrated type | | F-LOCK 60 series fitting integrated type | | Final lock fitting integrated type | | FLARETEK fitting integrated type |
| | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | 3/8" × 1/4" tube connection |
| Orifice | ø8 | | ø8 | | ø8 | | ø7.5 | ø6.4 | ø7.5 | | ø6.3 |

| Symbol | Descriptions | Body material | | | | | |
|---|---|---|---|---|---|---|---|
| | | PFA: PFA molded body or PTFE: PTFE machined body | | | | | |
| 0 | ON-OFF only | PFA | PFA | PFA | PFA | PFA | PTFE |
| 1 | With flow adjustment | | | | | | |
| 2 | With bypass | PTFE | PTFE | PTFE | PTFE | PTFE | |
| 3 | With flow adjustment and bypass | | | | | | |
| 6 | ON-OFF/with indicator | PFA | PFA | PFA | PFA | PFA | |
| 7 | With bypass/with indicator | PTFE | PTFE | PTFE | PTFE | PTFE | |

**Operation port direction**




In the overhead view, ⟵ indicates the fluid flow direction, ⟸ the operation port direction.

| | ø8 | | ø8 | | ø8 | | ø7.5 | ø6.4 | ø7.5 | | ø6.3 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | ● | ● | ● | ● | ● | ● | ● | ● | ● (Note 1) | ● (Note 1) | ● |
| 1 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 2 | ● | ● | ● | ● | ● | ● | ● | ● | ● (Note 1) | ● (Note 1) | ● |
| 3 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

**Fluid symbol**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Blank | Standard | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| M | For ammonia | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| P | For nitric acid, hydrofluoric acid (Note 3) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Y | For high temperature (5 to 160°C) (Note 2) | ● | ● | ● | ● | ● | ● | | | ● | ● | |
| E | For high temperature (5 to 160°C), for PTFE machined body (Note 2) | ● | ● | ● | ● | ● | ● | | | ● | ● | |

● Model no. for type with operation port reinforcement ring
(Hyphen (-) between C and D is not required.)

**AMD3** (A) **2** - (B) - **8** - (C)(D)(E) **R**

- Orifice (8)
- With reinforcement ring (R)

● Model no. for bottom installation type.
(Orifice indication and hyphen (-) between C and D are not required.)

**AMD3** (A) **2** - (B) - (C)(D)(E) **X**

- Bottom installation (X)

● Model no. for type with operation port reinforcement ring + bottom installation
(Orifice indication and hyphen (-) between C and D are not required.)

**AMD3** (A) **2** - (B) - (C)(D)(E) **R** **X**

- With reinforcement ring (R)
- Bottom installation (X)

### Note on model no. selection

Note 1: The final lock fitting nut and operation air piping could interfere, so check dimensions before selecting.

Note 2: The following C options are not available: 2 (with bypass), 3 (with flow adjustment/with bypass), 7 (with bypass/and indicator). This valve is not compatible with nitric acid, hydrofluoric acid, or hydrochloric acid.

Note 3: Type with reinforcement ring R can not be selected if "P" is selected in E. The following C options are not available: 2 (with bypass), 3 (with flow adjustment/and bypass), 7 (with bypass/with indicator).

## How to order

● AMD3*2 Series (connection: ø12, 1/2" tube connection)

**AMD3** (1) 2 – (12UP) – 10 – (1) – (4) (M)

Model no. / Ⓑ Connection / Orifice / Ⓒ Option / Ⓔ Fluid / Ⓓ Operation port direction

| Ⓐ Actuation | |
|---|---|
| 1 | NC (Normally closed) |
| 2 | NO (Normally open) |
| 3 | Double acting |

| Ⓑ Connection | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 12US | 15BUS | 12UP | 15BUP | 12UA | 15BUA | 12UR | 15BUR | 12UK | 15BUK | 15BUW |
| Super type Pillar fitting integrated type | | Super 300 type Pillar fitting P Series integrated type | | F-LOCK 20A series fitting integrated type | | F-LOCK 60 series fitting integrated type | | Final lock fitting integrated type | | FLARETEK fitting integrated type |
| ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | 1/2" × 3/8" tube connection |
| Orifice | ø10 | | ø10 | | ø10 | | ø9.5 | | ø10 | | ø9.4 |

| Symbol / Descriptions | Ⓒ Option (Note 1) | Body material | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | PFA: PFA molded body or PTFE: PTFE machined body | | | | | | | | | |
| 0 | ON-OFF only | PFA | | PFA | | PFA | | PFA | | PFA | PFA |
| 1 | With flow adjustment | | | | | | | | | | |
| 2 | With bypass | PFA | | PFA | | PTFE | PFA | PTFE | | PFA | PTFE |
| 3 | With flow adjustment/and bypass | | | | | | | | | | |
| 6 | ON-OFF/with indicator | PFA | | PFA | | PFA | | PFA | | PFA | PFA |
| 7 | With bypass/with indicator | | | PFA | | PTFE | PFA | PTFE | | | PTFE |

| Ⓓ Operation port direction | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | In the overhead view, ⟵ indicates the fluid flow direction, ⟸ the operation port direction. | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● (Note 1) | ● |
| 1 | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 2 | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● (Note 1) | ● |
| 3 | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

| Ⓔ Fluid symbol | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Blank | Standard | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| M | For ammonia | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| P | For nitric acid, hydrofluoric acid (Note 3) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Y | For high temperature (5 to 160°C) (Note 2) | ● | ● | ● | ● | ● | ● | | | ● | ● | |
| E | For high temperature (5 to 160°C), for PTFE machined body (Note 2) | ● | ● | ● | ● | ● | ● | | | ● | ● | |

● Model no. for type with operation port reinforcement ring
(Hyphen (-) between Ⓒ and Ⓓ is not required.)

**AMD3** (A) 2 – (B) – 10 – (C)(D)(E) **R**

Orifice / With reinforcement ring

● Model no. for bottom installation type.
(Orifice indication and hyphen (-) between Ⓒ and Ⓓ are not required.)

**AMD3** (A) 2 – (B) – (C)(D)(E) **X**

Bottom installation

● Model no. for type with operation port reinforcement ring + bottom installation
(Orifice indication and hyphen (-) between Ⓒ and Ⓓ are not required.)

**AMD3** (A) 2 – (B) – (C)(D)(E) **R** **X**

With reinforcement ring / Bottom installation

### Note on model No. selection

Note 1: The final lock fitting nut and operation air piping could interfere, so check dimensions before selecting.

Note 2: The following Ⓒ options are not available: 2 (with bypass), 3 (with flow adjustment/with bypass), 7 (with bypass/with indicator).
This valve is not compatible with nitric acid, hydrofluoric acid, or hydrochloric acid.

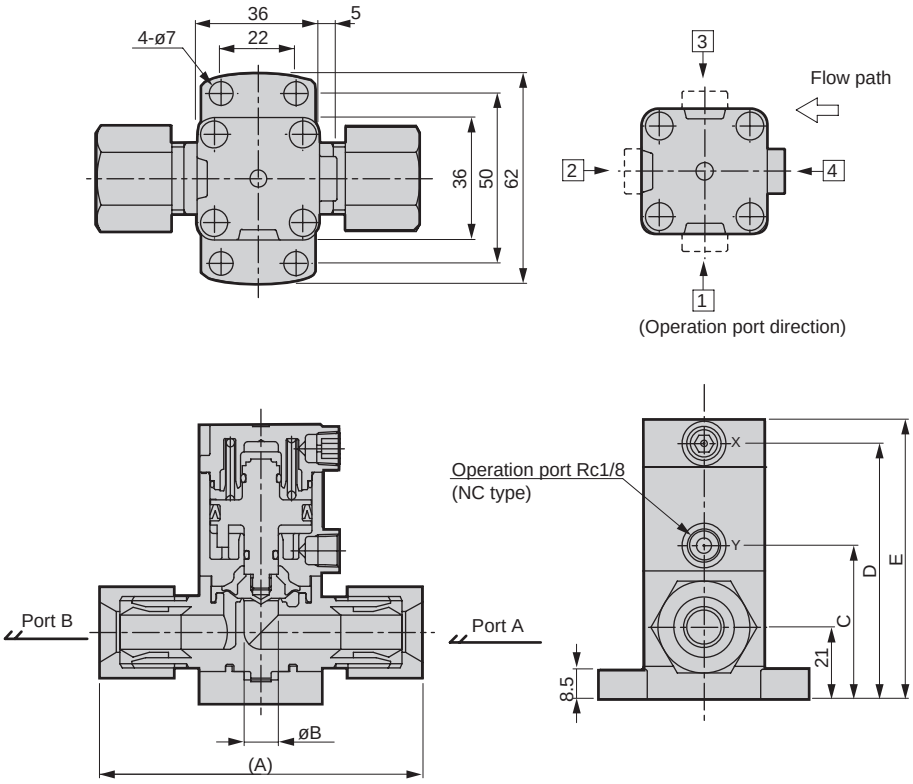
Note 3: Type with reinforcement ring R can not be selected if "P" is selected in Ⓔ.
The following Ⓒ options are not available: 2 (with bypass), 3 (with flow adjustment/with bypass), 7 (with bypass/with indicator).

## Dimensions

● ON-OFF type only

• AMD3$^{1}_{2}_{3}$2- *1 -8

• AMD3$^{1}_{2}_{3}$2- *1 -10

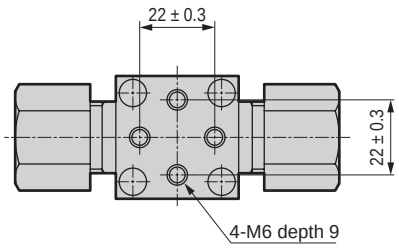



| *1 (Connection model No.) | A | B |
|---|---|---|
| 10US | 86 | 8 |
| 10BUS | 86 | 8 |
| 10UP | 86 | 8 |
| 10BUP | 86 | 8 |
| 10UA | 78 | 8 |
| 10BUA | 78 | 8 |
| 10UR | 110 | 7.5 |
| 10BUR | 114 | 6.4 |
| 10UK | 96 | 7.5 |
| 10BUK | 96 | 7.5 |
| 10BUW | 101 | 6.3 |

| *1 (Connection model No.) | A | B |
|---|---|---|
| 12US | 95 | 10 |
| 15BUS | 95 | 10 |
| 12UP | 94 | 10 |
| 15BUP | 94 | 10 |
| 12UA | 86 | 10 |
| 15BUA | 86 | 10 |
| 12UR | 110 | 9.5 |
| 15BUR | 114 | 9.5 |
| 12UK | 102 | 10 |
| 15BUK | 102 | 10 |
| 15BUW | 103 | 9.4 |

| Fluid symbol | C | D | E |
|---|---|---|---|
| Blank, M/P/Y | 45 | 75 | 82 |
| E | 49 | 79 | 86 |

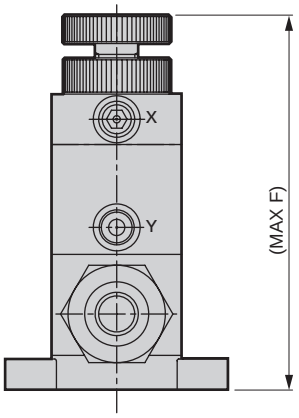
● Bottom installation type



## Dimensions

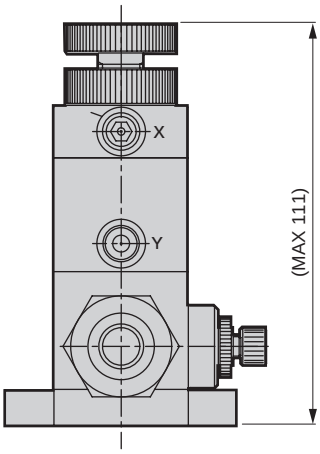
● With flow adjustment

• AMD3$^{1}_{2}$2-*-*-1




● With flow adjustment bypass

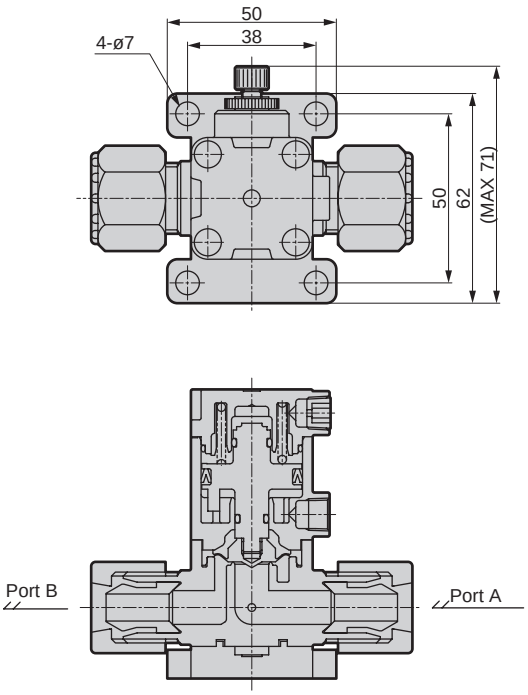
• AMD3$^{1}_{2}$2-*-*-3




(Refer to the dimension of the type with bypass for other dimensions)

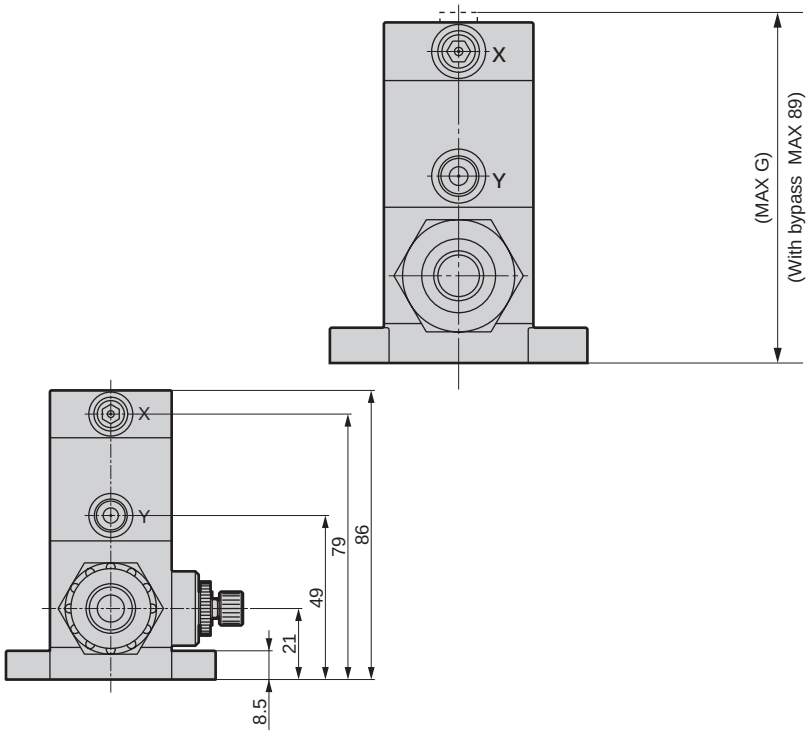
● With bypass

• AMD3$^{1}_{2}$2-*-*-2/7

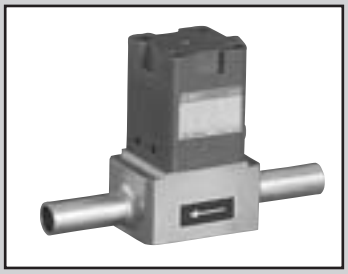



● With indicator

• AMD3$^{1}_{2}$2-*-*-6/7




| Fluid symbol | F | G |
|---|---|---|
| Blank, M/P/Y | 107 | 85 |
| E | 111 | 89 |



Stainless steel body air-operated valve for chemical liquid

# AMD3$^{1}_{2}_{3}$2 Series

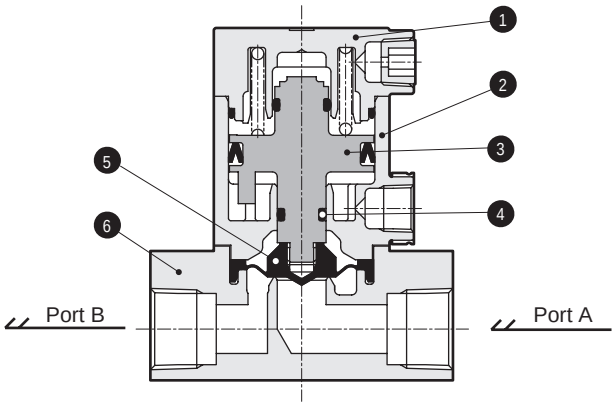
● Orifice: ø8, ø10

## Specifications

| Descriptions | | AMD3$^{1}_{2}_{3}$2-8•3BT•6S | AMD3$^{1}_{2}_{3}$2-10•4BT•8S |
|---|---|---|---|
| Working fluid | | Chemical liquids, pure water (Note 1) | |
| Fluid temperature °C | | 5 to 120 | |
| Withstanding pressure MPa | | 0.9 | |
| Working pressure range (A → B) MPa | | 0 to 0.3 (Note 2) | |
| Working pressure range (B → A) MPa | | 0 to 0.1 (Note 2) | |
| Valve seat leakage $cm^3$/min | | 0 (under water pressure) | |
| Back pressure MPa | | 0 to 0.1 (Note 2) | |
| Ambient temperature °C | | 0 to 60 | |
| Frequency | | 30 times/min or less | |
| Installation attitude | | Free | |
| Connection | | Rc1/4<br>3/8" SUS weld tube<br>Double barbed fitting for 3/8" (Note 3) | Rc3/8<br>1/2" SUS weld tube<br>Double barbed fitting for 1/2" (Note 3) |
| Orifice | | ø8 | ø10 |
| Operation portion | Operation pressure range MPa | NC/NO: 0.3 to 0.5, double acting: 0.3 to 0.4 | |
| | Operation pressure connection port | Rc1/8 | |

Note 1: Check compatibility of the material of each component, the working fluid and the working environment.
Note 2: See page 68 for high-pressure specifications.
Note 3: For the double barbed fitting, fluorine-based lubricant is applied on the sliding surface of the front ferrule and fitting.

## Internal structure and parts list




| No. | Parts name | Material (Actuator material) | |
|---|---|---|---|
| | | Standard | A |
| 1 | Cover | PPS | A5056 |
| 2 | Cylinder | PPS | A5056 |
| 3 | Piston rod | PPS | A5056 |
| 4 | O ring | EPDM | |
| 5 | Diaphragm | PTFE | |
| 6 | Body | SUS316L | |

The material and structure may differ with the model. Contact CKD for details.

⚠ Read the precautions on Intro 7 to 14 before use.

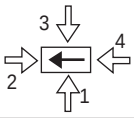
## How to order

**AMD3 1 2 - 8 - 0 - A - 4**

- Model no.
- Ⓔ Operation port direction
- Ⓓ Actuator material
- Ⓑ Connection
- Ⓐ Actuation *1
- Ⓒ Option

### Ⓑ Connection

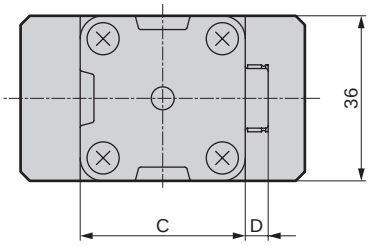
| 8 | 3BT | 6S | 10 | 4BT | 8S |
|---|---|---|---|---|---|
| Rc 1/4 | 3/8" × t1.0 SUS weld tube | 3/8" tube connection Double barbed fitting | Rc 3/8 | 1/2" × t1.24 SUS weld tube | 1/2" tube connection Double barbed fitting |

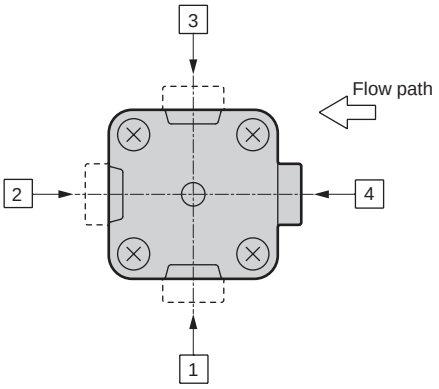
| Symbol | Descriptions \ Orifice | ø10 | ø8 | | ø10 | | |
|---|---|---|---|---|---|---|---|
| **Ⓐ Actuation** | | | | | | | |
| **1** | NC (Normally closed) | ● | ● | ● | ● | ● | ● |
| **2** | NO (Normally open) | ● | ● | ● | ● | ● | ● |
| **3** | Double acting | ● | ● | ● | ● | ● | ● |
| **Ⓒ Option** | | | | | | | |
| **0** | ON-OFF only | ● | ● | ● | ● | ● | ● |
| **1** | With flow adjustment | ● | ● | ● | ● | ● | ● |
| **6** | With indicator | ● | ● | ● | ● | ● | ● |
| **Ⓓ Actuator material** | | | | | | | |
| **Blank** | PPS | ● | ● | ● | ● | ● | ● |
| **A** | A5056 | ● | ● | ● | ● | ● | ● |
| **Ⓔ Operation port direction** | | | | | | | |
| **4** |  In the overhead view, ← indicates the fluid flow direction, ⇦ the operation port direction. | ● | ● | ● | ● | ● | ● |
| **1** | | ● | ● | ● | ● | ● | ● |
| **2** | | ● | ● | ● | ● | ● | ● |
| **3** | | ● | ● | ● | ● | ● | ● |

## Dimensions

● Rc thread type

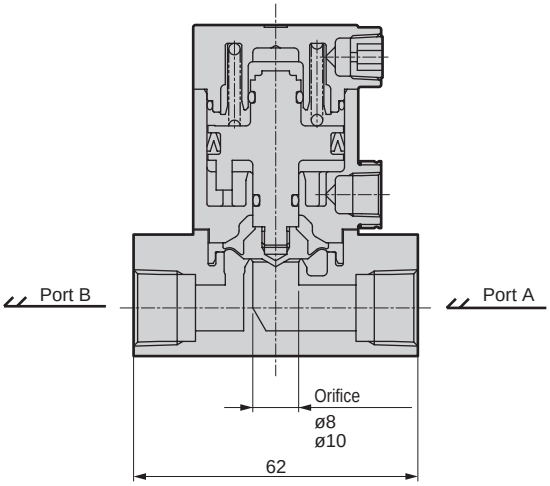
• AMD3$^{1}_{2}_{3}$2-8/10

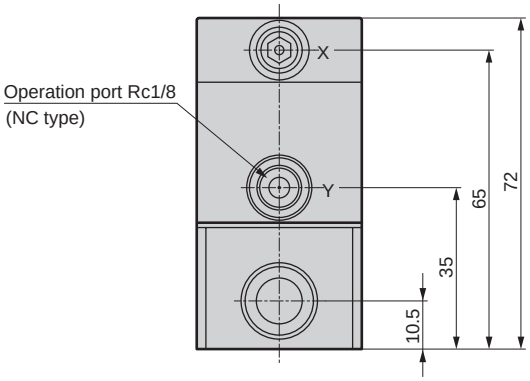


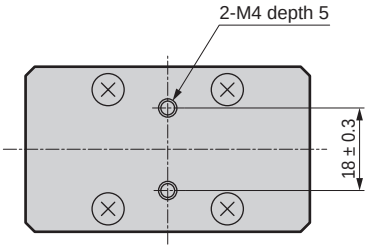




(Operation port direction)

| Actuator material | C | D |
|---|---|---|
| Blank | 38 | 5 |
| A | 44 | 0 |



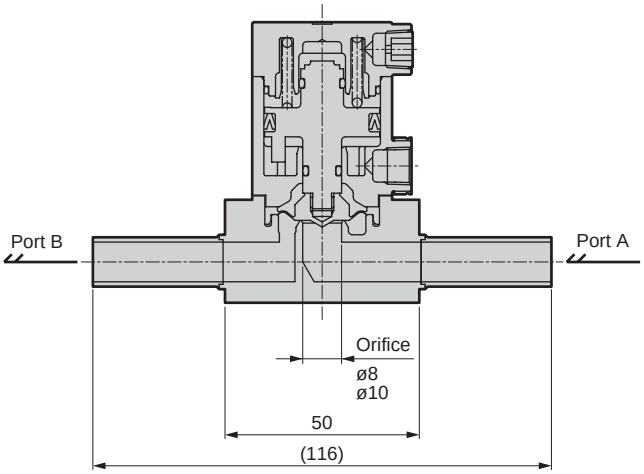



## Dimensions

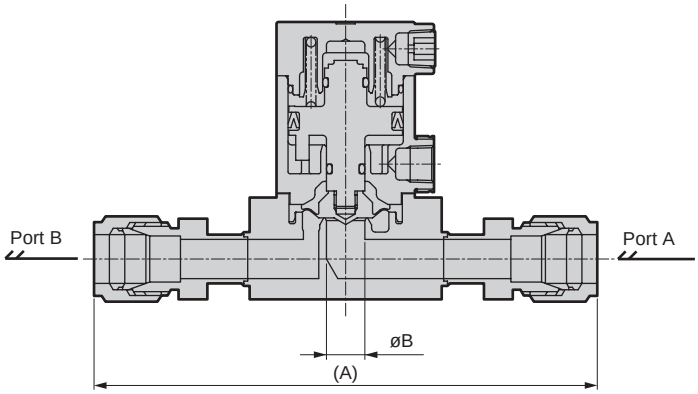
● SUS weld tube

• AMD3[1/2/3]2-3BT/4BT




● Double barbed fitting

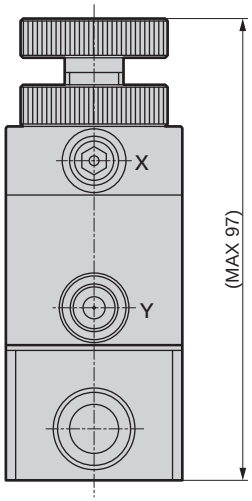
• AMD3[1/2/3]2-6S/8S




| Dimensions / Model no. | A | B |
|---|---|---|
| AMD3*2-6S | 116 | 8 |
| AMD3*2-8S | 130 | 10 |

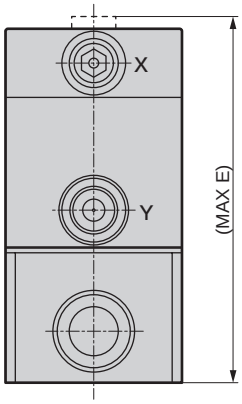
● With flow adjustment

• AMD3[1/2/3]2-*-1




● With indicator

• AMD3[1/2/3]2-*-6




| Actuator material | E |
|---|---|
| Blank | 75 |
| A | 74 |

Air-operated valve for chemical liquid

# AMD4$^{1}_{2}_{3}$2 Series

● Orifice: ø14.7 to ø16

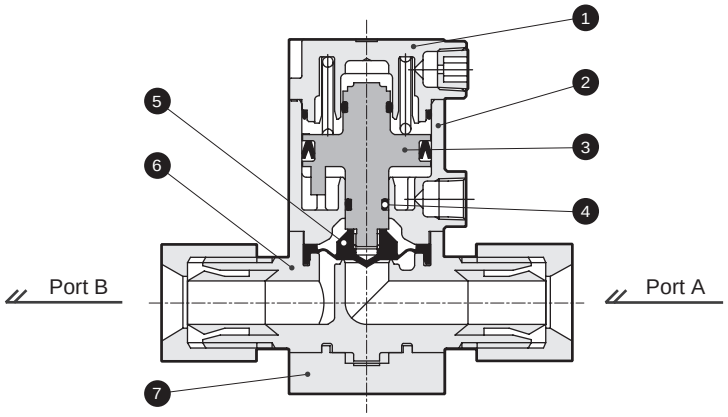
RoHS CAD Subject to Export Trade Control Ordinances

## Specifications

| Descriptions | | AMD4$^{1}_{2}_{3}$2-*-16 |
|---|---|---|
| Working fluid | | Chemical liquids, pure water (Note 1) |
| Fluid temperature °C | | 5 to 90 (For high temperature: 5 to 160) (Note 5) |
| Withstanding pressure MPa | | 0.9 |
| Working pressure range (A → B) MPa | | 0 to 0.3 (Note 3) |
| Working pressure range (B → A) MPa | | 0 to 0.1 (Note 3) |
| Valve seat leakage $cm^3$/min | | 0 (under water pressure) |
| Back pressure MPa | | 0 to 0.1 (Note 3) |
| Ambient temperature °C | | 0 to 60 |
| Frequency | | 20 times/min or less |
| Installation attitude | | Free |
| Connection | | OD 3/4" tube connection (fitting integrated type) |
| Orifice | | ø16 |
| Cv value | | 5 |
| Bypass orifice (with bypass) | | ø6 |
| Operation portion | Operation pressure range MPa | NC: 0.3 to 0.5, NO: 0.3 to 0.5 (for high temperature type 0.3 to 0.35)<br>double acting: 0.3 to 0.4 (for high temperature type 0.2 to 0.25) |
| | Operation pressure connection port | Rc1/8 (Note 2) |

Note 1: Check the compatibility of the material of each component, working fluid, and ambient atmosphere before use.
Note 2: Connect a resin fitting when connecting to the operation port.
(When using a metal fitting, select one with a reinforcement ring. However, a reinforcement ring is not required for nitric acid and hydrofluoric acid of fluid symbol "P".
Note 3: See page 68 for high-pressure specifications.
Note 4: See pages 78 and 79 for flow characteristics.
Note 5: Contact CKD if hydrofluoric acids is used and fluid temperature is over 40°C.

## Internal structure and parts list

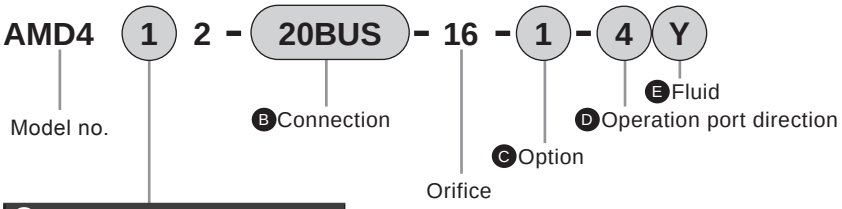



| No. | Parts name | Material (Fluid symbol) | | |
|---|---|---|---|---|
| | | Standard/Y/E | M | P |
| 1 | Cover | PPS | | PP |
| 2 | Cylinder | PPS | | PP |
| 3 | Piston rod | PPS | | PVDF |
| 4 | O ring | FKM | EPDM | FKM |
| 5 | Diaphragm | PTFE | | |
| 6 | Body | PFA/PTFE | | |
| 7 | Mounting plate | PPS | | PP |

The material and structure may differ with the model.
Contact CKD for details.

⚠ Read the precautions on Intro 7 to 14 before use.

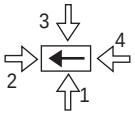
## How to order




| A Actuation | |
|---|---|
| 1 | NC (Normally closed) |
| 2 | NO (Normally open) |
| 3 | Double acting |

| B Connection | | | | | |
|---|---|---|---|---|---|
| 20BUS | 20BUP | 20BUA | 20BUR | 20BUK | 20BUW |
| Super type Pillar fitting integrated type | Super 300 type Pillar fitting P Series integrated type | F-LOCK 20A series fitting integrated type | F-LOCK 60 series fitting integrated type | Final lock fitting integrated type | FLARETEK fitting integrated type |
| 3/4″ × 5/8″ tube connection | | | | | |
| ø16 | ø16 | ø16 | ø15.9 | ø16 | ø14.7 |

| Symbol | Descriptions \ Orifice | Body material | | | | | |
|---|---|---|---|---|---|---|---|
| C Option | | PFA: PFA molded body or PTFE: PTFE machined body | | | | | |
| 0 | ON-OFF only | PFA | PFA | PFA | PFA | PFA | PFA |
| 1 | With flow adjustment | | | | | | |
| 2 | With bypass | PFA | PFA | PFA | PTFE | PFA | PTFE |
| 3 | With flow adjustment and bypass | | | | | | |
| 6 | ON-OFF/with indicator | PFA | PFA | PFA | PFA | PFA | PFA |
| 7 | With bypass/with indicator | PFA | PFA | PFA | PTFE | PFA | PTFE |

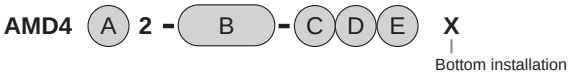
| D Operation port direction | | | | | | | |
|---|---|---|---|---|---|---|---|
| 4 |  In the overhead view, ⟵indicates the fluid flow direction, ⟸the operation port direction. | ● | ● | ● | ● | ● | ● |
| 1 | | ● | ● | ● | ● | ● | ● |
| 2 | | ● | ● | ● | ● | ● | ● |
| 3 | | ● | ● | ● | ● | ● | ● |



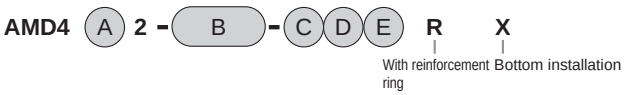
| E Fluid | | | | | | | |
|---|---|---|---|---|---|---|---|
| Blank | Standard | ● | ● | ● | ● | ● | ● |
| M | For ammonia | ● | ● | ● | ● | ● | ● |
| P | For nitric acid, hydrofluoric acid (Note 2) | ● | ● | ● | ● | ● | ● |
| Y | For high temperature (5 to 160°C) (Note 1) | ● | ● | ● | | ● | |
| E | For high temperature (5 to 160°C), for PTFE machined body (Note 1) | ● | ● | ● | | ● | |

● Model no. for type with operation port reinforcement ring
(Hyphen (-) between C and D is not required.)


● Model no. for bottom installation type.
(Orifice indication and hyphen (-) between C and D are not required.)




● Model no. for type with operation port reinforcement ring + bottom installation
(Orifice indication and hyphen (-) between C and D are not required.)




## Note on model no. selection

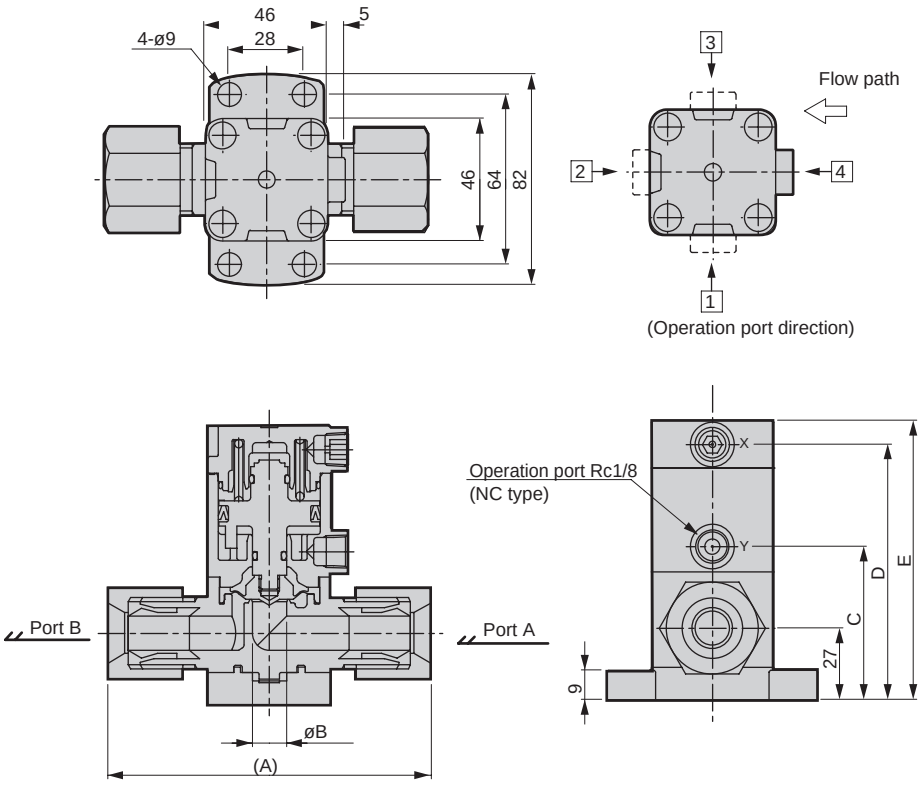
Note 1: The following C options are not available: 2 (with bypass), 3 (with flow adjustment/with bypass), 7 (with bypass/with indicator).
This valve is not compatible with nitric acid, hydrofluoric acid, or hydrofluoric acid.

Note 2: Type with reinforcement ring R can not be selected if "P" is selected in E.
The following C options are not available: 2 (with bypass), 3 (with flow adjustment/with bypass), 7 (with bypass/with indicator).

## Dimensions

● ON/OFF type only

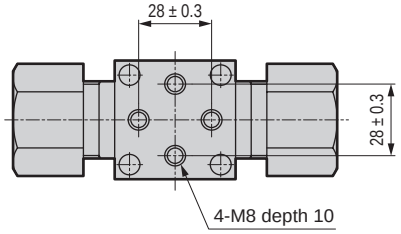
• AMD4$^{1}_{2}_{3}$2- *1 -16




| *1 (Connection model No.) | A | B |
|---|---|---|
| 20BUS | 124 | 16 |
| 20BUP | 118 | 16 |
| 20BUA | 108 | 16 |
| 20BUR | 134 | 15.9 |
| 20BUK | 119 | 16 |
| 20BUW | 122 | 14.7 |

| Fluid symbol | C | D | E |
|---|---|---|---|
| Blank, M,Y | 60 | 97 | 106 |
| P | 60 | 97 | 107 |
| E | 64 | 101 | 110 |

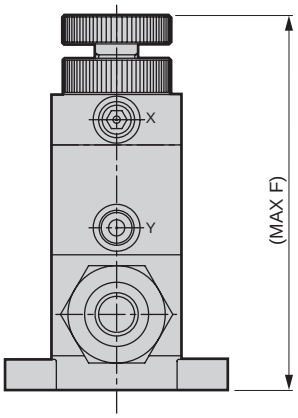
● Bottom installation type



# Dimensions

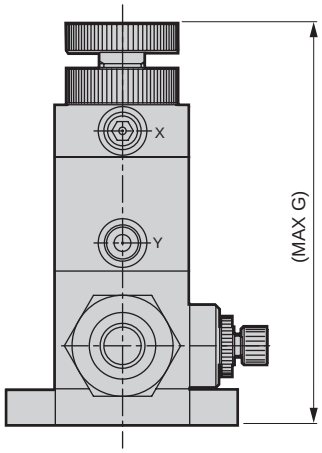
● With flow adjustment

• AMD4(1/2/3)2-*-16-1




● With flow adjustment bypass

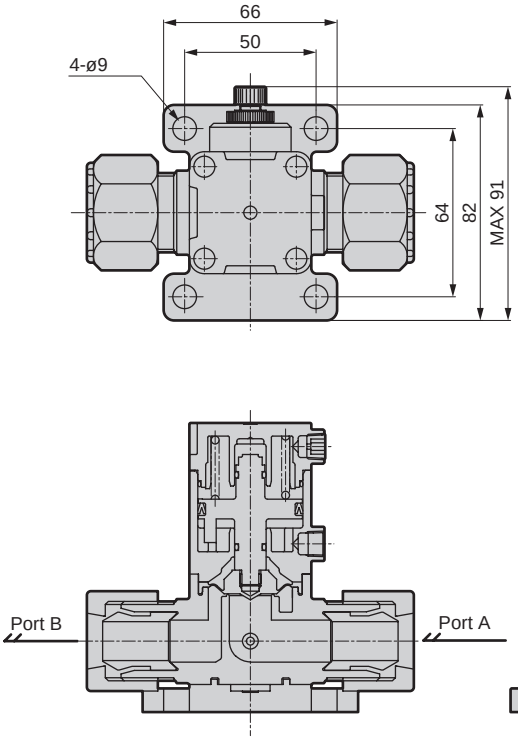
• AMD4(1/2/3)2-*-16-3




(Refer to the dimension of the type with bypass for other dimensions)

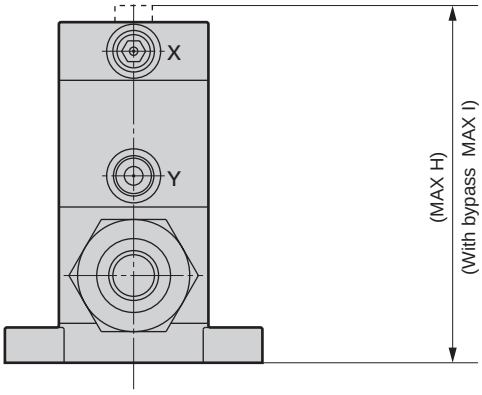
● With bypass

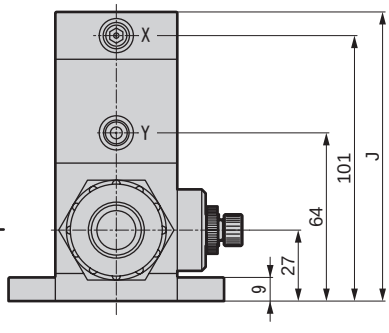
• AMD4(1/2/3)2-*-16-2/7



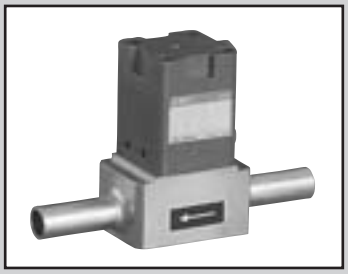

● With indicator

• AMD4(1/2/3)2-*-16-6/7




| Fluid symbol | F | G | H | I | J |
|---|---|---|---|---|---|
| Blank, M | 130 | 134 | 110 | 114 | 110 |
| P | 133 | 137 | 111 | 115 | 111 |
| Y | 130 | | 110 | | |
| E | 134 | | 114 | | |



Stainless steel body air-operated valve for chemical liquid

# AMD4$^{1}_{2}_{3}$2 Series

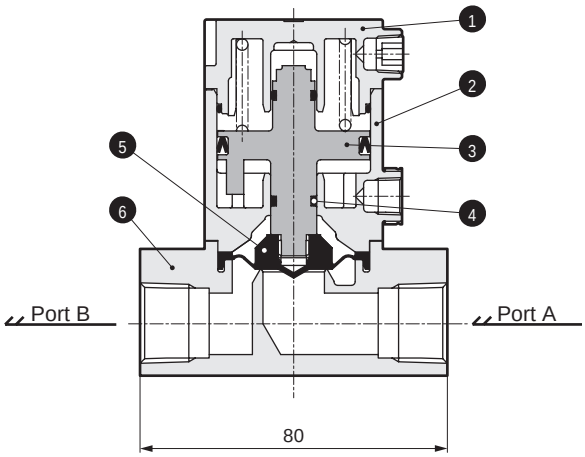
● Orifice: ø16

## Specifications

| Descriptions | | | AMD4$^{1}_{2}_{3}$2-15/6BT/12S |
|---|---|---|---|
| Working fluid | | | Chemical liquids, pure water (Note 1) |
| Fluid temperature | | °C | 5 to 120 |
| Withstanding pressure | | MPa | 0.9 |
| Working pressure range (A → B) | | MPa | 0 to 0.3 (Note 2) |
| Working pressure range (B → A) | | MPa | 0 to 0.1 (Note 2) |
| Valve seat leakage | | $cm^3$/min | 0 (under water pressure) |
| Back pressure | | MPa | 0 to 0.1 (Note 2) |
| Ambient temperature | | °C | 0 to 60 |
| Frequency | | | 20 times/min or less |
| Installation attitude | | | Free |
| Connection | | | Rc 1/2, 3/4" SUS welded tube, double barbed fitting for 3/4" (Note 3) |
| Orifice | | | ø16 |
| Operation portion | Operation pressure range | MPa | NC/NO 0.3 to 0.5, double acting 0.3 to 0.4 |
| | Operation pressure connection port | | Rc1/8 |

Note 1: Check compatibility of the material of each component, the working fluid and the working environment.
Note 2: See page 68 for high-pressure specifications.
Note 3: For the double barbed fitting, fluorine-based lubricant is applied on the sliding surface of the front ferrule and fitting.

## Internal structure and parts list




| No. | Parts name | Material (actuator material) | |
|---|---|---|---|
| | | Standard | A |
| 1 | Cover | PPS | A5056 |
| 2 | Cylinder | PPS | A5056 |
| 3 | Piston rod | PPS | A5056 |
| 4 | O ring | EPDM | |
| 5 | Diaphragm | PTFE | |
| 6 | Body | SUS316L | |

The material and structure may differ with the model.
Contact CKD for details.

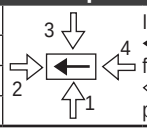
⚠ Read the precautions on Intro 7 to 14 before use.

## How to order

**AMD4** (1) **2** – (15) – (0) – (A) – (4)

Model no.

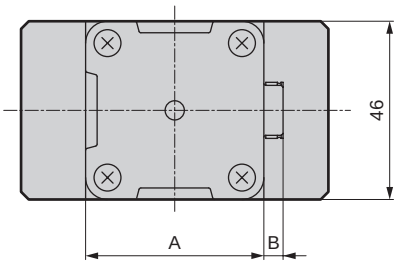
- (A) Actuation
- (B) Connection
- (C) Option
- (D) Actuator material
- (E) Operation port direction

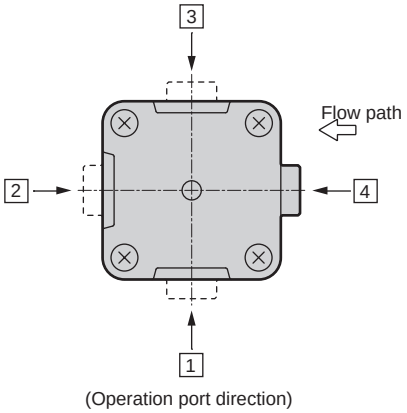
| Symbol | Descriptions \ Orifice | ø16 | | |
|---|---|---|---|---|
| **(B) Connection** | | | | |
| | | 15<br>Rc 1/2 | 6BT<br>3/4" × t1.24 SUS weld tube | 12S<br>3/4" tube connection<br>Double barbed fitting |
| **(A) Actuation** | | | | |
| **1** | NC (Normally closed) | ● | ● | ● |
| **2** | NO (Normally open) | ● | ● | ● |
| **3** | Double acting | ● | ● | ● |
| **(C) Option** | | | | |
| **0** | ON-OFF only | ● | ● | ● |
| **1** | With flow adjustment | ● | ● | ● |
| **6** | With indicator | ● | ● | ● |
| **(D) Actuator material** | | | | |
| **Blank** | PPS | ● | ● | ● |
| **A** | A5056 | ● | ● | ● |
| **(E) Operation port direction** | | | | |
| **4** |  In the overhead view, ← indicates the fluid flow direction, ⇦ the operation port direction. | ● | ● | ● |
| **1** | | ● | ● | ● |
| **2** | | ● | ● | ● |
| **3** | | ● | ● | ● |

## Dimensions

● Rc thread type

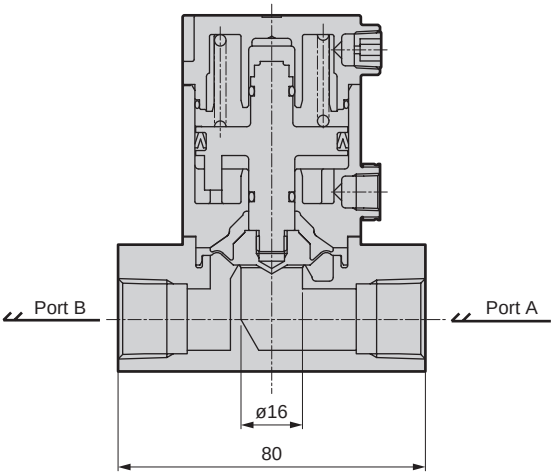
• AMD4$^{1}_{2}_{3}$2-15

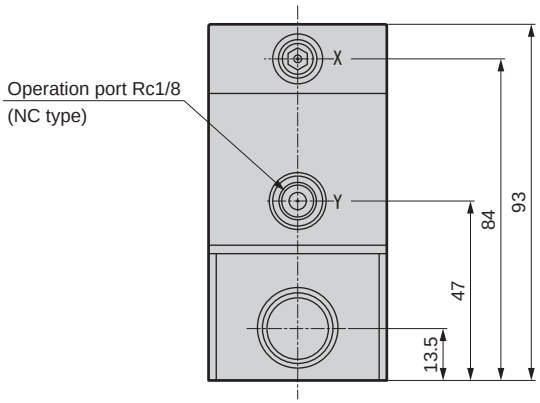


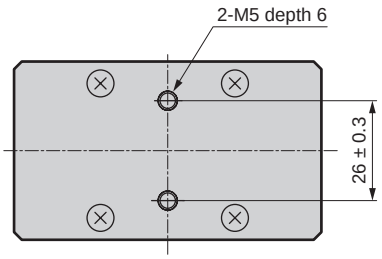




(Operation port direction)

| Actuator material | A | B |
|---|---|---|
| Blank | 46 | 5 |
| A | 56 | 0 |



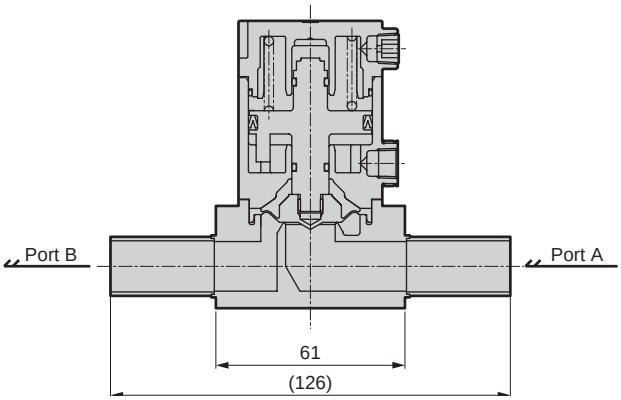



## Dimensions

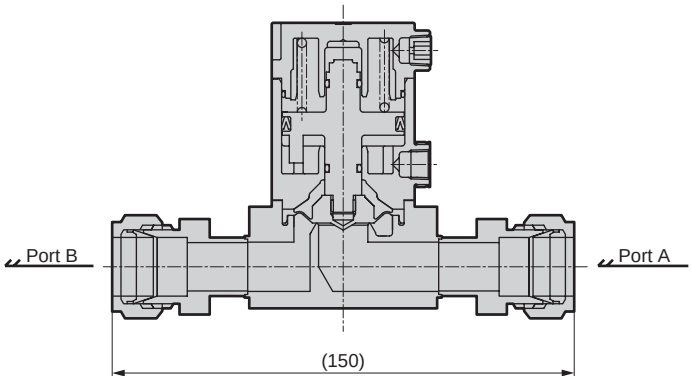
● SUS weld tube

• AMD4[1/2/3]2-6BT



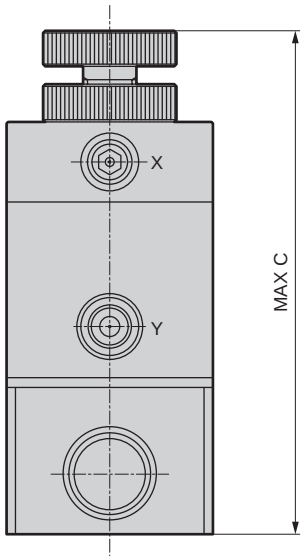

● Double barbed fitting

• AMD4[1/2/3]2-12S




● With flow adjustment

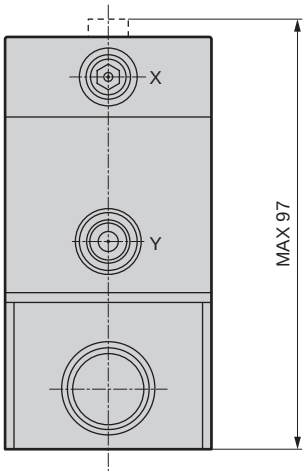
• AMD4[1/2/3]2-*-1




| Actuator material | C |
|---|---|
| Blank | 117 |
| A | 119 |

● With indicator

• AMD4[1/2/3]2-*-6



Air-operated valve for chemical liquid

# AMD5$^{1}_{2}_{3}$2 Series

● Orifice: ø20

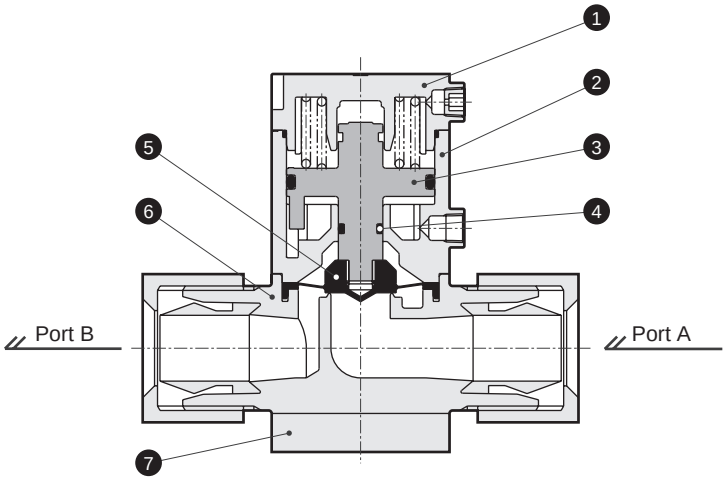
RoHS CAD Subject to Export Trade Control Ordinances

## Specifications

| Descriptions | | AMD5$^{1}_{2}_{3}$2-*-20 |
|---|---|---|
| Working fluid | | Chemical liquids, pure water (Note 1) |
| Fluid temperature °C | | 5 to 90 (Note 2) |
| Withstanding pressure MPa | | 0.9 |
| Working pressure range (A → B) MPa | | 0 to 0.3 (Note 4) |
| Working pressure range (B → A) MPa | | 0 to 0.1 (Note 4) |
| Valve seat leakage $cm^3$/min | | 0 (under water pressure) |
| Back pressure MPa | | 0 to 0.1 (Note 4) |
| Ambient temperature °C | | 0 to 60 |
| Frequency | | 20 times/min or less |
| Installation attitude | | Free |
| Connection | | OD ø25 tube connection (fitting integrated type), OD1" tube connection (fitting integrated type)<br>Nominal 16, nominal 20 (PVC union fitting integrated type) |
| Orifice | | ø20 |
| Bypass orifice (with bypass) | | ø6 |
| Cv value | | 8 |
| Operation portion | Operation pressure range MPa | NC/NO 0.3 to 0.5, double acting 0.3 to 0.4 |
| | Operation pressure connection port | Rc1/8 (Note 3) |

Note 1: Check the compatibility of the material of each component, working fluid, and ambient atmosphere before use.
Note 2: 5 to 50°C when using PVC union fitting connection.
Contact CKD if hydrofluoric acid is used and fluid temperature is over 40°C.
Note 3: Connect a resin fitting when connecting to the operation port.
(When using a metal fitting, select one with a reinforcement ring. However, a reinforcement ring is not required for nitric acid and hydrofluoric acid of fluid symbol "P".)
Note that a reinforcement ring is attached with the PVC union fitting integrated type, so a metal fitting can also be used.
Note 4: See page 68 for high-pressure specifications.
Note 5: See pages 78 and 79 for flow characteristics.

## Internal structure and parts list




| No. | Parts name | Material (Fluid symbol) | | |
|---|---|---|---|---|
| | | Standard | M | P |
| 1 | Cover | PPS | | PP |
| 2 | Cylinder | PPS | | PP |
| 3 | Piston rod | PPS | | PVDF |
| 4 | O ring | FKM | EPDM | FKM |
| 5 | Diaphragm | PTFE | | |
| 6 | Body | PFA/PTFE | | |
| 7 | Mounting plate | PPS | | PP |

The material and structure may differ with the model.
Contact CKD for details.

⚠ Read the precautions on Intro 7 to 14 before use.

## How to order

**AMD5** (1) 2 – (25BUS) – 20 – (1) – (4) (M)

- Model no.
- Ⓑ Connection
- Orifice
- Ⓒ Option
- Ⓓ Operation port direction
- Ⓔ Fluid

### Ⓐ Actuation

| | |
|---|---|
| 1 | NC (Normally closed) |
| 2 | NO (Normally open) |
| 3 | Double acting |

### Ⓑ Connection

| 25US | 25BUS | 25UP | 25BUP | 25BUA | 25UR | 25BUR | 25UK | 25BUK | 25BUW | 15AU | 20AU |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Super type Pillar fitting integrated type | | Super 300 type Pillar fitting P Series integrated type | | F-LOCK 20A series fitting integrated type | F-LOCK 60 series fitting integrated type | | Final lock fitting integrated type | | FLARETEK fitting integrated type | PVC union fitting integrated type | |
| ø25 × ø22 tube connection | 1" × 7/8" tube connection | ø25 × ø22 tube connection | 1" × 7/8" tube connection | 1" × 7/8" tube connection (Note 1) | ø25 × ø22 tube connection | 1" × 7/8" tube connection | ø25 × ø22 tube connection | 1" × 7/8" tube connection | 1" × 7/8" tube connection | Nominal 16 | Nominal 20 |
| ø20 | | ø20 | | ø20 | ø20 | | ø20 | | ø20 | ø20 | |

| Symbol | Descriptions \ Orifice | Body material (PFA: PFA molded body or PTFE: PTFE machined body) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ⓒ Option | | | | | | | | | | | | |
| 0 | ON-OFF only | PFA | PFA | PFA | PTFE | PTFE | PTFE | PFA | | | | |
| 1 | With flow adjustment | | | | | | | | | | | |
| 2 | With bypass | PTFE | PFA | PFA | PTFE | PTFE | PTFE | (Note 3) | | | | |
| 3 | With flow adjustment/and bypass | | | | | | | | | | | |
| 6 | ON-OFF/with indicator | PFA | PFA | PFA | PTFE | PTFE | PTFE | PFA | | | | |
| 7 | With bypass/with indicator | PTFE | PFA | PFA | PTFE | PTFE | PTFE | (Note 3) | | | | |

### Ⓓ Operation port direction

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | In the overhead view, ⟵indicates the fluid flow direction, ⟸the operation port direction. | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 1 | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 2 | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 3 | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

### Ⓔ Fluid

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Blank | Standard | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| M | For ammonia | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| P | For nitric acid, hydrofluoric acid (Note 2) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | |

● Model no. for type with operation port reinforcement ring
(Hyphen (-) between Ⓒ and Ⓓ is not required.)

**AMD5** (A) 2 – (B) – 20 – (C D E) **R**

- Orifice
- With reinforcement ring

● Model No. for bottom installation type
(Orifice indication and hyphen (-) between Ⓒ and Ⓓ are not required.)

**AMD5** (A) 2 – (B) – (C D E) **X**

- Bottom installation

● Model no. for type with operation port reinforcement ring + bottom installation
(Orifice indication and hyphen (-) between Ⓒ and Ⓓ are not required.)

**AMD5** (A) 2 – (B) – (C D E) **R** **X**

- With reinforcement ring
- Bottom installation

## Note on model no. selection

Note 1: Also usable for the ø25 x ø22 tube connection.

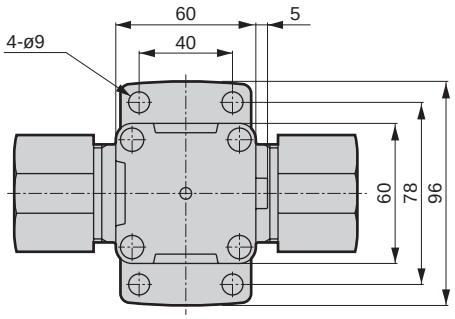
Note 2: Type with reinforcement ring R can not be selected if 15AU, 20AU in Ⓑ or "P" is selected in Ⓔ.
The following Ⓒ options are not available: 2 (with bypass), 3 (with flow adjustment/ with bypass), 7 (with bypass/with indicator).

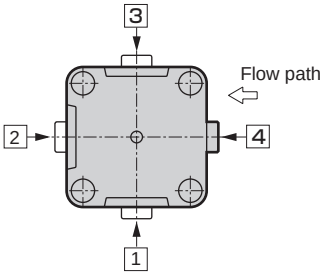
Note 3: Select from AMD41L Series (catalog No. CC-816 (Jpn.)).

## Dimensions

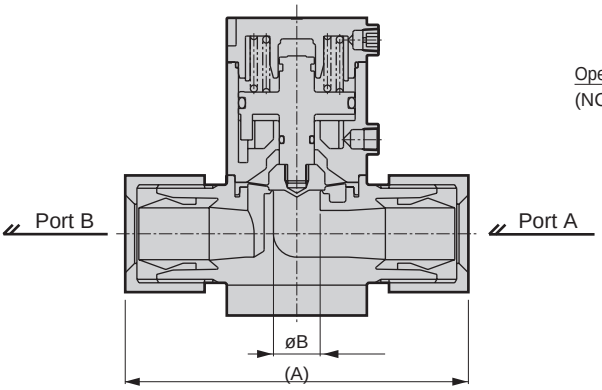
● ON-OFF type only

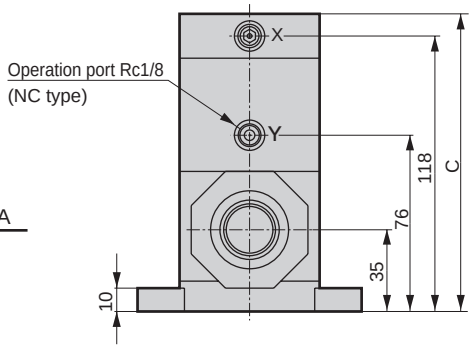
• AMD5$^{1}_{2}_{3}$2- *1 -20




(Operation port direction)

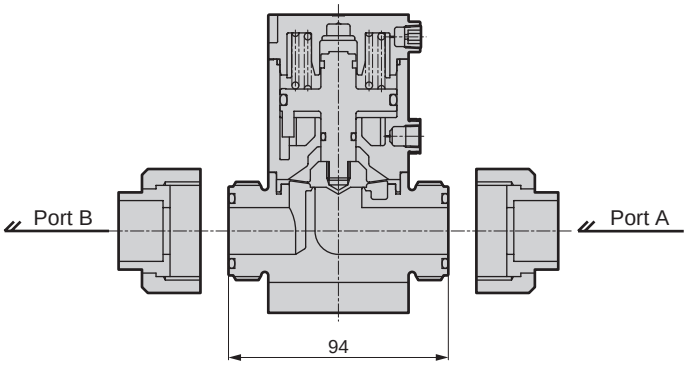


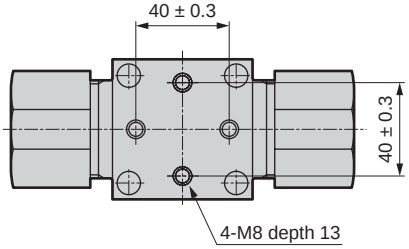

| *1 (Connection model No.) | A | B |
|---|---|---|
| 25US | 147 | 20 |
| 25BUS | 147 | 20 |
| 25UP | 146 | 20 |
| 25BUP | 146 | 20 |
| 25BUA | 140 | 20 |
| 25UR | 159 | 20 |
| 25BUR | 162 | 20 |
| 25UK | 141 | 20 |
| 25BUK | 141 | 20 |
| 25BUW | 156 | 20 |

| Fluid symbol | C |
|---|---|
| Blank, M | 128 |
| P | 132 |

● PVC union fitting integrated type



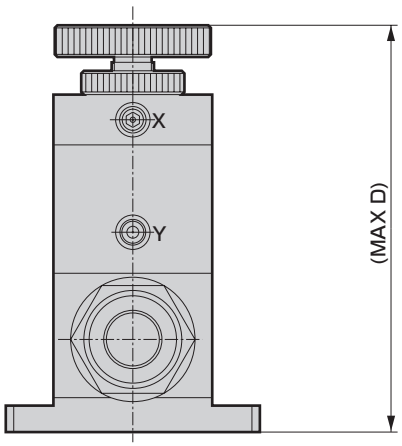

● Bottom installation type



## Dimensions

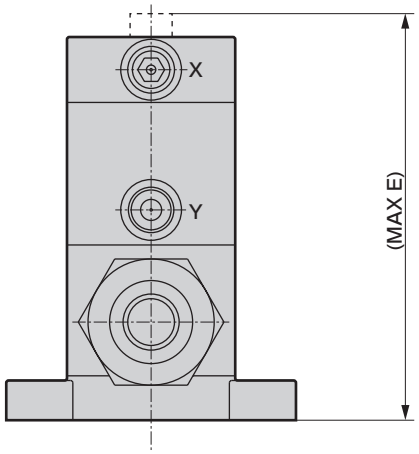
● With flow adjustment

• AMD5[1/2/3]2-*-20-1




● With indicator

• AMD5[1/2/3]2-*-20-6/7

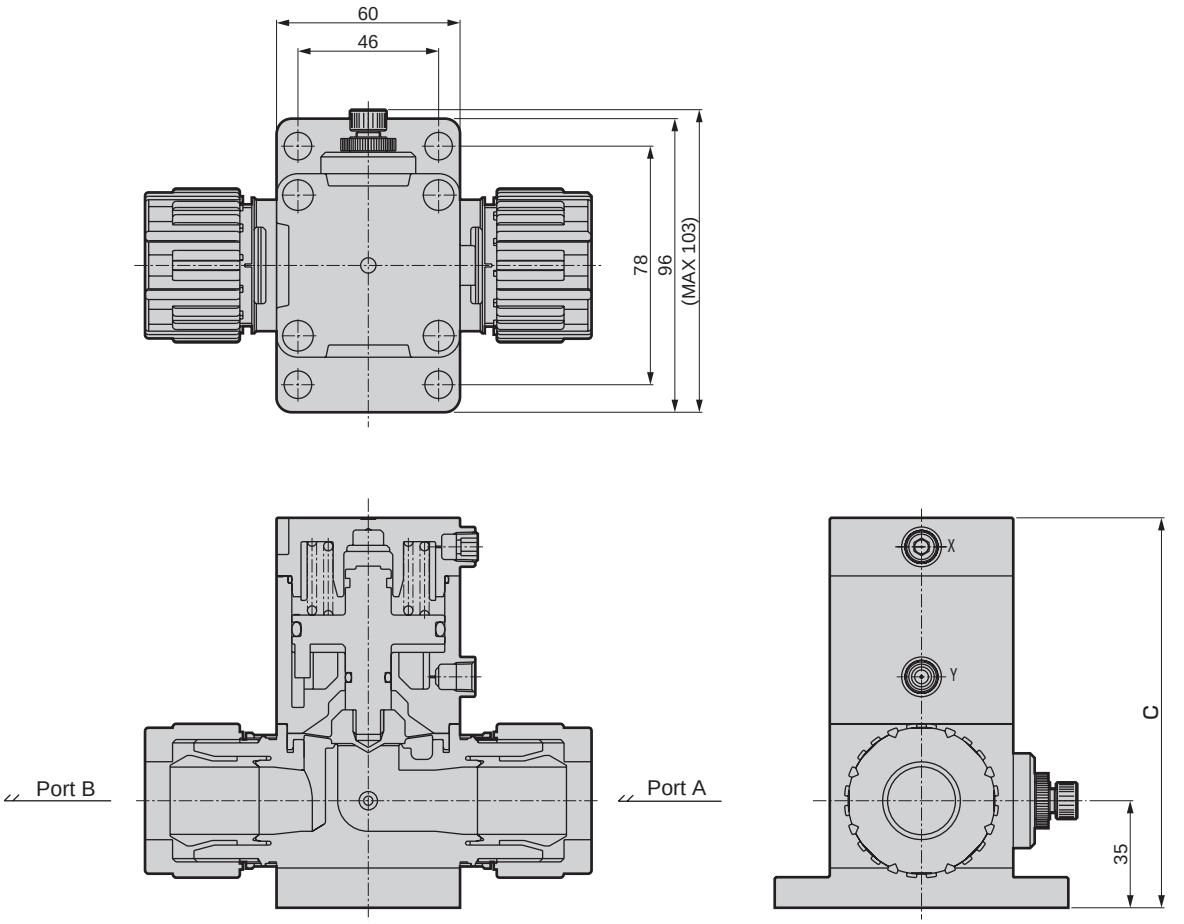


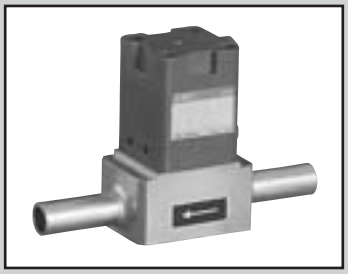

| Fluid symbol | D | E |
|---|---|---|
| Blank, M | 159 | 133 |
| P | 166 | 137 |

Type with bypass has the same dimensions.

● With bypass

• AMD5[1/2/3]2-*-20-2/7





Stainless steel body air-operated valve for chemical liquid

# AMD5$^{1}_{2}_{3}$2 Series

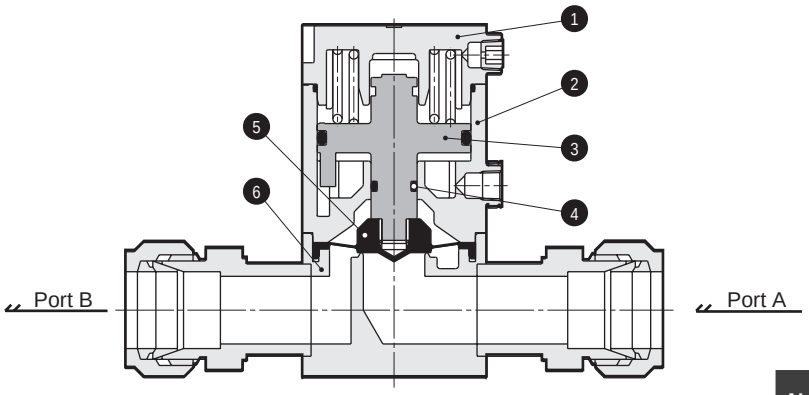
● Orifice: ø20

## Specifications

| Descriptions | | AMD5$^{1}_{2}_{3}$2-8BT/16S |
|---|---|---|
| Working fluid | | Chemical liquids, pure water (Note 1) |
| Fluid temperature | °C | 5 to 120 |
| Withstanding pressure | MPa | 0.9 |
| Working pressure range (A → B) | MPa | 0 to 0.3 (Note 2) |
| Working pressure range (B → A) | MPa | 0 to 0.1 (Note 2) |
| Valve seat leakage | cm³/min | 0 (under water pressure) |
| Back pressure | MPa | 0 to 0.1 (Note 2) |
| Ambient temperature | °C | 0 to 60 |
| Frequency | | 20 times/min or less |
| Installation attitude | | Free |
| Connection | | 1" SUS weld tube<br>Double barbed fitting for 1" (Note 3) |
| Orifice | | ø20 |
| Operation portion | Operation pressure range MPa | NC/NO 0.3 to 0.5, double acting 0.3 to 0.4 |
| | Operation pressure connection port | Rc1/8 |

Note 1: Check the compatibility of the material of each component, working fluid, and ambient atmosphere before use.
Note 2: See page 68 for high-pressure specifications.
Note 3: For the double barbed fitting, fluorine-based lubricant is applied on the sliding surface of the front ferrule and fitting.

## Internal structure and parts list




| No. | Parts name | Material (Actuator material) | |
|---|---|---|---|
| | | Standard | A |
| 1 | Cover | PPS | A5056 |
| 2 | Cylinder | PPS | A5056 |
| 3 | Piston rod | PPS | A5056 |
| 4 | O ring | EPDM | |
| 5 | Diaphragm | PTFE | |
| 6 | Body | SUS316L | |

The material and structure may differ with the model.
Contact CKD for details.

⚠ Read the precautions on Intro 7 to 14 before use.

## How to order

**AMD5** (1) 2 – (16S) – (1) – (A) – (4)

Model no.

B Connection

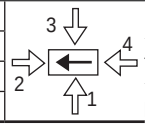
A Actuation

C Option

D Actuator material

E Operation port direction

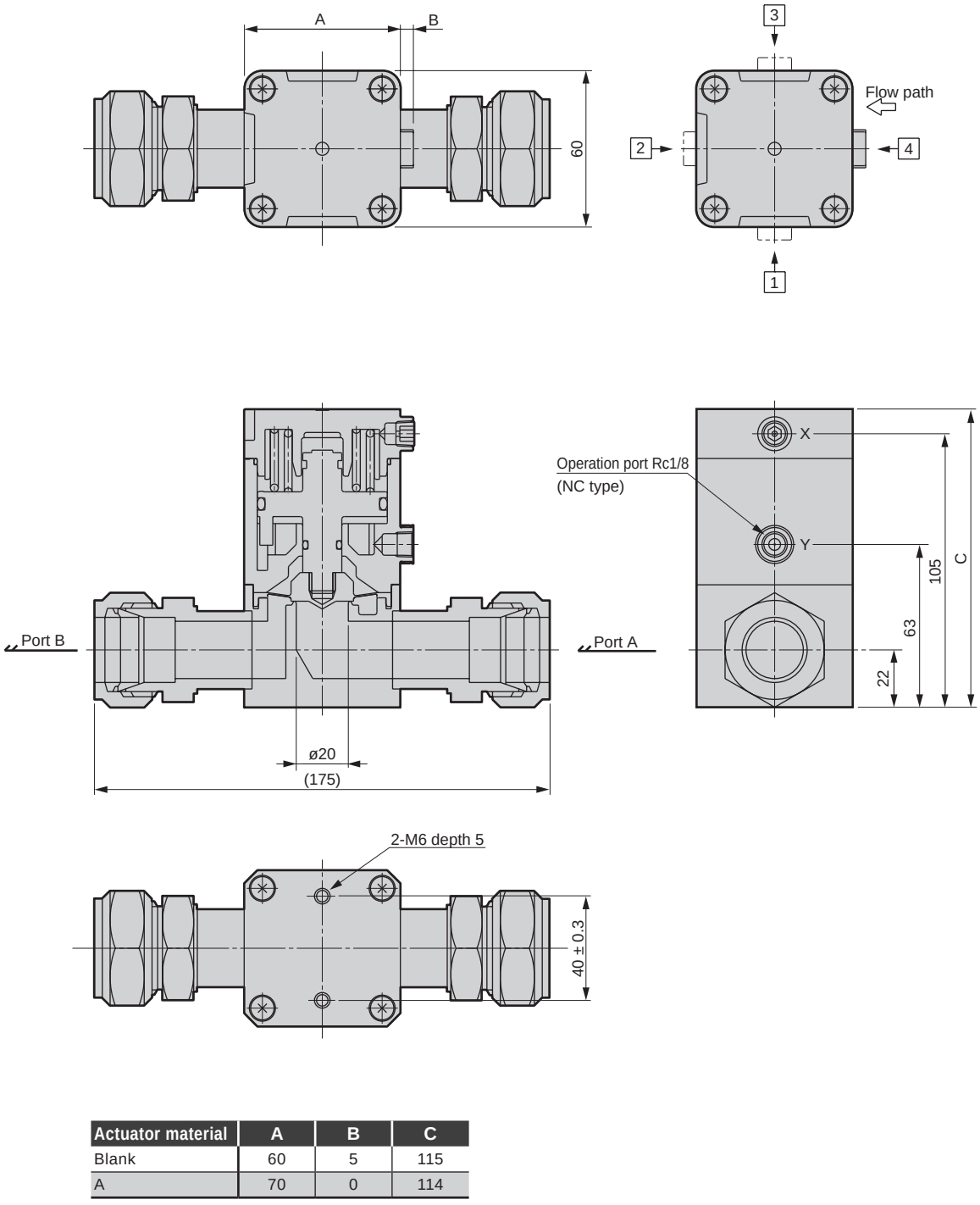
| B Connection | 8BT | 16S |
|---|---|---|
| | 1" × t1.65 SUS weld tube | 1" tube connection Double barbed fitting |

| Symbol | Descriptions \ Orifice | ø20 | |
|---|---|---|---|
| **A Actuation** | | | |
| 1 | NC (Normally closed) | ● | ● |
| 2 | NO (Normally open) | ● | ● |
| 3 | Double acting | ● | ● |
| **C Option** | | | |
| 0 | ON-OFF only | ● | ● |
| 1 | With flow adjustment | ● | ● |
| 6 | With indicator | ● | ● |
| **D Actuator material** | | | |
| Blank | PPS | ● | ● |
| A | A5056 | ● | ● |
| **E Operation port direction** | | | |
| 4 |  In the overhead view, ← indicates the fluid flow direction, ⇦ the operation port direction. | ● | ● |
| 1 | | ● | ● |
| 2 | | ● | ● |
| 3 | | ● | ● |

## Dimensions

● Double barbed fitting

• AMD5$^{1}_{2}_{3}$2-16S

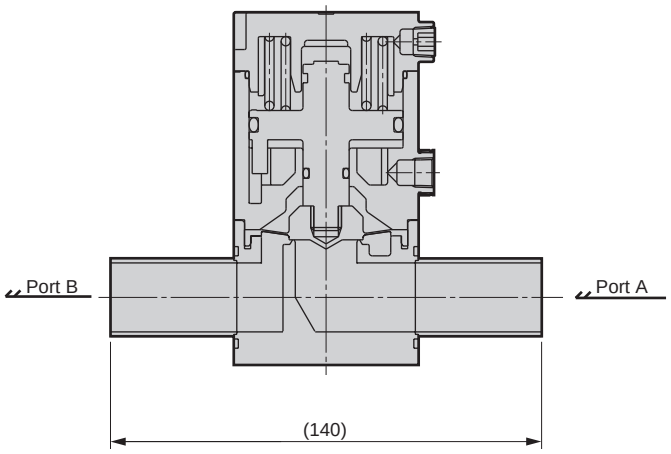



| Actuator material | A | B | C |
|---|---|---|---|
| Blank | 60 | 5 | 115 |
| A | 70 | 0 | 114 |

## Dimensions

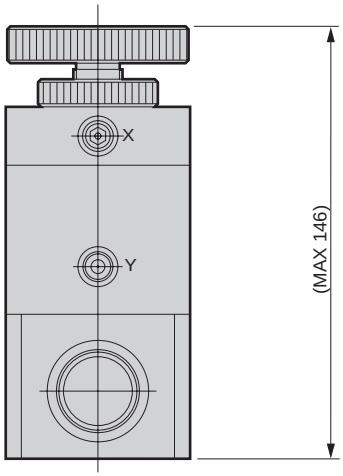
● SUS weld tube

• AMD5[1/2/3]2-8BT



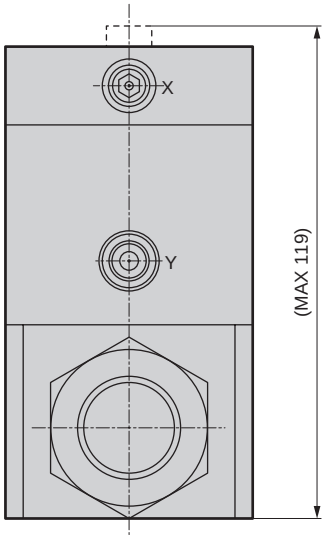

● With flow adjustment

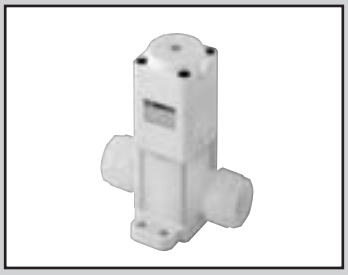
• AMD5[1/2/3]2-*-1




● With indicator

• AMD5[1/2/3]2-*-6





Air-operated valve for chemical liquid supply

# AMD*1H Series

Valve designed to support high pressure and high back pressure chemical liquid supply line at semiconductor manufacturing line.

- Orifice: ø10, ø16, ø22, ø25

RoHS CAD

Subject to Export Trade Control Ordinances

* Target: Valves with ø16 or larger orifice

## Variations

- Water-hammer reduction type (L)
- Control pressure reduction type (V)
- Control pressure + water hammer reduction type (VL)

| Model no. | | Working pressure (MPa) | Operation pressure (MPa) | Water hammer reduction type |
|---|---|---|---|---|
| AMD*1H - * - | Blank | 0 to 0.7 | 0.5 to 0.7 | |
| AMD*1H - * - | L | 0 to 0.7 | 0.5 to 0.7 | WH reduction |
| AMD*1H - * - | V | 0 to 0.5 | 0.4 to 0.6 | |
| AMD*1H - * - | VL | 0 to 0.5 | 0.4 to 0.6 | WH reduction |

## Specifications

| Descriptions | | AMD41H | | AMD51H | AMD61H |
|---|---|---|---|---|---|
| Actuation | | NC (Normally closed) | | | |
| Working fluid | | Chemical liquids, pure water (Note 1) | | | |
| Fluid temperature | °C | 5 to 40 | | | |
| Withstanding pressure | MPa | 1.4 | | | |
| Working pressure range (A → B) | MPa | 0 to 0.7 | | | |
| Valve seat leakage | $cm^3$/min | 0 (under water pressure) | | | |
| Back pressure | MPa | 0 to 0.7 | | | |
| Ambient temperature | °C | 0 to 40 | | | |
| Frequency | | 15 times/min or less | | | |
| Installation attitude | | Free | | | |
| Connection | | OD 1/2" tube connection Nominal 1/4" welded PFA tube extended | OD 3/4" tube connection Nominal 1/2" welded PFA tube extended | OD 1" tube connection Nominal 3/4" welded PFA tube extended | OD 1.25" tube connection Nominal 1" welded PFA tube extended |
| Orifice | | ø10 | ø16 | ø22 | ø25 |
| Cv value | | 2 | 5 (Note 2) | 9.5 | 14 |
| Operation section | Operation pressure range MPa | 0.5 to 0.7 | | | |
| | Operation pressure connection port | Rc1/8 | | | |

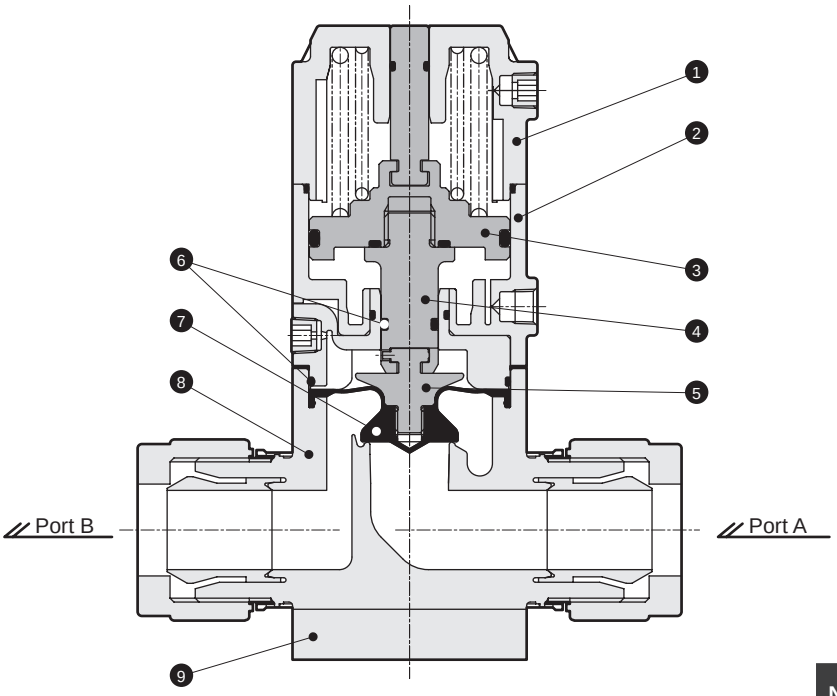
## Options( : additional specifications)

| Descriptions | | AMD*1H-*-L | AMD*1H-*-V | AMD*1H-*-VL |
|---|---|---|---|---|
| Actuation | | NC (Normally closed) | | |
| Working fluid | | Chemical liquids, pure water (Note 1) | | |
| Fluid temperature | °C | 5 to 40 | | |
| Withstanding pressure | MPa | 1.4 | | |
| Working pressure range (A→B) | MPa | 0 to 0.7 | 0 to 0.5 | 0 to 0.5 |
| Back pressure | MPa | 0 to 0.7 | 0 to 0.5 | 0 to 0.5 |
| Ambient temperature | °C | 0 to 40 | | |
| Frequency | | 5 times/min or less | 15 times/min or less | 5 times/min or less |
| Installation attitude | | Free | | |
| Operation section | Operation pressure range MPa | 0.5 to 0.7 | 0.4 to 0.6 | 0.4 to 0.6 |
| | Operation pressure connection port | Rc1/8 | | |
| Water hammer reduction type | | ● (Note 4) | — | ● (Note 4) |

Note 1: Check the compatibility of the material of each component, working fluid, and ambient atmosphere before use.
Note 2: Cv value for FLARETEC fitting is 4.5.
Note 3: See page 78 for flow characteristics.
Note 4: The response time of water hammer reduction type is longer than that of standard type. Contact CKD for details.

Read the precautions on Intro 7 to 14 before use.

## Internal structure and parts list

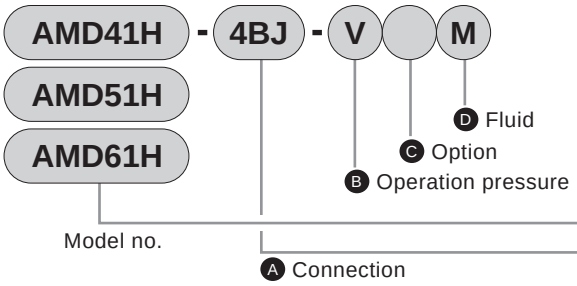



| No. | Parts name | Material (Fluid symbol) | |
|---|---|---|---|
| | | Standard | M |
| 1 | Cover | PP | |
| 2 | Cylinder | PP | |
| 3 | Piston | PP | |
| 4 | Rod | PP | |
| 5 | Diaphragm holder | PP | |
| 6 | O ring | FKM | EPDM |
| 7 | Diaphragm | PTFE | |
| 8 | Body | PFA | |
| 9 | Mounting plate | PP | |

The material and structure may differ with the model.
Contact CKD for details.

## How to order

● (AMD*1H Series)




| | | AMD41H | | | | | | AMD51H | | | AMD61H | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A Connection** | | | | | | | | | | | | |
| | | 4BJ | 6BJ | 4BW | 6BW | 2W | 4W | 8BJ | 8BW | 6W | 10BJ | 8W |
| | | Super 300 type Pillar fitting P Series integrated type | | FLARETEK fitting integrated type | | Welded PFA tube extended | | Super 300 type Pillar fitting P Series integrated type | FLARETEK fitting integrated type | Welded PFA tube extended | Super 300 type Pillar fitting P Series integrated type | Welded PFA tube extended |
| | | 1/2" × 3/8" tube connection | 3/4" × 5/8" tube connection | 1/2" × 3/8" tube connection | 3/4" × 5/8" tube connection | Nominal 1/4" welded PFA tube extended | Nominal 1/2" welded PFA tube extended | 1" × 7/8" tube connection | 1" × 7/8" tube connection | Nominal 3/4" welded PFA tube extended | 1 1/4 × 1 1/10 tube onnection | Nominal 1" welded PFA tube extended |
| Symbol | Orifice / Descriptions | ø10 | ø16 | ø10 | ø16 | ø10 | ø16 | ø22 | | | ø25 | |
| Cv value | | 2 | 5 | 2 | 4.5 | 2 | 5 | 9.5 | | | 14 | |
| Body material | | PFA molded body | | | | | | | | | | |
| **B Operation pressure** | | | | | | | | | | | | |
| **Blank** | Standard: (0.5 to 0.7 MPa) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **V** | 0.4 to 0.6 MPa | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **C Option** | | | | | | | | | | | | |
| **Blank** | Standard | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **L** | Water hammer reduction type | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **D Fluid** | | | | | | | | | | | | |
| **Blank** | Standard | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **M** | For ammonia (Note 1) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

Note 1: This is a custom order.

## CAUTION

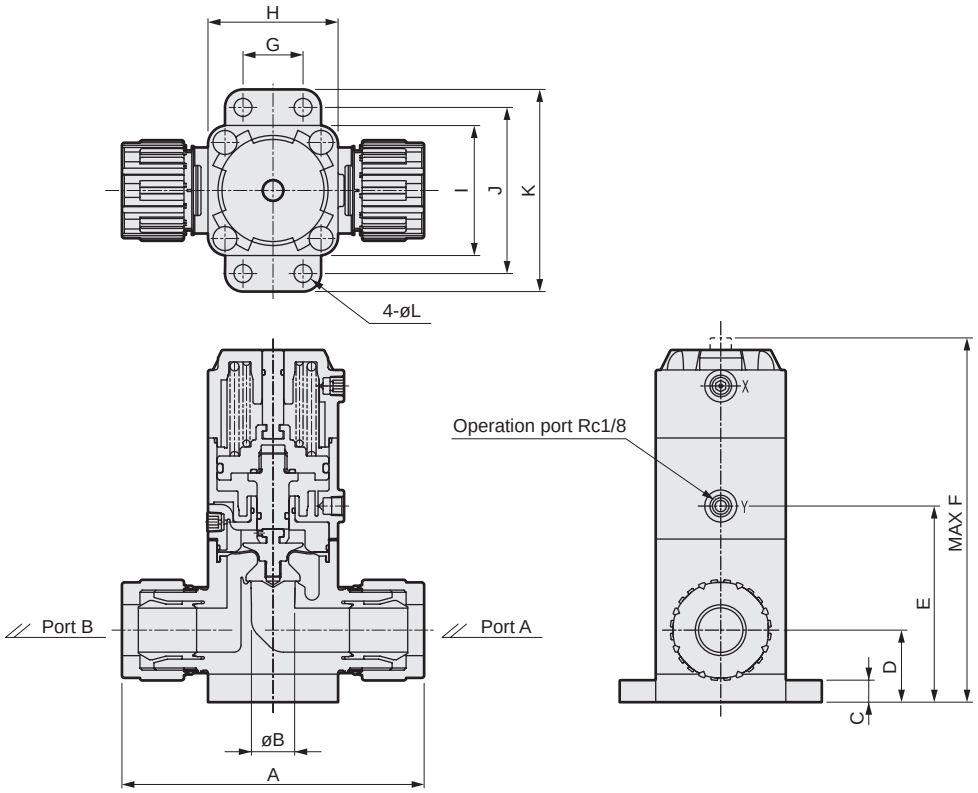
### Note on water hammer

Option "L" water hammer reduction type has a structure to reduce water hammer. However, depending on the piping conditions, water hammer may not be sufficiently reduced. Execute a trial run to check the reduction of water hammer after installation. Check the piping condition if no reduction effect can be observed. Generally, shorter piping length and fewer bending points in the secondary side increase the effect of water hammer reduction.

## Dimensions

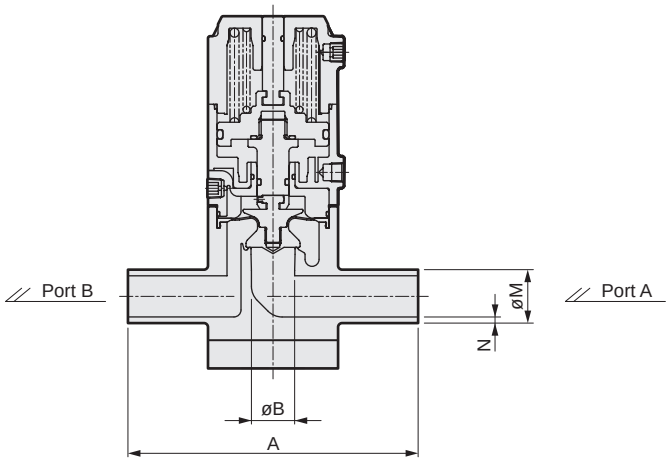
● Fitting integrated type

• AMD$^{4}_{5}_{6}$1H-*BJ
*BW




● Welded tube type

• AMD$^{4}_{5}_{6}$1H-*W




| Model | Connection model No. | A | B | C | D | E | F | G | H | I | J | K | L | M | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMD41H | 4BJ | 108 | 10 | 10 | 31 | 80 | 147 | 20 | 50 | 50 | 68 | 86 | 9 | - | - |
| | 4BW | 117 | 10 | 10 | 31 | 80 | 147 | 20 | 50 | 50 | 68 | 86 | 9 | - | - |
| | 2W | 110 | 10 | 10 | 31 | 80 | 147 | 20 | 50 | 50 | 68 | 86 | 9 | 13.7 | 2.3 |
| | 6BJ | 122 | 16 | 10 | 31 | 80 | 147 | 20 | 50 | 50 | 68 | 86 | 9 | - | - |
| | 6BW | 126 | 16 | 10 | 31 | 80 | 147 | 20 | 50 | 50 | 68 | 86 | 9 | - | - |
| | 4W | 130 | 16 | 10 | 31 | 80 | 147 | 20 | 50 | 50 | 68 | 86 | 9 | 21.3 | 2.8 |
| AMD51H | 8BJ | 151 | 22 | 11 | 36 | 98 | 182 | 30 | 65 | 65 | 83 | 101 | 9 | - | |
| | 8BW | 161 | 22 | 11 | 36 | 98 | 182 | 30 | 65 | 65 | 83 | 101 | 9 | - | - |
| | 6W | 145 | 22 | 11 | 36 | 98 | 182 | 30 | 65 | 65 | 83 | 101 | 9 | 26.7 | 2.9 |
| AMD61H | 10BJ | 198 | 25 | 12 | 42 | 111 | 202 | 38 | 75 | 75 | 93 | 111 | 9 | - | - |
| | 8W | 155 | 25 | 12 | 42 | 111 | 202 | 38 | 75 | 75 | 93 | 111 | 9 | 33.4 | 3.4 |

Air-operated valve for chemical liquid (3 port valve)

# AMGZ0/AMG00 Series

The fitting integrated 3-port valve eliminates dead space.

● Orifice: ø1.6 to ø4

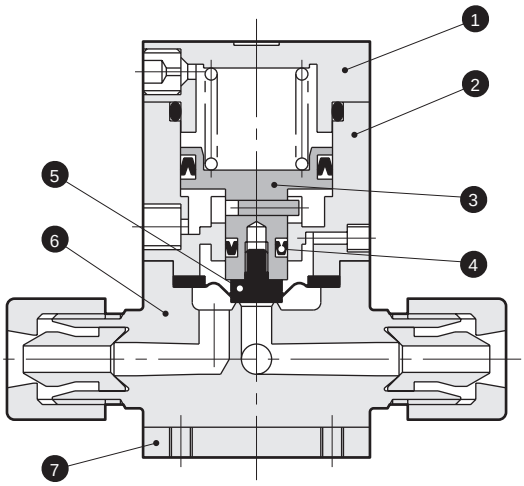
RoHS

## Specifications

| Descriptions | | AMGZ0-*-2 | AMG00-*-4 |
|---|---|---|---|
| Working fluid | | Chemical liquids, pure water, $N_2$ gas, air (Note 1) | |
| Fluid temperature | °C | 5 to 80 | |
| Withstanding pressure | MPa | 1 | |
| Working pressure range (A → B) | MPa | 0 to 0.5 | |
| Working pressure range (B → A) | MPa | 0 to 0.3 | |
| Valve seat leakage | $cm^3$/min | 0 (under water pressure) | |
| Back pressure | MPa | 0 to 0.3 | |
| Ambient temperature | °C | 0 to 60 | |
| Frequency | | 30 times/min or less | |
| Installation attitude | | Free | |
| Connection | | OD ø3 tube connection<br>OD 1/8″ tube connection | OD ø6 tube connection<br>OD 1/4″ tube connection |
| Orifice | | ø2 | ø4 |
| Cv value | | 0.08 | 0.32 |
| Operation section | Operation pressure MPa | 0.3 to 0.5 | |
| | Operation port | M5 | |

Note 1: This product can not be used for oxidized fluid.
Check the compatibility of the material of each component, working fluid, and ambient atmosphere before use.

## Internal structure and parts list




| No. | Parts name | Material |
|---|---|---|
| 1 | Cover | PPS |
| 2 | Cylinder | PPS |
| 3 | Piston rod | SUS303 |
| 4 | Y packing seal | NBR |
| 5 | Diaphragm | PTFE |
| 6 | Body | PFA/PTFE |
| 7 | Mounting plate | SUS304 |

The material and structure may differ with the model.
Contact CKD for details.

⚠ Read the precautions on Intro 7 to 14 before use.

## How to order

● AMGZ0 Series

**AMGZ0 – 3UF – 2**

- AMGZ0: Model no.
- 3UF: Ⓐ Connection
- 2: Orifice

| Descriptions | Ⓐ Connection | | | | |
|---|---|---|---|---|---|
| | 3US | 6BUS | 3UF | 3UR | 6BUR |
| | Super type Pillar fitting integrated type | | F-LOCK 20 series fitting integrated type | F-LOCK 60 series fitting integrated type | |
| | ø3 × ø2 tube connection | 1/8" × 0.086" tube connection | ø3 × ø2 tube connection | ø3 × ø2 tube connection | 1/8" × 1/16" tube connection |
| **Orifice** | | | | | |
| Refer to the right. | ø2 | ø2 | ø2 | ø1.6 | ø1.6 |
| **Body material** | | | | | |
| PFA molded body or PTFE machined body | PFA | | PTFE | PTFE | |

● AMG00 Series

**AMG00 – 8BUF – 4**

- AMG00: Model no.
- 8BUF: Ⓐ Connection
- 4: Orifice

| Descriptions | Ⓐ Connection | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6US | 8BUS | 6UP | 8BUP | 6UF | 8BUF | 6UR | 8BUR | 6UK | 8BUK | 8BUW |
| | Super type Pillar fitting integrated type | | Super 300 type Pillar fitting P Series integrated type | | F-LOCK 20 series fitting integrated type | | F-LOCK 60 series fitting integrated type | | Final lock fitting integrated type | | FLARETEK fitting integrated type |
| | ø6 × ø4 tube connection | 1/4" × 5/32" tube connection | ø6 × ø4 tube connection | 1/4" × 5/32" tube connection | ø6 × ø4 tube connection | ø6.35 × ø4.3 tube connection | ø6 × ø4 tube connection | 1/4" × 5/32" tube connection | ø6 × φ4 tube connection | 1/4" × 5/32" tube connection | 1/4" × 5/32" tube connection |
| **Orifice** | | | | | | | | | | | |
| Refer to the right. | ø4 | ø4 | ø4 | ø4 | ø4 | ø4 | ø3.5 | ø3.5 | ø4 | ø4 | ø3 |
| **Body material** | | | | | | | | | | | |
| PFA molded body or PTFE machined body | PFA | | PTFE | | PTFE | | PTFE | | PTFE | | PTFE |

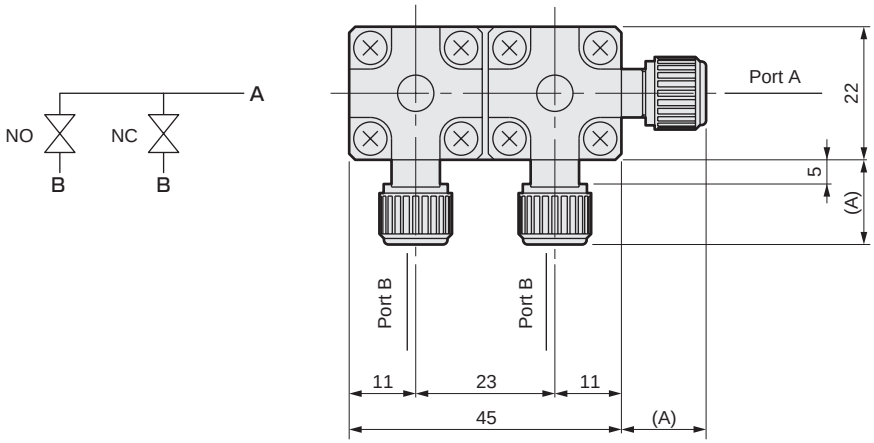
## Note on model No. selection

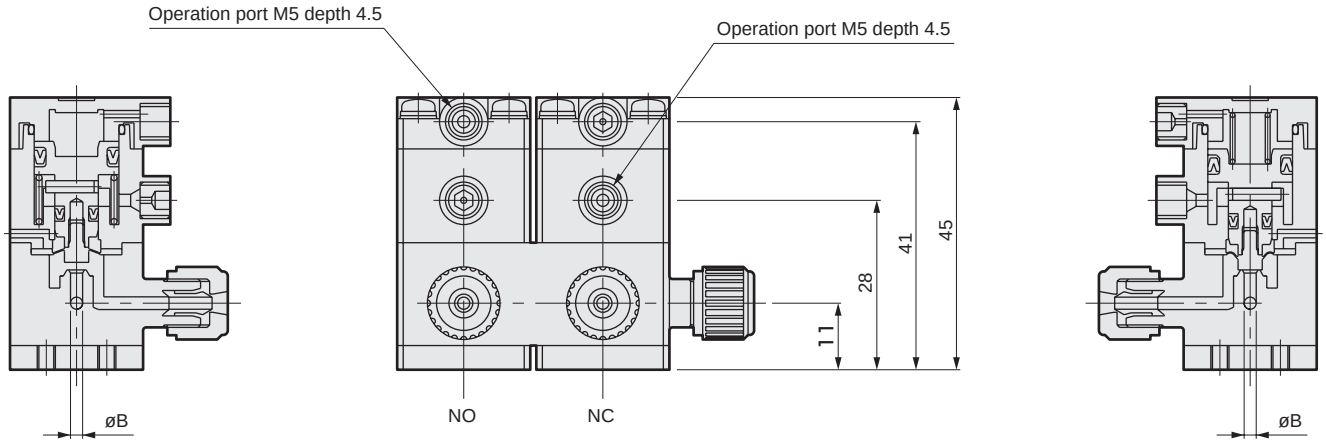
Note 1: Other bore sizes are also available. Contact CKD for details.

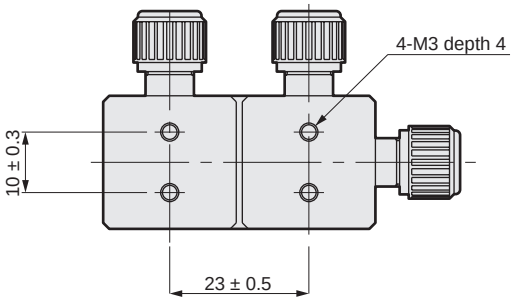
## Dimensions

● Fitting integrated type

• AMGZ0- *1 -2



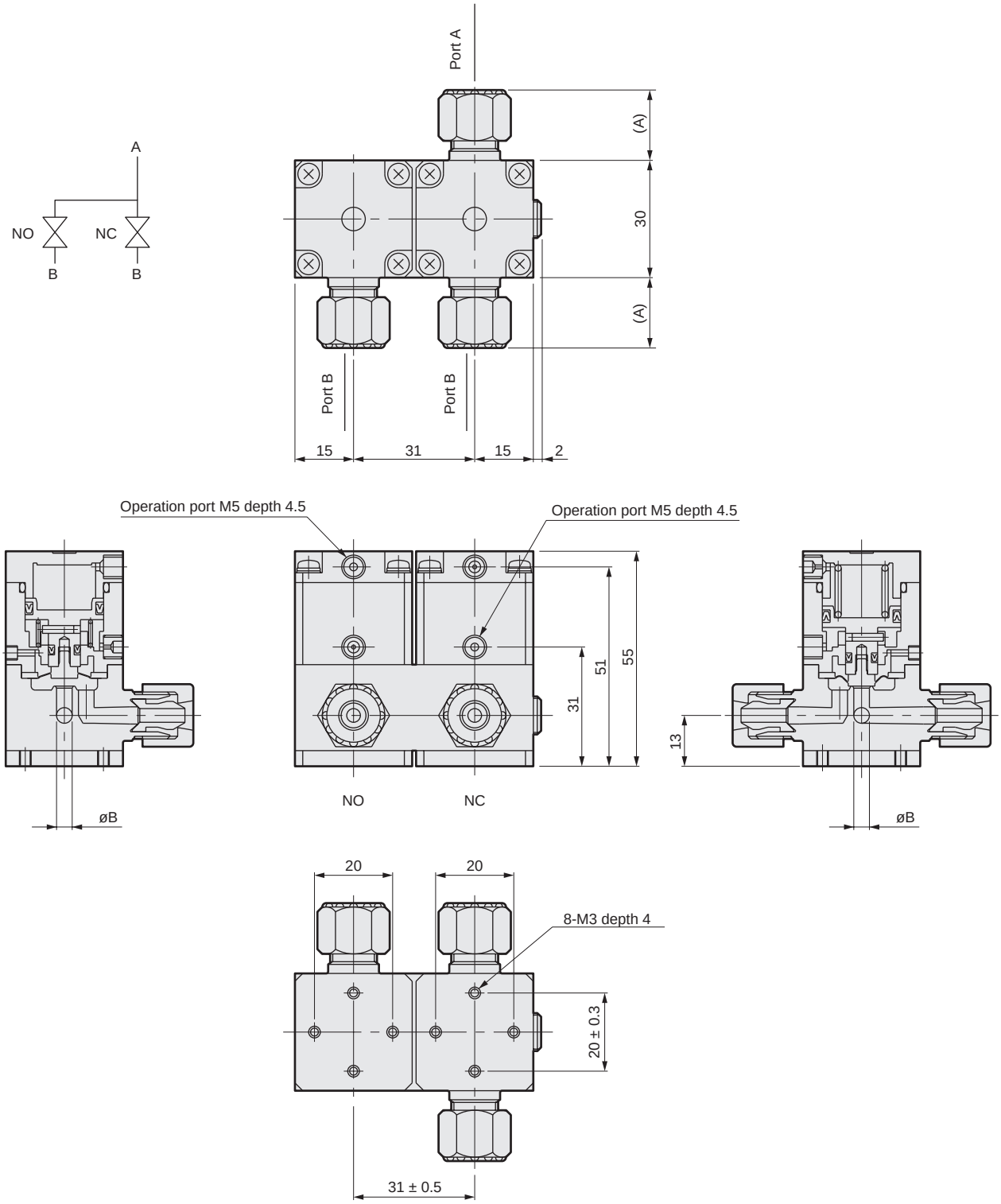




| Dimensions / *1 (Connection model No.) | A | B |
|---|---|---|
| 3US | 14 | 2 |
| 6BUS | 14 | 2 |
| 3UF | 9 | 2 |
| 3UR | 17.5 | 1.6 |
| 6BUR | 17.5 | 1.6 |

## Dimensions

● Fitting integrated type

• AMG00- *1 -4




| Dimensions *1 (Connection model No.) | A | B |
|---|---|---|
| 6US | 18 | 4 |
| 8BUS | 18 | 4 |
| 6UP | 19 | 4 |
| 8BUP | 19 | 4 |

| Dimensions *1 (Connection model No.) | A | B |
|---|---|---|
| 6UF | 17 | 4 |
| 8BUF | 17 | 4 |
| 6UR | 30 | 3.5 |
| 8BUR | 31 | 3.5 |
| 6UK | 19 | 4 |
| 8BUK | 19 | 4 |
| 8BUW | 28 | 3 |

Air-operated valve for chemical liquids (3-port valve)

# AMG$^{3}_{4}_{5}$02 Series

- Orifice: AMG302: ø6 to ø10
  AMG402: ø14.7 to ø16
  AMG502: ø20

RoHS Subject to Export Trade Control Ordinances

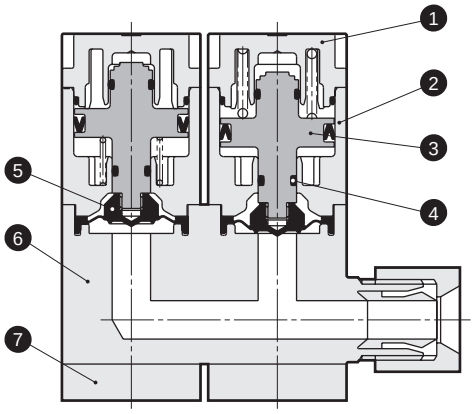
* Target: AMG402 and 502 only

## Specifications

| Descriptions | | AMG302 | AMG402 | AMG502 |
|---|---|---|---|---|
| Working fluid | | Chemical liquids, pure water (Note 1) | | |
| Fluid temperature | °C | 5 to 90 (For high temperature: 5 to 160) (Note 5) | | 5 to 90 (Note 5) |
| Withstanding pressure | MPa | 0.9 | | |
| Working pressure range (A → B) | MPa | 0 to 0.3 (Note 4) | | |
| Working pressure range (B → A) | MPa | 0 to 0.1 (Note 4) | | |
| Valve seat leakage | $cm^3$/min | 0 (under water pressure) | | |
| Back pressure | MPa | 0 to 0.1 | | |
| Ambient temperature | °C | 0 to 60 | | |
| Frequency | | 30 times/min or less | 20 times/min or less | |
| Installation attitude | | Free | | |
| Connection | | OD ø10/ø12 tube connection (fitting integrated type)<br>OD 3/8"/1/2" tube connection (fitting integrated type) | OD 3/4" tube connection (fitting integrated type) | OD ø25 tube connection (fitting integrated type)<br>OD1" tube connection (fitting integrated type) |
| Orifice | | ø6 to ø10 (Note 3) | ø14.7 to ø16 (Note 3) | ø20 |
| Operation section | Operation pressure range MPa | 0.3 to 0.5 (0.3 to 0.35 for high temperature) | | |
| | Operation pressure connection port | Rc1/8 (Note 2) | | |

Note 1: Check compatibility of the material of each component, the working fluid and the working environment.
Note 2: Connect a resin fitting when connecting to the operation port.
(When using a metal fitting, select one with a reinforcement ring. However, a reinforcement ring is not required for nitric acid and hydrofluoric acid of fluid symbol "P".)
Note 3: Confirm the orifice of any model in its how-to-order page.
Note 4: See page 68 for high-pressure specifications.
Note 5: Contact CKD if hydrofluoric acids is used and fluid temperature is over 40°C.

## Internal structure and parts list

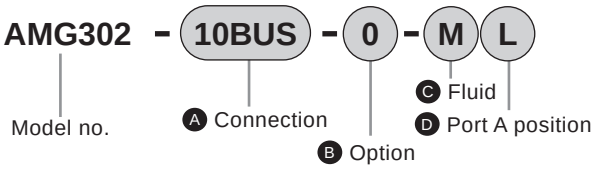



| No. | Parts name | Material (fluid symbol) | | |
|---|---|---|---|---|
| | | Standard/Y | M | P |
| 1 | Cover | PPS | | PP |
| 2 | Cylinder | PPS | | PP |
| 3 | Piston rod | PPS | | PVDF |
| 4 | O ring | FKM | EPDM | FKM |
| 5 | Diaphragm | PTFE | | |
| 6 | Body | PTFE | | |
| 7 | Mounting plate | PPS | | PP |

The material and structure may differ with the model.
Contact CKD for details.

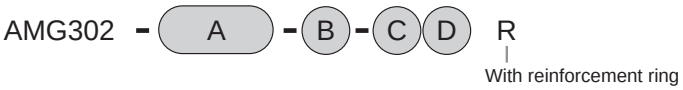
## How to order

● AMG302 Series (connection: ø10, 3/8" tube connection)




| | | A Connection | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 10US | 10BUS | 10UP | 10BUP | 10UA | 10BUA | 10UR | 10BUR | 10UK | 10BUK | 10BUW |
| | | Super type Pillar fitting integrated type | | Super 300 type Pillar fitting P Series integrated type | | F-LOCK 20A series fitting integrated type | | F-LOCK 60 series fitting integrated type | | Final lock fitting integrated type | | FLARETEK fitting integrated type |
| | | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | 3/8" × 1/4" tube connection |
| Symbol | Descriptions / Orifice | ø8 | | ø8 | | ø8 | | ø7 | ø6 | ø8 | | ø6.3 |
| Body material | | PTFE machined body | | | | | | | | | | |
| **B Option** | | | | | | | | | | | | |
| **0** | ON-OFF only | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **1** | With flow adjustment | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **6** | With indicator | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **C Fluid** | | | | | | | | | | | | |
| **Blank** | Standard | ● | ● | ● | ● | ● | ● | ● | ● | ● (Note 1) | ● (Note 1) | ● |
| **M** | For ammonia | ● | ● | ● | ● | ● | ● | ● | ● | ● (Note 1) | ● (Note 1) | ● |
| **P** | For nitric acid, hydrofluoric acid (Note 3) | ● | ● | ● | ● | ● | ● | ● | ● | ● (Note 1) | ● (Note 1) | ● |
| **Y** | For high temperature (5 to 160°C) (Note 2) | ● | ● | ● | ● | ● | ● | | | ● (Note 1) | ● (Note 1) | |
| **D Port A position** | | | | | | | | | | | | |
| **Blank** | Right | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **L** | Left | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

● Model no. for type with operation port reinforcement ring

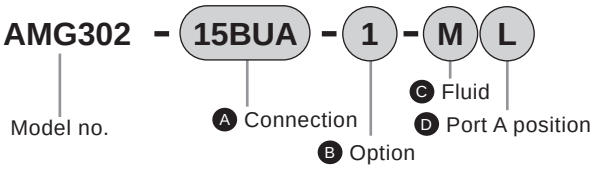



## Note on model no. selection

Note 1: The final lock fitting nut and operation air piping could interfere, so check dimensions before selecting.
Note 2: This valve is not compatible with nitric acid, hydrofluoric acid, or hydrochloric acid.
Note 3: Type with reinforcement ring R can not be selected if "P" is selected in C .

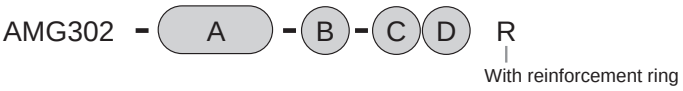
## How to order

● AMG302 Series (connection: ø12, 1/2" tube connection)




| | | Ⓐ Connection | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 12US | 15BUS | 12UP | 15BUP | 12UA | 15BUA | 12UR | 15BUR | 12UK | 15BUK | 15BUW |
| | | Super type Pillar fitting integrated type | | Super 300 type Pillar fitting P Series integrated type | | F-LOCK 20A series fitting integrated type | | F-LOCK 60 series fitting integrated type | | Final lock fitting integrated type | | FLARETEK fitting integrated type |
| | | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | 1/2" × 3/8" tube connection |
| Symbol | Orifice / Descriptions | ø10 | | ø10 | | ø10 | | ø9 | | ø10 | | ø9.4 |
| Body material | | PTFE machined body | | | | | | | | | | |
| **Ⓑ Option** | | | | | | | | | | | | |
| **0** | ON-OFF only | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **1** | With flow adjustment | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **6** | With indicator | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **Ⓒ Fluid** | | | | | | | | | | | | |
| **Blank** | Standard | ● | ● | ● | ● | ● | ● | ● | ● | ● (Note 1) | ● (Note 1) | ● |
| **M** | For ammonia | ● | ● | ● | ● | ● | ● | ● | ● | ● (Note 1) | ● (Note 1) | ● |
| **P** | For nitric acid, hydrofluoric acid (Note 3) | ● | ● | ● | ● | ● | ● | ● | ● | ● (Note 1) | ● (Note 1) | ● |
| **Y** | For high temperature (5 to 160°C) (Note 2) | ● | ● | ● | ● | ● | ● | | | ● (Note 1) | ● (Note 1) | |
| **Ⓓ Port A position** | | | | | | | | | | | | |
| **Blank** | Right | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **L** | Left | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

● Model no. for type with operation port reinforcement ring

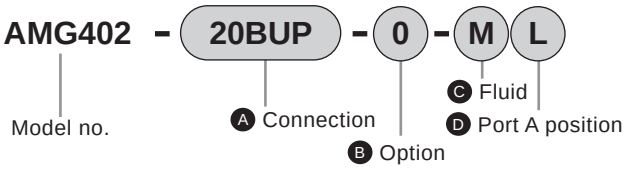



## Note on model no. selection

Note 1: The final lock fitting nut and operation air piping could interfere, so check dimensions before selecting.
Note 2: This valve is not compatible with nitric acid, hydrofluoric acid, or hydrochloric acid.
Note 3: Type with reinforcement ring R can not be selected if "P" is selected in Ⓒ.

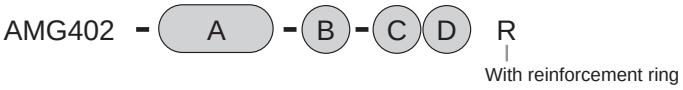
## How to order

● AMG402 Series




| | | A Connection | | | | | |
|---|---|---|---|---|---|---|---|
| | | 20BUS | 20BUP | 20BUA | 20BUR | 20BUK | 20BUW |
| | | Super type Pillar fitting integrated type | Super 300 type Pillar fitting P Series integrated type | F-LOCK 20A series fitting integrated type | F-LOCK 60 series fitting integrated type | Final lock fitting integrated type | FLARETEK fitting integrated type |
| | | 3/4″ × 5/8″ tube connection | | | | | |
| Symbol | Orifice / Descriptions | ø16 | ø16 | ø16 | ø15 | ø16 | ø14.7 |
| Body material | | PTFE machined body | | | | | |
| **B Option** | | | | | | | |
| **0** | ON-OFF only | ● | ● | ● | ● | ● | ● |
| **1** | With flow adjustment | ● | ● | ● | ● | ● | ● |
| **6** | With indicator | ● | ● | ● | ● | ● | ● |
| **C Fluid** | | | | | | | |
| **Blank** | Standard | ● | ● | ● | ● | ● | ● |
| **M** | For ammonia | ● | ● | ● | ● | ● | ● |
| **P** | For nitric acid, hydrofluoric acid (Note 2) | ● | ● | ● | ● | ● | ● |
| **Y** | For high temperature (5 to 160°C) (Note 1) | ● | ● | ● | | ● | |
| **D Port A position** | | | | | | | |
| **Blank** | Right | ● | ● | ● | ● | ● | ● |
| **L** | Left | ● | ● | ● | ● | ● | ● |

● Model no. for type with operation port reinforcement ring

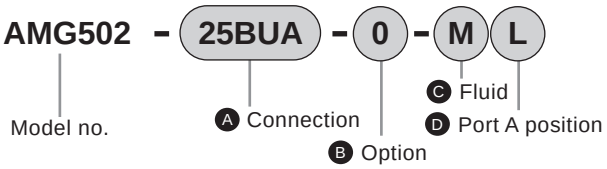



## Note on model no. selection

Note 1: This valve is not compatible with nitric acid, hydrofluoric acid, or hydrochloric acid.
Note 2: Type with reinforcement ring R can not be selected if "P" is selected in C .

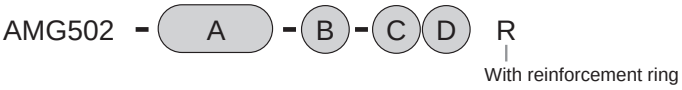
## How to order

● AMG502 series




| | | Ⓐ Connection | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 25US | 25BUS | 25UP | 25BUP | 25BUA | 25UR | 25BUR | 25UK | 25BUK | 25BUW |
| | | Super type Pillar fitting integrated type | | Super 300 type Pillar fitting P Series integrated type | | F-LOCK 20A series fitting integrated type | F-LOCK 60 series fitting integrated type | | Final lock fitting integrated type | | FLARETEK fitting integrated type |
| | | ø25 × ø22 tube connection | 1" × 7/8" tube connection | ø25 × ø22 tube connection | 1" × 7/8" tube connection | 1" × 7/8" tube connection (Note 1) | ø25 × ø22 tube connection | 1" × 7/8" tube connection | ø25 × ø22 tube connection | 1" × 7/8" tube connection | 1" × 7/8" tube connection |
| Symbol | Orifice / Descriptions | ø20 | | ø20 | | ø20 | ø20 | | ø20 | | ø20 |
| Body material | | PTFE machined body | | | | | | | | | |
| **Ⓑ Option** | | | | | | | | | | | |
| **0** | ON-OFF only | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **1** | With flow adjustment | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **6** | With indicator | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **Ⓒ Fluid** | | | | | | | | | | | |
| **Blank** | Standard | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **M** | For ammonia | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **P** | For nitric acid, hydrofluoric acid (Note 2) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **Ⓓ Port A position** | | | | | | | | | | | |
| **Blank** | Right | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **L** | Left | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

● Model no. for type with operation port reinforcement ring




## Note on model no. selection

Note 1: Also usable for the ø25 x ø22 tube connection.
Note 2: Type with reinforcement ring R can not be selected if "P" is selected in Ⓒ .

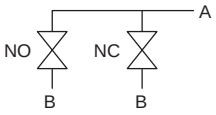
## Dimensions

● ON-OFF type only

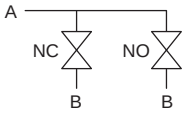
- AMG302- *1
- AMG402- *1
- AMG502- *1

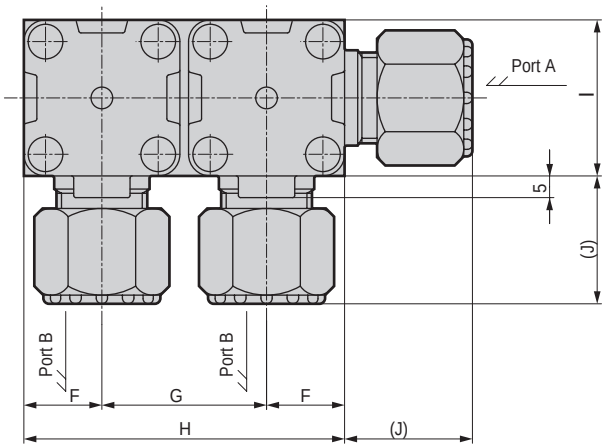
Note: NC and NO layouts differ with the port A position.
The valve closest to the port A is the NC valve. The other valve is NO.

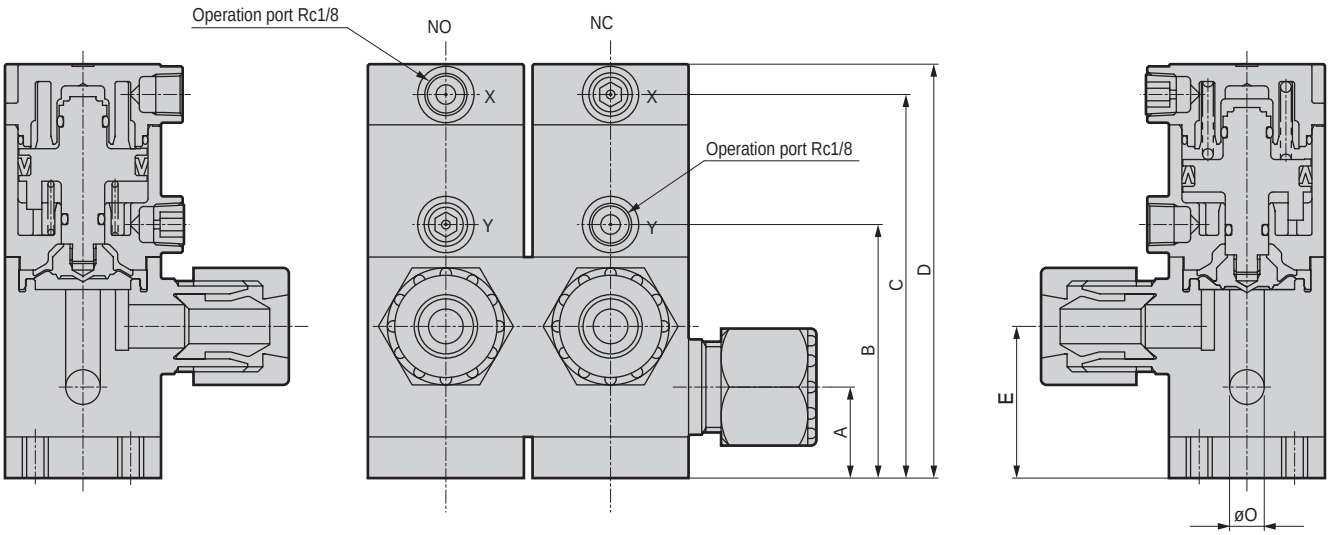
Port A position: Blank

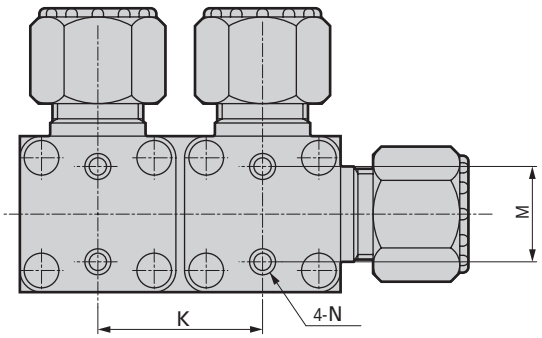



Port A position: L



## Dimensions

| Model no. | A | B | C | D (Fluid symbol) | | E | F | G | H | I | K | M | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Blank, M, Y | P | | | | | | | | |
| AMG302 | 21 | 59 | 89 | 96 | 96 | 35 | 18 | 38 | 74 | 36 | 38 ± 0.3 | 22 | M6 depth 9 |
| AMG402 | 27 | 79 | 116 | 125 | 126 | 46 | 23 | 48 | 94 | 46 | 48 ± 0.4 | 28 | M8 depth 10 |
| AMG502 | 35 | 101 | 143 | 153 | 157 | 60 | 30 | 62 | 122 | 60 | 62 ± 0.4 | 40 | M8 depth 13 |

AMG3 (10 mm/3/8")

| *1 (Connection model no.) | J | O |
|---|---|---|
| 10US | 25 | 8 |
| 10BUS | 25 | 8 |
| 10UP | 25 | 8 |
| 10BUP | 25 | 8 |
| 10UA | 21 | 8 |
| 10BUA | 21 | 8 |
| 10UR | 37 | 7 |
| 10BUR | 39 | 6 |
| 10UK | 30 | 8 |
| 10BUK | 30 | 8 |
| 10BUW | 32.5 | 6.3 |

AMG3 (12 mm/1/2")

| *1 (Connection model no.) | J | O |
|---|---|---|
| 12US | 29.5 | 10 |
| 15BUS | 29.5 | 10 |
| 12UP | 29 | 10 |
| 15BUP | 29 | 10 |
| 12UA | 25 | 10 |
| 15BUA | 25 | 10 |
| 12UR | 37 | 9 |
| 15BUR | 39 | 9 |
| 12UK | 33 | 10 |
| 15BUK | 33 | 10 |
| 15BUW | 33.5 | 9.4 |

AMG4

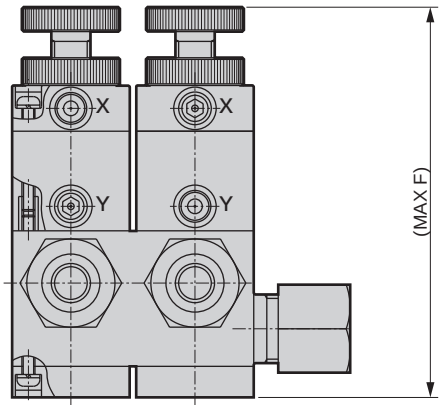
| *1 (Connection model no.) | J | O |
|---|---|---|
| 20BUS | 39 | 16 |
| 20BUP | 36 | 16 |
| 20BUA | 31 | 16 |
| 20BUR | 44 | 15 |
| 20BUK | 36.5 | 16 |
| 20BUW | 38 | 14.7 |

AMG5

| *1 (Connection model no.) | J | O |
|---|---|---|
| 25US | 43.5 | 20 |
| 25BUS | 43.5 | 20 |
| 25UP | 43 | 20 |
| 25BUP | 43 | 20 |
| 25BUA | 40 | 20 |
| 25UR | 49.5 | 20 |
| 25BUR | 51 | 20 |
| 25UK | 40.5 | 20 |
| 25BUK | 40.5 | 20 |
| 25BUW | 48 | 20 |

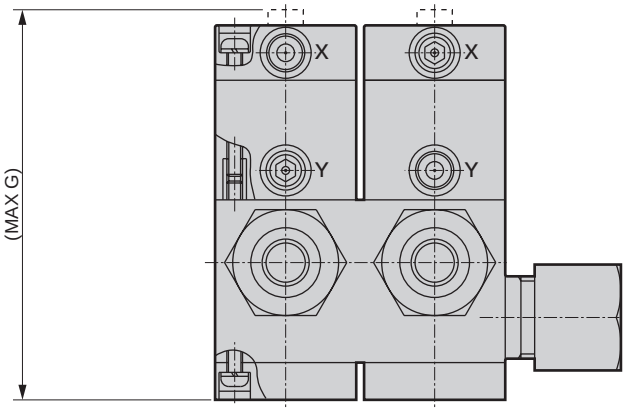
● With flow adjustment

• AMG*02-*-1

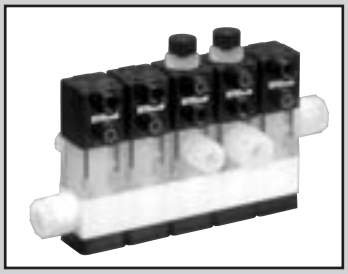



● With indicator

• AMG*02-*-6




| Model no. | F (Fluid symbol) | | G (Fluid symbol) | |
|---|---|---|---|---|
| | Blank, M, Y | P | Blank, M, Y | P |
| AMG302 | 120 | 120 | 98 | 98 |
| AMG402 | 149 | 152 | 129 | 130 |
| AMG502 | 185 | 192 | 158 | 162 |



Air-operated valve for chemical liquid (manifold valve)

# GAMD0*2A Series

- This is a manifold valve, which allows various combinations by blocking the body.
- Number of stations: 2 to 5 stations
- Connection tube size: ø6, ø8, ø10, ø12 New, 1/4″, 3/8″, 1/2″ New

RoHS Not Subject to Export Trade Control Ordinances (when individual piping of secondary port)

## Specifications

| Descriptions | | GAMD0*2A | | | |
|---|---|---|---|---|---|
| Working fluid | | Chemical liquids, pure water (Note 1) | | | |
| Fluid temperature | °C | 5 to 110 (Note 2) | | | |
| Withstanding pressure | MPa | 1 | | | |
| Working pressure range (A → B) | MPa | 0 to 0.5 (Note 4) | | | |
| Working pressure range (B → A) | MPa | 0 to 0.5 (Note 4) | | | |
| Valve seat leakage | $cm^3$/min | 0 (under water pressure) | | | |
| Back pressure | MPa | 0 to 0.3 (Note 4) | | | |
| Ambient temperature | °C | 0 to 60 | | | |
| Frequency | | 30 times/min or less | | | |
| Installation attitude | | Free | | | |
| Orifice | | ø6 | | | |
| Connection | | OD ø6 tube connection<br>OD 1/4″ tube connection | OD ø8 tube connection | OD ø10 tube connection<br>OD 3/8" tube connection | OD ø12 tube connection (Note 5)<br>OD 1/2" tube connection (Note 5) |
| Cv value | | 0.40 (Note 3) | 0.6 | 0.6 | 0.6 |
| Operation section | Operation pressure range MPa | NC/NO 0.4 to 0.5, double acting 0.3 to 0.4 | | | |
| | Operation pressure connection port | Rc1/8 | | | |

Note 1: Check compatibility of the material of each component, working fluid, and ambient atmosphere before use.
Note 2: 5 to 40°C for hydrofluoric acids.
Note 3: Cv value for the tube connection when port A is ODø10 and over.
Note 4: Fluid pressure range is usable within the range shown in Fig. 1.
(Example) It is available that when pressure on port A is 0.45 MPa, pressure on port B (back pressure) is 0.35 MPa.
Note 5: Only port A is available for OD ø12 and OD 1/2″ tube connection.

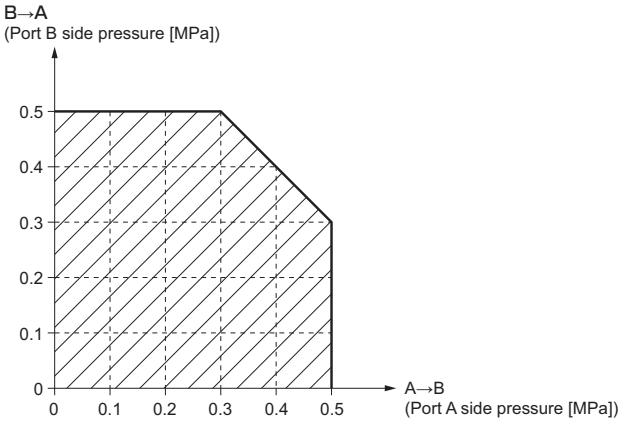
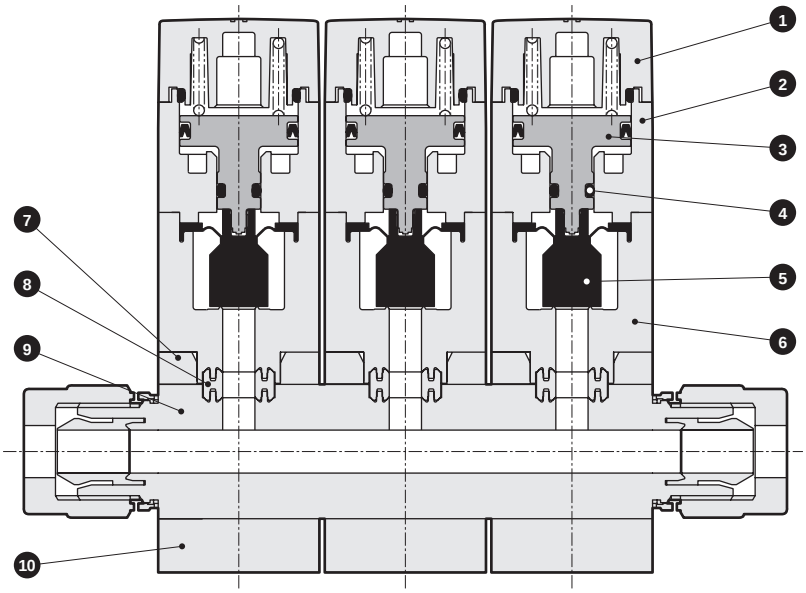



Fig. 1 Allowable working pressure range

Read the precautions on Intro 7 to 14 before use.

## Internal structure and parts list




| No. | Parts name | Material (Fluid symbol) | |
|---|---|---|---|
| | | Standard | M |
| 1 | Cover | PPS | |
| 2 | Cylinder | PPS | |
| 3 | Piston rod | PPS | |
| 4 | O ring | FKM | EPDM |
| 5 | Diaphragm | PTFE | |
| 6 | Body | PFA | |
| 7 | Plate | PVDF | |
| 8 | Seal ring | PFA | |
| 9 | Base body | PTFE | |
| 10 | Mounting plate | PPS | |

The material and structure may differ with the model.
Contact CKD for details.

## How to order

● Standard manifold

GAMD0 [1] 2A - [10BUP] - [8BUP] - [0] - [3] [ ] [R]

- GAMD0: Model no.
- [1]: Ⓐ Actuation
- [10BUP]: Ⓑ Connection (Port A fitting)
- [8BUP]: Ⓒ Connection (Port B fitting)
- [0]: Ⓓ Option
- [3]: Ⓔ Station no.
- [ ]: Ⓕ Fluid
- [R]: Ⓖ Port A fitting direction

| Symbol | Descriptions | |
|---|---|---|
| **Ⓐ Actuation** | | |
| 1 | NC (Normally closed) | |
| 2 | NO (Normally open) | |
| 3 | Double acting | |
| **Ⓑ Connection (Port A fitting)** | | |
| 6UP | Super 300 type Pillar fitting P Series integrated type | ø6 × ø4 tube connection |
| 8UP | | ø8 × ø6 tube connection |
| 10UP | | ø10 × ø8 tube connection |
| 12UP | | ø12 × ø10 tube connection |
| 8BUP | | 1/4" × 5/32" tube connection |
| 10BUP | | 3/8" × 1/4" tube connection |
| 15BUP | | 1/2" × 3/8" tube connection |
| **Ⓒ Connection (Port B fitting)** | | |
| 6UP | Super 300 type Pillar fitting P Series integrated type | ø6 × ø4 tube connection |
| 8UP | | ø8 × ø6 tube connection |
| 10UP | | ø10 × ø8 tube connection |
| 8BUP | | 1/4" × 5/32" tube connection |
| 10BUP | | 3/8" × 1/4" tube connection |
| **Ⓓ Option** | | |
| 0 | ON-OFF only | |
| 1 | With flow adjustment | |
| **Ⓔ Station no.** | | |
| 2 | 2 stations | |
| to | to | |
| 5 | 5 stations | |
| **Ⓕ Fluid** | | |
| Blank | Standard | |
| M | For ammonia | |
| **Ⓖ Port A fitting direction (Note 1)** | | |
| L | Left | |
| R | Right | |
| W | Both sides | |

## Note on model no. selection

Note 1: Direction when operation port is seen on the near side.

## How to order

● Mix manifold

GAMD0 (X) 2A - (3) ( ) - X A0077 (Note 1)

- GAMD0: Model no.
- X: Mix manifold
- 3: Ⓐ Station no.
- ( ): Ⓑ Fluid

| Symbol | Descriptions |
|---|---|
| **Ⓐ Station no.** | |
| **2** | 2 stations |
| **to** | to |
| **5** | 5 stations |
| **Ⓑ Fluid** | |
| **Blank** | Standard |
| **M** | For ammonia |

## Note on model no. selection

Complete the manifold specification sheet (pages 58 and 59).
Note 1: No need to fill in the number because it is a serial number. CKD will provide the model no. after receipt of specification.

● Discrete valve model no. *Discrete valve only can not be ordered.

AMD0 (1) 2A - (10BUP) - (0) ( ) - (F)

- 1: Ⓐ Actuation
- 10BUP: Ⓑ Connection (Port B fitting)
- 0: Ⓒ Option
- ( ): Ⓓ Fluid
- F: Ⓔ Port B fitting direction

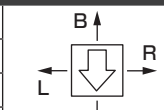
| Ⓐ Actuation | |
|---|---|
| **1** | NC (Normally closed) |
| **2** | NO (Normally open) |
| **3** | Double acting |

| Ⓑ Connection (Port B fitting) | | |
|---|---|---|
| **6UP** | Super 300 type Pillar fitting P Series integrated type | ø6 × ø4 tube connection |
| **8UP** | | ø8 × ø6 tube connection |
| **10UP** | | ø10 X ø8 tube connection |
| **8BUP** | | 1/4" × 5/32" tube connection |
| **10BUP** | | 3/8" × 1/4" tube connection |

| Ⓒ Option | |
|---|---|
| **0** | ON-OFF only |
| **1** | With flow adjustment |

| Ⓓ Fluid | |
|---|---|
| **Blank** | Standard |
| **M** | For ammonia |

* Symbol is the same as item Ⓑ in a mixed manifold model no.

| Ⓔ Port B direction | |
|---|---|
| **F** |  |
| **B** | |
| **L** | |
| **R** | |



In the overhead view, ⇩ direction indicates the location of operation port and ← indicates the B port direction.

* Select port B direction "F" or "B" other than valve on both ends.

● Base body model no. *Discrete base body only can not be ordered.

GAMD012A - BB - (10BUP) - (3) (R)

- 10BUP: Ⓐ Connection (Port A fitting)
- 3: Ⓑ Station no.
- R: Ⓒ Port A fitting direction

| Ⓐ Connection (Port A fitting) | | |
|---|---|---|
| **6UP** | Super 300 type Pillar fitting P Series integrated type | ø6 × ø4 tube connection |
| **8UP** | | ø8 × ø6 tube connection |
| **10UP** | | ø10 × ø8 tube connection |
| **12UP** | | ø12 × ø10 tube connection |
| **8BUP** | | 1/4" × 5/32" tube connection |
| **10BUP** | | 3/8" × 1/4" tube connection |
| **15BUP** | | 1/2" × 3/8" tube connection |

| Ⓑ Station no. | |
|---|---|
| **2** | 2 stations |
| **to** | to |
| **5** | 5 stations |

* Symbol is the same as item Ⓐ in a mix manifold model no.

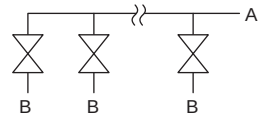
| Ⓒ Port A fitting direction | |
|---|---|
| **L** | Left |
| **R** | Right |
| **W** | Both sides |

## Dimensions

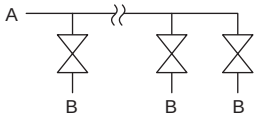
● Standard manifold ON/OFF only type

• GAMD0 $\frac{1}{2}_{3}$ 2A- [*1] - [*2] - 0

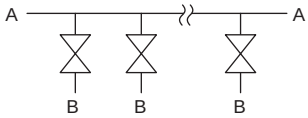
Port A position: R

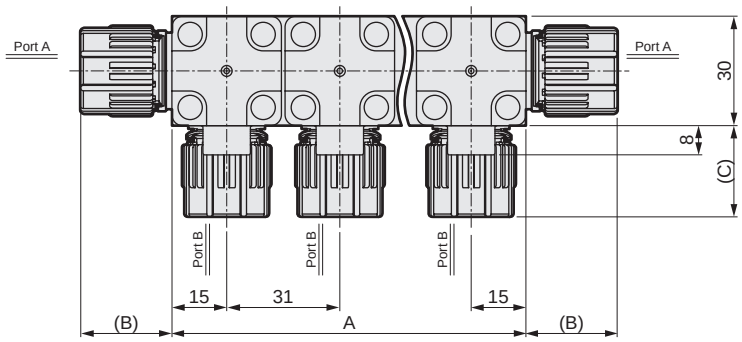


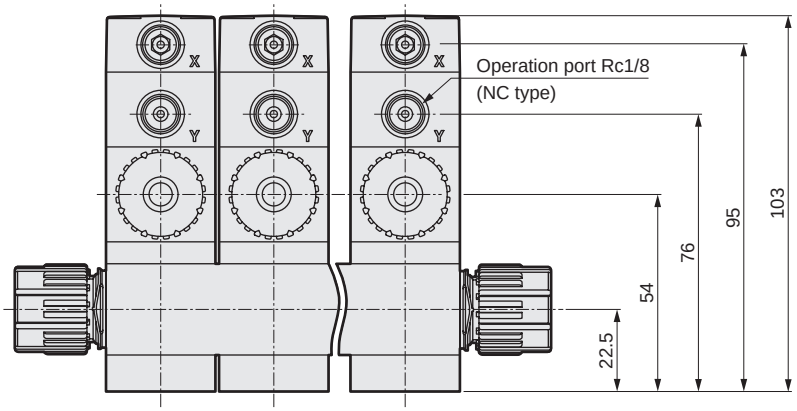

Port A position: L

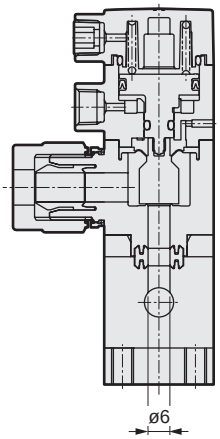


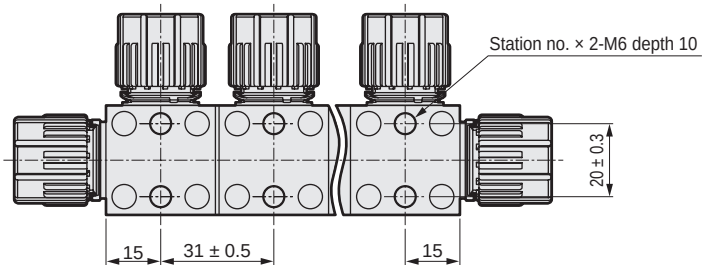

Port A position: W



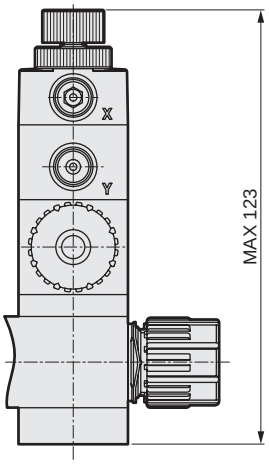

| Station no. | A |
|---|---|
| 2 | 61 |
| 3 | 92 |
| 4 | 123 |
| 5 | 154 |

| *1 Port A fitting | B |
|---|---|
| 6UP | 19 |
| 8BUP | 19 |
| 8UP | 22 |
| 10UP | 25 |
| 10BUP | 25 |
| 12UP | 29 |
| 15BUP | 29 |

| *2 Port B fitting | C |
|---|---|
| 6UP | 19 |
| 8BUP | 19 |
| 8UP | 22 |
| 10UP | 25 |
| 10BUP | 25 |

● With flow adjustment

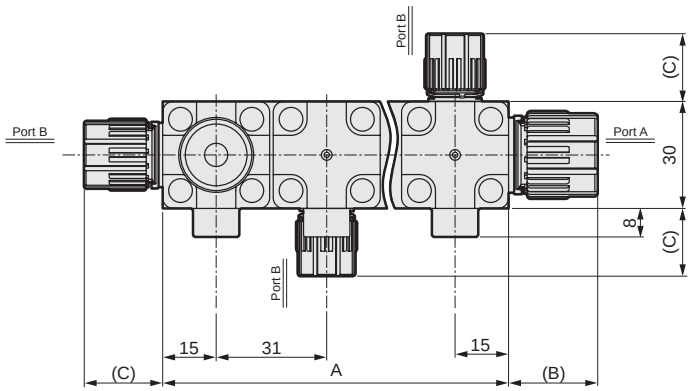
• GAMD0 $\frac{1}{2}_{3}$ 2A- [*1] - [*2] - 1

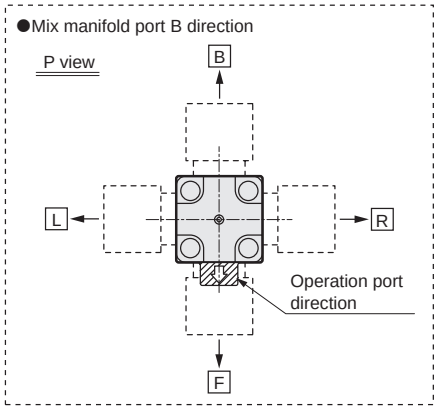


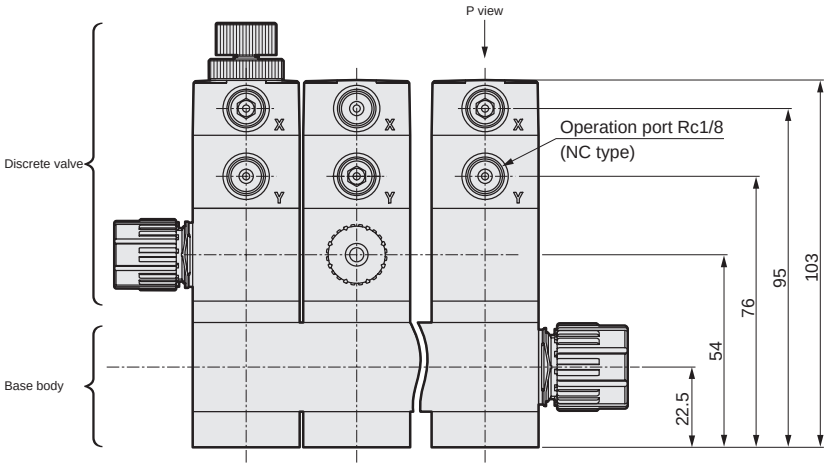
## Dimensions

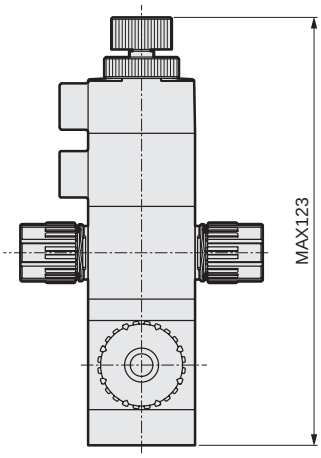
● Mix manifold

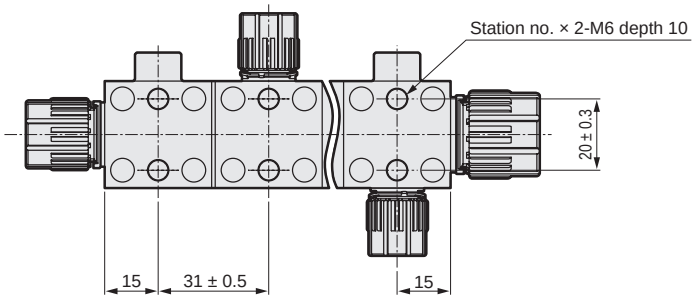
• GAMD0X2A




| Station no. | A |
|---|---|
| 2 | 61 |
| 3 | 92 |
| 4 | 123 |
| 5 | 154 |

| Port A fitting | B |
|---|---|
| 6UP | 19 |
| 8BUP | 19 |
| 8UP | 22 |
| 10UP | 25 |
| 10BUP | 25 |
| 12UP | 29 |
| 15BUP | 29 |

| Port B fitting | C |
|---|---|
| 6UP | 19 |
| 8BUP | 19 |
| 8UP | 22 |
| 10UP | 25 |
| 10BUP | 25 |

## How to fill out mix manifold specifications

● Manifold model no. (example)

**GAMD0X2A - 5 [ ] - X [ ]**

Model no. Ⓐ Station no. Ⓑ Fluid (No need to fill in the number because it is a serial number.)

| Part name | Model no. | Layout | | | | | Quantity |
|---|---|---|---|---|---|---|---|
| | | 1st station | 2nd station | 3rd station | 4th station | 5th station | |
| Discrete valve | AMD0 1 2A- 10BUP - 0 [ ] - L | ● | | | | | 1 |
| | AMD0 2 2A- 8BUP - 1 [ ] - F | | ● | | | | 1 |
| | AMD0 2 2A- 8BUP - 0 [ ] - F | | | ● | ● | | 2 |
| | AMD0 2 2A- 8BUP - 0 [ ] - B | | | | | ● | 1 |
| | AMD0 [ ] 2A- [ ] - [ ] - [ ] | | | | | | |
| Base body | GAMD012A - BB - 10BUP - 5 R | | | | | | |

Manifold station no. :1st station

Manifold station no. :5th station

## Preparing the manifold specifications

● When operation port is on the near side, from the left end, 1st station, 2nd station...

● When completing this form, select the discrete valve model no., base body model no. , and arrangement from mix manifold (page 55).

● Indicate the total number of valves designated in the required quantity on the right of the table.

## GAMDOX2A Mix manifold specifications

● Contact ● Quantity Set ●Request date / /

| Slip No. | Order No. |
|---|---|

Issue / /

Your company name

Contact

Order no.

● Manifold model no.

**GAMD0X2A - □ □ - X □**

Ⓐ Station no. Ⓑ Fluid (Note 1)

When completing this form, select the model no. from the "Mix manifold" (page 55).

| Part name | Model no. | Layout | | | | | Quantity |
|---|---|---|---|---|---|---|---|
| | | 1st station | 2nd station | 3rd station | 4th station | 5th station | |
| Discrete valve | AMD0 □ 2A- □ - □ □ - □ | | | | | | |
| | AMD0 □ 2A- □ - □ □ - □ | | | | | | |
| | AMD0 □ 2A- □ - □ □ - □ | | | | | | |
| | AMD0 □ 2A- □ - □ □ - □ | | | | | | |
| | AMD0 □ 2A- □ - □ □ - □ | | | | | | |
| Base body | GAMD012A - BB - □ - □ □ | | | | | | |

* When operation port is on the near side, from the left end, 1st station, 2nd station...

## Note on model no. selection

Note 1: No need to fill in the number because it is a serial number. CKD will provide the model no. after receipt of specification.

Air-operated valve for chemical liquid (manifold/branch valve)

# GAMD$^{3}_{4}_{5}$*2 Series

- Orifice: GAMD3*2: ø6 to ø10
  GAMD4*2 ø14.7 to ø16
  GAMD5*2 ø20
- No. of stations: 1 to 5 stations

RoHS

Subject to Export Trade Control Ordinances

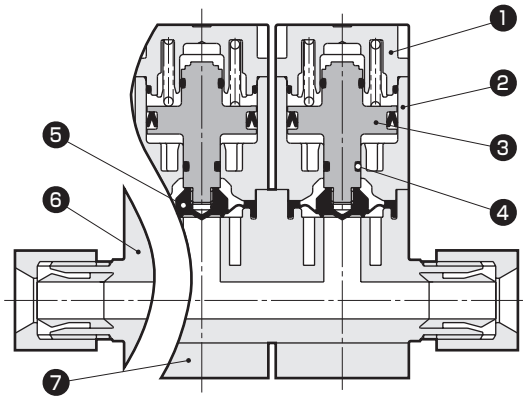
Target: GAMD4*2 and 5*2 (Note 6)

## Specifications

| Descriptions | | GAMD3*2 | GAMD4*2 | GAMD5*2 |
|---|---|---|---|---|
| Working fluid | | Chemical liquids, pure water (Note 1) | | |
| Fluid temperature | °C | 5 to 90 (For high temperature: 5 to 160) (Note 5) | | 5 to 90 (Note 5) |
| Withstanding pressure | MPa | 0.9 | | |
| Working pressure range (A → B) | MPa | 0 to 0.3 (Note 4) | | |
| Working pressure range (B → A) | MPa | 0 to 0.1 (Note 4) | | |
| Valve seat leakage | $cm^3$/min | 0 (under water pressure) | | |
| Back pressure | MPa | 0 to 0.1 (Note 4) | | |
| Ambient temperature | °C | 0 to 60 | | |
| Frequency | | 30 times/min or less | 20 times/min or less | |
| Installation attitude | | Free | | |
| Connection | | OD ø10/ø12 tube connection (fitting integrated type)<br>OD 3/8"/1/2" tube connection (fitting integrated type) | OD 3/4" tube connection (fitting integrated type) | OD ø25 tube connection (fitting integrated type)<br>OD 1" tube connection (fitting integrated type) |
| Orifice | | ø6 to ø10 (Note 3) | ø14.7 to ø16 (Note 3) | ø20 |
| Operation section | Operation pressure range MPa | NC: 0.3 to 0.5, NO: 0.3 to 0.5 (for high temperature type: 0.2 to 0.25),<br>double acting: 0.3 to 0.4 (for high temperature type: 0.2 to 0.25) | | |
| | Operation pressure connection port | Rc1/8 (Note 2) | | |

Note 1: Check the compatibility of the material of each component, working fluid, and ambient temperature before use.
Note 2: Connect a resin fitting when connecting to the operation port.
(When using a metal fitting, select one with a reinforcement ring. However, a reinforcement ring is not required for nitric acid and hydrofluoric acid of fluid symbol "P".)
Note 3: Confirm the orifice of any model in its how-to-order page.
Note 4: See page 68 for high-pressure specifications.
Note 5: Contact CKD if hydrofluoric acid is used and fluid temperature is over 40°C.
Note 6: GAMD3*2 is not subjected. (when individual piping of secondary port)

## Internal structure and parts list

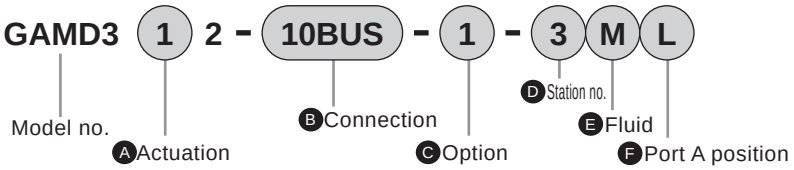



| No. | Parts name | Material (Fluid symbol) | | |
|---|---|---|---|---|
| | | Standard/Y | M | P |
| 1 | Cover | PPS | | PP |
| 2 | Cylinder | PPS | | PP |
| 3 | Piston rod | PPS | | PVDF |
| 4 | O ring | FKM | EPDM | FKM |
| 5 | Diaphragm | PTFE | | |
| 6 | Body | PTFE | | |
| 7 | Mounting plate | PPS | | PP |

The material and structure may differ with the model.
Contact CKD for details.

## How to order

● GAMD3*2 Series (Connection: ø10, 3/8" tube connection)




| | | B Connection | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 10US | 10BUS | 10UP | 10BUP | 10UA | 10BUA | 10UR | 10BUR | 10UK | 10BUK | 10BUW |
| | | Super type Pillar fitting integrated type | | Super 300 type Pillar fitting P Series integrated type | | F-LOCK 20A series fitting integrated type | | F-LOCK 60 series fitting integrated type | | Final lock fitting integrated type | | FLARETEK fitting integrated type |
| | | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | 3/8" × 1/4" tube connection |
| Symbol | Descriptions / Orifice | ø8 | | ø8 | | ø8 | | ø7 | ø6 | ø8 | | ø6.3 |
| Body material | | PTFE machined body | | | | | | | | | | |
| **A Actuation** | | | | | | | | | | | | |
| **1** | NC (normally closed) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **2** | NO (normally open) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **3** | Double acting | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **C Option** | | | | | | | | | | | | |
| **0** | ON-OFF only | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **1** | With flow adjustment | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **6** | With indicator | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **D Station no.** | | | | | | | | | | | | |
| **1** | 1 station | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **to** | to | | | | | | | | | | | |
| **5** | 5 stations | | | | | | | | | | | |
| **E Fluid** | | | | | | | | | | | | |
| **Blank** | Standard | ● | ● | ● | ● | ● | ● | ● | ● | ● (Note 1) | ● (Note 1) | ● |
| **M** | For ammonia | ● | ● | ● | ● | ● | ● | ● | ● | ● (Note 1) | ● (Note 1) | ● |
| **P** | For nitric acid, hydrofluoric acid (Note 3) | ● | ● | ● | ● | ● | ● | ● | ● | ● (Note 1) | ● (Note 1) | ● |
| **Y** | For high temperature (5 to 160°C) (Note 2) | ● | ● | ● | ● | ● | ● | | | ● (Note 1) | ● (Note 1) | |
| **F Port A position** | | | | | | | | | | | | |
| **Blank** | Right | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **L** | Left | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **W** | Both sides | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

● Model no. for the type with operation port reinforcement ring (Designate R at end of model no.)


## Note on model no. selection

Note 1: The final lock fitting nut and operation air piping could interfere, so check dimensions before selecting.
Note 2: This valve is not compatible with nitric acid, hydrofluoric acid, or hydrochloric acid.
Note 3: Type with reinforcement ring R can not be selected if "P" is selected in E .

## How to order

●GAMD3*2 Series (connection: ø12, 1/2" tube connection)

**GAMD3** (1) **2** – (12US) – (1) – (3)(M)(W)

- Model no.
- (A) Actuation
- (B) Connection
- (C) Option
- (D) Station no.
- (E) Fluid
- (F) Port A position

| | | (B) Connection | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 12US | 15BUS | 12UP | 15BUP | 12UA | 15BUA | 12UR | 15BUR | 12UK | 15BUK | 15BUW |
| | | Super type Pillar fitting integrated type | | Super 300 type Pillar fitting P Series integrated type | | F-LOCK 20A series fitting integrated type | | F-LOCK 60 series fitting integrated type | | Final lock fitting integrated type | | FLARETEK fitting integrated type |
| | | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12×ø10tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | 1/2" × 3/8" tube connection |
| Symbol | Orifice / Descriptions | ø10 | | ø10 | | ø10 | | ø9 | | ø10 | | ø9.4 |
| Body material | | PTFE machined body | | | | | | | | | | |
| **(A) Actuation** | | | | | | | | | | | | |
| **1** | NC (normally closed) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **2** | NO (normally open) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **3** | Double acting | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **(C) Option** | | | | | | | | | | | | |
| **0** | ON-OFF only | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **1** | With flow adjustment | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **6** | With indicator | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **(D) Station no.** | | | | | | | | | | | | |
| **1** | 1 station | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **to** | to | | | | | | | | | | | |
| **5** | 5 stations | | | | | | | | | | | |
| **(E) Fluid** | | | | | | | | | | | | |
| **Blank** | Standard | ● | ● | ● | ● | ● | ● | ● | ● | ● (Note 1) | ● (Note 1) | ● |
| **M** | For ammonia | ● | ● | ● | ● | ● | ● | ● | ● | ● (Note 1) | ● (Note 1) | ● |
| **P** | For nitric acid, hydrofluoric acid (Note 3) | ● | ● | ● | ● | ● | ● | ● | ● | ● (Note 1) | ● (Note 1) | ● |
| **Y** | For high temperature (5 to 160°C) (Note 2) | ● | ● | ● | ● | ● | ● | | | ● (Note 1) | ● (Note 1) | |
| **(F) Port A position** | | | | | | | | | | | | |
| **Blank** | Right | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **L** | Left | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **W** | Both sides | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

●Model no. for the type with operation port reinforcement ring (Designate R at end of model no.)

**GAMD3** (A) **2** – (B) – (C) – (D)(E)(F) **R**

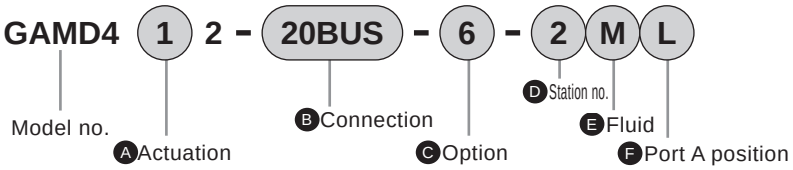
- With reinforcement ring

## Note on model no. selection

Note 1: The final lock fitting nut and operation air piping could interfere, so check dimensions before selecting.
Note 2: This valve is not compatible with nitric acid, hydrofluoric acid, or hydrochloric acid.
Note 3: Type with reinforcement ring R can not be selected if "P" is selected in (E) .

## How to order

● GAMD4*2 Series




| | | B Connection | | | | | |
|---|---|---|---|---|---|---|---|
| | | 20BUS | 20BUP | 20BUA | 20BUR | 20BUK | 20BUW |
| | | Super type Pillar fitting integrated type | Super 300 type Pillar fitting P Series integrated type | F-LOCK 20A series fitting integrated type | F-LOCK 60 series fitting integrated type | Final lock fitting integrated type | FLARETEK fitting integrated type |
| | | 3/4″ × 5/8″ tube connection | | | | | |
| Symbol | Descriptions \ Orifice | ø16 | ø16 | ø16 | ø15 | ø16 | ø14.7 |
| | Body material | PTFE machined body | | | | | |
| **A Actuation** | | | | | | | |
| **1** | NC (normally closed) | ● | ● | ● | ● | ● | ● |
| **2** | NO (normally open) | ● | ● | ● | ● | ● | ● |
| **3** | Double acting | ● | ● | ● | ● | ● | ● |
| **C Option** | | | | | | | |
| **0** | ON-OFF only | ● | ● | ● | ● | ● | ● |
| **1** | With flow adjustment | ● | ● | ● | ● | ● | ● |
| **6** | With indicator | ● | ● | ● | ● | ● | ● |
| **D Station no.** | | | | | | | |
| **1** | 1 station | ● | ● | ● | ● | ● | ● |
| **to** | to | | | | | | |
| **5** | 5 stations | | | | | | |
| **E Fluid** | | | | | | | |
| **Blank** | Standard | ● | ● | ● | ● | ● | ● |
| **M** | For ammonia | ● | ● | ● | ● | ● | ● |
| **P** | For nitric acid, hydrofluoric acid (Note 2) | ● | ● | ● | ● | ● | ● |
| **Y** | For high temperature (5 to 160°C) (Note 1) | ● | ● | ● | | ● | |
| **F Port A position** | | | | | | | |
| **Blank** | Right | ● | ● | ● | ● | ● | ● |
| **L** | Left | ● | ● | ● | ● | ● | ● |
| **W** | Both sides | ● | ● | ● | ● | ● | ● |

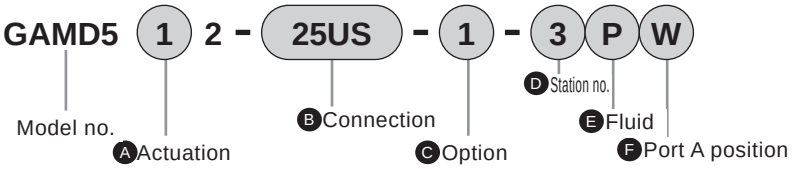
● Model no. for the type with operation port reinforcement ring (Designate R at end of model no.)


## Note on model no. selection

Note 1: This valve is not compatible with nitric acid, hydrofluoric acid, or hydrochloric acid.
Note 2: Type with reinforcement ring R can not be selected if "P" is selected in E .

## How to order

●GAMD5*2 Series




| | | B Connection | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 25US | 25BUS | 25UP | 25BUP | 25BUA | 25UR | 25BUR | 25UK | 25BUK | 25BUW |
| | | Super type Pillar fitting integrated type | | Super 300 type Pillar fitting P Series integrated type | | F-LOCK 20A series fitting integrated type | F-LOCK 60 series fitting integrated type | | Final lock fitting integrated type | | FLARETEK fitting integrated type |
| | | ø25 × ø22 tube connection | 1" × 7/8" tube connection | ø25 × ø22 tube connection | 1" × 7/8" tube connection | 1" × 7/8" tube connection (Note 1) | ø25 × ø22 tube connection | 1" × 7/8" tube connection | ø25 × ø22 tube connection | 1" × 7/8" tube connection | 1" × 7/8" tube connection |
| Symbol | Orifice / Descriptions | ø20 | | ø20 | | ø20 | ø20 | | ø20 | | ø20 |
| Body material | | PTFE machined body | | | | | | | | | |
| **A Actuation** | | | | | | | | | | | |
| **1** | NC (normally closed) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **2** | NO (normally open) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **3** | Double acting | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **C Option** | | | | | | | | | | | |
| **0** | ON-OFF only | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **1** | With flow adjustment | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **6** | With indicator | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **D Station no.** | | | | | | | | | | | |
| **1** | 1 station | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **to** | to | | | | | | | | | | |
| **4** | 4 stations | | | | | | | | | | |
| **E Fluid** | | | | | | | | | | | |
| **Blank** | Standard | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **M** | For ammonia | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **P** | For nitric acid, hydrofluoric acid (Note 2) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **F Port A position** | | | | | | | | | | | |
| **Blank** | Right | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **L** | Left | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **W** | Both sides | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

●Model no. for the type with operation port reinforcement ring (Designate R at end of model no.)


### Note on model no. selection

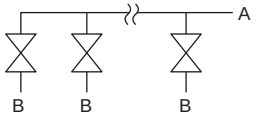
Note 1: Also usable for the ø25 x ø22 tube connection.
Note 2: Type with reinforcement ring R can not be selected if "P" is selected in E .

## Dimensions

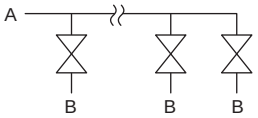
● ON/OFF type only

- GAMD3*2- *1
- GAMD4*2- *1
- GAMD5*2- *1

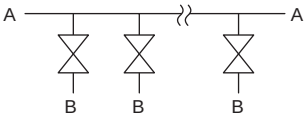
Port A position: Blank

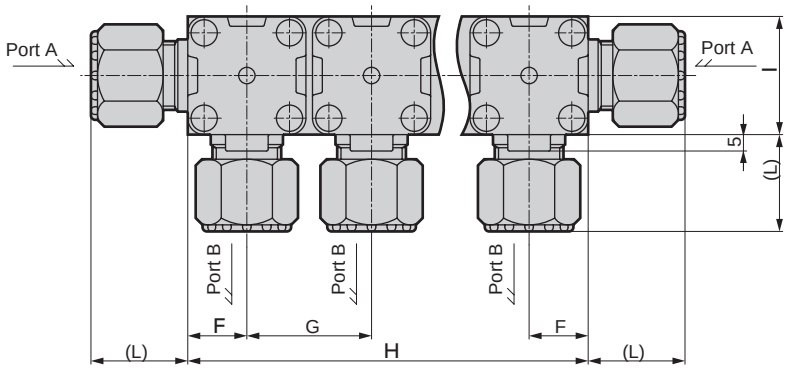


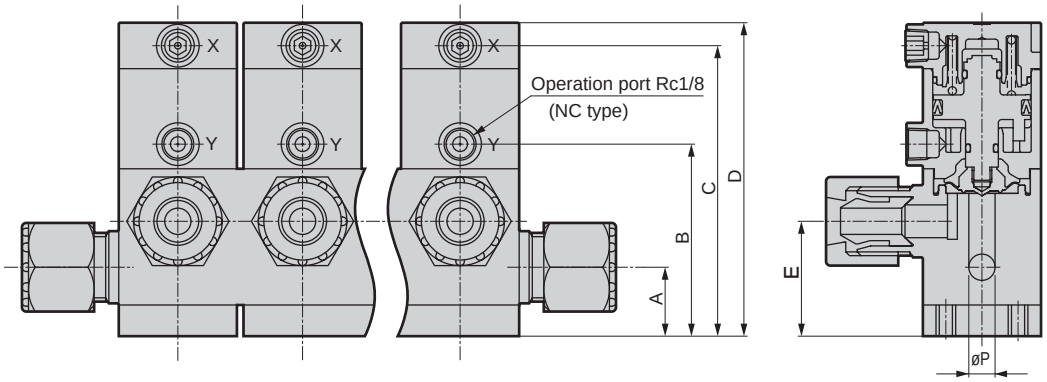

Port A position: L

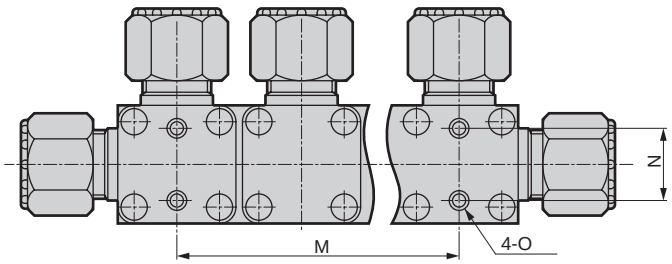



Port A position: W



## Dimensions

| Station no. | Model no. | A | B | C | D (Fluid symbol) | | E | F | G | H | I | M | N | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Blank/M/Y | P | | | | | | | | |
| 1 | GAMD3*2 | 21 | 59 | 89 | 96 | 96 | 35 | 18 | 38 | 36 | 36 | - | 22 ± 0.3 | M6 depth 9 |
| | GAMD4*2 | 27 | 79 | 116 | 125 | 126 | 46 | 23 | 48 | 46 | 46 | - | 28 ± 0.3 | M8 depth 10 |
| | GAMD5*2 | 35 | 101 | 143 | 153 | 157 | 60 | 30 | 62 | 60 | 60 | - | 40 ± 0.3 | M8 depth 13 |
| 2 | GAMD3*2 | 21 | 59 | 89 | 96 | 96 | 35 | 18 | 38 | 74 | 36 | 38 ± 0.3 | 22 ± 0.3 | M6 depth 9 |
| | GAMD4*2 | 27 | 79 | 116 | 125 | 126 | 46 | 23 | 48 | 94 | 46 | 48 ± 0.4 | 28 ± 0.3 | M8 depth 10 |
| | GAMD5*2 | 35 | 101 | 143 | 153 | 157 | 60 | 30 | 62 | 122 | 60 | 62 ± 0.4 | 40 ± 0.3 | M8 depth 13 |
| 3 | GAMD3*2 | 21 | 59 | 89 | 96 | 96 | 35 | 18 | 38 | 112 | 36 | 76 ± 0.4 | 22 ± 0.3 | M6 depth 9 |
| | GAMD4*2 | 27 | 79 | 116 | 125 | 126 | 46 | 23 | 48 | 142 | 46 | 96 ± 0.5 | 28 ± 0.3 | M8 depth 10 |
| | GAMD5*2 | 35 | 101 | 143 | 153 | 157 | 60 | 30 | 62 | 184 | 60 | 124 ± 0.5 | 40 ± 0.3 | M8 depth 13 |
| 4 | GAMD3*2 | 21 | 59 | 89 | 96 | 96 | 35 | 18 | 38 | 150 | 36 | 114 ± 0.5 | 22 ± 0.3 | M6 depth 9 |
| | GAMD4*2 | 27 | 79 | 116 | 125 | 126 | 46 | 23 | 48 | 190 | 46 | 144 ± 0.5 | 28 ± 0.3 | M8 depth 10 |
| | GAMD5*2 | 35 | 101 | 143 | 153 | 157 | 60 | 30 | 62 | 246 | 60 | 186 ± 0.7 | 40 ± 0.3 | M8 depth 13 |
| 5 | GAMD3*2 | 21 | 59 | 89 | 96 | 96 | 35 | 18 | 38 | 188 | 36 | 152 ± 0.7 | 22 ± 0.3 | M6 depth 9 |
| | GAMD4*2 | 27 | 79 | 116 | 125 | 126 | 46 | 23 | 48 | 238 | 46 | 192 ± 0.7 | 28 ± 0.3 | M8 depth 10 |

GAMD3*2 (10 mm/3/8")

| *1 (Connection model No.) | L | P |
|---|---|---|
| 10US | 25 | 8 |
| 10BUS | 25 | 8 |
| 10UP | 25 | 8 |
| 10BUP | 25 | 8 |
| 10UA | 21 | 8 |
| 10BUA | 21 | 8 |
| 10UR | 37 | 7 |
| 10BUR | 39 | 6 |
| 10UK | 30 | 8 |
| 10BUK | 30 | 8 |
| 10BUW | 32.5 | 6.3 |

GAMD3*2 (12 mm/1/2")

| *1 (Connection model No.) | L | P |
|---|---|---|
| 12US | 29.5 | 10 |
| 15BUS | 29.5 | 10 |
| 12UP | 29 | 10 |
| 15BUP | 29 | 10 |
| 12UA | 25 | 10 |
| 15BUA | 25 | 10 |
| 12UR | 37 | 9 |
| 15BUR | 39 | 9 |
| 12UK | 33 | 10 |
| 15BUK | 33 | 10 |
| 15BUW | 33.5 | 9.4 |

GAMD4*2

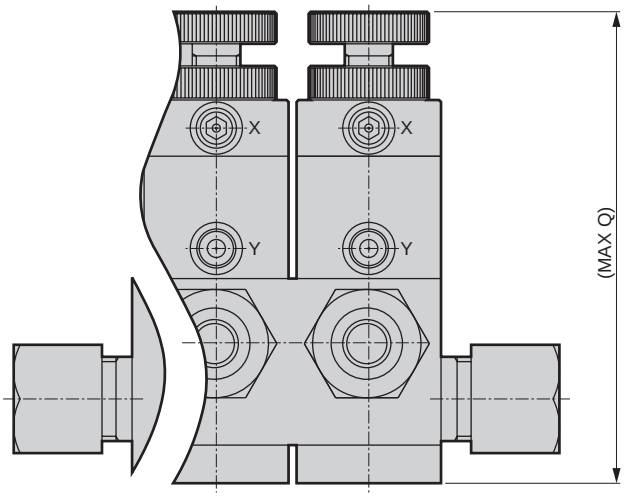
| *1 (Connection model No.) | L | P |
|---|---|---|
| 20BUS | 39 | 16 |
| 20BUP | 36 | 16 |
| 20BUA | 31 | 16 |
| 20BUR | 44 | 15 |
| 20BUK | 36.5 | 16 |
| 20BUW | 38 | 14.7 |

GAMD5*2

| *1 (Connection model No.) | L | P |
|---|---|---|
| 25US | 43.5 | 20 |
| 25BUS | 43.5 | 20 |
| 25UP | 43 | 20 |
| 25BUP | 43 | 20 |
| 25BUA | 40 | 20 |
| 25UR | 49.5 | 20 |
| 25BUR | 51 | 20 |
| 25UK | 40.5 | 20 |
| 25BUK | 40.5 | 20 |
| 25BUW | 48 | 20 |

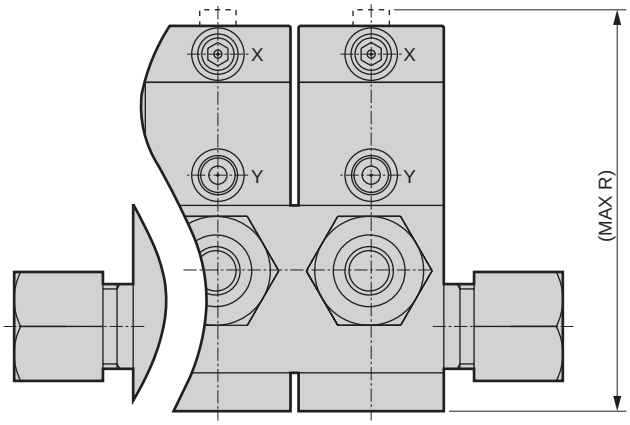
● With flow adjustment

• GAMD**2-*-1




● With indicator

• GAMD**2-*-6




| Model no. | Q (Fluid symbol) | | R (Fluid symbol) | |
|---|---|---|---|---|
| | Blank/M/Y | P | Blank/M/Y | P |
| GAMD3*2 | 120 | 120 | 98 | 98 |
| GAMD4*2 | 149 | 152 | 129 | 130 |
| GAMD5*2 | 185 | 192 | 158 | 162 |

Air-operated valve for chemical liquid

# High-pressure specifications

# AMD$^{3}_{4}_{5}$*2/AMG$^{3}_{4}_{5}$02/GAMD$^{3}_{4}_{5}$*2 Series

RoHS

| Descriptions \ Pressure specifications | | B | Q |
|---|---|---|---|
| Fluid temperature | °C | 5 to 90 | |
| Working pressure range | MPa | A → B, B → A: 0 to 0.3 (Note 2) | A → B, B → A: 0 to 0.4 |
| Back pressure | MPa | 0 to 0.3 (Note 2) | 0 to 0.4 |
| Operation pressure range | MPa | NC/NO: 0.4 to 0.5, double acting: 0.35 to 0.4 | NC/NO: 0.5 to 0.6, double acting: 0.4 to 0.5 (Note 3) |

Note 1: Other specifications and external dimensions are the same as the standard type. However, fluid temperature is 5 to 90°C.
Contact CKD if hydrofluoric acid is used and fluid temperature is over 40°C.
Note 2: Fluid pressure range is usable within the range shown in Fig. 1. The back pressure is equal to the working pressure range (B→A).
Note 3 For AMD5*2 and AMG5*2 and GAMD5*2, NC is 0.5 to 0.6, NO is 0.45 to 0.5, and double acting is 0.35 to 0.4.

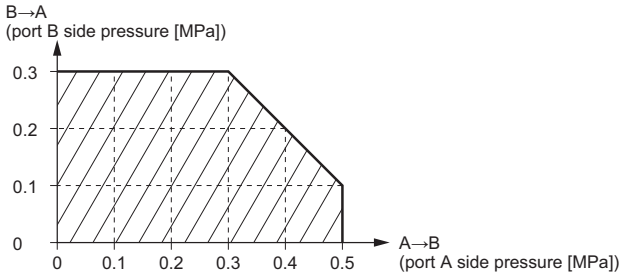


Fig. 1 Allowable working pressure range (B specifications)

## How to order

### AMD$^{3}_{4}_{5}$*2 Series

AMD$^{3}_{4}_{5}$ **1** **2** – **15BUS** – **0** **4** **P** **B**

- **1**: Ⓐ Actuation
- **15BUS**: Ⓑ Connection
- **0**: Ⓒ Option
- **4**: Ⓓ Operation port direction
- **P**: Ⓔ Fluid
- **B**: Ⓕ High-pressure specifications

| Ⓕ High-pressure specifications | |
|---|---|
| B | Both ports 0.3 MPa specifications |
| Q | Both ports 0.4 MPa specifications |

### Note on model no. selection

Note 1: Ⓐ to Ⓔ are same as standard type. See individual model pages for selection.
(AMD3*2: page 10, AMD4*2: page 20, AMD5*2: page 28)
Note 2: When combining with the type with operation port reinforcement ring (R), and base installation (X), designate the model as –ⒸⒹⒺRⒻX .
Note 3: If the Ⓕ item is Q, the type with bypass cannot be used.

### AMD$^{3}_{4}_{5}$*2 Series (stainless steel body)

AMD$^{3}_{4}_{5}$ **1** **2** – **8** – **0** – **A** – **4** **B**

- **1**: Ⓐ Actuation
- **8**: Ⓑ Connection
- **0**: Ⓒ Option
- **A**: Ⓓ Actuator material
- **4**: Ⓔ Operation port direction
- **B**: Ⓕ High-pressure specifications

| Ⓕ High-pressure specifications | |
|---|---|
| B | Both ports 0.3 MPa specifications |
| Q | Both ports 0.4 MPa specifications |

### Note on model no. selection

Note 1: Ⓐ to Ⓔ are the same as the standard stainless steel body type. See individual model pages for selection.
Note that if no symbol is indicated for Ⓓ , omit the preceding hyphen (-) when indicating the model.
(AMD3*2: page 16, AMD4*2: page 24, AMD5*2: page 32)

Read the precautions on Intro 7 to 14 before use.

## How to order

### AMG$^{3}_{4}$02 Series

**AMG$^{3}_{4}$02 – 15BUS – 1 – M L B**

- Ⓐ Connection: 15BUS
- Ⓑ Option: 1
- Ⓒ Fluid: M
- Ⓓ Port A position: L
- Ⓔ High-pressure specifications: B

| Ⓔ High-pressure specifications | |
|---|---|
| B | Both ports 0.3 MPa specifications |
| Q | Both ports 0.4 MPa specifications |

### Note on model no. selection

Note 1: Ⓐ to Ⓓ are same as standard type. Select it pages from 44 to 51.
Note 2: When combining with with operation port reinforcement ring (R), designate the model as – Ⓒ Ⓓ R Ⓔ .

### GAMD$^{3}_{4}$*2 Series

**GAMD$^{3}_{4}$ 1 2 – 15BUS – 1 – 2 M L B**

- Ⓐ Actuation: 1
- Ⓑ Connection: 15BUS
- Ⓒ Option: 1
- Ⓓ Station no.: 2
- Ⓔ Fluid: M
- Ⓕ Port A position: L
- Ⓖ High-pressure specifications: B

| Ⓖ High-pressure specifications | |
|---|---|
| B | Both ports 0.3 MPa specifications |
| Q | Both ports 0.4 MPa specifications |

### Note on model no. selection

Note 1: Ⓐ to Ⓕ are same as standard type. Select it pages from 60 to 67.
Note 2: When combining with operation port reinforcement ring (R), designate the model as– Ⓓ Ⓔ Ⓕ R Ⓖ .

Air-operated valve for chemical liquid

# AMD2$^{1}_{2}{}^{1}_{3}$/AMD3$^{1}_{2}{}^{1}_{3}$/AMD4$^{1}_{2}{}^{1}_{3}$/AMD5$^{1}_{2}{}^{1}_{3}$ Series

PFA forming body eliminates the factor of particle generation.

● Orifice: ø8, ø10, ø12, ø16, ø20, ø22, ø25

CAD

Subject to Export Trade Control Ordinances

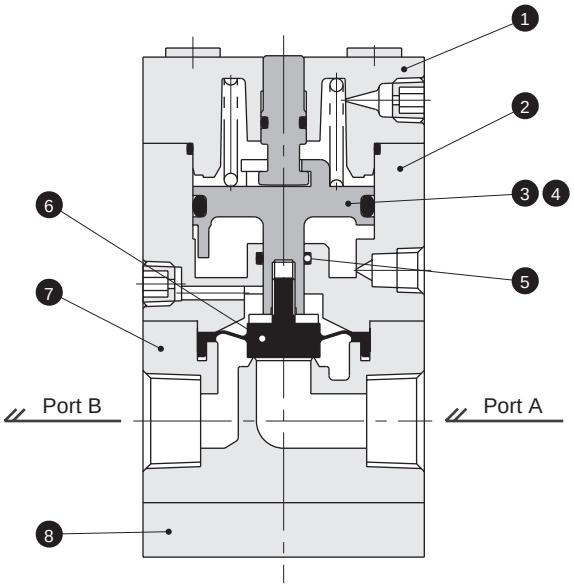
Target: Valves with ø12 or larger orifice

## Specifications

| Descriptions | | AMD2*-10-8 | AMD3*-15-12 | | AMD4*-20-20 | | AMD5*-25-25 | |
|---|---|---|---|---|---|---|---|---|
| Working fluid | | Chemical liquids, pure water, $N_2$ gas, air | | | | | | |
| Fluid temperature | °C | 5 to 60 (5 to 90) (5 to 150) (Note 3) | | | | | | |
| Withstanding pressure | MPa | 1.4 | | | | | | |
| Working pressure range (A → B) | MPa | 0 to 0.5 | | | 0 to 0.4 | | 0 to 0.3 | |
| Working pressure range (B → A) | MPa | 0 to 0.3 | | | 0 to 0.2 | | 0 to 0.2 | |
| Valve seat leakage | $cm^3/min$ | 0 (under water pressure) | | | | | | |
| Back pressure | MPa | 0 to 0.3 | | | 0 to 0.2 | | | |
| Ambient temperature | °C | 0 to 40 | | | | | | |
| Frequency | | 30 times/min or less | | | 20 times/min or less | | | |
| Installation attitude | | Free | | | | | | |
| Port size (Note 1) | | Rc3/8 | Rc1/2 | | Rc3/4 | | Rc1 | |
| Orifice | | ø8 | ø10 | ø12 | ø16 | ø20 | ø22 | ø25 |
| Cv value | | 1.25 | 1.8 | 2.5 | 5.2 | 8 | 9.5 | 12 |
| Operation section | Operation pressure MPa | NC/NO: 0.3 to 0.5, double acting: 0.2 to 0.3 (Note 4) | | | | | | |
| | Operation port | Rc1/8 | | | | | | |

Note 1: The fitting integrated type is also available.
Note 2: See pages 80 and 81 for flow characteristics.
Note 3: 5 to 40°C for hydrofluoric acid.
Note 4: 0.2 to 0.25 MPa for fluid symbol Y and K (for high temperature) in Actuation 3 (double acting)

## Internal structure and parts list

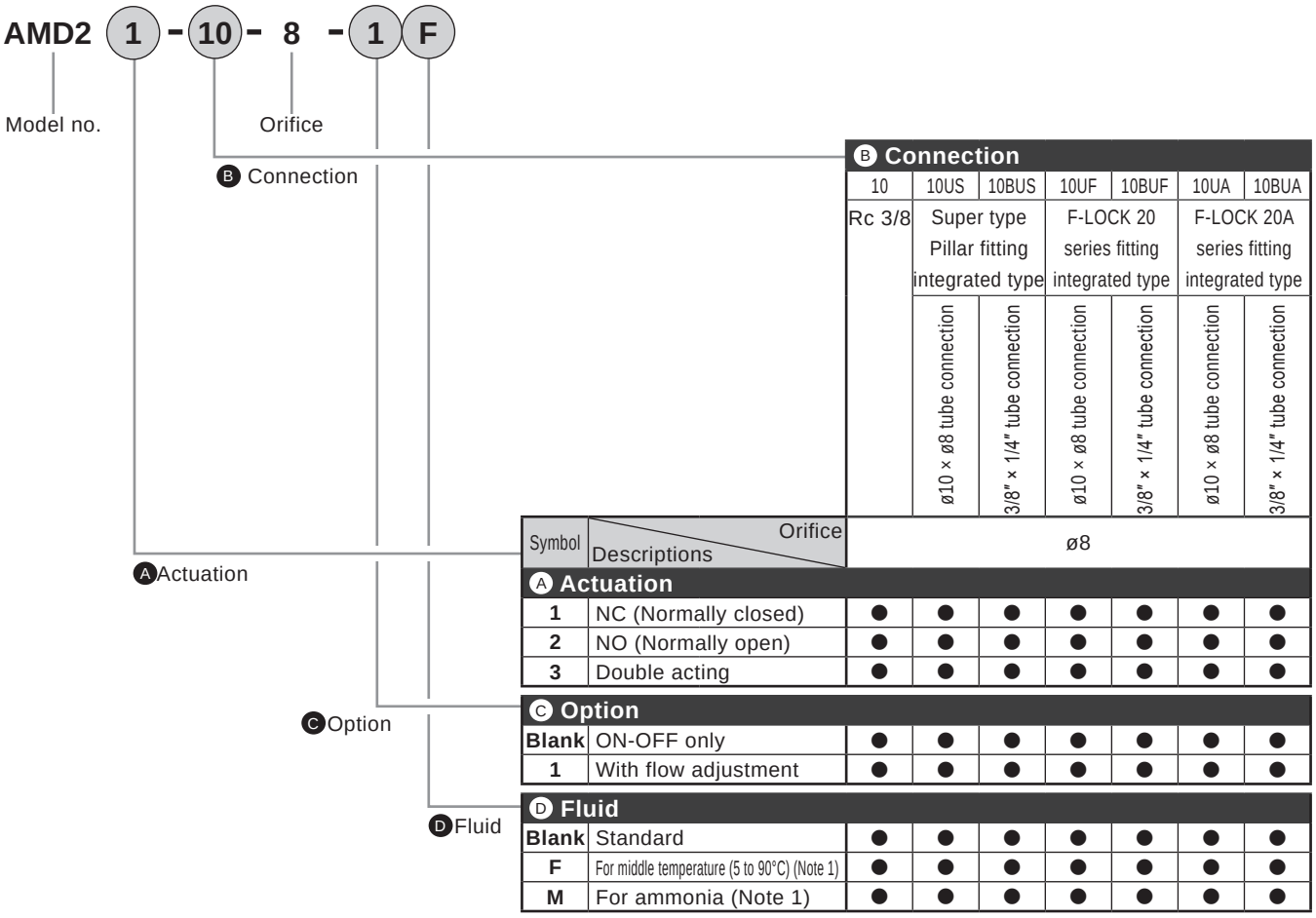



| No. | Parts name | Material (Fluid symbol) | | | | |
|---|---|---|---|---|---|---|
| | | Standard | F | Y | K | M |
| 1 | Cover | CPVC | | PVDF | | CPVC |
| 2 | Cylinder | CPVC | | PVDF | | CPVC |
| 3 | Piston | CPVC | CPVC | PVDF | PVDF | CPVC |
| 4 | Rod | (Piston and rod integrated type) | PVDF | PPS | PEEK | (Piston and rod integrated type) |
| 5 | O ring | FKM | | | | EPDM |
| 6 | Diaphragm | PTFE | | | | |
| 7 | Body | PFA | | | | |
| 8 | Mounting plate | CPVC | | PVDF | | CPVC |

The material and structure may differ with the model. Contact CKD for details.

## How to order

● AMD2 Series




| B Connection | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10 | 10US | 10BUS | 10UF | 10BUF | 10UA | 10BUA |
| Rc 3/8 | Super type Pillar fitting integrated type | | F-LOCK 20 series fitting integrated type | | F-LOCK 20A series fitting integrated type | |
| | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection |

| Symbol | Descriptions \ Orifice | ø8 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **A Actuation** | | | | | | | | |
| **1** | NC (Normally closed) | ● | ● | ● | ● | ● | ● | ● |
| **2** | NO (Normally open) | ● | ● | ● | ● | ● | ● | ● |
| **3** | Double acting | ● | ● | ● | ● | ● | ● | ● |
| **C Option** | | | | | | | | |
| **Blank** | ON-OFF only | ● | ● | ● | ● | ● | ● | ● |
| **1** | With flow adjustment | ● | ● | ● | ● | ● | ● | ● |
| **D Fluid** | | | | | | | | |
| **Blank** | Standard | ● | ● | ● | ● | ● | ● | ● |
| **F** | For middle temperature (5 to 90°C) (Note 1) | ● | ● | ● | ● | ● | ● | ● |
| **M** | For ammonia (Note 1) | ● | ● | ● | ● | ● | ● | ● |

## Note on model no. selection

Note 1: Designate FM when selecting F and M.

## How to order

● AMD3 Series

**AMD3 (1) - (12US) - (10) - (1) (Y)**

Model no.

Ⓑ Connection

Ⓐ Actuation

Ⓒ Orifice

Ⓓ Option

Ⓔ Fluid

| Symbol | Descriptions | Ⓑ 15 Rc 1/2 | 12US Super type Pillar fitting integrated type ø12 × ø10 tube connection | 15BUS Super type Pillar fitting integrated type 1/2" × 3/8" tube connection | 12UF F-LOCK 20 series fitting integrated type ø12 × ø10 tube connection | 15BUF F-LOCK 20 series fitting integrated type 1/2" × 3/8" tube connection | 12UA F-LOCK 20A series fitting integrated type ø12 × ø10 tube connection | 15BUA F-LOCK 20A series fitting integrated type 1/2" × 3/8" tube connection |
|---|---|---|---|---|---|---|---|---|
| **Ⓐ Actuation** | | | | | | | | |
| **1** | NC (Normally closed) | ● | ● | ● | ● | ● | ● | ● |
| **2** | NO (Normally open) | ● | ● | ● | ● | ● | ● | ● |
| **3** | Double acting | ● | ● | ● | ● | ● | ● | ● |
| **Ⓒ Orifice** | | | | | | | | |
| **10** | ø10 | | ● | ● | ● | ● | ● | ● |
| **12** | ø12 | ● | | | | | | |
| **Ⓓ Option** | | | | | | | | |
| **Blank** | ON-OFF only | ● | ● | ● | ● | ● | ● | ● |
| **1** | With flow adjustment (Note 1) | ● | ● | ● | ● | ● | ● | ● |
| **2** | With bypass (Note 1) | ● | ● | ● | ● | ● | ● | ● |
| **3** | With flow adjustment/with bypass (Note 1) | ● | ● | ● | ● | ● | ● | ● |
| **Ⓔ Fluid** | | | | | | | | |
| **Blank** | Standard | ● | ● | ● | ● | ● | ● | ● |
| **F** | For medium temperature (5 to 90 °C) | ● | ● | ● | ● | ● | ● | ● |
| **Y** | For high temperature (5 to 150°C) (nitric acid not permissible) | ● | ● | ● | ● | ● | ● | ● |
| **K** | For high temperature (5 to 150°C) (nitric acid not permissible) | ● | ● | ● | ● | ● | ● | ● |
| **M** | For ammonia (Note 2) | ● | ● | ● | ● | ● | ● | ● |

## Note on model no. selection

Note 1: The Ⓔ item fluid Y and K cannot be designated when using the type with flow adjustment and bypass.
Note 2: M can be designated with F (FM), but it cannot be selected with Y or K.

## How to order

● AMD4 Series

**AMD4 1 - 20 - 20 - 1 F**

Model no.

Ⓑ Connection

Ⓐ Actuation

Ⓒ Orifice

Ⓓ Option

Ⓔ Fluid

| Symbol | Descriptions | Ⓑ Connection 20 | 20BUS | 20BUF | 20BUA |
|---|---|---|---|---|---|
| | | Rc 3/4 | Super type Pillar fitting integrated type | F-LOCK 20 series fitting integrated type | F-LOCK 20A series fitting integrated type |
| | | | 3/4″ × 5/8″ tube connection | | |
| **Ⓐ Actuation** | | | | | |
| **1** | NC (Normally closed) | ● | ● | ● | ● |
| **2** | NO (Normally open) | ● | ● | ● | ● |
| **3** | Double acting | ● | ● | ● | ● |
| **Ⓒ Orifice** | | | | | |
| **16** | ø16 | | ● | ● | ● |
| **20** | ø20 | ● | | | |
| **Ⓓ Option** | | | | | |
| **Blank** | ON-OFF only | ● | ● | ● | ● |
| **1** | With flow adjustment (Note 1) | ● | ● | ● | ● |
| **2** | With bypass (Note 1) | ● | ● | ● | ● |
| **3** | With flow adjustment/with bypass (Note 1) | ● | ● | ● | ● |
| **Ⓔ Fluid** | | | | | |
| **Blank** | Standard | ● | ● | ● | ● |
| **F** | For medium temperature (5 to 90 °C) | ● | ● | ● | ● |
| **Y** | For high temperature (5 to 150°C) (nitric acid not permissible) | ● | ● | ● | ● |
| **K** | For high temperature (5 to 150°C) (nitric acid not permissible) | ● | ● | ● | ● |
| **M** | For ammonia (Note 2) | ● | ● | ● | ● |

## Note on model no. selection

Note 1: The Ⓔ item fluid Y and K cannot be designated when using the type with flow adjustment and bypass.
Note 2: M can be designated with F (FM), but it cannot be selected with Y or K.

## How to order

● AMD5 Series

**AMD5 (2) - (25) - (25) - (1) (F)**

Model no.

Ⓑ Connection

Ⓐ Actuation

Ⓒ Orifice

Ⓓ Option

Ⓔ Fluid

| Symbol | Descriptions | Ⓑ Connection 25 (Rc1) | 25US (Super type Pillar fitting integrated type, ø25 × ø22 tube connection) | 25BUS (Super type Pillar fitting integrated type, 1" × 7/8" tube connection) |
|---|---|---|---|---|
| **Ⓐ Actuation** | | | | |
| **1** | NC (Normally closed) | ● | ● | ● |
| **2** | NO (Normally open) | ● | ● | ● |
| **3** | Double acting | ● | ● | ● |
| **Ⓒ Orifice** | | | | |
| **22** | ø22 | | ● | ● |
| **25** | ø25 | ● | | |
| **Ⓓ Option** | | | | |
| **Blank** | ON-OFF only | ● | ● | ● |
| **1** | With flow adjustment (Note 1) | ● | ● | ● |
| **2** | With bypass (Note 1) | ● | ● | ● |
| **3** | With flow adjustment/with by-pass (Note 1) | ● | ● | ● |
| **Ⓔ Fluid** | | | | |
| **Blank** | Standard | ● | ● | ● |
| **F** | For medium temperature (5 to 90°C) | ● | ● | ● |
| **Y** | For high temperature (5 to 150°C) (nitric acid not permissible) | ● | ● | ● |
| **K** | For high temperature (5 to 150°C) (nitric acid not permissible) | ● | ● | ● |
| **M** | For ammonia (Note 2) | ● | ● | ● |

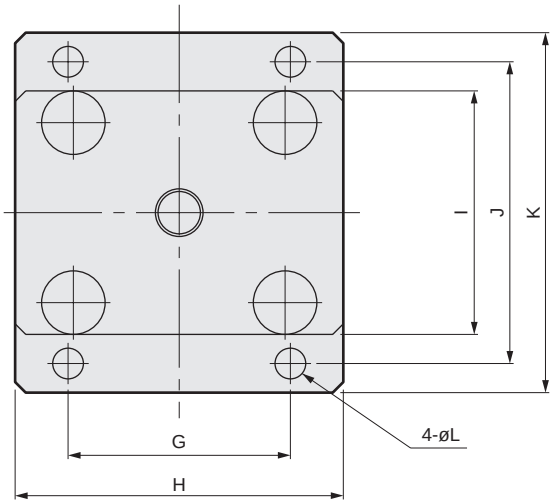
## Note on model no. selection

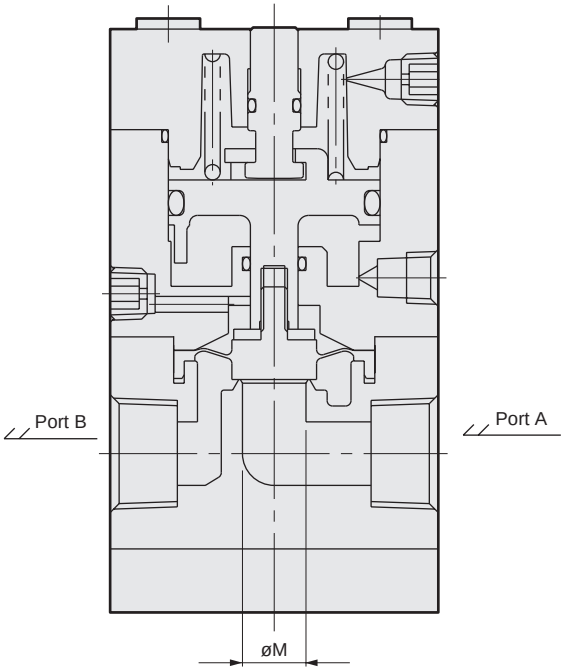
Note 1: The Ⓔ item fluid Y and K cannot be designated when using the type with flow adjustment and bypass.
Note 2: M can be designated with F (FM), but it cannot be selected with Y or K.

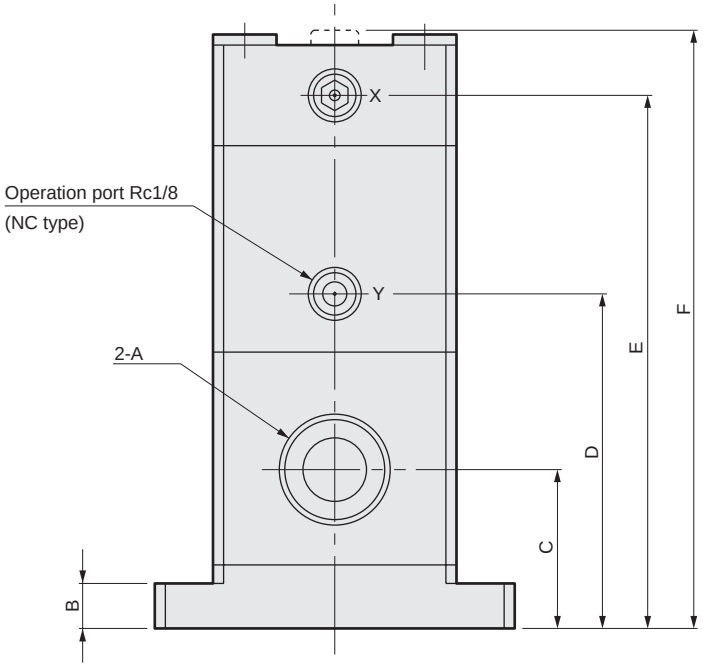
## Dimensions

● ON-OFF type only

- AMD2*
- AMD3*
- AMD4*
- AMD5*



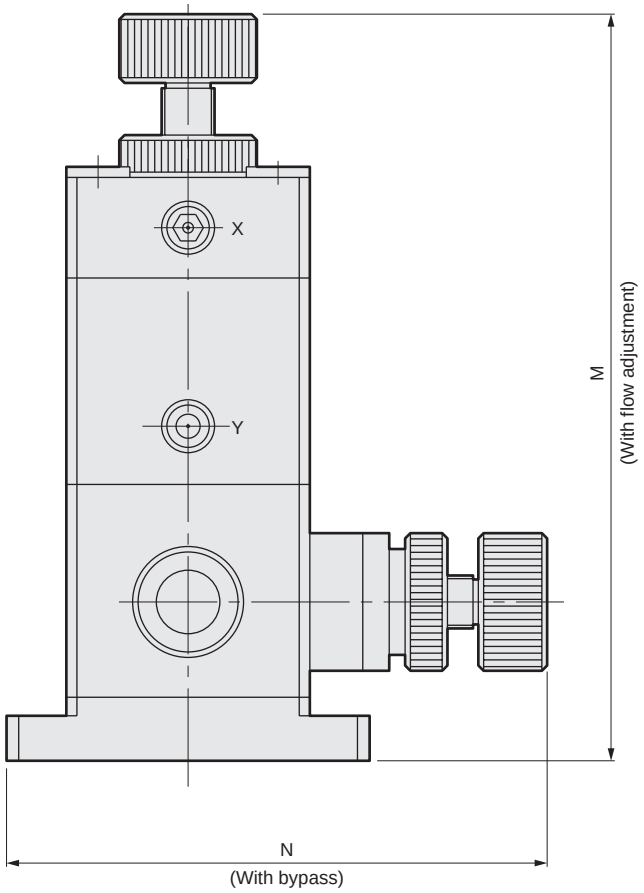

| Symbol / Model no. | A | B | C | D | E | F | G | H | I | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMD2[*]-10-8 | Rc3/8 | 7 | 22 | 48 | 80 | MAX 90 | 34 | 44 | 36 | 46 | 56 | 5.8 | 8 |
| AMD3[*]-15-12 | Rc1/2 | 8 | 30 | 64 | 101 | MAX 113 | 42 | 62 | 46 | 57 | 68 | 5.8 | 12 |
| AMD4[*]-20-20 | Rc3/4 | 8 | 34 | 71 | 116 | MAX 133 | 56 | 80 | 58 | 71 | 84 | 6.8 | 20 |
| AMD5[*]-25-25 | Rc1 | 10 | 39 | 85 | 141 | MAX 160 | 70 | 88 | 68 | 85 | 100 | 6.8 | 25 |

[*] Actuation

| | |
|---|---|
| 1 | NC |
| 2 | NO |
| 3 | Double acting |

## Dimensions

● With flow adjustment/with bypass




| Symbol / Model no. | M | N |
|---|---|---|
| AMD2[*]-10-8-1 | MAX 111 | - |
| AMD3[*]-15-12-3 | MAX 144 | MAX 103 |
| AMD4[*]-20-20-3 | MAX 162 | MAX 130 |
| AMD5[*]-25-25-3 | MAX 193 | MAX 148 |

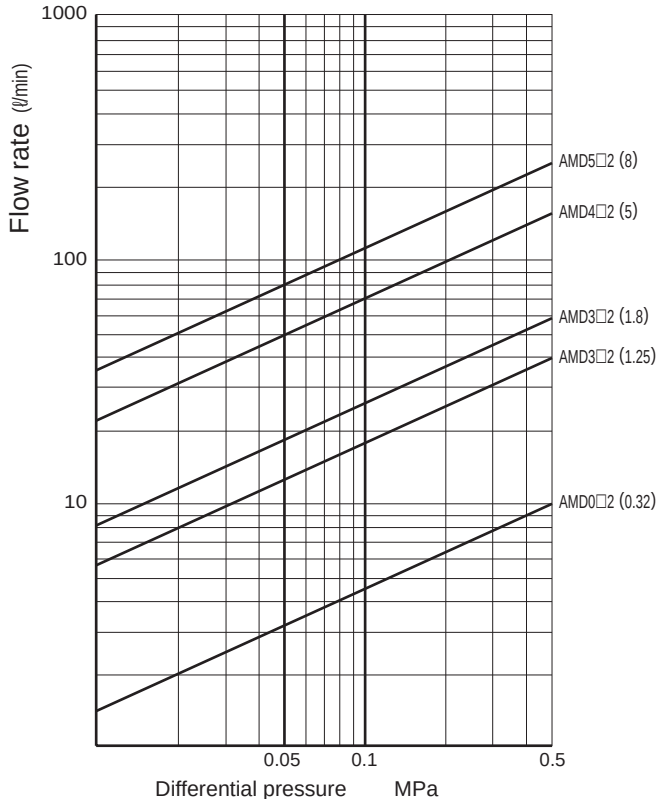
[*] Actuation

| | |
|---|---|
| 1 | NC |
| 2 | NO |
| 3 | Double acting |

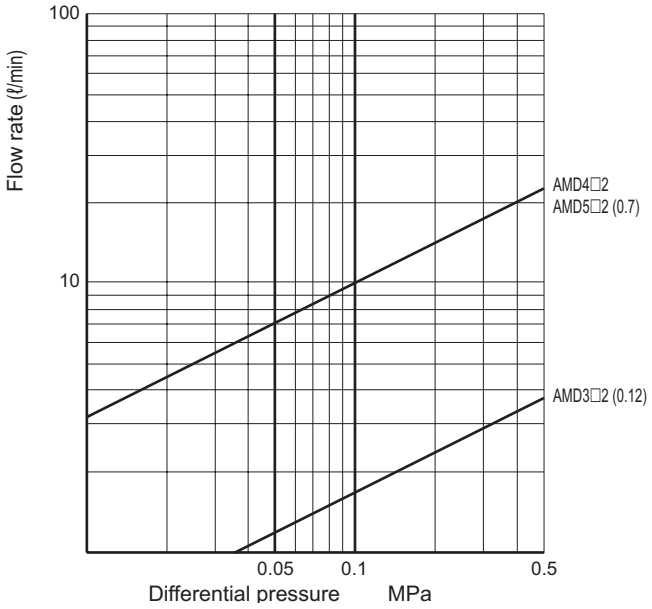
## Flow characteristics

### AMD0□2 to AMD5□2

● Flow characteristics (water)
Differential pressure - flow rate in ( ): Cv value

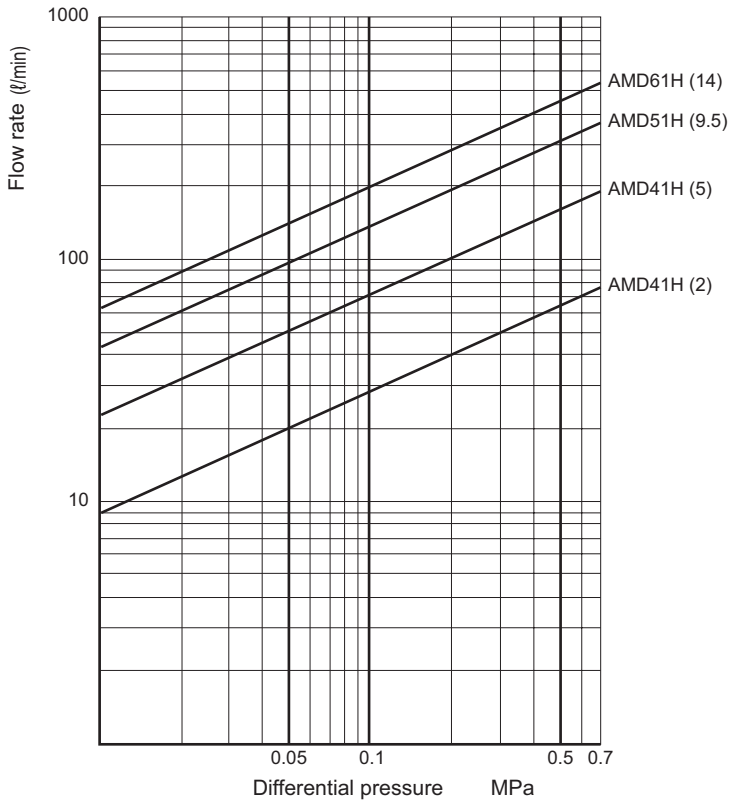



● Bypass section flow characteristics (water)
Differential pressure - flow rate in ( ): Cv value



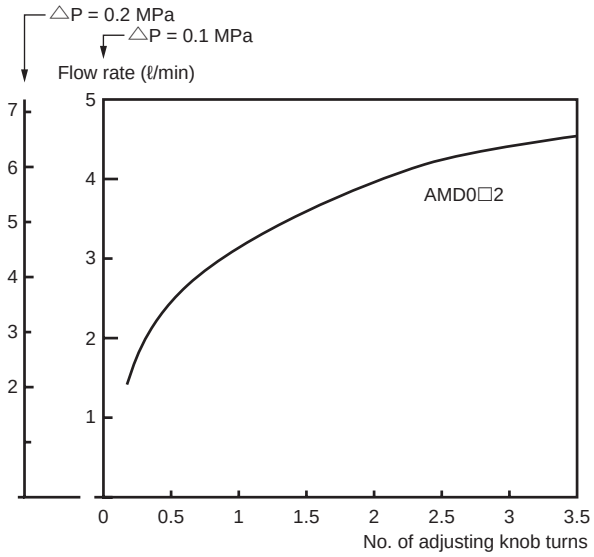

### For liquid supply AMD41H to AMD61H

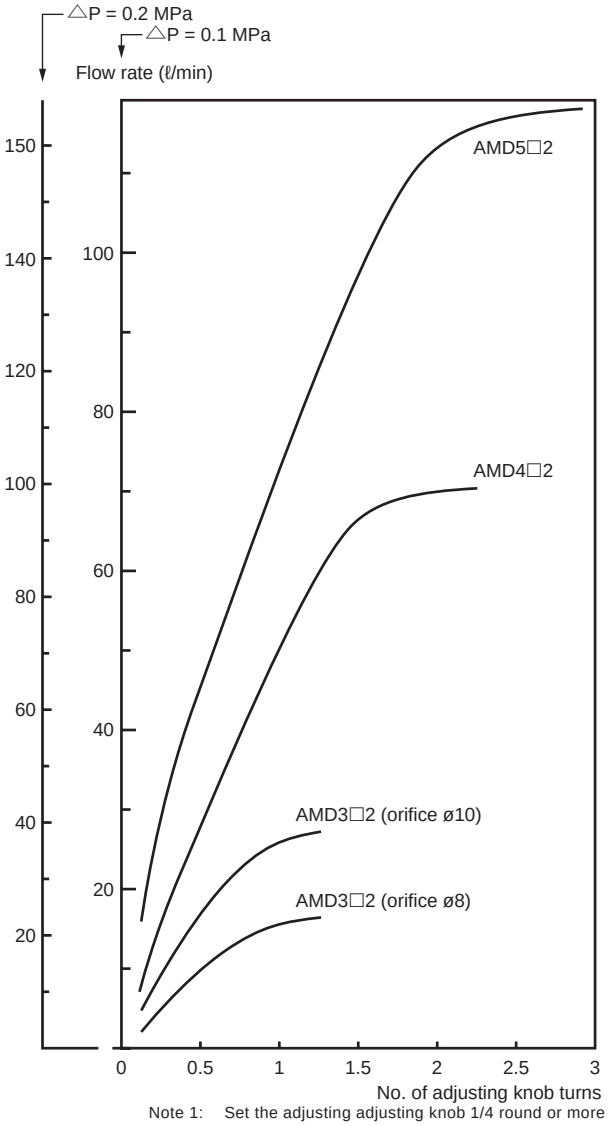
● Flow characteristics (water)
Differential pressure - flow rate in ( ): Cv value



## Flow characteristics

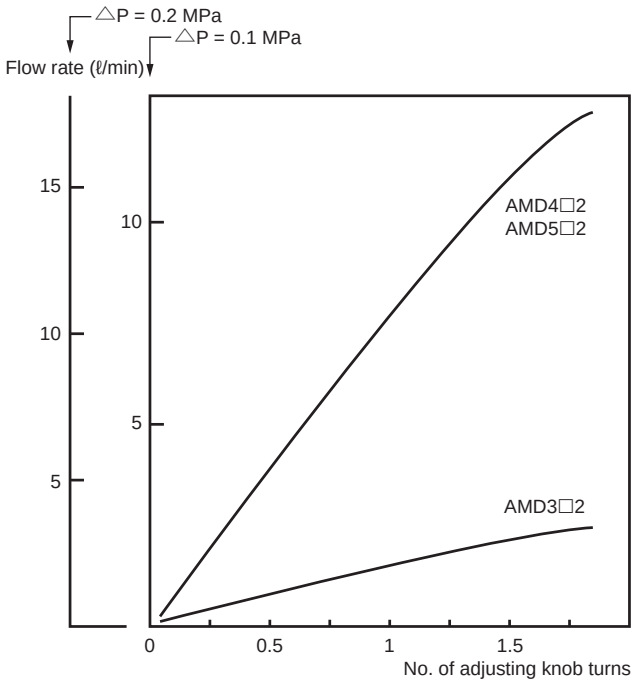
● With flow adjustment (water)
Number of rotations - flow rate




Note 1: Set the adjusting adjusting knob 1/4 round or more open from the complete closed position. Using the product with less opening may cause vibration or fluctuation in flow depending on the working conditions.

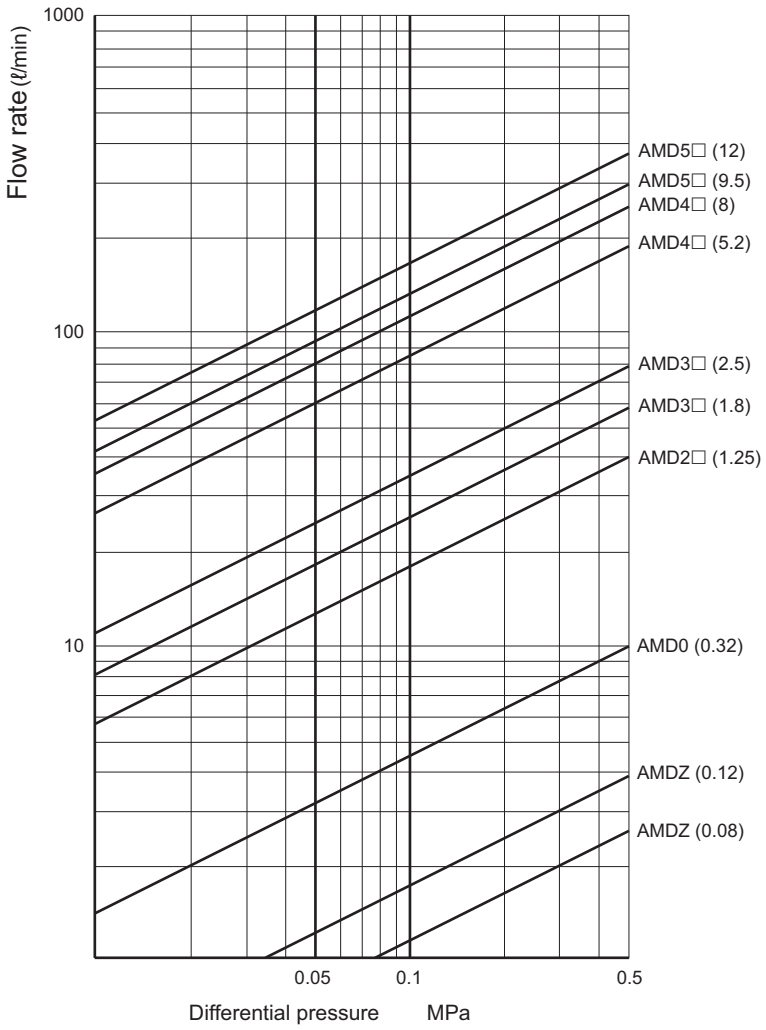
● With bypass (water)
Number of rotation - flow rate



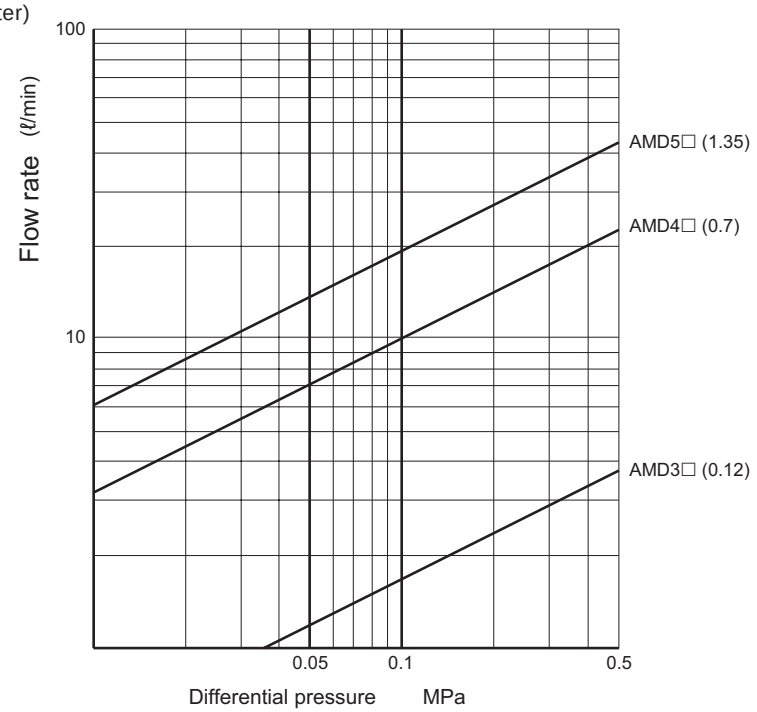
## Flow characteristics

### AMDZ to AMD5□

● Flow characteristics (water)
Differential pressure - flow rate in ( ):
Cv value

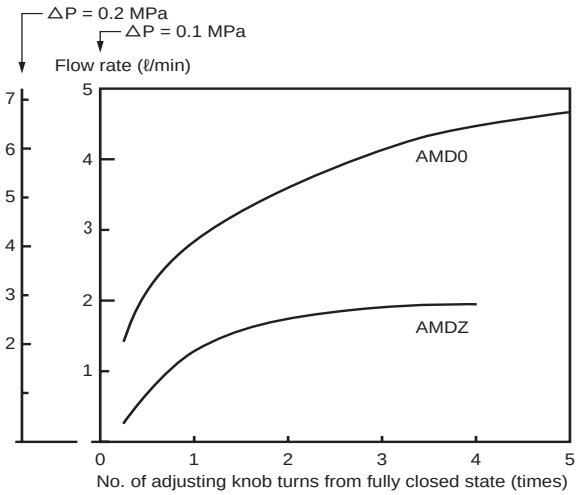



● Bypass section flow characteristics (water)
Differential pressure - flow rate in ( ):
Cv value

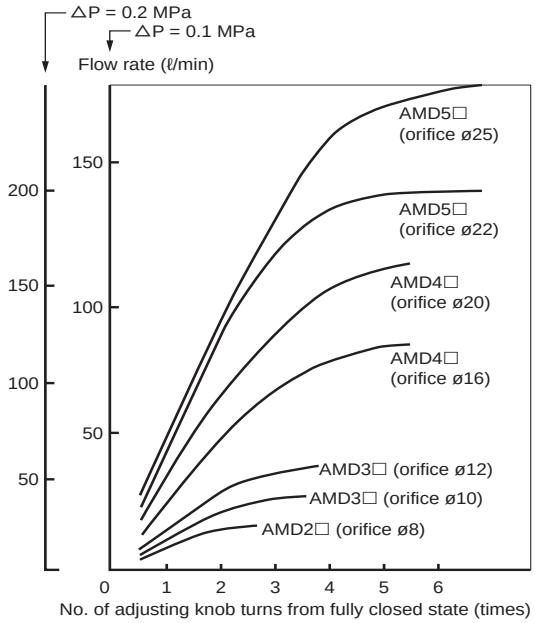


## Flow characteristics

● With flow adjustment (water)
Number of turns - flow rate

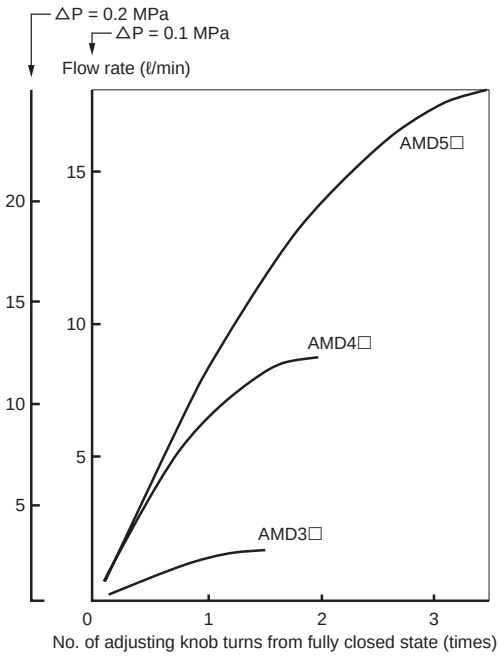



Note 1: Set the adjusting 1/4 round or more open from the complete closed position. Using the product with less opening may cause vibration or fluctuation in flow depending on the working conditions.




Note 1: Set the adjusting 3/8 round or more open from the complete closed position. Using the product with less opening may cause vibration or fluctuation in flow depending on the working conditions.

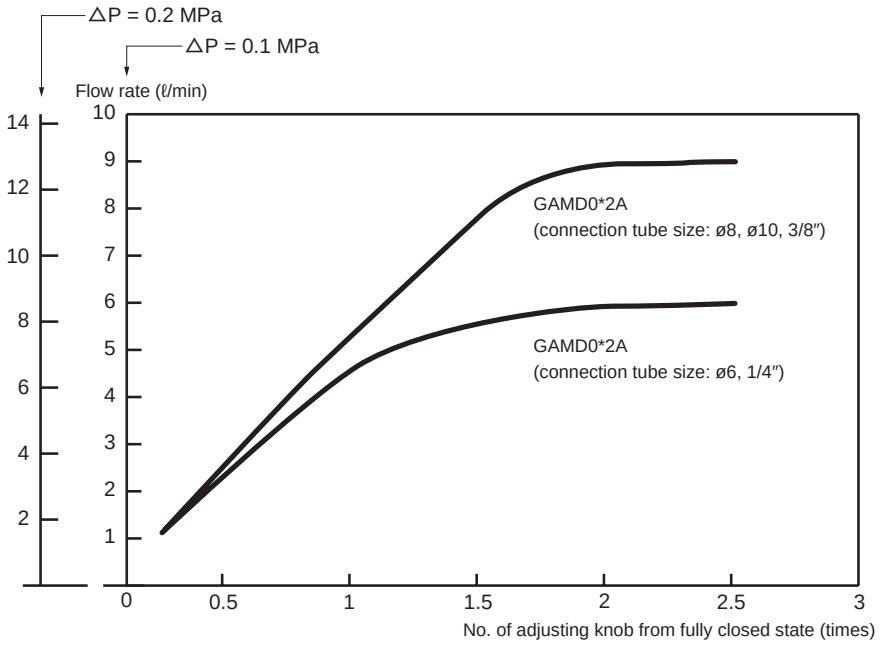
● With bypass (water)
Number of rotation - flow



## Flow characteristics

### GAMD0□2A

● Flow adjustment (water)
Number of turns - flow rate




Note 1: Flow characteristics when fitting size of port A is ø10.
Note 2: Flow characteristics when flow is from port A to port B.
Note 3: Set the adjusting dial 1/4 round or more open from the complete closed position.
Using the product with less opening may cause vibration or fluctuation in flow depending on the working conditions.

# MMD

## Overview

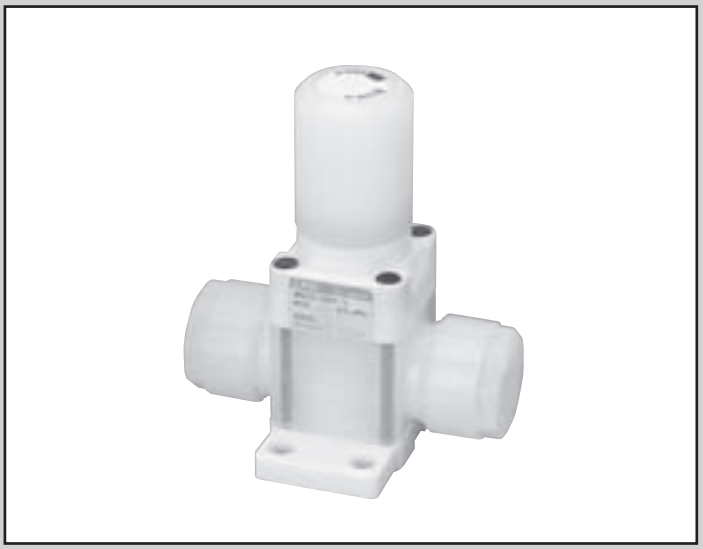
This chemical liquid manual valve for semiconductor manufacturing equipment is available in 1/8 to 1 inch port sizes and different operations.

## Features

- The spring seal provides stable sealing.
  (MMD**2, GMMD**2, TMD Series)
- Assorted fitting variations
- The easy-to-read indicator enables open/close status to be checked visually.

FMD00

- This microflow adjustment valve has been designed to enable to use with highly corrosive fluids.




| ⚠ Precautions | Intro 7 |
|---|---|
| 2 port valve | |
| MMD*02 fluorine resin body | 84 |
| MMD*02 stainless steel body | 92 |
| MMD*0H liquid supply | 98 |
| Sister product MMD*0 | 110 |
| Manifold | |
| GMMD*02 | 102 |
| Toggle valve | |
| TMD*02 | 114 |
| Flow control valve | |
| FMD00 | 120 |

Chemical liquid manual valve

# MMD$^{3}_{4}_{5}$02 Series

The spring provides stable sealing.
This valve prevents the damage in valve seat caused by over tightening and the internal leakage, caused by in sufficient tightening

●Orifice: ø6 to ø20

RoHS CAD

Subject to Export Trade Control Ordinances

Target: MMD402 and 502 only

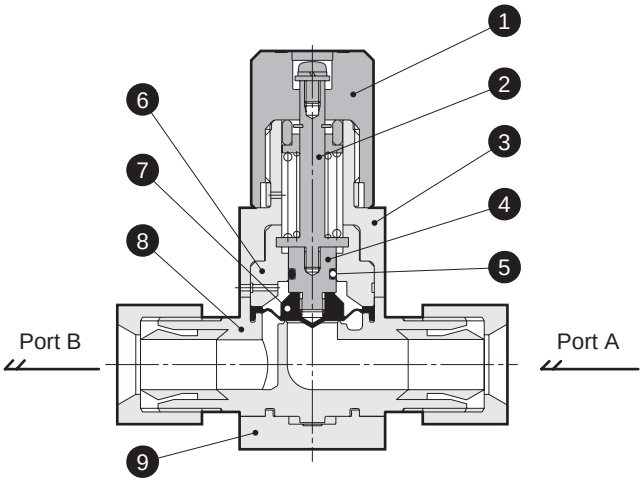
## Specifications

| Descriptions | MMD302 | MMD402 | MMD502 |
|---|---|---|---|
| Working fluid | Chemical liquid, pure water (Note 1) | | |
| Fluid temperature °C | 5 to 90 (Note 2, 3) | | |
| Withstanding pressure MPa | 1.2 | | |
| Working pressure range (A → B) MPa | 0 to 0.4 | | |
| Working pressure range (B → A) MPa | 0 to 0.4 | | |
| Valve seat leakage $cm^3/min$ | 0 (under water pressure) | | |
| Back pressure MPa | 0 to 0.4 | | |
| Ambient temperature °C | 0 to 60 | | |
| Installation attitude | Free | | |
| Connection | OD ø10 tube connection (fitting integrated type)<br>OD ø12 tube connection (fitting integrated type)<br>OD 3/8" tube connection (fitting integrated type)<br>OD 1/2" tube connection (fitting integrated type) | OD 3/4" tube connection (fitting integrated type) | OD ø25 tube connection (fitting integrated type)<br>OD 1" tube connection (fitting integrated type)<br>Nominal 16 (PVC union fitting integrated type)<br>Nominal 20 (PVC union fitting integrated type) |
| Orifice | ø6.3 / ø6.4 / ø7.5 / ø8 / ø9.4 / ø9.5 / ø10 | ø14.7 / ø15.9 / ø16 | ø20 |
| Cv value | 0.8 / 1.25 / 1.8 | 5 | 8 |

Note 1: Check the compatibility of the material of each component, working fluid, and ambient atmosphere before use.
Note 2: 5 to 50°C for PVC union fitting type for MMD502 connection.
Note 3: Contact CKD if hydrofluoric acid is used and fluid temperature is over 40°C.
Note 4: MMD*02 Series can not be used for flow rate adjustment. Use this product fully closed or fully opened.

Read the precautions on Intro 7 to 14 before use.

## Internal structure and parts list



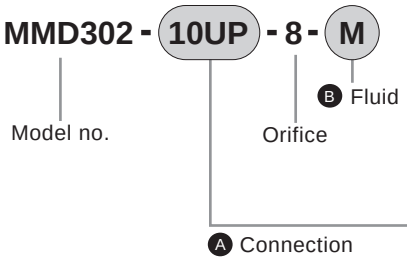

| No. | Parts name | Material (fluid symbol) | | |
|---|---|---|---|---|
| | | Standard | M | P |
| 1 | Adjusting knob | PE | | |
| 2 | Shaft | SUS304 (with fluorine resin coating) | | |
| 3 | Cover | PP (Note 1) | | PP (Note 1) |
| 4 | Rod | PP (Note 1) | | PP (Note 1) |
| 5 | O ring | FKM | EPDM | FKM |
| 6 | Diaphragm holder | PP (Note 1) | | PP (Note 1) |
| 7 | Diaphragm | PTFE | | |
| 8 | Body | PFA, PTFE | | |
| 9 | Mounting plate | PP (Note 1) | | PP (Note 1) |

Note 1: The material differs among standard, fluid symbol M, and fluid symbol P.

The material or structure way differ with the model. Contact CKD for details.

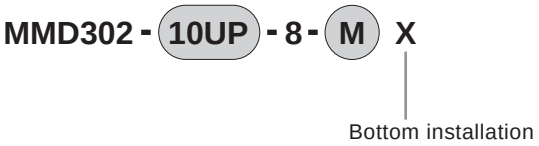
## How to order

● MMD302 Series (Connection: ø10, 3/8" tube)




| Symbol / Descriptions \ Orifice | A Connection | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10US | 10BUS | 10UP | 10BUP | 10UA | 10BUA | 10UR | 10BUR | 10UK | 10BUK | 10BUW |
| | Super type Pillar fitting integrated type | | Super 300 type Pillar fitting P series integrated type | | F-LOCK 20A series fitting integrated type | | F-LOCK 60 series fitting integrated type | | Final lock fitting integrated type | | FLARETEK fitting integrated type |
| | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | 3/8" × 1/4" tube connection |
| **Body material** | | | | | | | | | | | |
| PFA: PFA molded body or PTFE: PTFE machined body | PFA | | PFA | | PFA | | PFA | | PFA | | PTFE |
| **B Fluid** | | | | | | | | | | | |
| **Blank** Standard | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **M** For ammonia | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **P** For hydrofluoric acid | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Orifice | ø8 | | ø8 | | ø8 | | ø7.5 | ø6.4 | ø7.5 | | ø6.3 |

● Model no. for type of bottom installation



## How to order

● MMD302 Series (Connection: ø12, 1/2" tube)

**MMD302 - 12UR -10- M**

- MMD302: Model no.
- 12UR: Ⓐ Connection
- 10: Orifice
- M: Ⓑ Fluid

| Ⓐ Connection | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 12US | 15BUS | 12UP | 15BUP | 12UA | 15BUA | 12UR | 15BUR | 12UK | 15BUK | 15BUW |
| Super type Pillar fitting integrated type | | Super 300 type Pillar fitting P series integrated type | | F-LOCK 20A series fitting integrated type | | F-LOCK 60 series fitting integrated type | | Final lock fitting integrated type | | FLARETEK fitting integrated type |
| ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | 1/2" × 3/8" tube connection |
| Symbol / Descriptions \ Orifice | ø10 | | ø10 | | ø10 | | ø9.5 | | ø10 | | ø9.4 |
| Body material | PFA molded body | | | | | | | | | | |

| Ⓑ Fluid | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blank** | Standard | ● | | ● | | ● | | ● | | ● | | ● |
| **M** | For ammonia | ● | | ● | | ● | | ● | | ● | | ● |
| **P** | For hydrofluoric acid | ● | | ● | | ● | | ● | | ● | | ● |

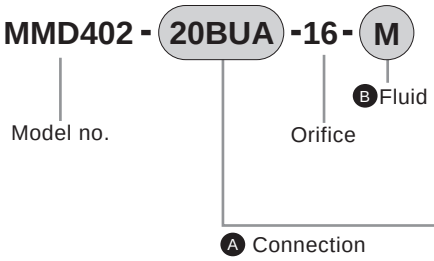
● Model no. for type of bottom installation

**MMD302 - A -10- B X**

- X: Bottom installation

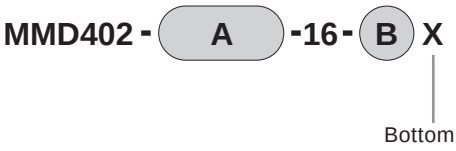
## How to order

● MMD402 Series



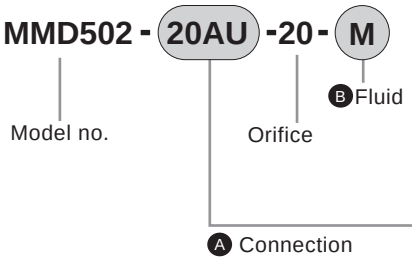

| Symbol | Descriptions \ Orifice | Ⓐ Connection | | | | | |
|---|---|---|---|---|---|---|---|
| | | 20BUS | 20BUP | 20BUA | 20BUR | 20BUK | 20BUW |
| | | Super type Pillar fitting integrated type | Super 300 type Pillar fitting P Series integrated type | F-LOCK 20A series fitting integrated type | F-LOCK 60 series fitting integrated type | Final lock fitting integrated type | FLARETEK fitting integrated type |
| | | 3/4″ × 5/8″ tube connection | | | | | |
| | Orifice | ø16 | ø16 | ø16 | ø15.9 | ø16 | ø14.7 |
| | Body material | PFA molded body | | | | | |
| Ⓑ Fluid | | | | | | | |
| Blank | Standard | ● | ● | ● | ● | ● | ● |
| M | For ammonia | ● | ● | ● | ● | ● | ● |
| P | For hydrofluoric acid | ● | ● | ● | ● | ● | ● |

● Model no. for type of bottom installation



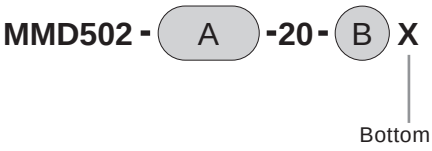
## How to order

● MMD502 Series




| Ⓐ Connection | 25US | 25BUS | 25UP | 25BUP | 25BUA | 25UR | 25BUR | 25UK | 25BUK | 25BUW | 15AU | 20AU |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Super type Pillar fitting integrated type | | Super 300 type Pillar fitting P series integrated type | | F-LOCK 20A series fitting integrated type | F-LOCK 60 series fitting integrated type | | Final lock fitting integrated type | | FLARETEK fitting integrated type | PVC union fitting integrated type | |
| | ø25 × ø22 tube connection | 1" × 7/8" tube connection | ø25 × ø22 tube connection | 1" × 7/8" tube connection | 1" × 7/8" tube connection (Note 1) | ø25 × ø22 tube connection | 1" × 7/8" tube connection | ø25 × ø22 tube connection | 1" × 7/8" tube connection | 1" × 7/8" tube connection | Nominal 16 | Nominal 20 |
| Symbol / Orifice / Descriptions | ø20 | | ø20 | | ø20 | ø20 | | ø20 | | ø20 | ø20 | |
| **Body material** | | | | | | | | | | | | |
| PFA: PFA molded body or PTFE: PTFE machined body | PFA | | PFA | | PFA | PTFE | | PFA | | PTFE | PFA | |
| **Ⓑ Fluid** | | | | | | | | | | | | |
| **Blank** Standard | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **M** For ammonia | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **P** For hydrofluoric acid | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | |

● Model no. for type of bottom installation



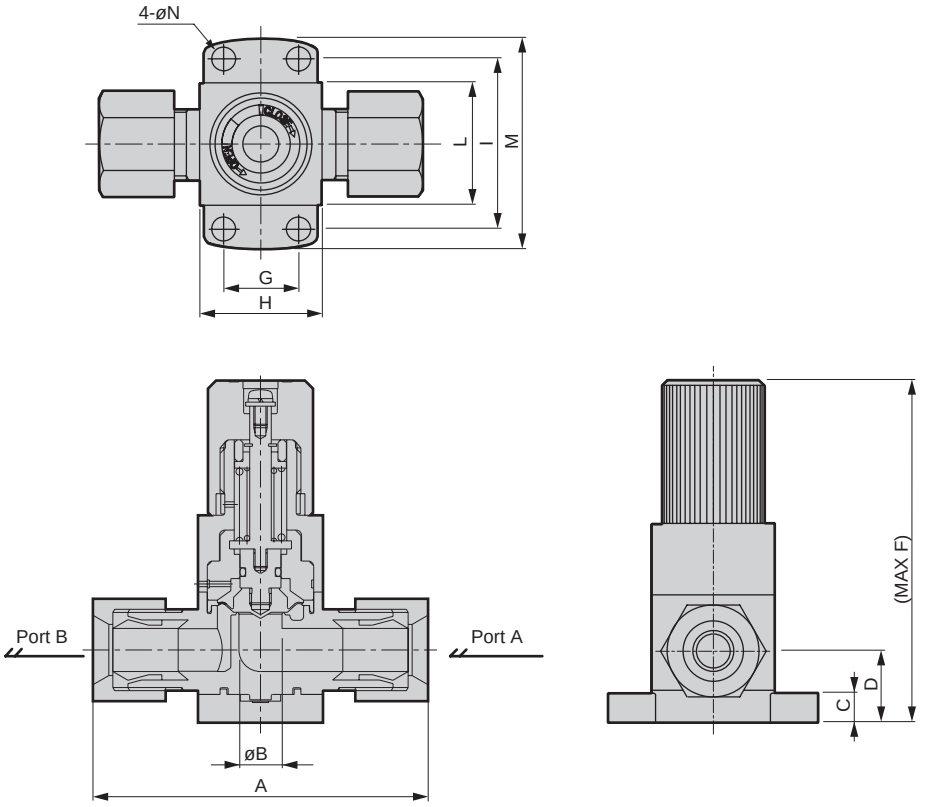

### ⚠ Note on model no. selection

Note 1: Also usable for the ø25 x ø22 tube connection.

## Dimensions

● Fitting integrated type

- MMD302- *1
- MMD402- *1
- MMD502- *1




| Symbol | C | D | F | G | H | I | L | M | N |
|---|---|---|---|---|---|---|---|---|---|
| MMD302 | 8.5 | 21 | 106 | 22 | 38 | 50 | 36 | 62 | 7 |
| MMD402 | 9 | 27 | 134 | 28 | 47 | 64 | 46 | 82 | 9 |
| MMD502 | 10 | 35 | 167 | 40 | 60 | 78 | 60 | 96 | 9 |

MMD3 (10 mm)

| *1 (Connection model no.) | A | B |
|---|---|---|
| 10US | 86 | 8 |
| 10BUS | 86 | 8 |
| 10UP | 86 | 8 |
| 10BUP | 86 | 8 |
| 10UA | 78 | 8 |
| 10BUA | 78 | 8 |
| 10UR | 110 | 7 |
| 10BUR | 114 | 6.4 |
| 10UK | 96 | 7.5 |
| 10BUK | 96 | 7.5 |
| 10BUW | 101 | 6.3 |

MMD3 (12 mm)

| *1 (Connection model no.) | A | B |
|---|---|---|
| 12US | 95 | 10 |
| 15BUS | 95 | 10 |
| 12UP | 94 | 10 |
| 15BUP | 94 | 10 |
| 12UA | 86 | 10 |
| 15BUA | 86 | 10 |
| 12UR | 110 | 9.5 |
| 15BUR | 114 | 9.5 |
| 12UK | 102 | 10 |
| 15BUK | 102 | 10 |
| 15BUW | 103 | 9.4 |

MMD4

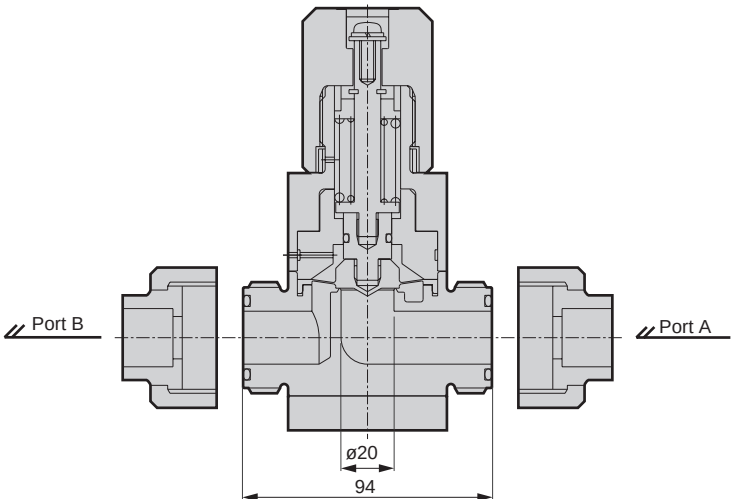
| *1 (Connection model no.) | A | B |
|---|---|---|
| 20BUS | 124 | 16 |
| 20BUP | 118 | 16 |
| 20BUA | 108 | 16 |
| 20BUR | 134 | 15.9 |
| 20BUK | 119 | 16 |
| 20BUW | 122 | 14.7 |

MMD5

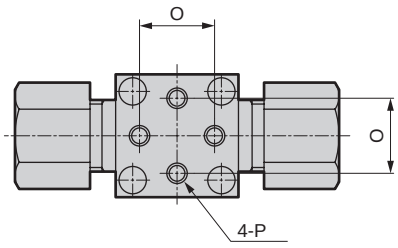
| *1 (Connection model no.) | A | B |
|---|---|---|
| 25US | 147 | 20 |
| 25BUS | 147 | 20 |
| 25UP | 146 | 20 |
| 25BUP | 146 | 20 |
| 25BUA | 140 | 20 |
| 25UR | 159 | 20 |
| 25BUR | 162 | 20 |
| 25UK | 141 | 20 |
| 25BUK | 141 | 20 |
| 25BUW | 156 | 20 |

## Dimensions

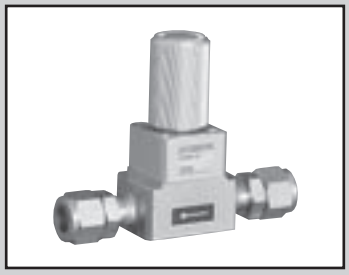
● PVC union fitting integrated type (MMD502)




● Bottom installation type




| Model no. | O | P |
|---|---|---|
| MMD302 | 22 ± 0.3 | M6 depth 9 |
| MMD402 | 28 ± 0.3 | M8 depth 10 |
| MMD502 | 40 ± 0.3 | M8 depth 13 |



Stainless steel body chemical liquid manual valve

# MMD$^{3}_{4}_{5}$02 Series

Stainless steel body type with stable sealing

Appropriate for explosion-proof environment such as solvent

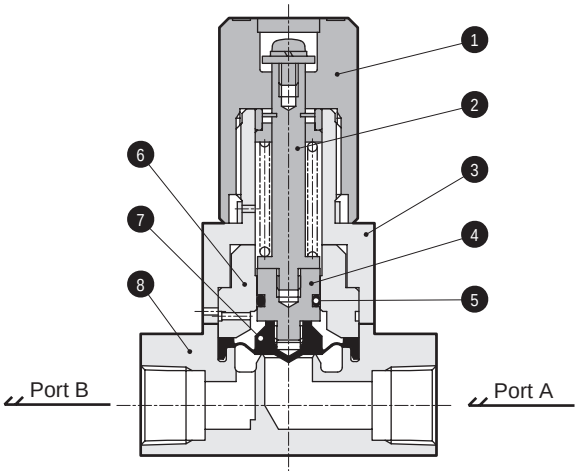
● Orifice: ø8 to ø20

## Specifications

| Descriptions | | MMD302 | MMD402 | MMD502 |
|---|---|---|---|---|
| Working fluid | | Chemical liquid, pure water (Note 1) | | |
| Fluid temperature | °C | 5 to 90 | | |
| Withstanding pressure | MPa | 1.2 | | |
| Working pressure range (A → B) | MPa | 0 to 0.4 | | |
| Working pressure range (B → A) | MPa | 0 to 0.4 | | |
| Valve seat leakage | $cm^3/min$ | 0 (under water pressure) | | |
| Back pressure | MPa | 0 to 0.4 | | |
| Ambient temperature | °C | 0 to 60 | | |
| Installation attitude | | Free | | |
| Connection | | Rc1/4, Rc3/8<br>ø3/8" SUS weld tube<br>ø3/8" double barbed fitting (Note 2)<br>ø1/2" SUS weld tube<br>ø1/2" double barbed fitting (Note 2) | Rc1/2<br>ø3/4" SUS weld tube<br>ø3/4" double barbed fitting (Note 2) | ø1" double barbed fitting (Note 2) |
| Orifice | | ø8/ø10 | ø16 | ø20 |

Note 1: Check the compatibility of the material of each component, working fluid, and ambient atmosphere before use.
Note 2: For the double-barbed fitting, fluorine-based lubricant is applied on the sliding surface of the front ferrule and fitting.
Note 3: MMD*02 Series can not be used for flow rate adjustment. Use this product fully closed or fully opened.

## Internal structure and parts list



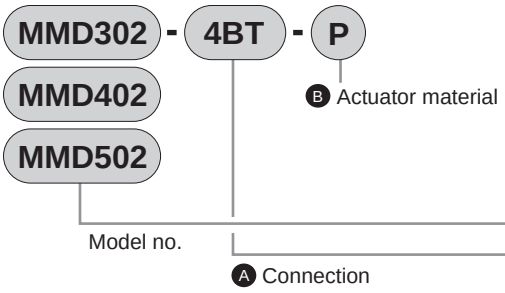

| No. | Parts name | Material (Actuator material) | |
|---|---|---|---|
| | | P | A |
| 1 | Dial | PE | A5056 |
| 2 | Shaft | SUS304 | SUS304 |
| 3 | Cover | PP | A5056 |
| 4 | Rod | PP | |
| 5 | O ring | EPDM | |
| 6 | Diaphragm holder | PP | A5056 |
| 7 | Diaphragm | PTFE | |
| 8 | Body | SUS316L | |

The material or structure differs with the model. Contact CKD for details.

⚠ Read the precautions on Intro 7 to 14 before use.

## How to order

● MMD*02 Series

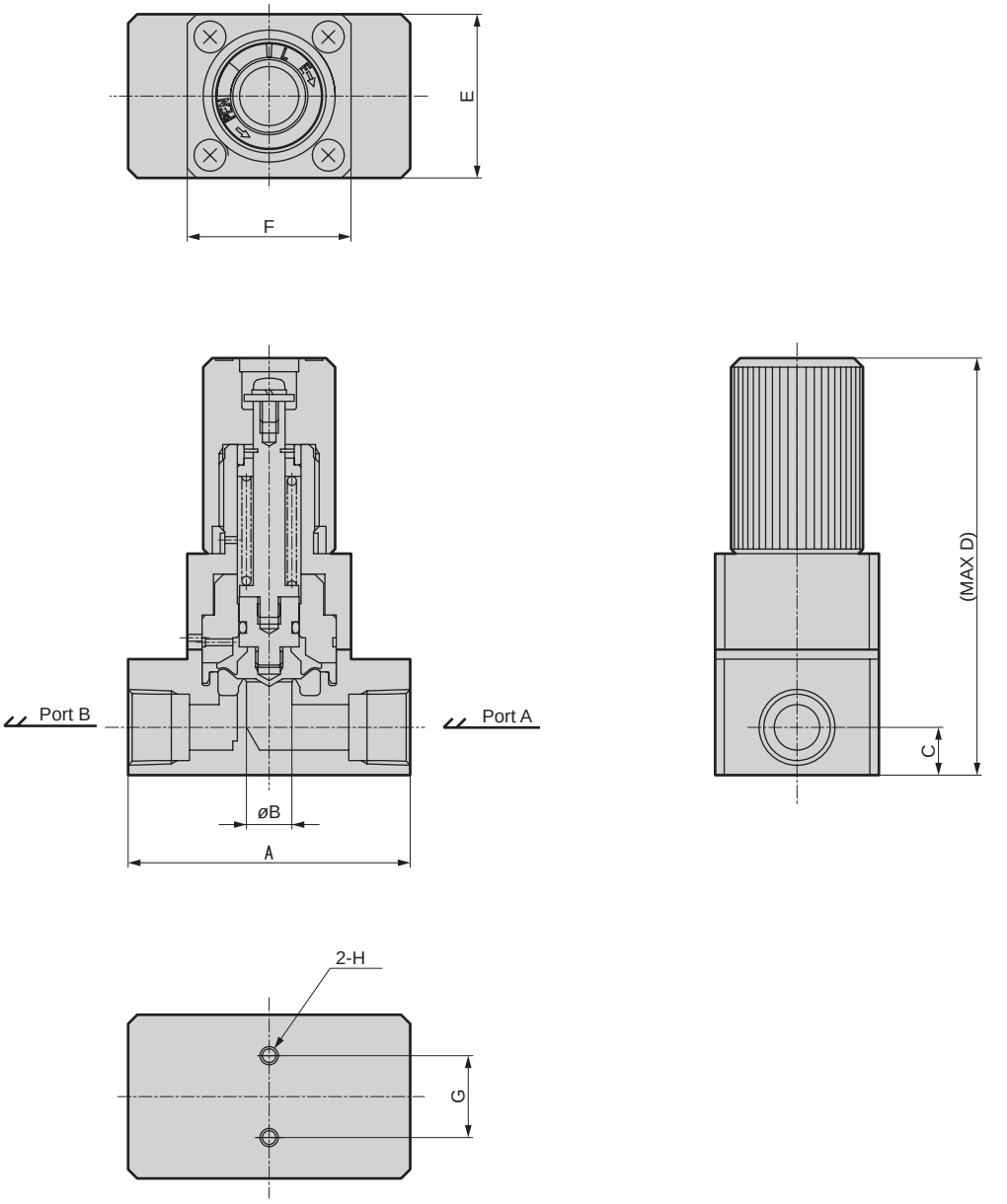



| | | MMD302 | | | | | | MMD402 | | | MMD502 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **A Connection** | | | | | | | | | | |
| | | **8** | **3BT** | **6S** | **10** | **4BT** | **8S** | **15** | **6BT** | **12S** | **8BT** | **16S** |
| | | Rc 1/4 | 3/8"×t1.0 SUS weld tube | 3/8" tube connection Double barbed fitting | Rc 3/8 | 1/2" × t1.24 SUS weld tube | 1/2" tube connection Double barbed fitting | Rc 1/2 | 3/4" × t1.24 SUS weld tube | 3/4" tube connection Double barbed fitting | 1" × t1.65 SUS weld tube | 1" tube connection Double barbed fitting |
| Symbol | Orifice / Descriptions | ø8 | | | ø10 | | | ø16 | | | ø20 | |
| **B Actuator material** | | | | | | | | | | | | |
| P | PP | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| A | A5056 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

## Dimensions

● Rc thread type

- MMD302-8/10
- MMD402-15

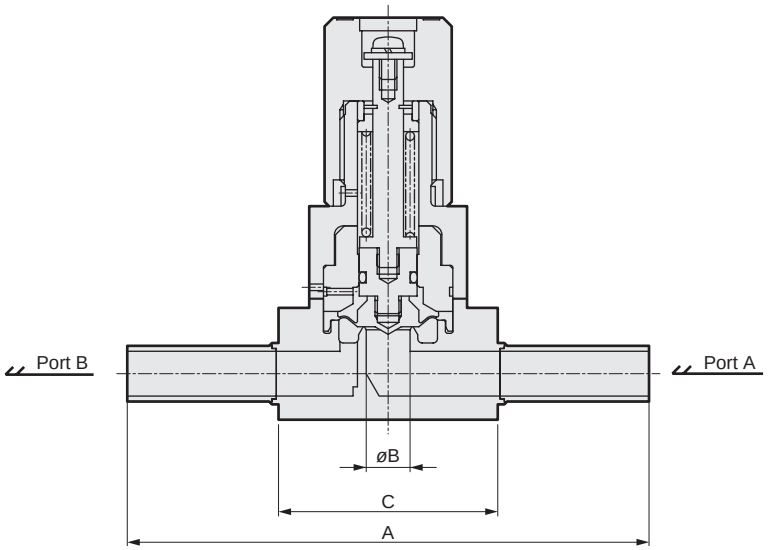



| Symbol | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| MMD302-8/10 | 62 | 10 | 10.5 | 96 | 36 | 36 | 18 ± 0.3 | M4 depth 5 |
| MMD402-15 | 80 | 16 | 13.5 | 121 | 46 | 46 | 26 ± 0.3 | M5 depth 6 |

## Dimensions

● SUS weld tube

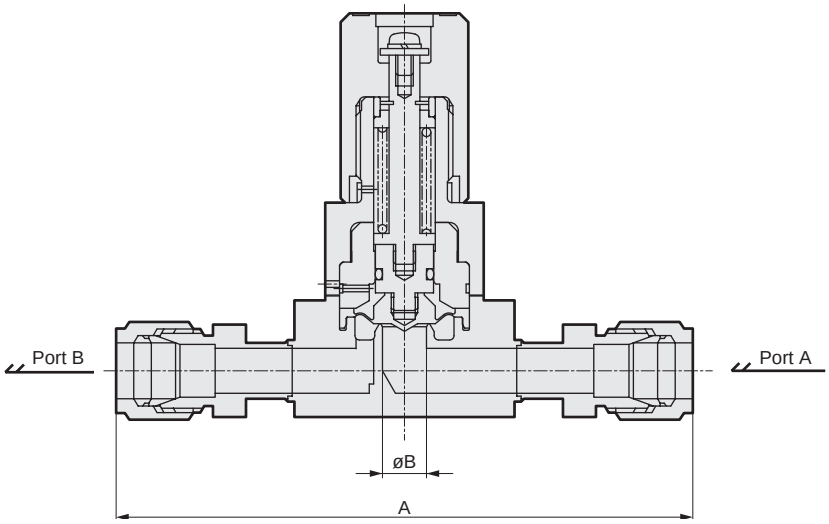
- MMD302-3BT/4BT
- MMD402-6BT




| Symbol | A | B | C |
|---|---|---|---|
| MMD302-3BT/4BT | 116 | 10 | 50 |
| MMD402-6BT | 126 | 16 | 61 |

● Double barbed fitting

- MMD302-6S/8S
- MMD402-12S

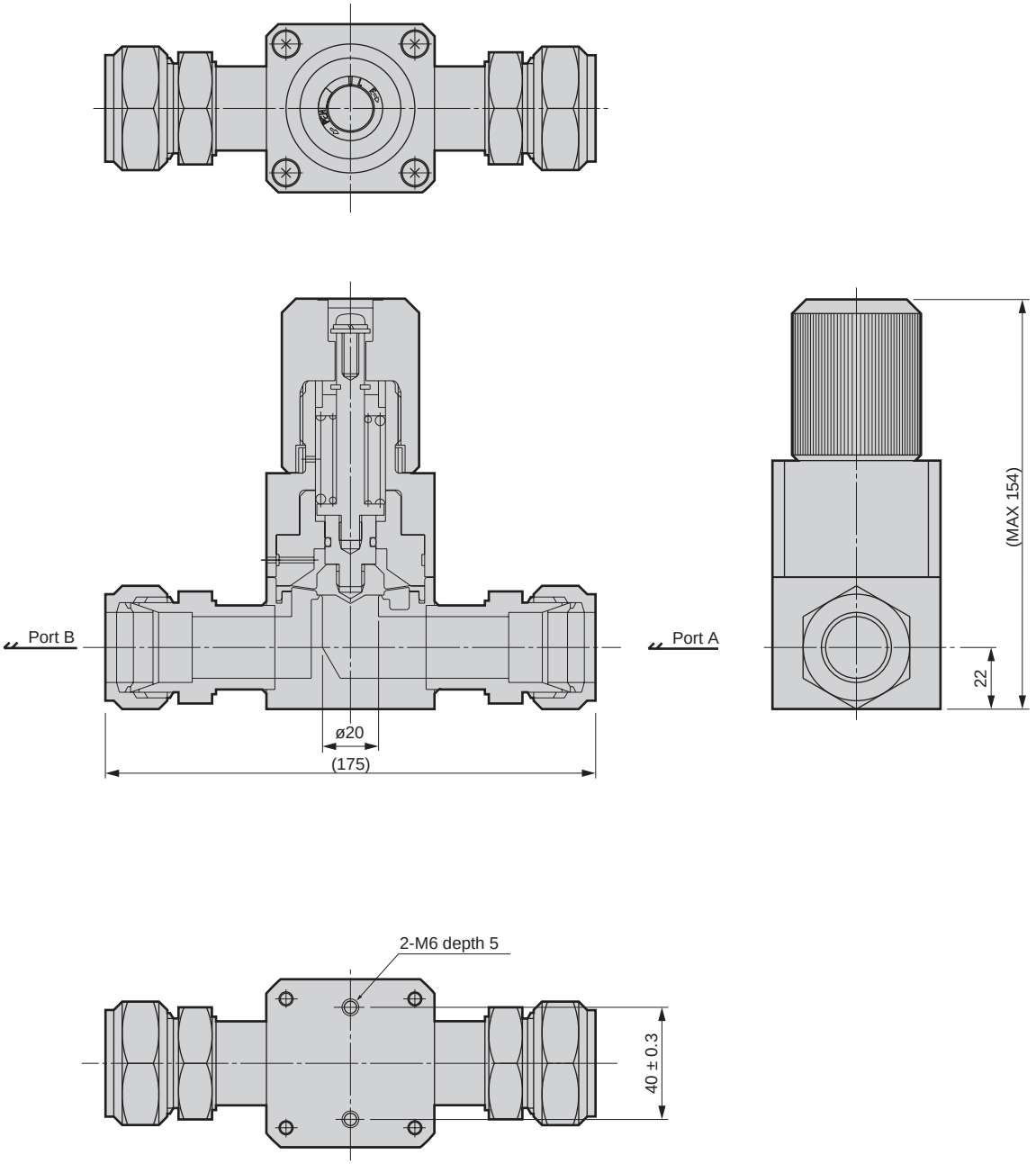



| Symbol | A | B |
|---|---|---|
| MMD302-6S | 116 | 10 |
| MMD302-8S | 130 | 10 |
| MMD402-12S | 150 | 16 |

## Dimensions

● Double barbed fitting

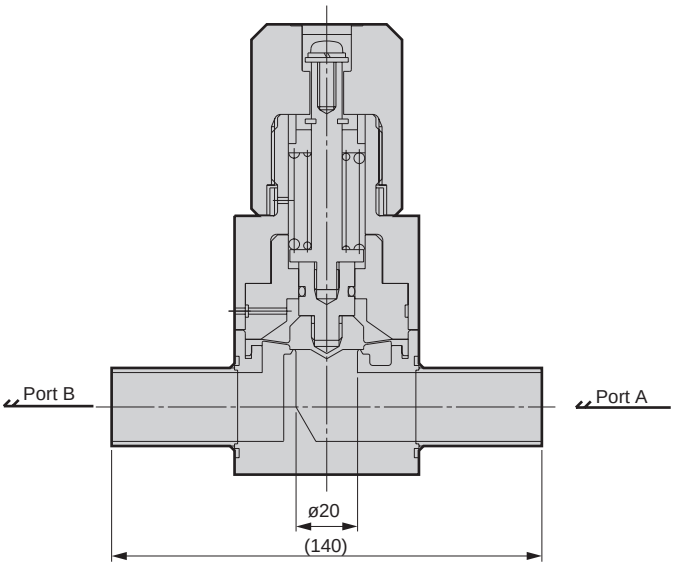
• MMD502-16S



## Dimensions

● SUS weld tube

• MMD502-8BT



Chemical liquid manual valve for liquid supply

# MMD*0H Series

Valve designed to support high pressure and high back pressure chemical liquid supply line at semiconductor manufacturing line.

●Orifice: ø10, ø16, ø22, ø25

RoHS CAD

Subject to Export Trade Control Ordinances

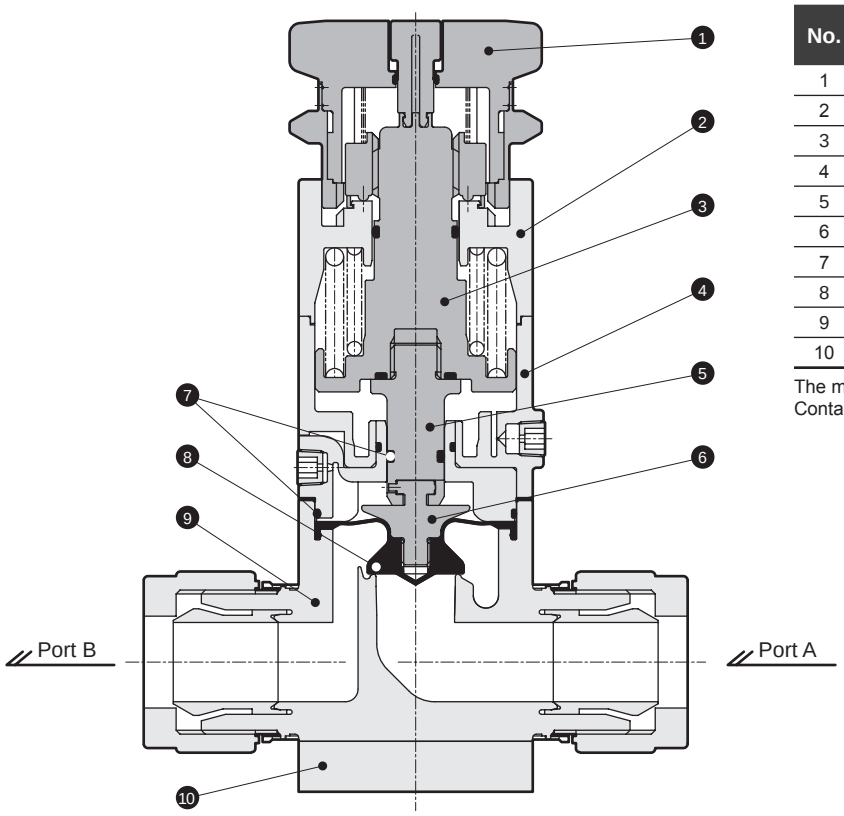
*Target: Valves with ø16 or larger orifice

## Specifications

| Descriptions | MMD40H | | MMD50H | MMD60H |
|---|---|---|---|---|
| Working fluid | Chemical liquid, pure water (Note 1) | | | |
| Fluid temperature °C | 5 to 40 | | | |
| Withstanding pressure MPa | 1.4 | | | |
| Working pressure range (A → B) MPa | 0 to 0.7 | | | |
| Valve seat leakage $cm^3/min$ | 0 (under water pressure) | | | |
| Back pressure MPa | 0 to 0.7 | | | |
| Ambient temperature °C | 0 to 40 | | | |
| Installation attitude | Free | | | |
| Connection | OD 1/2″ tube connection Nominal 1/4" welded PFA tube extended | OD 3/4" tube connection Nominal 1/2" welded PFA tube extended | OD 1″ tube connection Nominal 3/4" welded PFA tube extended | OD 1.25″ tube connection Nominal 1" welded PFA tube extended |
| Orifice | ø10 | ø16 | ø22 | ø25 |
| Cv value | 2 | 5 (Note 2) | 9.5 | 14 |

Note 1: Check the compatibility of the material of each component, working fluid, and ambient atmosphere before use.
Note 2: Cv value for FLARETEK fitting is 4.5.
Note 3: MMD*0H Series can not be used for flow rate adjustment. Use this product fully closed or fully opened.

## Internal structure and parts list




| No. | Parts name | Material (Fluid symbol) | |
|---|---|---|---|
| | | Standard | M |
| 1 | Adjusting knob | PP | |
| 2 | Cover | PP | |
| 3 | Shaft | PP | |
| 4 | Cylinder | PP | |
| 5 | Rod | PP | |
| 6 | Diaphragm holder | PP | |
| 7 | O ring | FKM | EPDM |
| 8 | Diaphragm | PTFE | |
| 9 | Body | PFA | |
| 10 | Mounting plate | PP | |

The material and the structure may differ with the model.
Contact CKD for details.

## How to operate manual valve

● OPEN

Make sure that the lock ring is slid up to the upper limit. (↑(1))
Even if the adjusting knob is rotated toward the OPEN direction, it will spin around for first several times.
If the adjusting knob is spinning around, the slide nut moves downward while rotating and is located at the position shown in the figure and then, does not move downward. (↓(2))
When turned further, the movement becomes only rotating, the shaft is lifted by thrust of the screw, and the valve is opened. (↑(3) indicator will rise)

● CLOSE

Make sure that the lock ring is slid up to the upper limit. (↑(1))
Turning the adjusting knob toward CLOSE direction closes the valve. (Indicator will go down)
When rotating the adjusting knob further toward the CLOSE direction while the valve is closed (at the position where the indicator is lowered), the valve spins around due to the structure.
→ This structure prevents from overtightening.
Even if the valve is spinning around, the valve close spring is effective for stopping the liquid.

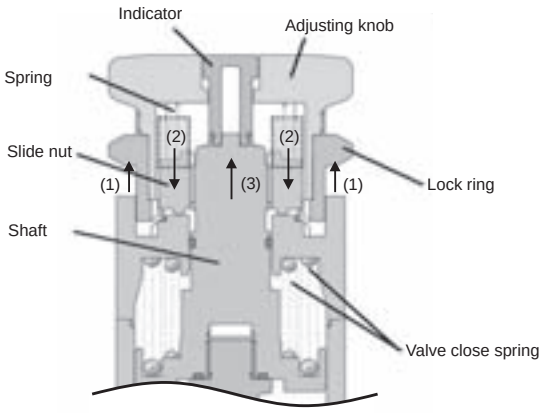
When spinning, the valve rotates up to the point where the slide nut and the shaft screw come off. However, because the slide nut is always pushed by the spring, rotating toward the OPEN direction allows the screw to be re-engaged.

● Locking adjusting knob

After operating the adjusting knob, slide the lock ring down to the lower limit to lock it so that the adjusting knob does not rotate.
→ This prevents incorrect operation.

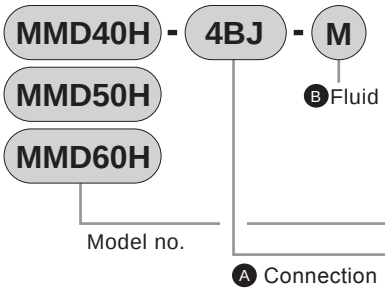
● Do not rotate the adjusting knob by force after the valve is fully opened or when the adjusting knob is locked.
Damage could occur because the valve is resin.


Display on the top of adjusting knob



## How to order

● MMD*0H Series




| | | MMD40H | | | | | | MMD50H | | | MMD60H | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ⓐ Connection | | 4BJ | 6BJ | 4BW | 6BW | 2W | 4W | 8BJ | 8BW | 6W | 10BJ | 8W |
| | | Super 300 type Pillar fitting P Series integrated type | | FLARETEK fitting integrated type | | Welded PFA tube extended | | Super 300 type Pillar fitting P Series integrated type | FLARETEK fitting integrated type | Welded PFA tube extended | Super 300 type Pillar fitting P Series integrated type | Welded PFA tube extended |
| | | 1/2" × 3/8" tube connection | 3/4" × 5/8" tube connection | 1/2" × 3/8" tube connection | 3/4" × 5/8" tube connection | Nominal 1/4" welded PFA tube extended | Nominal 1/2" welded PFA tube extended | 1" × 7/8" tube connection | 1" × 7/8" tube connection | Nominal 3/4" welded PFA tube extended | 1 1/4 × 1 1/10 tube connection | Nominal 1" welded PFA tube extended |
| Symbol | Orifice | ø10 | ø16 | ø10 | ø16 | ø10 | ø16 | ø22 | | | ø25 | |
| Body material | | PFA molded body | | | | | | | | | | |
| Ⓑ Fluid | | | | | | | | | | | | |
| Blank | Standard | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| M | For ammonia (Note 1) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

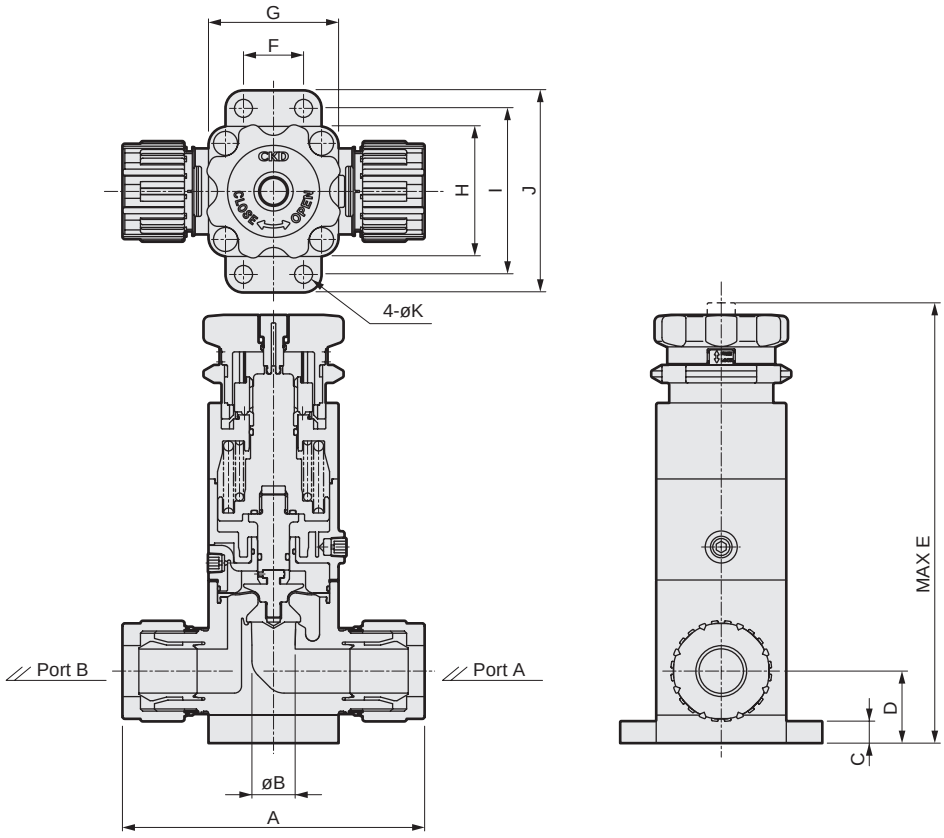
## Note on model no. selection

Note 1: This is a custom order.

## Dimensions

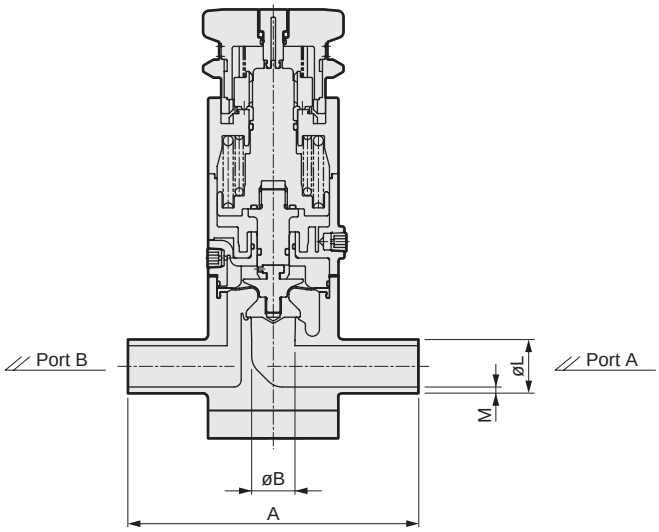
● Fitting integrated type

• MMD$^{4}_{5}_{6}$0H-*BJ
*BW

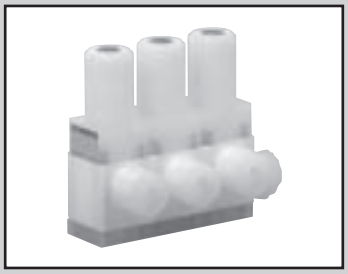



● Welded tube type

• MMD$^{4}_{5}_{6}$0H-*W




| Model | Connection model no. | A | B | C | D | E | F | G | H | I | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MMD40H | 4BJ | 108 | 10 | 10 | 31 | 183 | 20 | 50 | 50 | 68 | 86 | 9 | – | – |
| | 4BW | 117 | 10 | 10 | 31 | 183 | 20 | 50 | 50 | 68 | 86 | 9 | – | – |
| | 2W | 110 | 10 | 10 | 31 | 183 | 20 | 50 | 50 | 68 | 86 | 9 | 13.7 | 2.3 |
| | 6BJ | 122 | 16 | 10 | 31 | 183 | 20 | 50 | 50 | 68 | 86 | 9 | – | – |
| | 6BW | 126 | 16 | 10 | 31 | 183 | 20 | 50 | 50 | 68 | 86 | 9 | – | – |
| | 4W | 130 | 16 | 10 | 31 | 183 | 20 | 50 | 50 | 68 | 86 | 9 | 21.3 | 2.8 |
| MMD50H | 8BJ | 151 | 22 | 11 | 36 | 220 | 30 | 65 | 65 | 83 | 101 | 9 | – | – |
| | 8BW | 161 | 22 | 11 | 36 | 220 | 30 | 65 | 65 | 83 | 101 | 9 | – | – |
| | 6W | 145 | 22 | 11 | 36 | 220 | 30 | 65 | 65 | 83 | 101 | 9 | 26.7 | 2.9 |
| MMD60H | 10BJ | 198 | 25 | 12 | 42 | 241 | 38 | 75 | 75 | 93 | 111 | 9 | – | – |
| | 8W | 155 | 25 | 12 | 42 | 241 | 38 | 75 | 75 | 93 | 111 | 9 | 33.4 | 3.4 |



Chemical liquid manual valve (manifold/branch valve)

# GMMD$^{3}_{4}_{5}$02 Series

Manifold type with stable sealing
Suitable for space saving of bifurcation area of chemical liquid

RoHS

- Orifice: ø6 to ø20
- No. of stations: 1 to 5 stations

Subject to Export Trade Control Ordinances

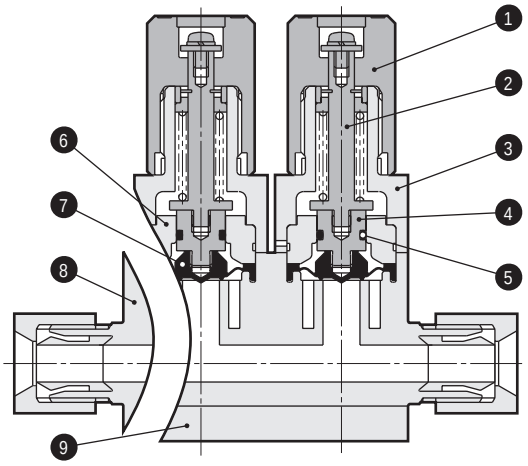
Target: GMMD402 and 502 (Note 5)

## Specifications

| Descriptions | GMMD302 | GMMD402 | GMMD502 |
|---|---|---|---|
| Working fluid | Chemical liquid, pure water (Note 1) | | |
| Fluid temperature °C | 5 to 90 (Note 3) | | |
| Withstanding pressure MPa | 1.2 | | |
| Working pressure range MPa | 0 to 0.4 | | |
| Valve seat leakage $cm^3/min$ | 0 (under water pressure) | | |
| Back pressure MPa | 0 to 0.4 | | |
| Ambient temperature °C | 0 to 60 | | |
| Installation attitude | Free | | |
| Connection | OD ø10 tube connection (fitting integrated type)<br>OD ø12 tube connection (fitting integrated type)<br>OD 3/8" tube connection (fitting integrated type)<br>OD 1/2" tube connection (fitting integrated type) | OD 3/4" tube connection (Fitting integrated type) | OD ø25 tube connection (fitting integrated type)<br>OD 1" tube connection (fitting integrated type) |
| Orifice | ø6 to ø10 (Note 2) | ø14.7 to ø16 (Note 2) | ø20 |

Note 1: Check the compatibility of the material of each component, working fluid, and ambient atmosphere before use.
Note 2: Confirm the orifice for each connection in the “How to order” section.
Note 3: Contact CKD if hydrofluoric acid is used and fluid temperature is over 40°C.
Note 4: MMD*02 Series can not be used for flow rate adjustment. Use this product fully closed or fully opened.
Note 5: GMMD302 is not subjected. (when individual piping of secondary port)

## Internal structure and parts list

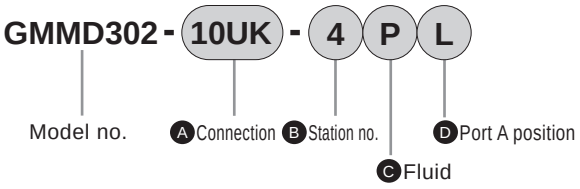



| No. | Parts name | Material (Fluid symbol) | | |
|---|---|---|---|---|
| | | Standard | M | P |
| 1 | Adjusting knob | PE | | |
| 2 | Shaft | SUS304 (with fluorine resin coating) | | |
| 3 | Cover | PP (Note 1) | | PP (Note 1) |
| 4 | Rod | PP (Note 1) | | PP (Note 1) |
| 5 | O ring | FKM | EPDM | FKM |
| 6 | Diaphragm holder | PP | | |
| 7 | Diaphragm | PTFE | | |
| 8 | Body | PTFE | | |
| 9 | Mounting plate | PP (Note 1) | | PP (Note 1) |

Note 1: The material differs among standard, fluid symbol M, and fluid symbol P.
The material and the structure may differ with the model.
Contact CKD for details.

## How to order

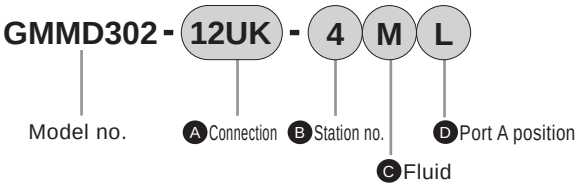
● GMMD3 Series (Connection: ø10, 3/8" tube)




| | | Ⓐ Connection | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 10US | 10BUS | 10UP | 10BUP | 10UA | 10BUA | 10UR | 10BUR | 10UK | 10BUK | 10BUW |
| | | Super type Pillar fitting integrated type | | Super 300 type Pillar fitting P Series integrated type | | F-LOCK 20A series fitting integrated type | | F-LOCK 60 series fitting integrated type | | Final lock fitting integrated type | | FLARETEK fitting integrated type |
| | | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | 3/8" × 1/4" tube connection |
| Symbol | Orifice / Descriptions | ø8 | | ø8 | | ø8 | | ø7 | ø6 | ø8 | | ø6.3 |
| Body material | | PTFE machined body | | | | | | | | | | |
| **Ⓑ Station no.** | | | | | | | | | | | | |
| **1 to 5** | 1 to 5 stations | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **Ⓒ Fluid** | | | | | | | | | | | | |
| **Blank** | Standard | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **M** | For ammonia | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **P** | For hydrofluoric acid | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **Ⓓ Port A position** | | | | | | | | | | | | |
| **Blank** | Right | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **L** | Left | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **W** | Both sides | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

## How to order

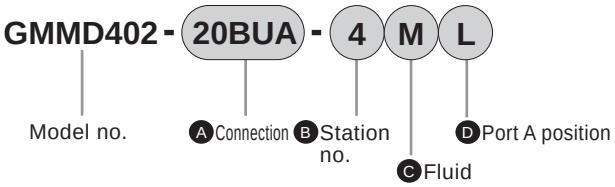
●GMMD3 Series (Connection: ø12, 1/2" tube)




| | | A Connection | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 12US | 15BUS | 12UP | 15BUP | 12UA | 15BUA | 12UR | 15BUR | 12UK | 15BUK | 15BUW |
| | | Super type Pillar fitting integrated type | | Super 300 type Pillar fitting P Series integrated type | | F-LOCK 20A series fitting integrated type | | F-LOCK 60 series fitting integrated type | | Final lock fitting integrated type | | FLARETEK fitting integrated type |
| | | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | 1/2" × 3/8" tube connection |
| Symbol | Orifice / Descriptions | ø10 | | ø10 | | ø10 | | ø9.5 | | ø10 | | ø9.4 |
| Body material | | PTFE machined body | | | | | | | | | | |
| **B Station no.** | | | | | | | | | | | | |
| **1 to 5** | 1 to 5 stations | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **C Fluid** | | | | | | | | | | | | |
| **Blank** | Standard | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **M** | For ammonia | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **P** | For hydrofluoric acid | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **D Port A position** | | | | | | | | | | | | |
| **Blank** | Right | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **L** | Left | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **W** | Both sides | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

## How to order

● GMMD4 Series




| | | Ⓐ Connection | | | | | |
|---|---|---|---|---|---|---|---|
| | | 20BUS | 20BUP | 20BUA | 20BUR | 20BUK | 20BUW |
| | | Super type Pillar fitting integrated type | Super 300 type Pillar fitting P series integrated type | F-LOCK 20A series fitting integrated type | F-LOCK 60 series fitting integrated type | Final lock fitting integrated type | FLARETEK fitting integrated type |
| | | 3/4″ × 5/8″ tube connection | | | | | |
| Symbol | Descriptions \ Orifice | ø16 | ø16 | ø16 | ø15.9 | ø16 | ø14.7 |
| Body material | | PTFE machined body | | | | | |
| **Ⓑ Station no.** | | | | | | | |
| **1 to 5** | 1 to 5 stations | ● | ● | ● | ● | ● | ● |
| **Ⓒ Fluid** | | | | | | | |
| **Blank** | Standard | ● | ● | ● | ● | ● | ● |
| **M** | For ammonia | ● | ● | ● | ● | ● | ● |
| **P** | For hydrofluoric acid | ● | ● | ● | ● | ● | ● |
| **Ⓓ Port A position** | | | | | | | |
| **Blank** | Right | ● | ● | ● | ● | ● | ● |
| **L** | Left | ● | ● | ● | ● | ● | ● |
| **W** | Both sides | ● | ● | ● | ● | ● | ● |

## How to order

●GMMD5 Series

**GMMD502 - 25BUK - 4 M W**

- GMMD502: Model no.
- 25BUK: Ⓐ Connection
- 4: Ⓑ Station no.
- M: Ⓒ Fluid
- W: Ⓓ Port A position

| Symbol / Descriptions | | Ⓐ Connection | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 25US | 25BUS | 25UP | 25BUP | 25BUA | 25UR | 25BUR | 25UK | 25BUK | 25BUW | 15AU | 20AU |
| | | Super type Pillar fitting integrated type | | Super 300 type Pillar fitting P Series integrated type | | F-LOCK 20A series fitting integrated type | F-LOCK 60 series fitting integrated type | | Final lock fitting integrated type | | FLARETEK fitting integrated type | PVC union fitting | |
| | | ø 25 × ø 22 tube connection | 1" × 7/8" tube connection | ø 25 × ø 22 tube connection | 1" × 7/8" tube connection | 1" × 7/8" tube connection (Note 1) | ø 25 × ø 22 tube connection | 1" × 7/8" tube connection | ø25 × ø22 tube connection | 1" × 7/8" tube connection | 1" × 7/8" tube connection | Nominal 16 | Nominal 20 |
| Orifice | | ø20 | | ø20 | | ø20 | ø20 | | ø20 | | ø20 | ø20 | |
| Body material | | PTFE machined body | | | | | | | | | | | |
| **Ⓑ Station no.** | | | | | | | | | | | | | |
| **1 to 4** | 1 to 4 stations | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **Ⓒ Fluid** | | | | | | | | | | | | | |
| **Blank** | Standard | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **M** | For ammonia | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **P** | For hydrofluoric acid | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **Ⓓ Port A position** | | | | | | | | | | | | | |
| **Blank** | Right | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **L** | Left | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **W** | Both sides | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

## Note on model no. selection

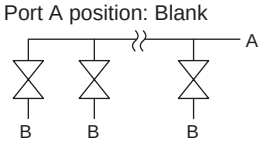
Note 1: Also usable for the ø25 x ø22 tube connection.

## Dimensions

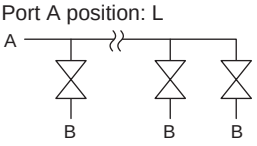
● Fitting integrated type

- GMMD302- *1
- GMMD402- *1
- GMMD502- *1

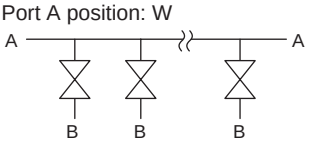
Port A position: Blank

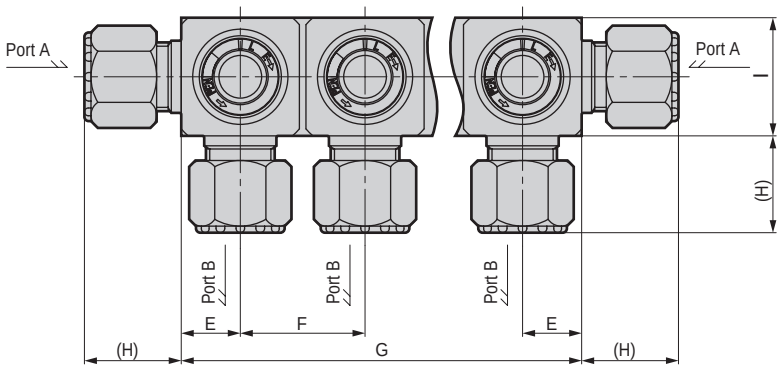


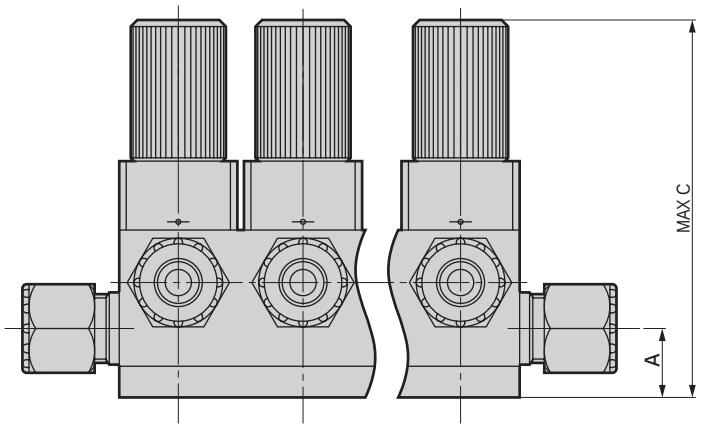

Port A position: L

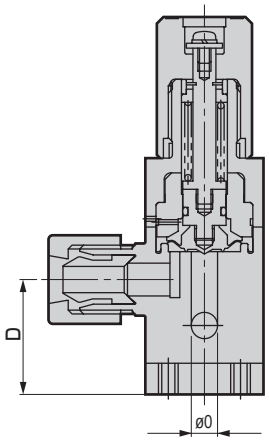


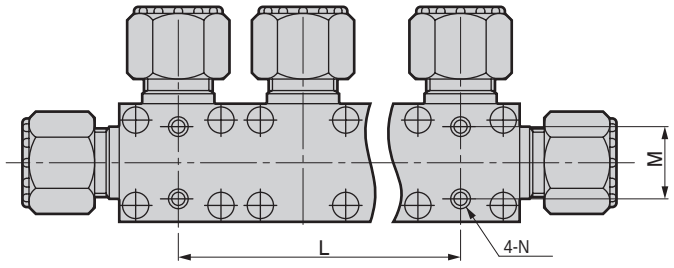

Port A position: W



## Dimensions

| Station no. | Model no. | A | C | D | E | F | G | I | L | M | N |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | GMMD302 | 21 | 120 | 36 | 18 | 38 | 36 | 36 | – | 22±0.3 | M6 depth 9 |
| | GMMD402 | 27 | 153 | 46 | 23 | 48 | 46 | 46 | – | 28±0.3 | M8 depth 10 |
| | GMMD502 | 35 | 192 | 60 | 30 | 62 | 60 | 60 | – | 40±0.3 | M8 depth 13 |
| 2 | GMMD302 | 21 | 120 | 36 | 18 | 38 | 74 | 36 | 38±0.3 | 22±0.3 | M6 depth 9 |
| | GMMD402 | 27 | 153 | 46 | 23 | 48 | 94 | 46 | 48±0.4 | 28±0.3 | M8 depth 10 |
| | GMMD502 | 35 | 192 | 60 | 30 | 62 | 122 | 60 | 62±0.4 | 40±0.3 | M8 depth 13 |
| 3 | GMMD302 | 21 | 120 | 36 | 18 | 38 | 112 | 36 | 76±0.4 | 22±0.3 | M6 depth 9 |
| | GMMD402 | 27 | 153 | 46 | 23 | 48 | 142 | 46 | 96±0.5 | 28±0.3 | M8 depth 10 |
| | GMMD502 | 35 | 192 | 60 | 30 | 62 | 184 | 60 | 124±0.5 | 40±0.3 | M8 depth 13 |
| 4 | GMMD302 | 21 | 120 | 36 | 18 | 38 | 150 | 36 | 114±0.5 | 22±0.3 | M6 depth 9 |
| | GMMD402 | 27 | 153 | 46 | 23 | 48 | 190 | 46 | 144±0.5 | 28±0.3 | M8 depth 10 |
| | GMMD502 | 35 | 192 | 60 | 30 | 62 | 246 | 60 | 186±0.7 | 40±0.3 | M8 depth 13 |
| 5 | GMMD302 | 21 | 120 | 36 | 18 | 38 | 188 | 36 | 152±0.7 | 22±0.3 | M6 depth 9 |
| | GMMD402 | 27 | 153 | 46 | 23 | 48 | 238 | 46 | 192±0.7 | 28±0.3 | M8 depth 10 |

GMMD302 (10 mm)

| *1 (Connection model no.) | H | O |
|---|---|---|
| 10US | 25 | 8 |
| 10BUS | 25 | 8 |
| 10UP | 25 | 8 |
| 10BUP | 25 | 8 |
| 10UA | 21 | 8 |
| 10BUA | 21 | 8 |
| 10UR | 37 | 7 |
| 10BUR | 39 | 6 |
| 10UK | 30 | 8 |
| 10BUK | 30 | 8 |
| 10BUW | 32.5 | 6.3 |

GMMD302 (12 mm)

| *1 (Connection model no.) | H | O |
|---|---|---|
| 12US | 29.5 | 10 |
| 15BUS | 29.5 | 10 |
| 12UP | 29 | 10 |
| 15BUP | 29 | 10 |
| 12UA | 25 | 10 |
| 15BUA | 25 | 10 |
| 12UR | 37 | 9.5 |
| 15BUR | 39 | 9.5 |
| 12UK | 33 | 10 |
| 15BUK | 33 | 10 |
| 15BUW | 33.5 | 9.4 |

GMMD402

| *1 (Connection model no.) | H | O |
|---|---|---|
| 20BUS | 39 | 16 |
| 20BUP | 36 | 16 |
| 20BUA | 31 | 16 |
| 20BUR | 44 | 15.9 |
| 20BUK | 36.5 | 16 |
| 20BUW | 38 | 14.7 |

GMMD502

| *1 (Connection model no.) | H | O |
|---|---|---|
| 25US | 43.5 | 20 |
| 25BUS | 43.5 | 20 |
| 25UP | 43 | 20 |
| 25BUP | 43 | 20 |
| 25BUA | 40 | 20 |
| 25UR | 49.5 | 20 |
| 25BUR | 51 | 20 |
| 25UK | 40.5 | 20 |
| 25BUK | 40.5 | 20 |
| 25BUW | 48 | 20 |

Chemial liquid manual valve

# MMD20/MMD30/MMD40 Series

Metal free design with flow rate adjustment and closing functions

- Orifice: ø8,ø10,ø12,ø16, ø20

CAD

Subject to Export Trade Control Ordinances

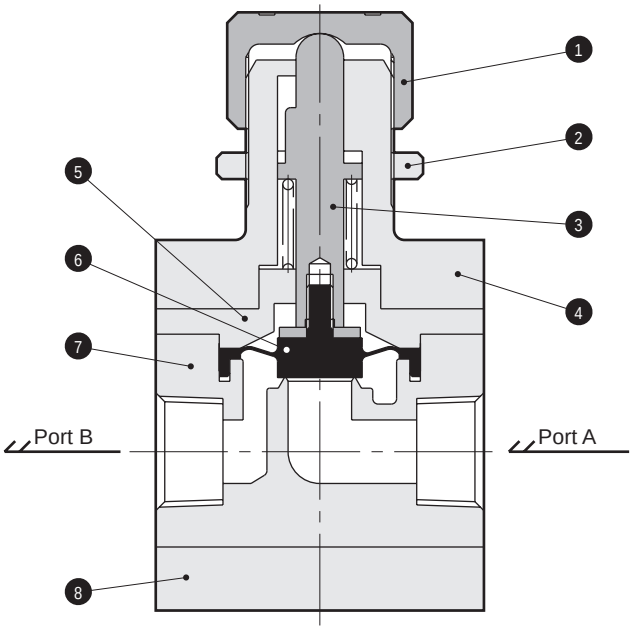
Target: Valves with ø12 or larger orifice

## Specifications

| Descriptions | MMD20 | MMD30 | | MMD40 | |
|---|---|---|---|---|---|
| Working fluid | Chemical liquid, pure water, $N_2$ gas, air (Note 2) | | | | |
| Fluid temperature °C | 5 to 60 (5 to 90) (Note 3) | | | | |
| Withstanding pressure MPa | 1.4 | | | | |
| Working pressure range MPa | 0 to 0.5 | | | 0 to 0.4 | |
| Valve seat leakage $cm^3/min$ | 0 (under water pressure) | | | | |
| Ambient temperature °C | 0 to 40 | | | | |
| Installation attitude | Free | | | | |
| Connection (Note 1) | Rc3/8 | Rc1/2 | | Rc3/4 | |
| Orifice | ø8 | ø10 | ø12 | ø16 | ø20 |
| Cv value | 1.25 | 1.8 | 2.5 | 5.2 | 8 |

Note 1: The fitting integrated type is also available.
Note 2: Check the compatibility of the material of each component, working fluid, and ambient atmosphere before use.
Note 3: 5 to 40 °C for hydrofluoric acid.

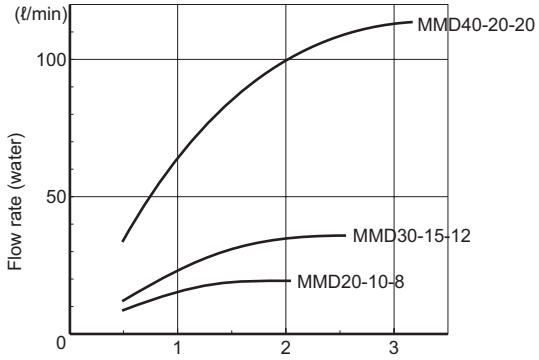
### Internal structure and parts list




| No. | Parts name | Material (Fluid symbol) | |
|---|---|---|---|
| | | Standard | F |
| 1 | Adjusting knob | CPVC | |
| 2 | Lock nut | CPVC | |
| 3 | Rod | CPVC | CPVC/PVDF |
| 4 | Cover | CPVC | |
| 5 | Diaphragm holder | CPVC | |
| 6 | Diaphragm | PTFE | |
| 7 | Body | PFA | |
| 8 | Mounting plate | CPVC | |

The material and the structure may differ with the model.
Contact CKD for details.

### Flow rate - No. of adjusting knob turns (at differential pressure of 0.1 MPa)




No. of rotation-flow rate at differential pressure 0.1 MPa

- Note 1: Set the adjusting knob 3/8 round or more open from the complete closed position. Using the product with less opening may cause vibration or fluctuation in flow depending on the working conditions.

- Tighten the adjusting knob with the following torque.

| | |
|---|---|
| MMD20 | 0.4 to 0.6 |
| MMD30 | 0.8 to 1.6 |
| MMD40 | 2.0 to 2.8 |

(N•m)

⚠ Read the precautions on Intro 7 to 14 before use.

## How to order

● MMD2 Series

**MMD20 - 10 - 8 - F**

Model no.

Ⓐ Connection

Ⓑ Fluid

| Symbol | Descriptions | Ⓐ Connection | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 10 | 10US | 10BUS | 10UF | 10BUF | 10UA | 10BUA |
| | | Rc 3/8 | Super type Pillar fitting integrated type | | F-LOCK 20 series fitting integrated type | | F-LOCK 20A series fitting integrated type | |
| | | | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection |
| **Ⓑ Fluid** | | | | | | | | |
| **Blank** | Standard | ● | ● | ● | ● | ● | ● | ● |
| **F** | For medium temperature (5 to 90 °C) | ● | ● | ● | ● | ● | ● | ● |

● MMD3 Series

**MMD30 - 12US - 10 - F**

Model no.

Ⓐ Connection

Ⓑ Orifice

Ⓒ Fluid

| Symbol | Descriptions | Ⓐ Connection | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 15 | 12US | 15BUS | 12UF | 15BUF | 12UA | 15BUA |
| | | Rc 1/2 | Super type Pillar fitting integrated type | | F-LOCK 20 series fitting integrated type | | F-LOCK 20A series fitting integrated type | |
| | | | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection |
| **Ⓑ Orifice** | | | | | | | | |
| 10 | ø10 | | ● | ● | ● | ● | ● | ● |
| 12 | ø12 | ● | | | | | | |
| **Ⓒ Fluid** | | | | | | | | |
| Blank | Standard | ● | ● | ● | ● | ● | ● | ● |
| F | For medium temperature (5 to 90 °C) | ● | ● | ● | ● | ● | ● | ● |

## How to order

● MMD4 Series

**MMD40 - 20 - 20 - F**

Model no.

Ⓐ Connection

Ⓑ Orifice

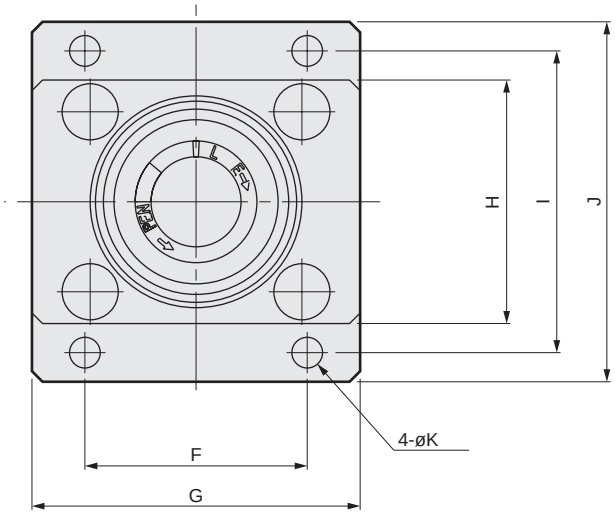
Ⓒ Fluid

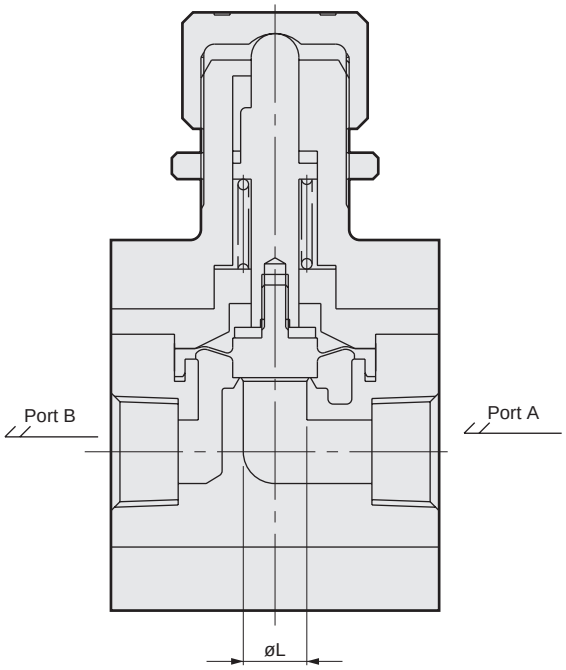
| Symbol | Descriptions | Ⓐ Connection 20 | 20BUS | 20BUF | 20BUA |
|---|---|---|---|---|---|
| | | Rc 3/4 | Super type Pillar fitting integrated type | F-LOCK 20 series fitting integrated type | F-LOCK 20A series fitting integrated type |
| | | | 3/4″ × 5/8″ tube connection | | |
| **Ⓑ Orifice** | | | | | |
| **16** | ø16 | | ● | ● | ● |
| **20** | ø20 | ● | | | |
| **Ⓒ Fluid** | | | | | |
| **Blank** | Standard | ● | ● | ● | ● |
| **F** | For medium temperature (5 to 90 °C) | ● | ● | ● | ● |

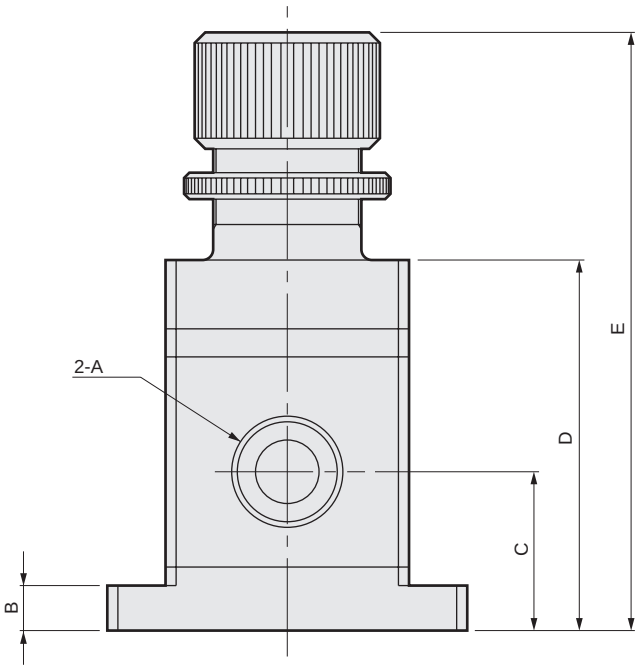
## Dimensions

● Rc thread type

- MMD20
- MMD30
- MMD40




| Symbol / Model no. | A | B | C | D | E | F | G | H | I | J | K | øL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MMD20-10-8 | Rc3/8 | 7 | 22 | 56 | MAX 100 | 34 | 44 | 36 | 46 | 56 | 5.8 | 8 |
| MMD30-15-12 | Rc1/2 | 8 | 30 | 70 | MAX 115 | 42 | 62 | 46 | 57 | 68 | 5.8 | 12 |
| MMD40-20-20 | Rc3/4 | 8 | 34 | 84 | MAX 136 | 56 | 80 | 58 | 71 | 84 | 6.8 | 20 |

Chemical liquid toggle valve

# TMDZ02/TMD002/TMD302 Series

One-touch manual open/close

● Orifice: ø2, ø4, ø10, ø12

CAD

Subject to Export Trade Control Ordinances

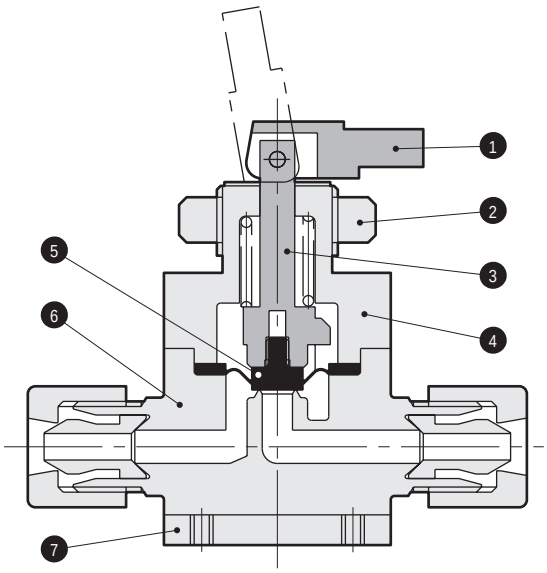
Target: Valves with ø12 orifice

## Specifications

| Descriptions | TMDZ02-*-2 | TMD002-*-4 | TMD302-*-* | |
|---|---|---|---|---|
| Working fluid | Chemical liquid, pure water, $N_2$ gas, air (Note 5) | | | |
| Fluid temperature °C | 5 to 60 (Note 4) | | | |
| Withstanding pressure MPa | 1.4 | | | |
| Working pressure range (A → B) MPa | 0 to 0.5 | | | |
| Working pressure range (B → A) MPa | 0 to 0.3 (TMDZ/TMD0), 0 to 0.15 (TMD3) | | | |
| Valve seat leakage $cm^3$/min | 0 (under water pressure) | | | |
| Back pressure MPa | 0 to 0.3 | | 0 to 0.15 | |
| Ambient temperature °C | 0 to 40 | | | |
| Installation attitude | Free | | | |
| Connection | Rc1/8<br>OD ø3 tube connection<br>OD 1/8″ tube connection | Rc1/8<br>OD ø6 tube connection<br>OD 1/4″ tube connection | Rc1/2<br>OD ø12 tube connection<br>OD 1/2″ tube connection | |
| Orifice | ø2 | ø4 | ø10 | ø12 |
| Cv value | 0.08 (Note 1) | 0.32 | 1.8 | 2.5 |

Note 1: The Cv value for the PFA body connection Rc 1/8 is 0.12.
Note 2: Contact CKD for other port sizes.
Note 3: Contact CKD for other knob operation types (180° movable, automatic return).
Note 4: 5 to 40°C for hydrofluoric acid.
Note 5: TMDZ02 and TMD002 can not be used for oxidized fluid.
Check the compatibility of the material of each component, working fluid, and ambient atmosphere before use.

## Internal structure and parts list




| No. | Parts name | Material (for each model no.) | | |
|---|---|---|---|---|
| | | TMDZ02 | TMDZ00 | TMD302 |
| 1 | Adjusting knob | CPVC | | |
| 2 | Lock nut | CPVC | | |
| 3 | Rod | CPVC | | |
| 4 | Cover | CPVC | | |
| 5 | Diaphragm | PTFE | | |
| 6 | Body | PFA | | |
| 7 | Mounting plate | SUS304 | | CPVC |

The material and the structure may differ depending on the model. Contact CKD for details.

⚠ Read the precautions on Intro 7 to 14 before use.

## How to order

● TMDZ/TMD0 Series

**TMDZ02** - **3US** - **2**
**TMD002**

Ⓑ Orifice

Model no.

Ⓐ Connection

| | | TMDZ | | | TMD0 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ⓐ Connection | | 6 | 3US | 6BUS | 6 | 6US | 8BUS | 6UP | 8BUP | 6UF | 8BUF |
| | | Rc 1/8 | Super type Pillar fitting integrated type | | Rc 1/8 | Super type Pillar fitting integrated type | | Super 300 type Pillar fitting P Series integrated type | | F-LOCK 20 series fitting integrated type | |
| | | | ø3 × ø2 tube connection | 1/8" × 0.086" tube connection | | ø6 × ø4 tube connection | 1/4" × 5/32" tube connection | ø6 × ø4 tube connection | 1/4" × 5/32" tube connection | ø6 × ø4 tube connection | ø6.35 × ø4.3 tube connection |
| Symbol | Descriptions | | | | | | | | | | |
| Ⓑ Orifice | | | | | | | | | | | |
| 2 | ø2 | ● | ● | ● | | | | | | | |
| 4 | ø4 | | | | ● | ● | ● | ● | ● | ● | ● |

● TMD3 Series

**TMD302** - **12US** - **10**

Ⓑ Orifice

Model no.

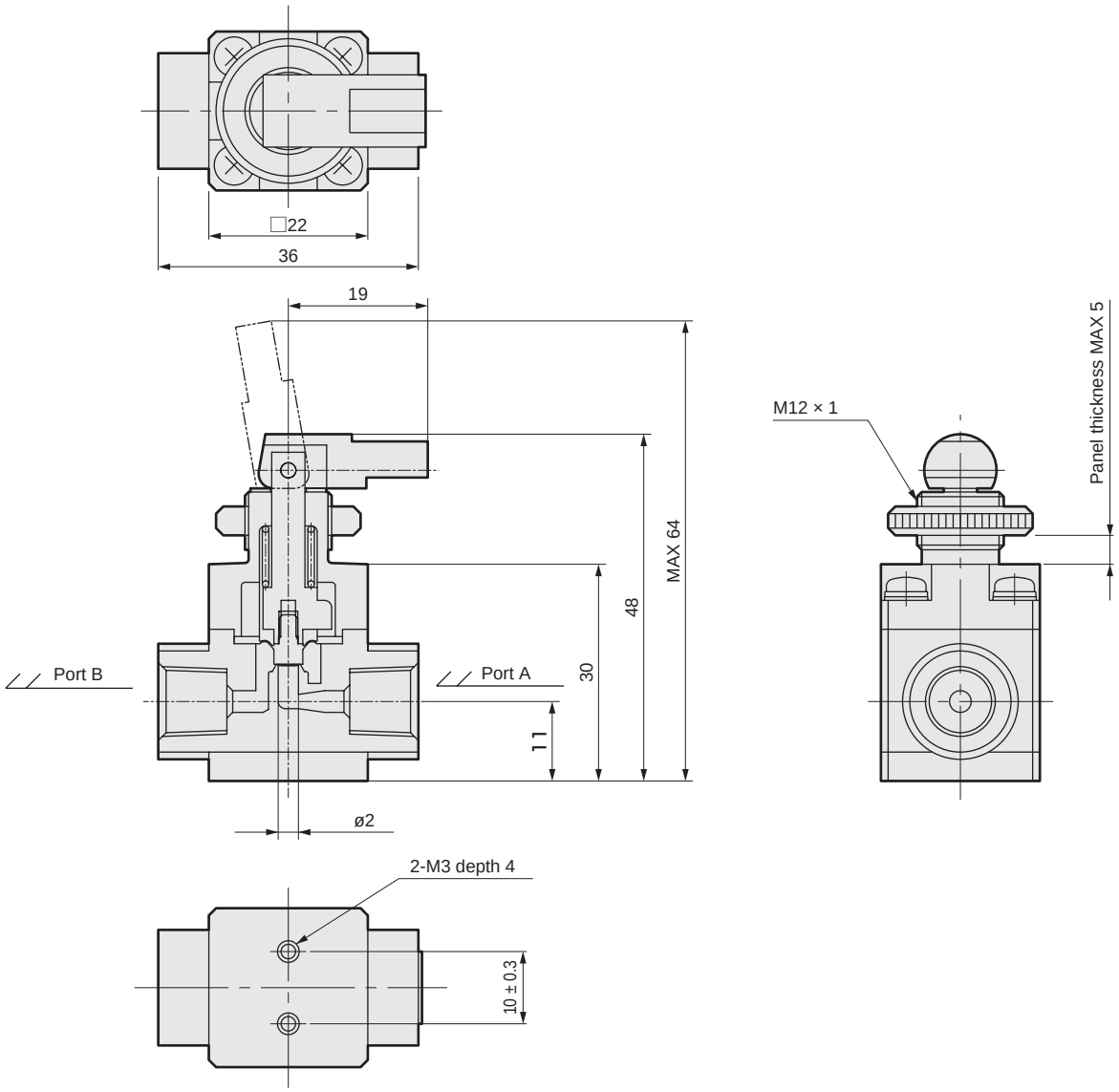
Ⓐ Connection

| | | TMD3 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Ⓐ Connection | | 15 | 12US | 15BUS | 12UF | 15BUF | 12UA | 15BUA |
| | | Rc 1/2 | Super type Pillar fitting integrated type | | F-LOCK 20 series fitting integrated type | | F-LOCK 20A series fitting integrated type | |
| | | | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection | ø12 × ø10 tube connection | 1/2" × 3/8" tube connection |
| Symbol | Descriptions | | | | | | | |
| Ⓑ Orifice | | | | | | | | |
| 10 | ø10 | | ● | ● | ● | ● | ● | ● |
| 12 | ø12 | ● | | | | | | |

## Dimensions

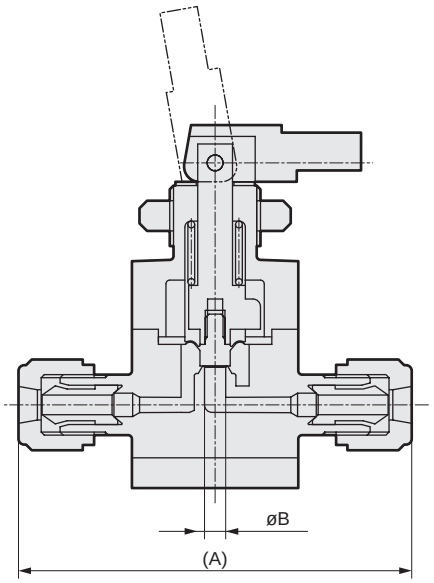
● Rc thread type

• TMDZ02-6-2




● Fitting integrated type

• TMDZ02- *1 -2

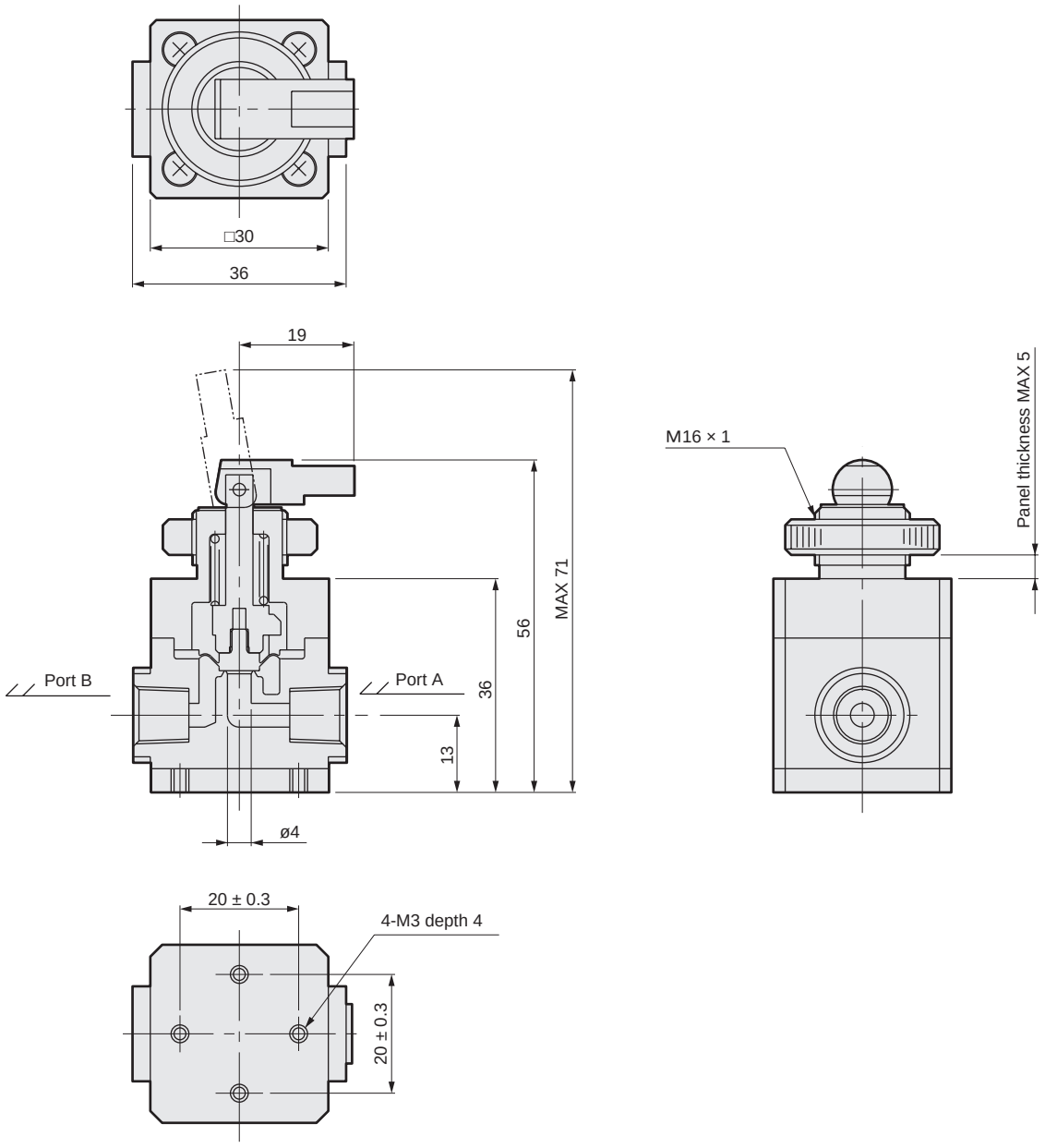



| Dimensions *1 (Connection model no.) | A | B |
|---|---|---|
| 3US | 50 | 2 |
| 6BUS | 50 | 2 |
| 3UF | 40 | 2 |
| 3UR | 57 | 1.6 |
| 6BUR | 57 | 1.6 |

## Dimensions

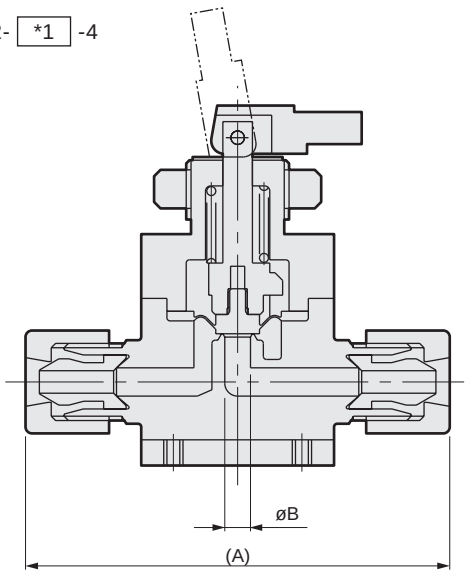
● Rc thread type

• TMD002-6-4




● Fitting integrated type

• TMD002- *1 -4



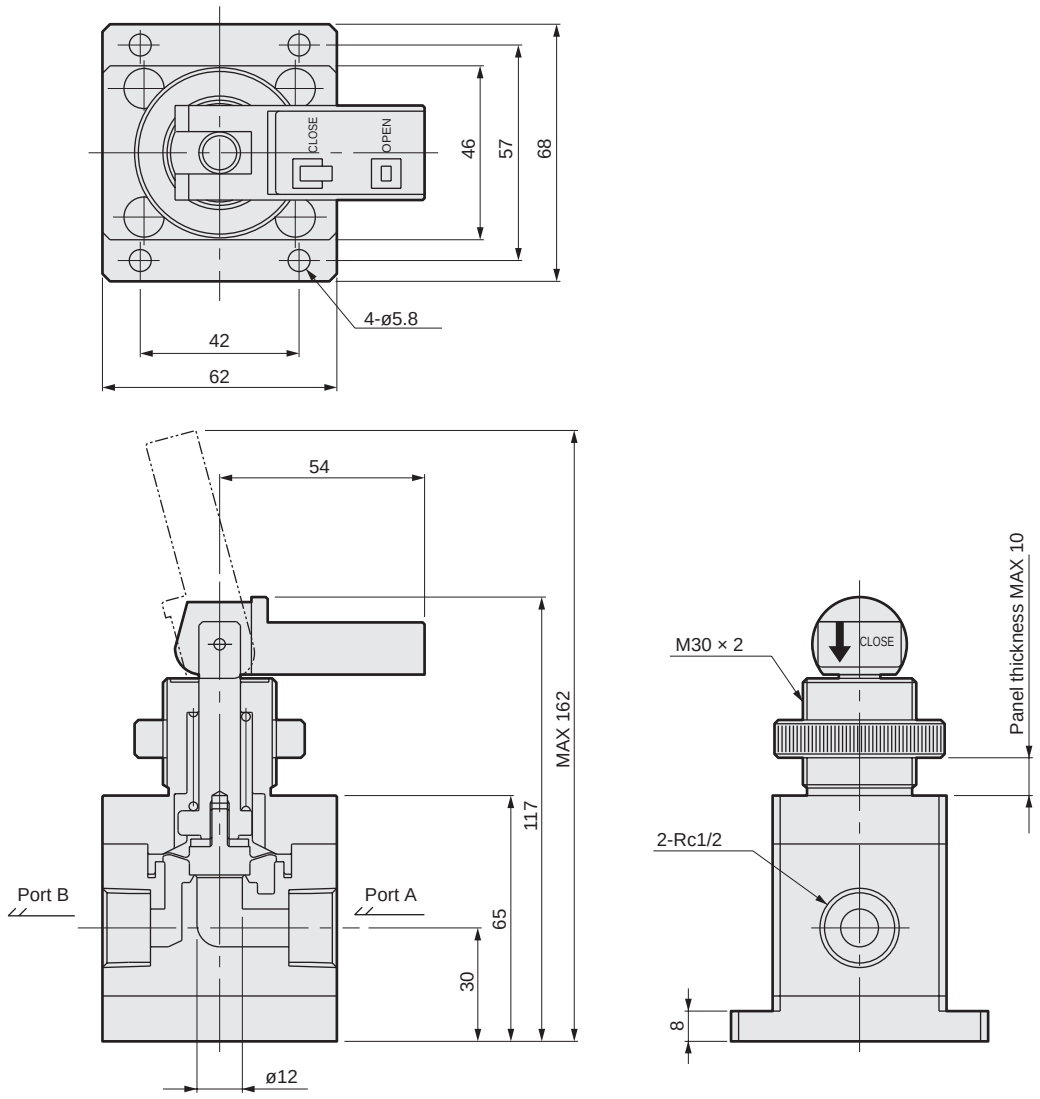

| Dimensions *1 (Connection model no.) | A | B |
|---|---|---|
| 6US | 66 | 4 |
| 8BUS | 66 | 4 |
| 6UP | 68 | 4 |
| 8BUP | 68 | 4 |

| Dimensions *1 (Connection model no.) | A | B |
|---|---|---|
| 6UF | 64 | 4 |
| 8BUF | 64 | 4 |
| 6UR | 90 | 3.5 |
| 8BUR | 92 | 3.5 |
| 6UK | 71 | 4 |
| 8BUK | 71 | 4 |
| 8BUW | 86 | 3 |

## Dimensions

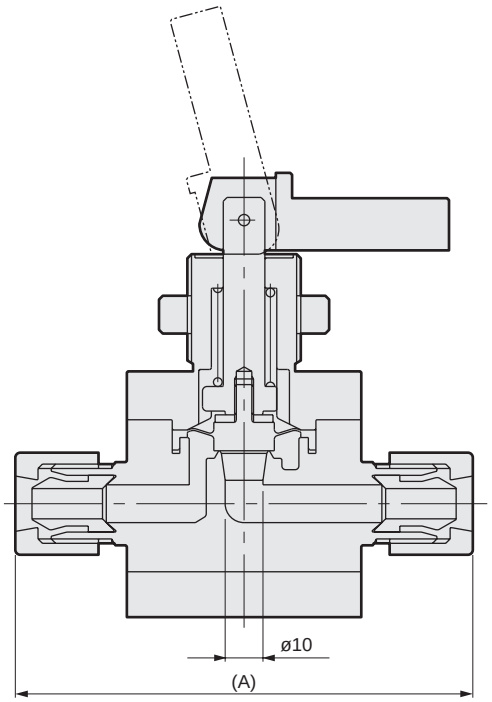
● Rc thread type

• TMD302-15-12




● Fitting integrated type

• TMD302- *1 -10




| Dimensions *1 (Connection model no.) | A |
|---|---|
| 12US | 121 |
| 15BUS | 121 |
| 12UF | 112 |
| 15BUF | 112 |
| 12UA | 112 |
| 15BUA | 112 |

Flow control valve

# FMD00 Series

This microflow adjustment valve has been designed to enable to use with highly corrosive fluids.

● Orifice: ø1.6, ø3.5

RoHS

## Specifications

| Descriptions | | FMD00-* | FMD00-*-1 |
|---|---|---|---|
| Working fluid | | Pure water, chemical liquid, air, $N_2$ gas (Note 1) | |
| Fluid temperature | °C | 5 to 80 (Note 2) | |
| Withstanding pressure | MPa | 1 | |
| Working pressure range | MPa | 0 to 0.3 | |
| Ambient temperature | °C | 0 to 40 | |
| Installation attitude | | Free | |
| Connection | | OD ø6 tube connection (fitting integrated type)<br>OD 1/4" tube connection (fitting integrated type)<br>OD ø10 tube connection (fitting integrated type)<br>OD 3/8" tube connection (fitting integrated type) | |
| Orifice | | ø1.6 | ø3.5 |

Note 1: Check the compatibility of the material of each component, working fluid, and ambient atmosphere before use.
Note 2: 5 to 40 °C for hydrofluoric acid.

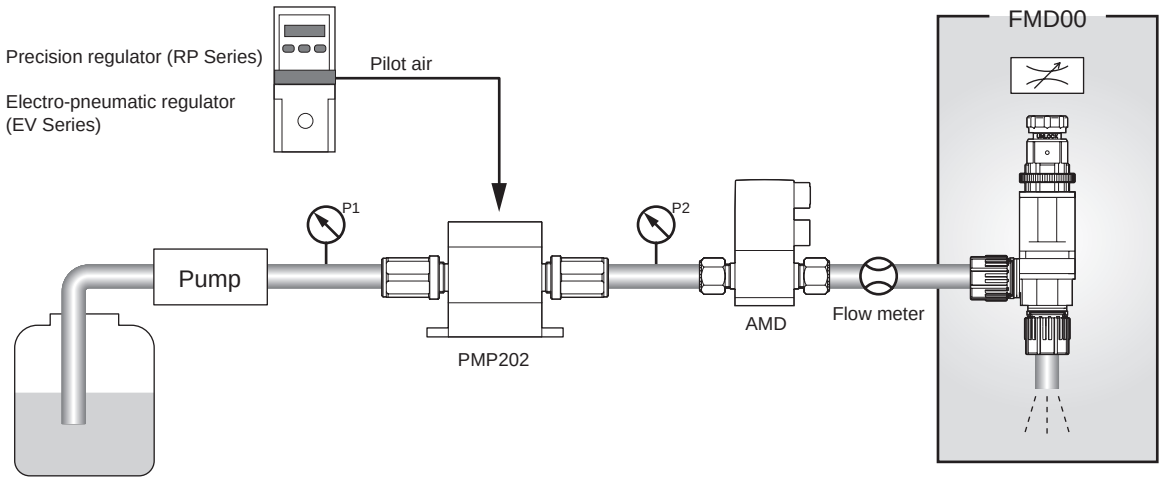
## How to order

FMD00 - 6UP - 1

Model no. Ⓐ Connection Ⓑ Orifice

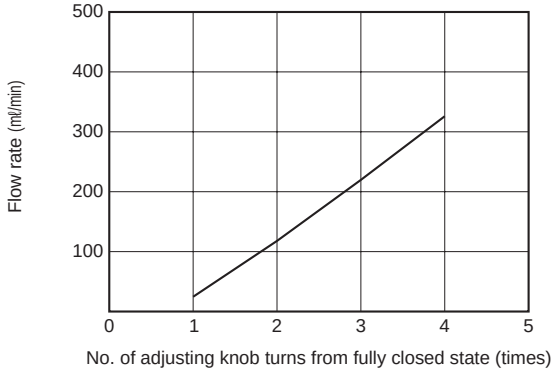
| Symbol | Descriptions | Ⓐ Connection | | | |
|---|---|---|---|---|---|
| | | 6UP | 8BUP | 10UP | 10BUP |
| | | Super 300 type<br>Pillar fitting P Series integrated type | | | |
| | | ø6 × ø4 tube connection | 1/4" × 5/32" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection |
| Ⓑ Orifice | | | | | |
| Blank | ø1.6 | ● | ● | ● | ● |
| 1 | ø3.5 | ● | ● | ● | ● |

## Applications

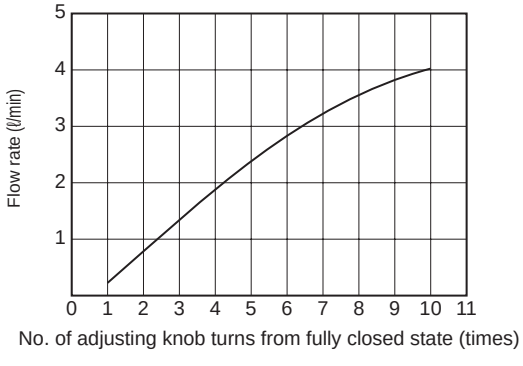



## Flow characteristics ΔP = 0.1 MPa Fluid: water (Reference data)

● FMD00-8BUP (Orifice ø1.6)

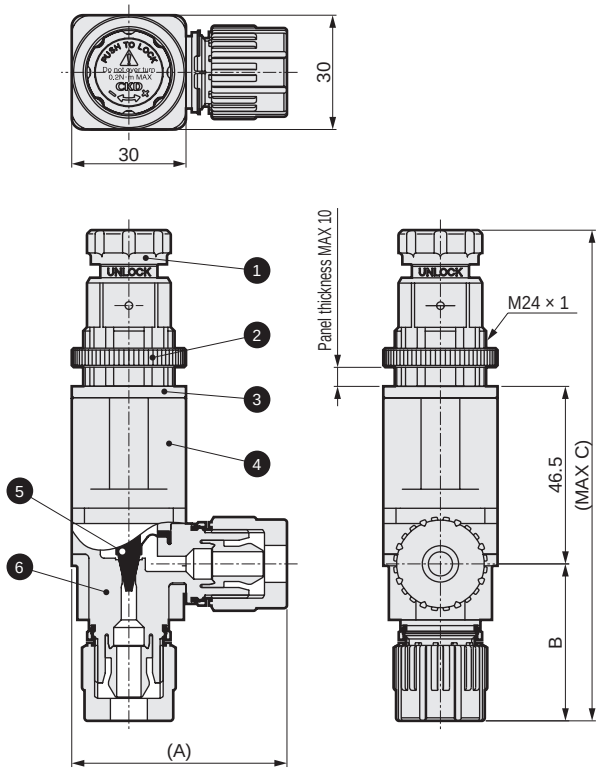



● FMD00-8BUP-1 (Orifice ø3.5)




⚠ Read the precautions on Intro 7 to 14 before use.

## Internal structure and parts list/dimensions




| No. | Parts name | Material |
|---|---|---|
| 1 | Adjusting knob | PP |
| 2 | Lock nut | PP |
| 3 | Gasket | FKM |
| 4 | Cover | PP |
| 5 | Diaphragm | PTFE |
| 6 | Body | PFA |

The material and the structure may differ with the model.
Contact CKD for details.

| Connection model no. | A | B | C |
|---|---|---|---|
| 6UP | 51 | 36 | 123 |
| 8BUP | 51 | 36 | 123 |
| 10UP | 57 | 42 | 129 |
| 10BUP | 57 | 42 | 129 |

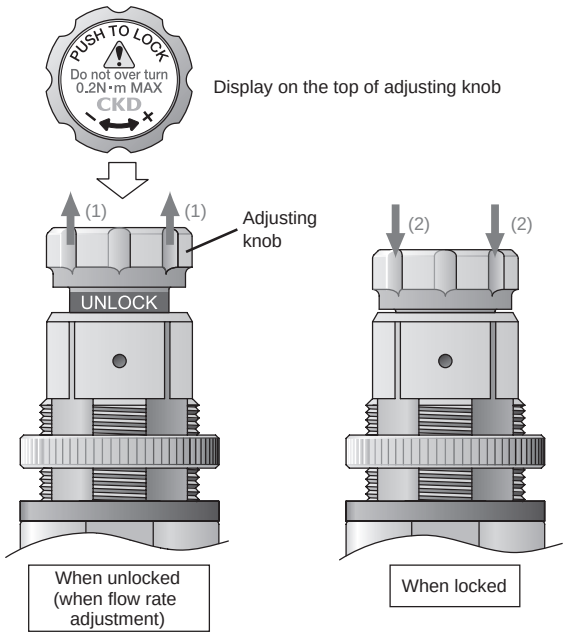
## How to operate flow control valve

When operating the flow control valve, confirm the flow rate with the flow meter, and do not turn the adjusting knob too far.
(Use 0.2 N·m or less for knob rotation torque)

- When increasing flow
  Slide the adjusting knob upward until the letters of UNLOCK can be confirmed. (↑**(1)**) turn the [Unlock state] adjusting knob to + direction.

- When decreasing flow
  Slide the adjusting knob upward until the letters of UNLOCK can be confirmed. (↑**(1)**) turn the [Unlock state] adjusting knob to - direction.

- Locking adjusting knob
  After operating the adjusting knob, slide the adjusting knob downward until the letters of UNLOCK disappears to lock the adjusting knob so that it does not rotate. (↓**(2)**)[When locked]
  → **This prevents incorrect operation.**



## WARNING

For installation of valve body, fix the valve to the device with a panel mount. Supporting only with a fitting may cause damage in body, piping, and fitting.

## CAUTION

### 1 Flow setting

- When operating the valve, turn the knob with a rotational torque of 0.2 N·m or less. A torque exceeding 0.2 N·m could damage the product.
- Do not pull the knob forcefully when unlocking.
- Do not carry the product by the knob only.
- Before using, test with actual working conditions to confirm that there is no vibration. Vibration could shorten the product's life.
- This product does not have a close-stop function, so the fluid cannot be close-stopped. If fluid must be close-stopped, use a valve with a close-stop function. If the fluid is close-stopped with this product, the valve seat will be crushed, and product flow controllability will deteriorate.
- When the microflow setting is used, the valve opening will also be at the smallest setting. If the fluid contains foreign matter, the valve could become clogged and the flow rate could vary.
- If the fluid temperature changes, the fluorine resin volume could expand and cause the valve opening to change and ultimately the flow rate to change.

# AMS/AMDS

## Overview

After the flow path closes, this valve leads fluid at the end of the nozzle into the pipe to prevent fluid from dripping from the nozzle while the flow path is closed. Three valve types are used: discrete drip prevention, type integrated with air-operated valve for chemical liquid, and electronically controlled.

## Features

### Drip prevention valve AMS

- Compact, lightweight downsized valve
- PPS actuator material almost eliminates discoloration and melting caused by solvents.
- Integrated fitting (molded PFA body) eliminates particles.

### Air-operated valve for chemical liquid and drip prevention valve integrated type AMDS

- Integrated with air-operated valve for chemical liquid
  Piping work hours have been reduced, realizing a lighter, more compact valve.
- Improved corrosion resistance
  Fluorine resin is used for all wet areas, enabling use with various chemical liquid and pure water.
- Contamination and leakage measures
  The integrated fitting eliminates leakage and fluid residue.


| | |
|---|---|
| ⚠ Precautions | Intro 7 |
| AMS | 124 |
| AMDS (air-operated valve and drip prevention valve integrated type) | 128 |

Drip prevention valve for chemical liquid

# AMSZ2/AMS022 Series

Drip preventable valve for nozzle end control prevents dripping

- Maximum suction rate: 0.04 $cm^3$, 0.12 $cm^3$

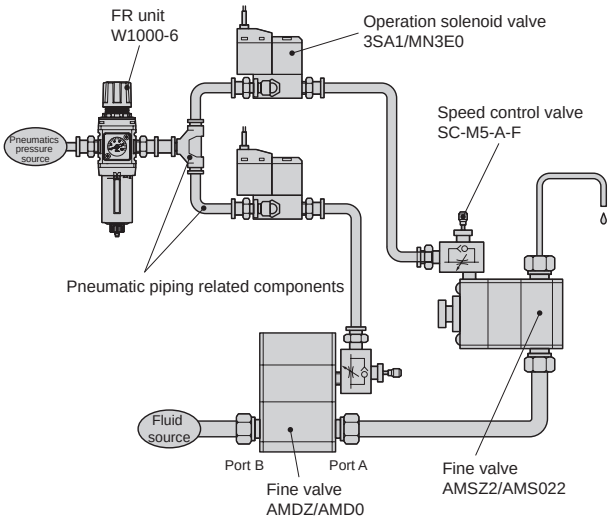
RoHS CAD

## Specifications

| Descriptions | | | AMSZ2-* | AMS022-* |
|---|---|---|---|---|
| Working fluid | | | Chemical liquid, pure water (Note 1) | |
| Fluid temperature | | °C | 5 to 80 | |
| Withstanding pressure | | MPa | 0.6 | |
| Working pressure range | | MPa | 0 to 0.2 | |
| Ambient temperature | | °C | 0 to 60 | |
| Installation attitude | | | Side installation with port in vertical direction (OUT port upward) | |
| Connection | | | Rc1/8<br>OD ø3 tube connection<br>OD 1/8″ tube connection | Rc1/8<br>OD ø6 tube connection<br>OD 1/4″ tube connection |
| Operation section | Operation pressure | MPa | 0.3 to 0.5 | |
| | Operation port | | M5 | |
| Maximum suction rate | | $cm^3$ | 0.04 | 0.12 |

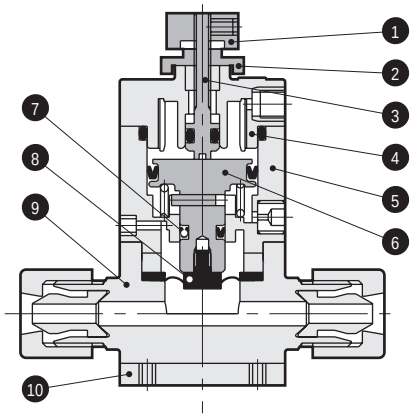
Note 1: This product can not be used for oxidized fluid. Contact CKD if using oxidized fluid and aqueous ammonia.
Check the compatibility of the material of each component, working fluid, and ambient atmosphere before use.

## Usage examples and related products




Refer to the Pneumatic Valves and Pneumatic components for clean room specification for details on related products.
(Catalog No.CB-033SA).

## Internal structure and parts list




| No. | Parts name | Material (body material) | |
|---|---|---|---|
| | | Standard | D |
| 1 | Adjusting knob | SUS303 | |
| 2 | Lock nut | SUS303 | |
| 3 | Adjustment rod | SUS303 | |
| 4 | Cover | PPS | |
| 5 | Cylinder | PPS | |
| 6 | Piston rod | SUS303 | |
| 7 | Y packing seal | NBR | |
| 8 | Diaphragm | PTFE | |
| 9 | Body | PFA/PTFE | SUS316 |
| 10 | Mounting plate | SUS304 | — |

The material and the structure may differ with the model.
Contact CKD for details.

Read the precautions on Intro 7 to 14 before use.

## How to order

● AMSZ Series

**AMSZ2 - 6 - D**

- AMSZ2: Model no.
- 6: Ⓐ Connection
- D: Ⓑ Body material

| Ⓐ Connection | | | | | |
|---|---|---|---|---|---|
| 6 | 3US | 6BUS | 3UF | 3UR | 6BUR |
| Rc 1/8 | Super type Pillar fitting integrated type | | F-LOCK 20 series fitting integrated type | F-LOCK 60 series fitting integrated type | |
| | ø3 × ø2 tube connection | 1/8" × 0.086" tube connection | ø3 × ø2 tube connection | ø3 × ø2 tube connection | 1/8" × 1/16" tube connection |

| Symbol | Descriptions | | | | | |
|---|---|---|---|---|---|---|
| **Ⓑ Body material** | | | | | | |
| Blank | PFA molded body or PTFE machined body | PTFE | PFA | | PTFE | PTFE |
| D | Stainless steel body | ● | | | | |

● AMS0 Series

**AMS022 - 8BUS -**

- AMS022: Model no.
- 8BUS: Ⓐ Connection
- (blank): Ⓑ Body material

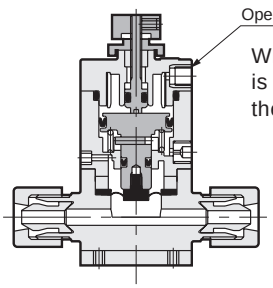
| Ⓐ Connection | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 6US | 8BUS | 6UP | 8BUP | 6UF | 8BUF | 6UR | 8BUR | 6UK | 8BUK | 8BUW |
| Rc 1/8 | Super type Pillar fitting integrated type | | Super 300 type Pillar fitting P Series integrated type | | F-LOCK 20 series fitting integrated type | | F-LOCK 60 series fitting integrated type | | Final lock fitting integrated type | | FLARETEK fitting integrated type |
| | ø6 × ø4 tube connection | 1/4" × 5/32" tube connection | ø6 × ø4 tube connection | 1/4" × 5/32" tube connection | ø6 × ø4 tube connection | ø6.35 × ø4.3 tube connection | ø6 × ø4 tube connection | 1/4" × 5/32" tube connection | ø6 × ø4 tube connection | 1/4" × 5/32" tube connection | 1/4" × 5/32" tube connection |

| Symbol | Descriptions | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ⓑ Body material** | | | | | | | | | | | |
| **Blank** | PFA molded body or PTFE machined body | PTFE | PFA | | PTFE | | PTFE | | PTFE | | | PTFE |
| **D** | Stainless steel body | ● | | | | | | | | | | |

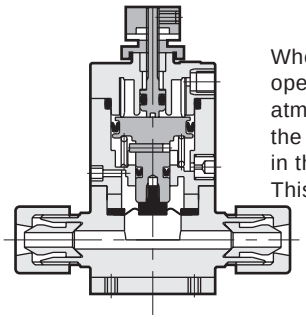
## Note on model no. selection

Note 1: Contact CKD when selecting an all-resin actuator applicable to oxidized fluids.

## Operational principle




When fluids flow, pneumatic pressure is applied on the operation port, and the diaphragm is lowered.



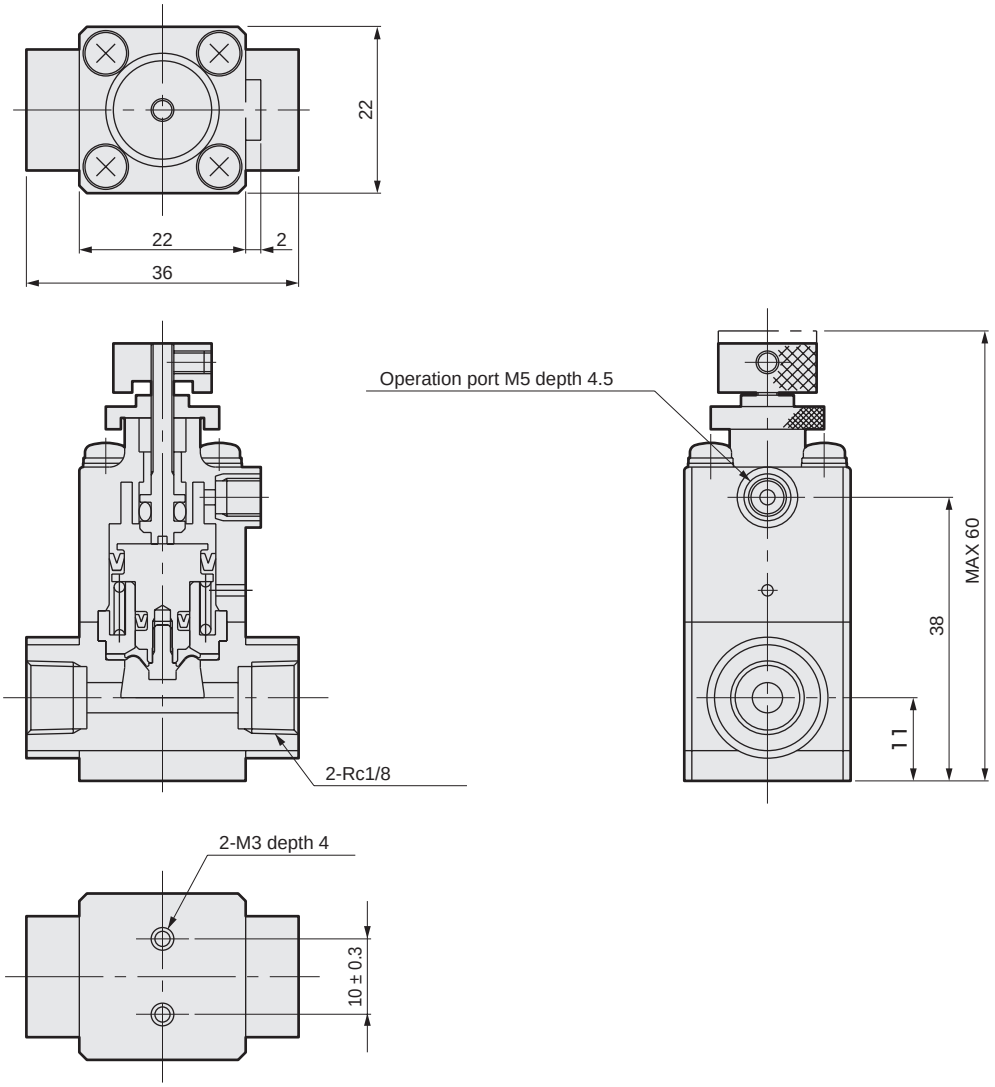
When fluid is stopped and air at the operation port is released into the atmosphere, the diaphragm rises with the force of the spring, and the volume in the drip prevention valve increases. This prevents fluid from dripping.

## Dimensions

● Rc thread type

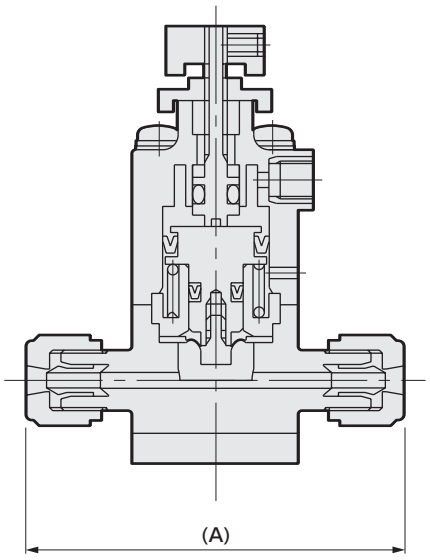
• AMSZ2-6

• AMSZ2-6-D




● Fitting integrated type

• AMSZ2- *1



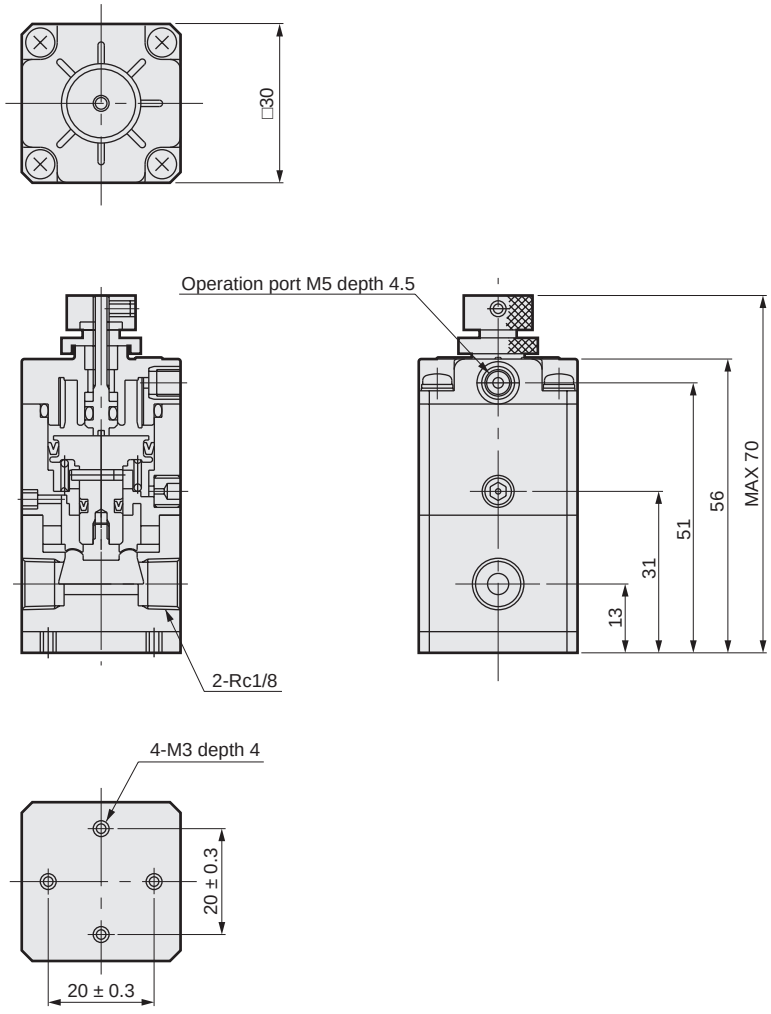

| Dimensions *1 (Connection model no.) | A |
|---|---|
| 3US | 50 |
| 6BUS | 50 |
| 3UF | 40 |
| 3UR | 57 |
| 6BUR | 57 |

## Dimensions

● Rc thread type

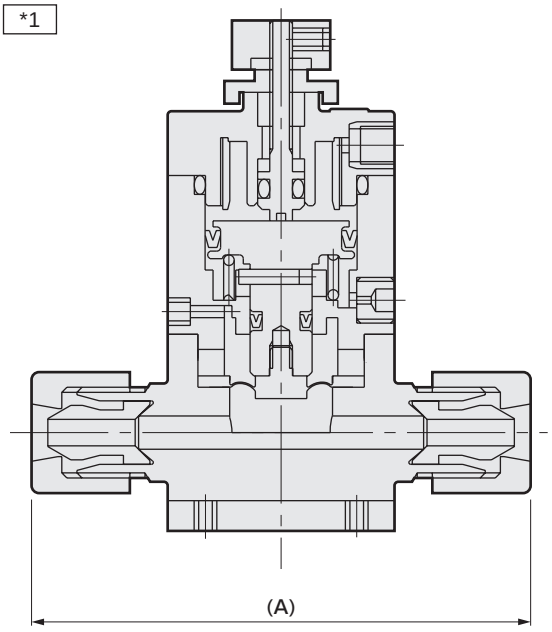
• AMS022-6

• AMS022-6-D




● Fitting integrated type

• AMS022- *1




| Dimensions *1 (Connection model no.) | A |
|---|---|
| 6US | 66 |
| 8BUS | 66 |
| 6UP | 68 |
| 8BUP | 68 |

| Dimensions *1 (Connection model no.) | A |
|---|---|
| 6UF | 64 |
| 8BUF | 64 |
| 6UR | 90 |
| 8BUR | 92 |
| 6UK | 71 |
| 8BUK | 71 |
| 8BUW | 86 |

Air-operated valve for chemical liquid and drip prevention valve integrated type

# AMDSZ0/AMDS00 Series

Downsized valve with fewer piping work hours

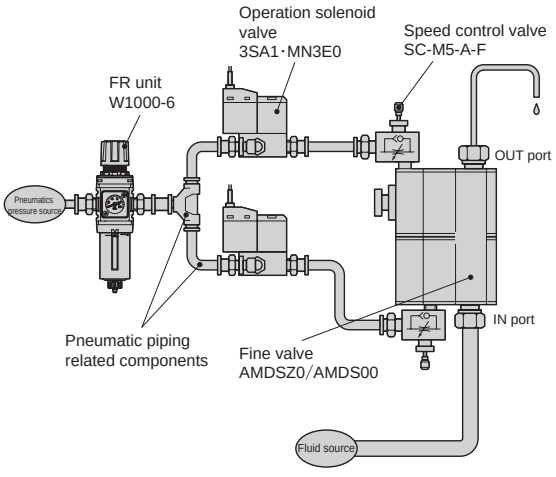
● Maximum suction rate: 0.04 $cm^3$, 0.12 $cm^3$

## Specifications

| Descriptions | | | AMDSZ0-* | AMDS00-* |
|---|---|---|---|---|
| Working fluid | | | Chemical liquid, pure water (Note 1) | |
| Fluid temperature | | °C | 5 to 80 | |
| Withstanding pressure | | MPa | 0.6 | |
| Working pressure range | | MPa | 0 to 0.2 | |
| Ambient temperature | | °C | 0 to 60 | |
| Installation attitude | | | Side installation with port in vertical direction (OUT port upward) | |
| Connection | | | OD ø3 tube connection<br>OD 1/8″ tube connection | OD ø6 tube connection<br>OD 1/4″ tube connection |
| Operation section | Operation pressure | MPa | 0.3 to 0.5 | |
| | Operation port | | M5 | |
| Maximum suction rate | | $cm^3$ | 0.04 | 0.12 |
| Orifice | | | ø2 | ø4 |
| Cv value | | | 0.08 | 0.32 |

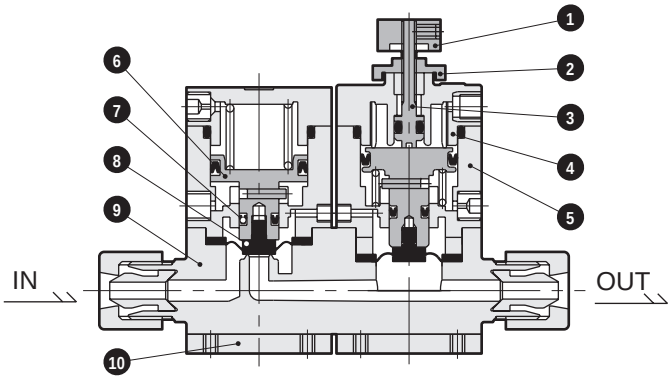
Note 1: This product can not be used for oxidized fluid. Contact CKD if using oxidized fluid and aqueous ammonia.
Check the compatibility of the material of each component, working fluid, and ambient atmosphere before use.

## Usage examples and related products




Refer to the Pneumatic Valves and Pnenmatic components for clean room specification for details on related products.
(Catalog No.CB-033SA).

## Internal structure and parts list




| No. | Parts name | Material |
|---|---|---|
| 1 | Adjusting knob | SUS303 |
| 2 | Lock nut | SUS303 |
| 3 | Adjustment rod | SUS303 |
| 4 | Cover | PPS |
| 5 | Cylinder | PPS |
| 6 | Piston rod | SUS303 |
| 7 | Y packing seal | NBR |
| 8 | Diaphragm | PTFE |
| 9 | Body | PFA/PTFE |
| 10 | Mounting plate | SUS304 |

The material and the structure may differ with the model.
Contact CKD for details.

Read the precautions on Intro 7 to 14 before use.

## How to order

● AMDSZ Series

**AMDSZ0 - 3US**

Model no.

Ⓐ Connection

| Ⓐ Connection | | | | | |
|---|---|---|---|---|---|
| 3US | 6BUS | 3UF | | 3UR | 6BUR |
| Super type Pillar fitting integrated type | | F-LOCK 20 series fitting integrated type | | F-LOCK 60 series fitting integrated type | |
| ø3 × ø2 tube connection | 1/8" × 0.086" tube connection | ø3 × ø2 tube connection | | ø3 × ø2 tube connection | 1/8" × 1/16" tube connection |
| **Body material** | | | | | |
| PFA molded body or PTFE machined body | PFA | PTFE | | PTFE | |

| Symbol | Descriptions |
|---|---|

● AMDS0 Series

**AMDS00 - 6UR**

Model no.

Ⓐ Connection

| Ⓐ Connection | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 6US | 8BUS | 6UP | 8BUP | 6UF | 8BUF | 6UR | 8BUR | 6UK | 8BUK | 8BUW |
| Super type Pillar fitting integrated type | | Super 300 type Pillar fitting P Series integrated type | | F-LOCK 20 series fitting integrated type | | F-LOCK 60 series fitting integrated type | | Final lock fitting integrated type | | FLARETEK fitting integrated type |
| ø6 × ø4 tube connection | 1/4" × 5/32" tube connection | ø6 × ø4 tube connection | 1/4" × 5/32" tube connection | ø6 × ø4 tube connection | ø6.35 × ø4.3 tube connection | ø6 × ø4 tube connection | 1/4" ×5/32" tube connection | ø6 × ø4 tube connection | 1/4" ×5/32" tube connection | 1/4" ×5/32" tube connection |
| **Body material** | | | | | | | | | | |
| PFA molded body or PTFE machined body | PFA | PTFE | | PTFE | | PTFE | | PTFE | | PTFE |

| Symbol | Descriptions |
|---|---|

## Note on model no. selection

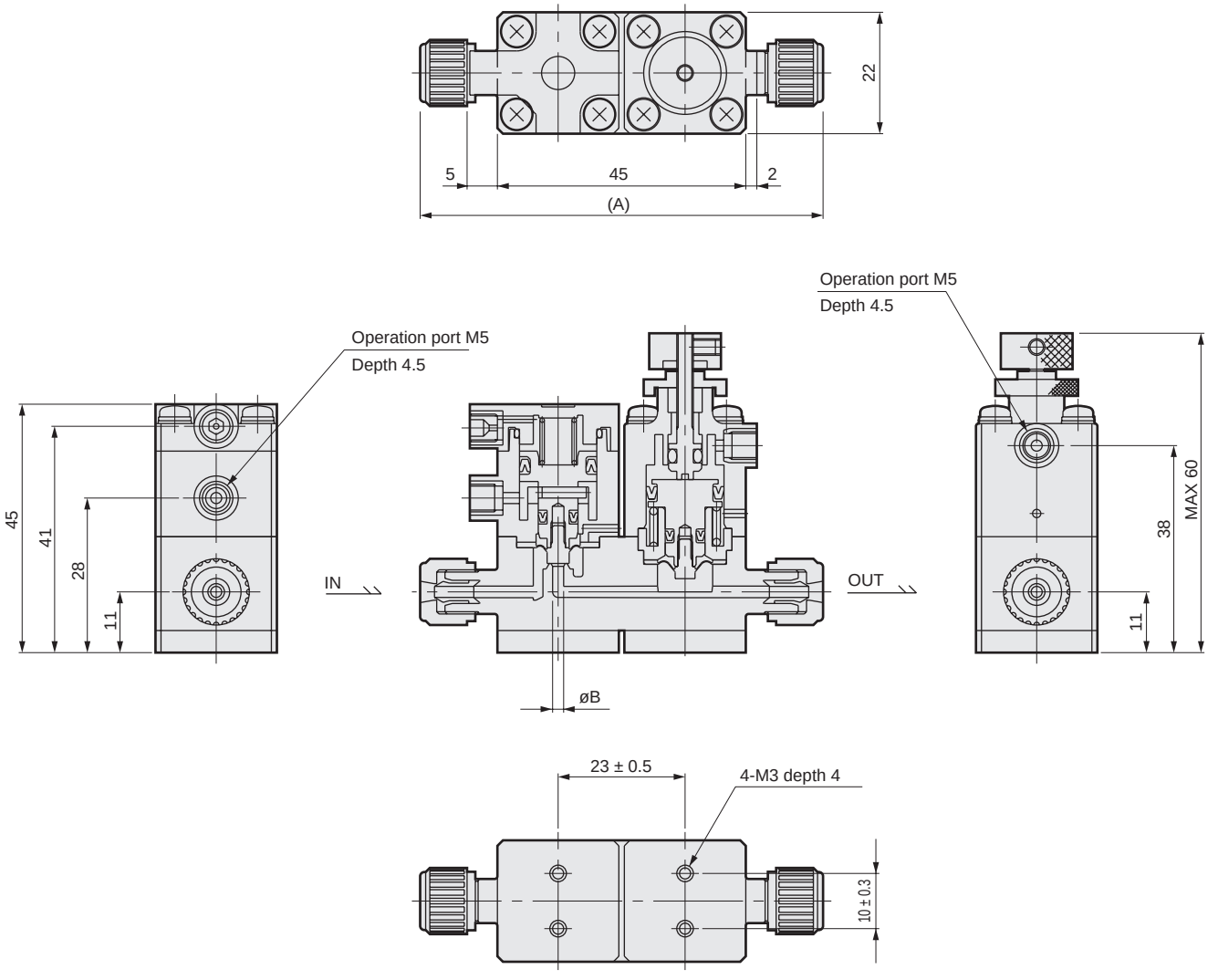
Note 1: Contact CKD when selecting an all-resin actuator applicable to oxidized fluids.

Note 2: The actuator soft-shut (diaphragm) model also available to reduce foaming and improve drip prevention. Contact CKD for details.

## Dimensions

● Fitting integrated type

• AMDSZ0- *1

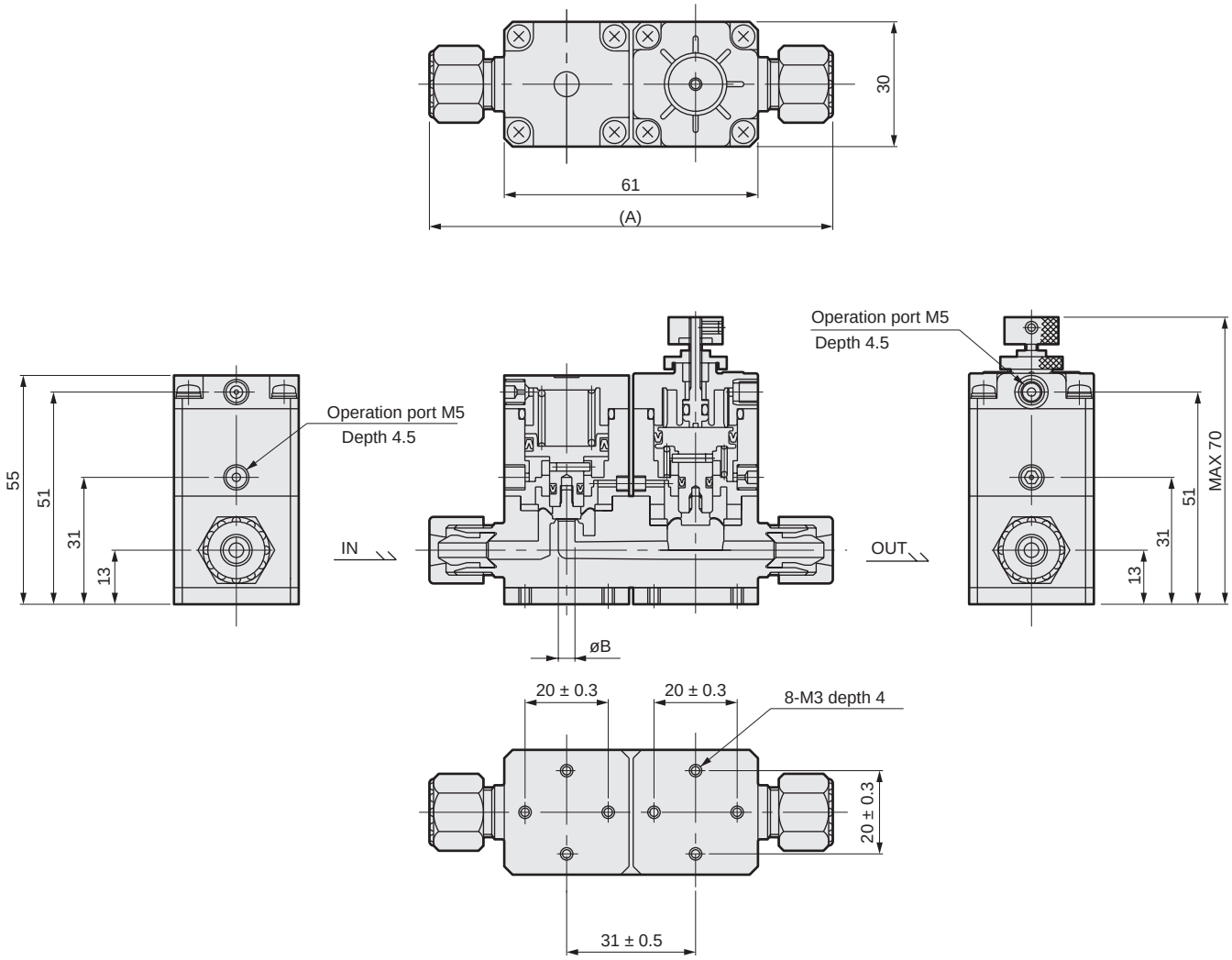



| Dimensions *1 (Connection model no.) | A | B |
|---|---|---|
| 3US | 73 | 2 |
| 6BUS | 73 | 2 |
| 3UF | 63 | 2 |
| 3UR | 80 | 1.6 |
| 6BUR | 80 | 1.6 |

## Dimensions

● Fitting integrated type

• AMDS00- *1




| Dimensions *1 (Connection model no.) | A | B |
|---|---|---|
| 6US | 97 | 4 |
| 8BUS | 97 | 4 |
| 6UP | 99 | 4 |
| 8BUP | 99 | 4 |
| 6UF | 95 | 4 |
| 8BUF | 95 | 4 |
| 6UR | 121 | 3.5 |
| 8BUR | 123 | 3.5 |
| 6UK | 102 | 4 |
| 8BUK | 102 | 4 |
| 8BUW | 117 | 3 |

MEMO

# PMP/PYM/PMM

## Overview

This regulator is used for pure water, chemical liquid, air, or $N_2$ gas. This has an outstanding corrosion resistance, and is installed easily. Select either stainless steel or fluorine resin depending on your application.

## Features

New

PMP

- Excellent pressure stability and quick response
- The flow path structure with less remaining section.
- All fluorine resin (PTFE, PFA) for wet areas

PYM (for air, $N_2$ gas and pure water)

- Fluorine resin (PTFE) and SUS316 are used for stainless steel body and wet areas
- Filter integrated
  Safety is enhanced for foreign materials in fluid.

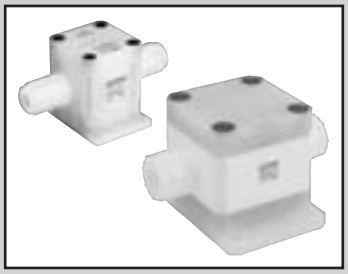
PMM20

- All fluorine resin (PFA, PTFE) is used for fluorine resin body and wet areas.
- Contamination is prevented with integrated fittings.

PMM50

- Regulator designed to support large flow rate of pure water and pure hot water.


| | |
|---|---|
| ⚠ Precautions | Intro 7 |
| **Pilot-operated** | |
| PMP202 (Variation New) | 134 |
| PMP402 New | 134 |
| **Manual** | |
| PYM | 138 |
| PMM20 | 140 |
| PMM50 | 142 |



Fine regulator (pilot operated)

# PMP$^{2}_{4}$02 Series

Regulator designed to provide stable pressure through pilot air control of pressure fluctuation at chemical liquid and pure water supply section.

RoHS Subject to Export Trade Control Ordinances

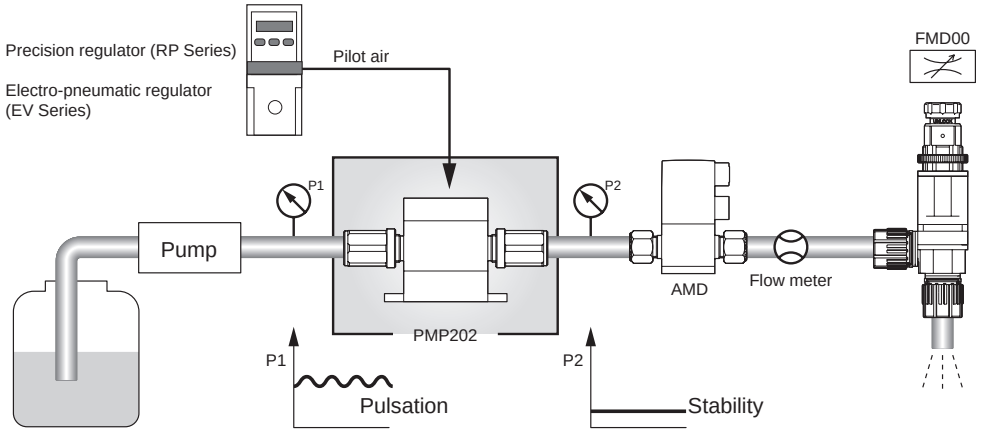
* Target: PMP402 (Note 4)

## Specifications

| Descriptions | | PMP202 | PMP402 |
|---|---|---|---|
| Working fluid | | Pure water, chemical liquid (Note 2) | Pure water (Note 3) |
| Fluid temperature | °C | 10 to 60 | 10 to 90 |
| Withstanding pressure | MPa | 0.75 | 1 |
| Max. working pressure | MPa | 0.5 | 0.5 |
| Set pressure range | MPa | 0.02 to 0.3 | 0.07 to 0.4 |
| Operation pressure range | MPa | 0 to 0.4 | 0 to 0.45 |
| Recommended flow rate range | ℓ/min | 0.2 to 5 | 2 to 20 |
| Operation port connection | | Rc1/8 | Rc1/8 |
| Ambient temperature | °C | 10 to 60 | 10 to 60 |
| Installation attitude | | Free | Free |
| Connection | | OD ø10 tube connection (fitting integrated type)<br>OD 3/8" tube connection (fitting integrated type) | OD 3/4" tube connection (fitting integrated type)<br>(OD1", OD1/2" option available) |

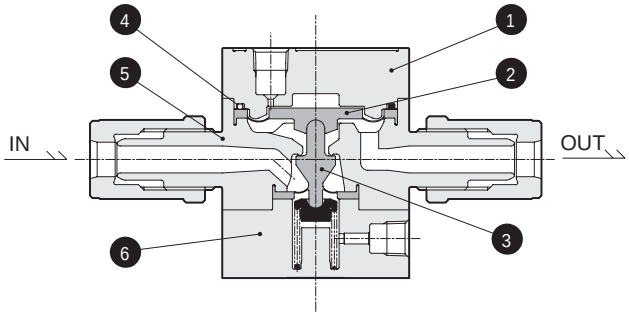
Note 1: Non-relief type
Note 2: Check the compatibility of the material of each component, working fluid, and ambient atmosphere before use.
Note 3: Contact CKD when using chemical liquid.
Note 4: Excluding OD ø12/1/2" tube connection

## Applications




Read the precautions on Intro 7 to 14 before use.

## Internal structure and parts list




| No. | Parts name | Material |
|---|---|---|
| 1 | Cover | PVDF |
| 2 | Diaphragm | PTFE |
| 3 | Valve diaphragm | PTFE |
| 4 | O ring | FKM |
| 5 | Body | PFA |
| 6 | Bottom plate | PVDF |

The material and the structure may differ with the model.
Contact CKD for details.

## How to order

**PMP202 - 10UR - 1**

Model no. Ⓐ Connection Ⓑ Bottom plate direction

| | Descriptions | Ⓐ Connection | | | | |
|---|---|---|---|---|---|---|
| | | 6UR | 8BUR | 10UP | 10BUP | 10UR |
| | | F-LOCK 60 series fitting integrated type | | Super 300 type Pillar fitting P Series integrated type | | F-LOCK 60 series fitting integrated type |
| | | ø6 × ø4 tube connection | 1/4" × 5/32" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection |
| **Body material (Note 1)** | | | | | | |
| PFA molded body or PTFE machined body | | PFA | | PFA | | PFA |
| **Ⓑ Bottom plate direction** | | | | | | |
| **Blank** | Vertical | ● | | ● | | ● |
| **1** | Lateral | ● | | ● | | ● |

**PMP402 - 20BUP - 1 N**

Model no. Ⓐ Connection Ⓑ Bottom plate direction Fluid specifications

| | Descriptions | Ⓐ Connection | | | | |
|---|---|---|---|---|---|---|
| | | 12UP | 25UP | 15BUP | 20BUP | 125BUP |
| | | Super 300 type Pillar fitting P Series integrated type | | | | |
| | | ø12 × ø10 tube connection | ø25 × ø22 tube connection | 1/2" × 3/8" tube connection | 3/4" × 5/8" tube connection | 1" × 7/8" tube connection |
| **Body material** | | | | | | |
| PFA molded body or PTFE machined body | | PTFE | PTFE | PTFE | PTFE | PTFE |
| **Ⓑ Bottom plate direction** | | | | | | |
| **Blank** | Vertical | ● | ● | ● | ● | ● |
| **1** | Lateral | ● | ● | ● | ● | ● |

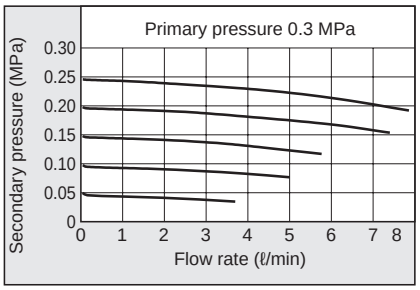
### Note on model no. selection

Note 1: Fitting other than above connection is available.
Contact CKD for details.
Note 2: Contact CKD for other port size.

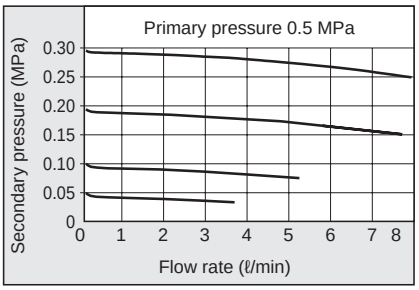
## Flow characteristics/pressure characteristics

### PMP202

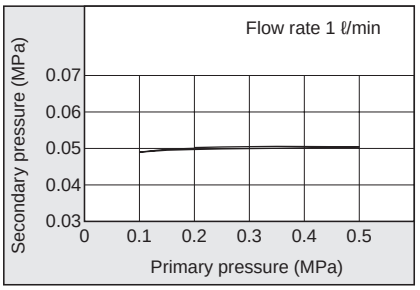
Flow characteristics 1 (water)




Flow characteristics 2 (water)

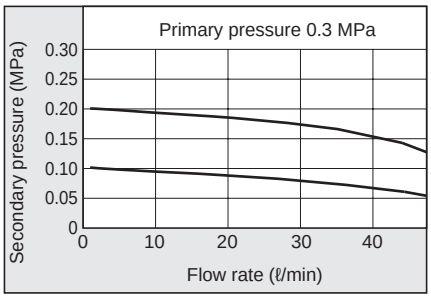



Pressure characteristics (water)

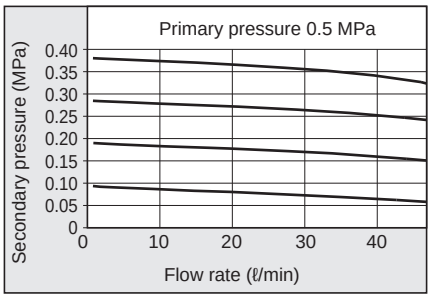



### PMP402

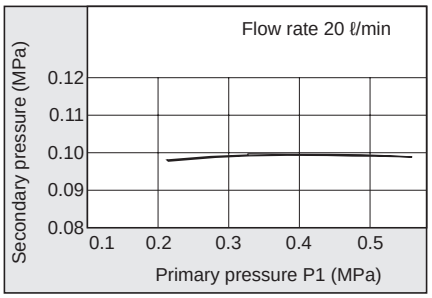
Flow characteristics 1 (water)




Flow characteristics 2 (water)



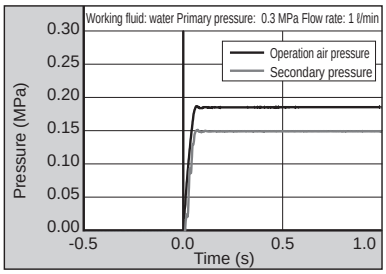

Pressure characteristics (water)



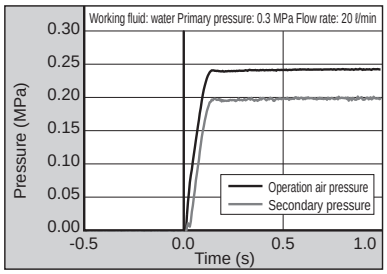

## Reference data

### Responsiveness Follows of secondary pressure against operation air

PMP202



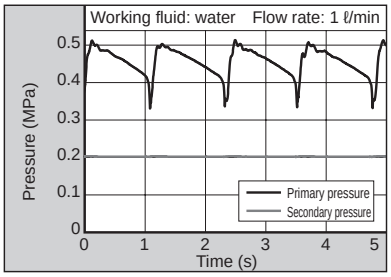

PMP402



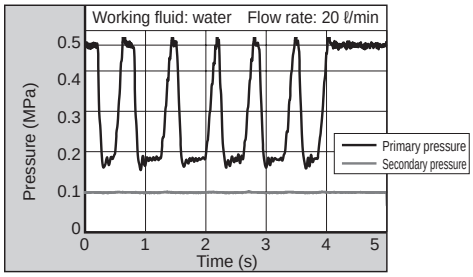

## Reference data

### Pulsation absorption Stability of secondary pressure against pulsation of primary pressure

PMP202




PMP402

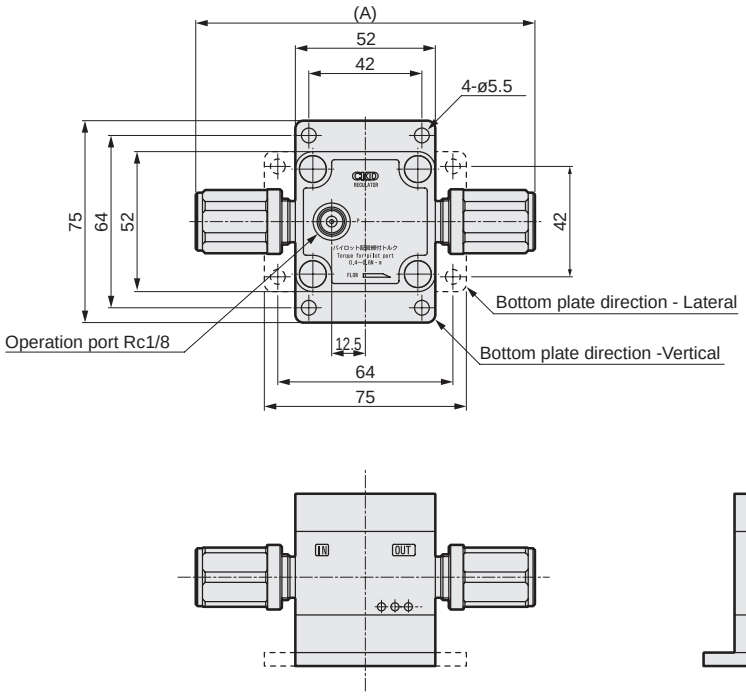



■ How to use

- Use this product within the specified range of temperature, pressure, flow rate and other working conditions.
- Stop the supply pressure on the primary side if this product is not used for a long period of time.
- This product is a non-relief type and there is a risk that high pressure generated by water-hammer and the like is maintained if it is used while the secondary side is close-stop.
- Do not use this product as a shutoff valve.

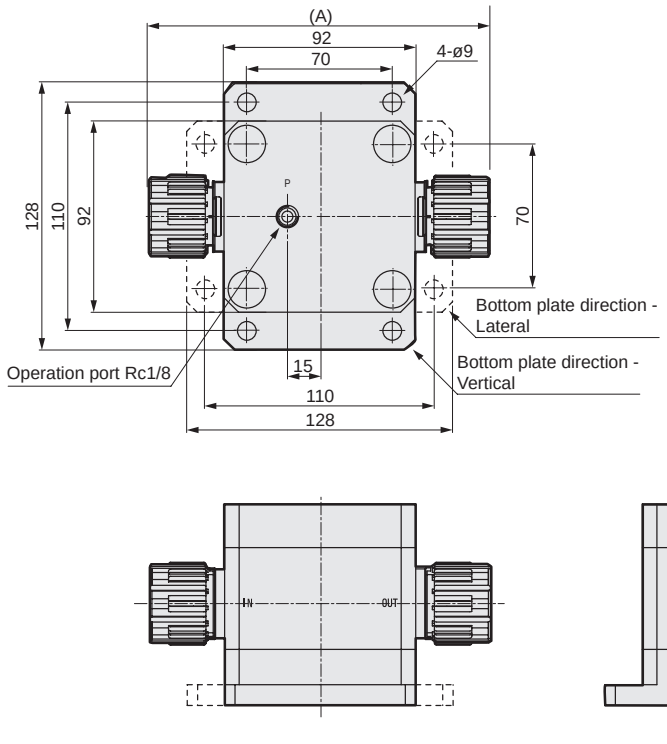
## Dimensions

● PMP202- *1




| Dimensions *1 (Connection model no.) | A |
|---|---|
| 6UR | 112 |
| 8BUR | 114 |
| 10UP | 102 |
| 10BUP | 102 |
| 10UR | 126 |

● PMP402- *1 - *2 N




| Dimensions *1 (Fitting model no.) | A |
|---|---|
| 12UP/15BUP | 150 |
| 20BUP | 164 |
| 25UP/25BUP | 178 |

Fine regulator (manual type)

# PYM Series

Regulator for air, $N_2$ gas and pure water with stainless steel body

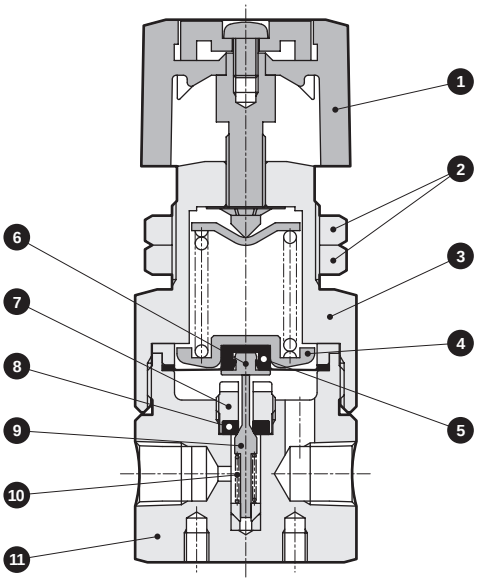
RoHS

## Specifications

| Descriptions | | PYM10-6 | PYM10-8 |
|---|---|---|---|
| Working fluid | | Pure water, $N_2$ gas, air (Note 3) | |
| Fluid temperature | °C | 5 to 60 | |
| Withstanding pressure | MPa | 1.5 | |
| Max. working pressure | MPa | 0.99 | |
| Set pressure range | MPa | 0.02 to 0.2 (Note 2) | |
| Ambient temperature | °C | 0 to 60 | |
| Installation attitude | | Free | |
| Port size and gauge port size | | Rc1/8 | Rc1/4 |

Note 1: Wet area material ··· PTFE, SUS316, non-relief type
Note 2: Set pressure range of 0.02 to 0.4 MPa is also supported. Contact CKD for details.
Note 3: This product can not be used for oxidized fluid.
Note 4: Check the compatibility of the material of each component, working fluid, and ambient atmosphere before use.

## Internal structure and parts list




| No. | Parts name | Material |
|---|---|---|
| 1 | Pressure adjustment knob | ABS |
| 2 | Lock nut | SUS304 |
| 3 | Cover | C3604 (Nickel/phosphorous plating) |
| 4 | Spring rest | SUS304 |
| 5 | Diaphragm | PTFE |
| 6 | Diaphragm retainer | SUS316 |
| 7 | Valve disk holder | SUS316 |
| 8 | Valve disk | PTFE |
| 9 | Valve | SUS316 |
| 10 | Spring | SUS316 |
| 11 | Body | SUS316 |

The material and structure may differ with the model.
Contact CKD for details.

## How to order

**PYM10 - 6**

Model no.

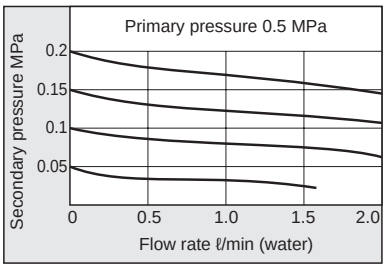
Ⓐ Port size

| Ⓐ Port size | |
|---|---|
| 6 | Rc1/8 |
| 8 | Rc1/4 |

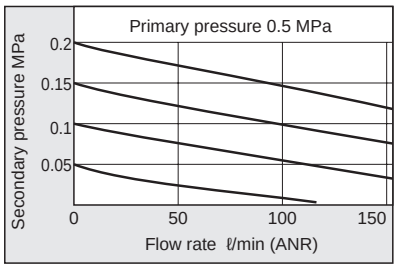
⚠ Read the precautions on Intro 7 to 14 before use.

## Flow characteristics/pressure characteristics

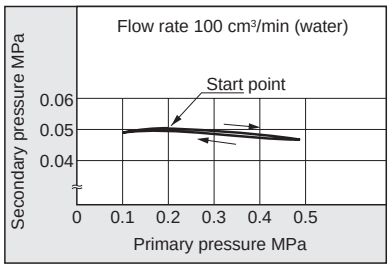
Flow characteristics (water)




Flow characteristics (air)

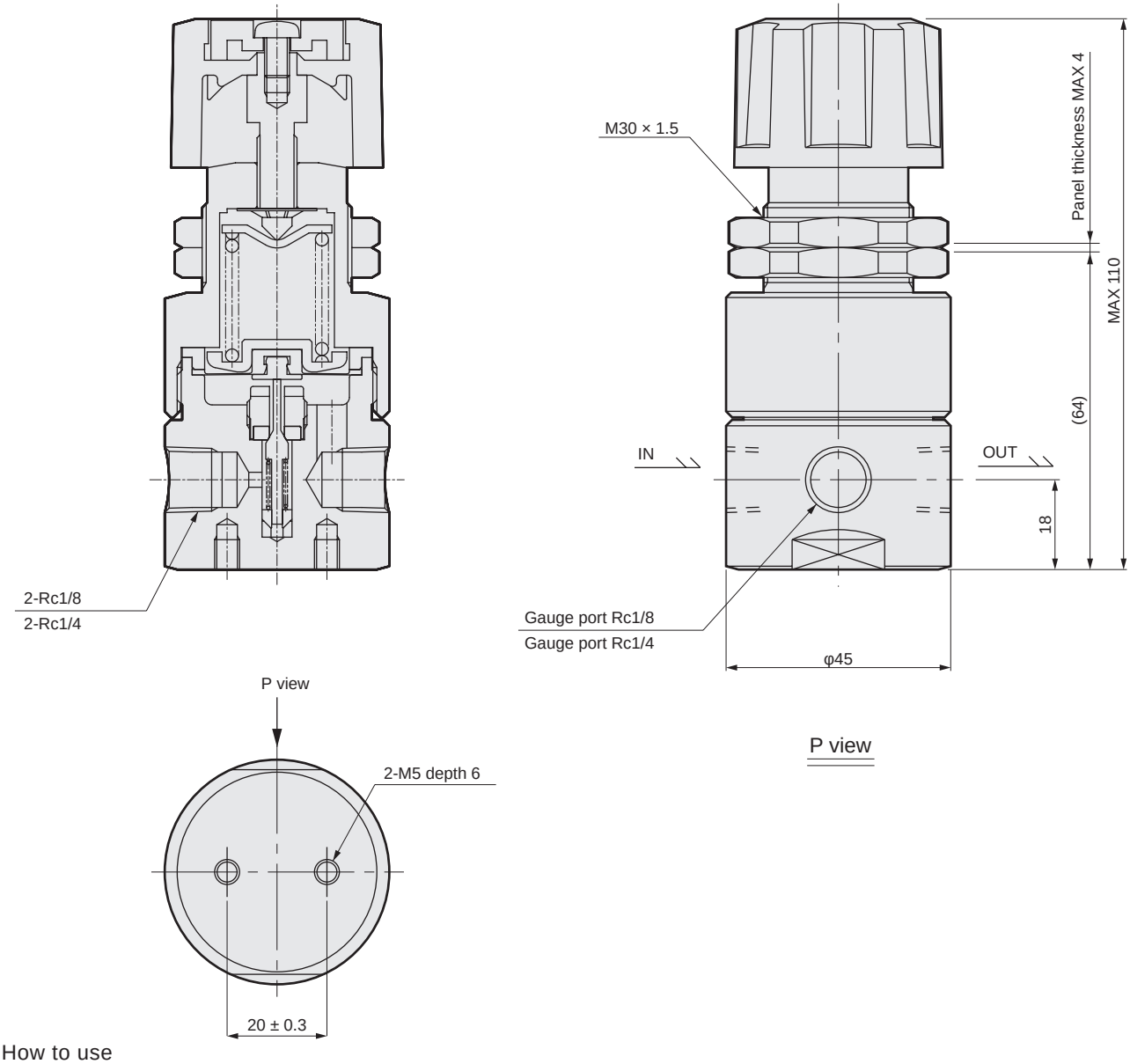



Pressure characteristics




## Dimensions

- PYM10-6 (Rc1/8)
- PYM10-8 (Rc1/4)




## ■ How to use

- Use this product within the specified range of temperature, pressure, flow rate and other working conditions.
- Stop the supply pressure on the primary side if this product is not used for a long period of time.
- This product is a non-relief type and there is a risk when high pressure generated by water-hammer is maintained if it is used while the secondary side is close-stop.
- Do not use this product as a shutoff valve.

Fine regulator (manual type)

# PMM20 Series

Regulator for pure water with fluorine resin for all wet areas

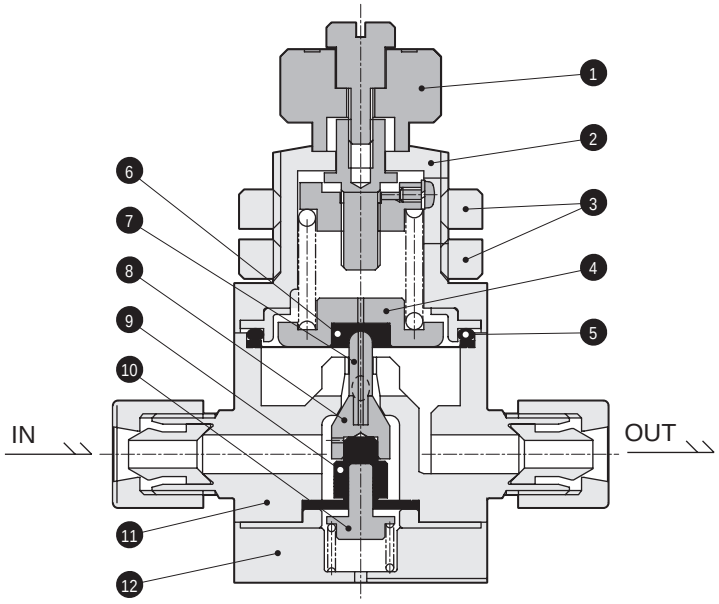
RoHS

## Specifications

| Descriptions | | PMM20 |
|---|---|---|
| Working fluid | | Pure water |
| Fluid temperature | °C | 5 to 80 |
| Withstanding pressure | MPa | 0.75 |
| Max. working pressure | MPa | 0.5 |
| Set pressure range | MPa | 0.02 to 0.2 (Note 3) |
| Ambient temperature | °C | 0 to 60 |
| Installation attitude | | Free |
| Connection | | OD ø10 tube connection (fitting integrated type), OD 3/8" tube connection (fitting integrated type) |

Note 1: Non-relief type
Note 2: Panel mount can be installed.
Note 3: Set pressure range of 0.05 to 0.4 MPa is supported with "-H", which is added to the end of the the model no. (Fluid temperature is 5 to 40°C.)
Contact CKD for details.

## Internal structure and parts list




| No. | Parts name | Material |
|---|---|---|
| 1 | Pressure adjustment knob | PP |
| 2 | Cover | PP |
| 3 | Lock nut | PP |
| 4 | Spring rest | SUS304 |
| 5 | O ring | FKM |
| 6 | Diaphragm | PTFE |
| 7 | Stem | PCTFE |
| 8 | Valve | PTFE |
| 9 | Bellows | PTFE |
| 10 | Rod | SUS304 |
| 11 | Body | PFA |
| 12 | Bottom plate | PP |

The material and structure may differ with the model.
Contact CKD for details.

## How to order

PMM20 - 10BUS

Model no. Ⓐ Connection

| Ⓐ Connection | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8US | 10US | 10BUS | 10UP | 10BUP | 10UA | 10BUA | 10UR | 10BUR | 10UK | 10BUK | 10BUW |
| Super type Pillar fitting integrated type | | | Super 300 type Pillar fitting P Series integrated type | | F-LOCK 20A series fitting integrated type | | F-LOCK 60 series fitting integrated type | | Final lock fitting integrated type | | FLARETEK fitting integrated type |
| ø8 × ø 6 tube connection | ø10 × ø 8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | ø10 × ø8 tube connection | 3/8" × 1/4" tube connection | 3/8" × 1/4" tube connection |

| Descriptions | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Body material (Note 1)** | | | | | | | | | | | |
| PFA molded body or PTFE machined body | PFA | | PTFE | | PTFE | | PTFE | | PTFE | | PTFE |

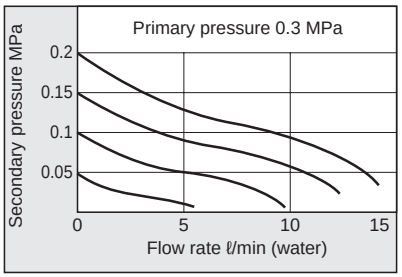
## Note on model no. selection

Note 1: Fitting other than the follwing connection is available.
Contact CKD for details.

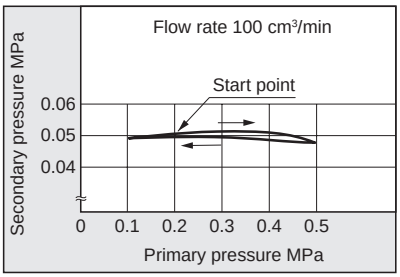
Read the precautions on Intro 7 to 14 before use.

## Flow characteristics/pressure characteristics

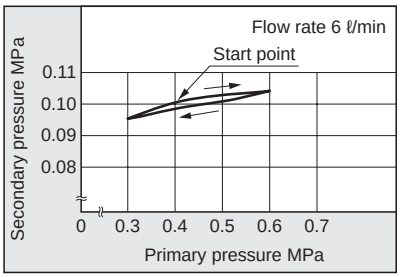
Flow characteristics (water)




Pressure characteristics 1 (water)

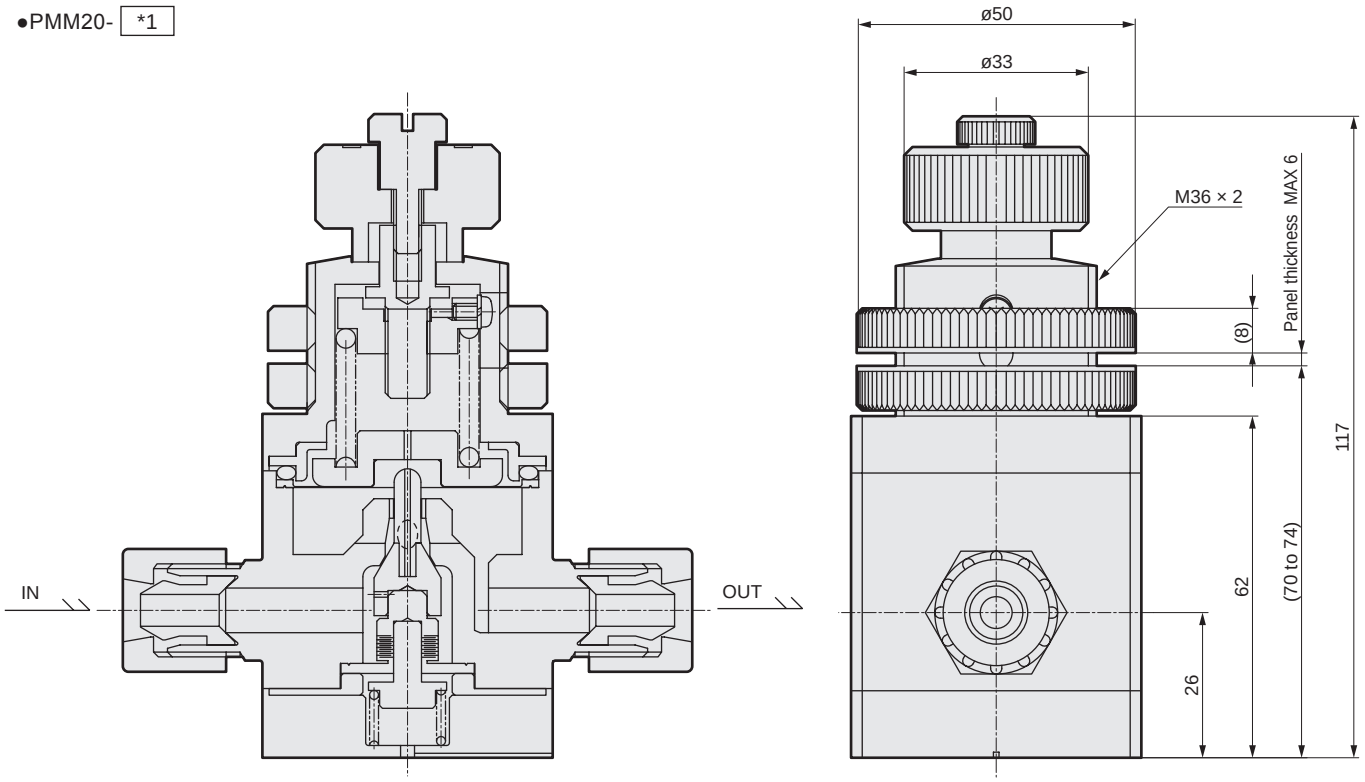


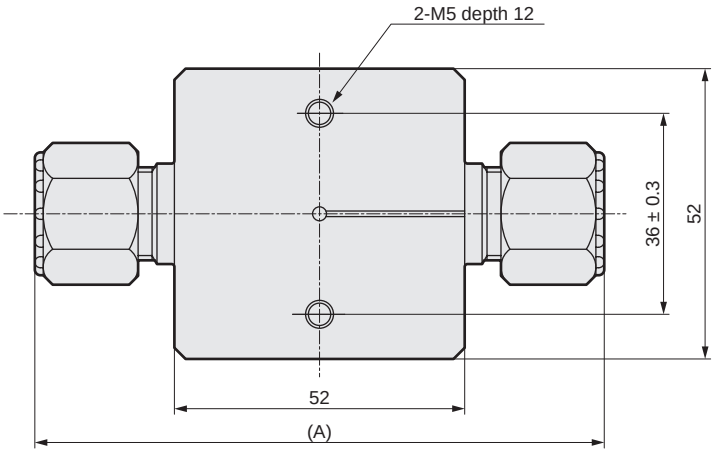

Pressure characteristics 2 (water)




## Dimensions

●PMM20- *1




| | |
|---|---|
| 8US | 94 |
| 10US | 102 |
| 10BUS | 102 |
| 10UP | 102 |
| 10BUP | 102 |
| 10UA | 94 |
| 10BUA | 94 |
| 10UR | 126 |
| 10BUR | 130 |
| 10UK | 112 |
| 10BUK | 112 |
| 10BUW | 117 |

■ How to use

- Use this product within the specified range of temperature, pressure, flow rate and other working conditions.
- Stop the supply pressure of the primary side if this product is not used for a long period of time.
- This product is a non-relief type and there is a risk that high pressure generated by water-hammer or the like is maintained if it is used while the secondary side is close-stop.
- Do not use this product as a shutoff valve.

Fine regulator (manual type)

# PMM50 Series

Regulator designed to support large flow rate of pure water and pure hot water

RoHS

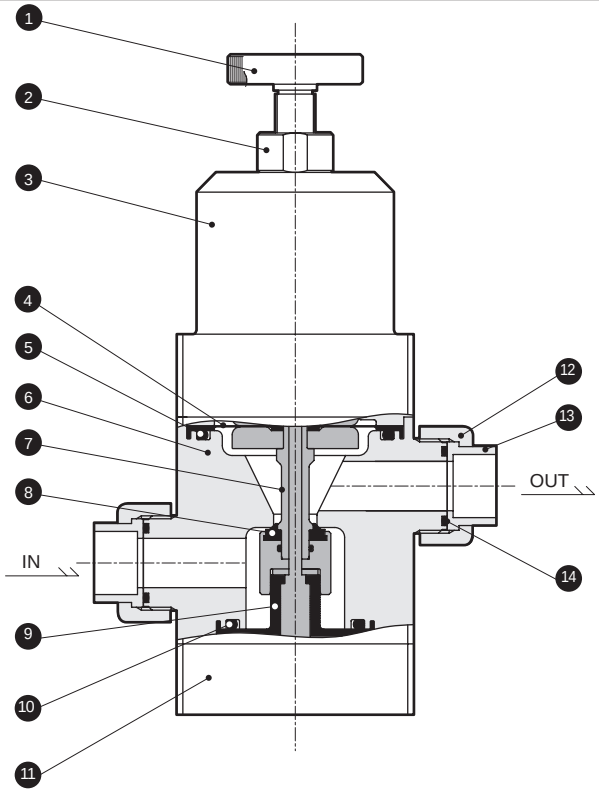
Subject to Export Trade Control Ordinances

## Specifications

| Descriptions | | PMM50-25AFU |
|---|---|---|
| Working fluid | | Pure water |
| Fluid temperature | °C | 5 to 80 |
| Withstanding pressure | MPa | 0.75 |
| Max. working pressure | MPa | 0.5 |
| Set pressure range | MPa | 0.1 to 0.3 |
| Ambient temperature | °C | 5 to 40 |
| Installation attitude | | Vertical installation with pressure adjustment knob at the top |
| Connection | | Nominal 25 PVDF union fitting integrated type |
| Weight | kg | 6.7 |

Note 1: Non-relief type

## Internal structure and parts list




| No. | Parts name | Material | No. | Parts name | Material |
|---|---|---|---|---|---|
| 1 | Adjustment knob | PP | 8 | Valve seat | FKM |
| 2 | Lock nut | PP | 9 | Bellows | PTFE |
| 3 | Cover | PP | 10 | O ring | FKM |
| 4 | Diaphragm | PTFE | 11 | Bottom plate | PVDF |
| 5 | O ring | FKM | 12 | Union nut | PVDF |
| 6 | Body | PTFE | 13 | Union end | PVDF |
| 7 | Rod sleeve | PVDF | 14 | O ring | FKM |

## How to order

**PMM50 - 25AFU**

Model no. — Ⓐ Port size

| PMM50 |
|---|
| Ⓐ Connection (Note 1) |
| 25AFU |
| PVDF union fitting integrated type |
| Nominal 25 |

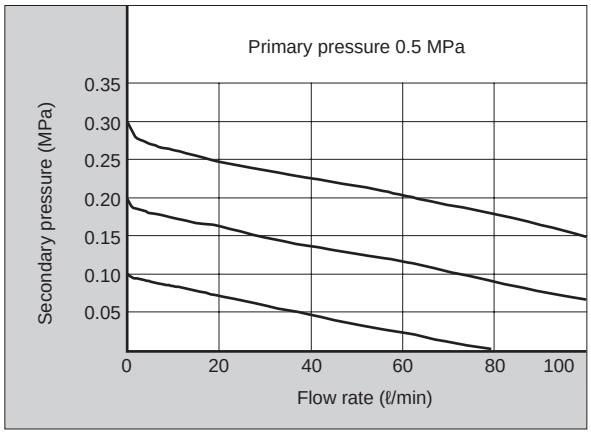
## Note on model no. selection

Note 1: Fitting other than above connection is available. Contact CKD for details.

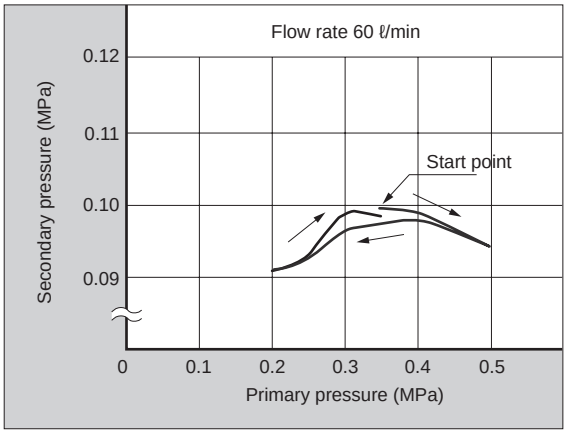
Read the precautions on Intro 7 to 14 before use.

## Flow characteristics/pressure characteristics

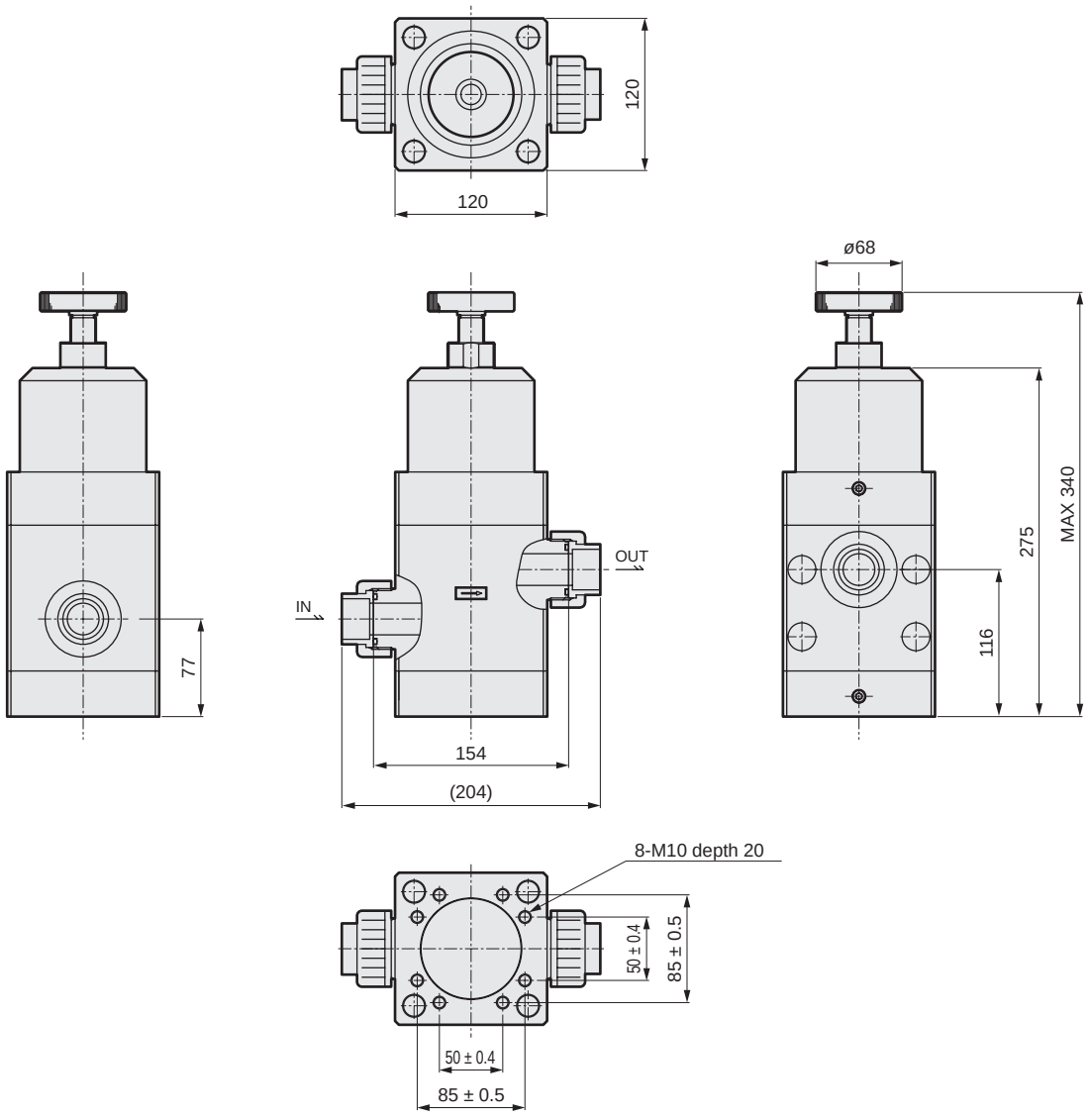
### Flow characteristics (water)




### Pressure characteristics (water)




## Dimensions




■ How to use

- Use this product within the specified range of temperature, pressure, flow rate and other working conditions.
- Stop the supply pressure of the primary side if this product is not used for a long period of time.
- This product is a non-relief type and there is a risk that high pressure generated by water-hammer or the like is maintained if it is used while the secondary side is close-stop.
- Do not use this product as a shutoff valve.

# KML702/60/50

## Overview

This switch accurately detects the level of corrosive fluids including pure water, acids, alkalis and solvents and outputs electrical signals.

## Features

### KML702

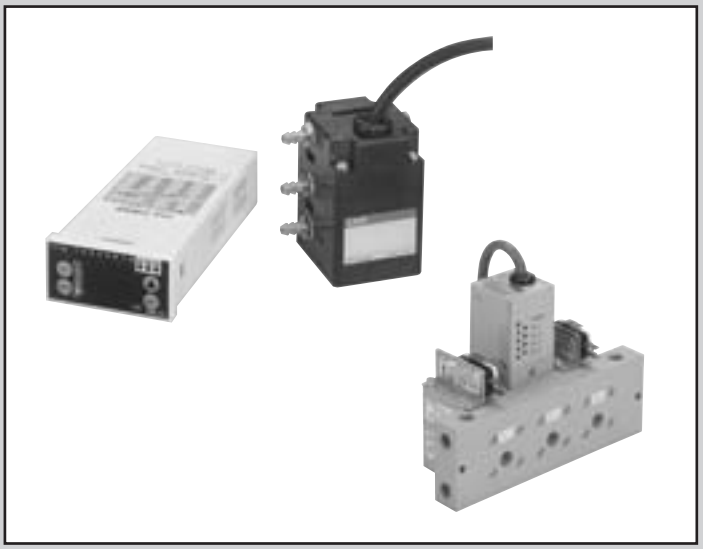
- Detection points: 8 points settable
- Remote operation
  The separate sensor and display enable the display to be installed away from the fluid tank to operate. Integrated communication function (RS485) enables operation from a host computer.
- Resistant to environmental pressure fluctuation
  The differential pressure method detects differences in environmental pressure and water level, enabling detection resistant to environmental pressure fluctuations by making the same pressure environment for the detection tube and environment detection tube.
- Setting detection flow not required

### KML60

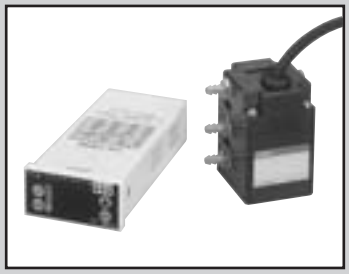
- Detection points: 4 points settable
- A mix manifold with KML50 (1-point detection type) is available.
- The integrated fixed orifice eliminates the need to set the detection flow.

### KML50

- Highly accurate level detection (±1 mm)
- Outstanding installation performance
- Models with high corrosion-resistant materials can be selected based on the ambient atmosphere.




| ⚠ Precautions | Intro 7 |
|---|---|
| KML702 | 146 |
| KML60 | 150 |
| KML50 | 154 |



Digital fine level switch

# KML702 Series

Setting detection flow not required
Resistant to environmental pressure fluctuations (differential pressure)
Integrated communication function (RS485) for remote operation

RoHS

## Specifications

| Descriptions | | KML702-G-485 | KML702-D-485 |
|---|---|---|---|
| Detection type | | Gauge pressure method | Differential pressure method |
| Working fluid | | Clean air, $N_2$ (Note 1) | |
| Supply pressure range | kPa | 10 to 30 | |
| Supply fluid temperature | °C | 5 to 50 | |
| Ambient temperature | °C | 5 to 50 | |
| Withstanding pressure | kPa | Supply pressure: 100 | |
| | | Detection pressure: 10 | |
| Detected water level range | mm | 1 to 700 (Note 2) | |
| Environmental pressure fluctuation range | kPa | - | Within ±3 (detection tube and environment detection tube must be at same pressure environment) |
| Consumption flow rate | $Ncm^3/min$ | 70 or less | 140 or less |
| Monitor output | | 4 to 20 mADC (load resistance 200 to 550 Ω ) | |
| Power voltage | | 24 VDC ±10% ripple (p-p) 1% or less | |
| Current consumption | mA | 130 or less (at 24 VDC) | |
| Output style | | 8-point NPN open collector (contact a for CH1 to CH6, contact b for CH7 to CH8) | |
| Output rating | | 30 VDC, 50 mA or less | |
| Insulation resistance | MΩ | 100 or more (500 VDC for one minute) | |
| Withstand voltage | | Commercial frequency 500 VAC for one minute | |
| Repeatability | mm | ±3 (10 minutes or more after power ON) (Note 2) | |
| Hysteresis | mm | 1 to 10 setting (Note 2) | |
| Response speed | ms | 600 or less (at supply pressure 20 kPa, detection tube inner diameter ø4 mm, length 5 m) | |
| Temperature characteristics | mm/°C | Within ±1.2 (detected fluid: water) | |
| Detection tube ID | mm | 4 | |
| Detection tube length | m | Within 5 | |

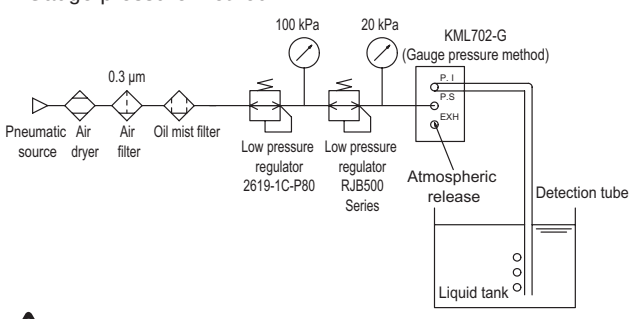
Note 1: Use fluids filtered with a 0.3 µm or higher performance filter.
Note 2: The above specifications are for fluid pressure 20 kPa, power voltage 24 VDC, ambient temperature 20°C, detection piping bore ø4 x length 5 m, specific gravity setting 1 and nozzle installation height 0. The detected fluid is water.

## Precautions

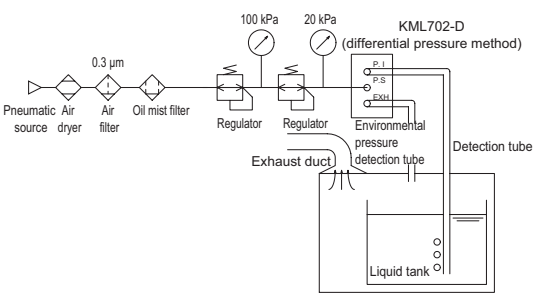
1. Install the switch at a position higher than the liquid level to be detected.
2. Use a ø4 mm ID size piping for detection. Do not install anything that may cause resistance, such as an aperture, in piping.
3. This switch cannot be used in a sealed fluid tank or similar fluid tank.
4. Do not block detection piping or detection port with a valve, etc. Supply pressure directly applied to the sensor chip may result in damage.
5. Use compressed air filtered for dirt and oil with a submicron filter or microalescer.
6. Do not stop supply pressure. Chemical liquid atmosphere may flow back from the detection tube to the sensor, causing adverse effects.
7. The EXH port is left open when using gauge pressure method. Do not block with a plug, etc.
8. This switch cannot be used in a chemical liquid atmosphere.

## Example of piping

● Gauge pressure method



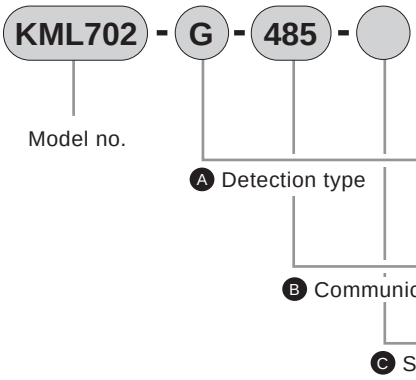

● Differential pressure method




Read the precautions on Intro 7 to 14 before use.

## How to order

● Discrete



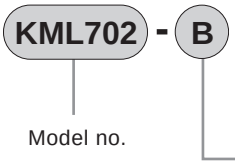

| Symbol | Descriptions |
|---|---|
| **A Detection type** | |
| G | Gauge pressure method |
| D | Differential pressure method |
| **B Communication** | |
| 485 | RS485 communication |
| **C Sensor cable length** | |
| Blank | Sensor cable 5 m |
| 3 | Sensor cable 3 m |

<Example of model number>

**KML702-G-485**

Model: KML702
Ⓐ Detection type : Gauge pressure method
Ⓑ Communication : RS485 communication
Ⓒ Sensor cable length : 5 m

● Option (bracket/cable)

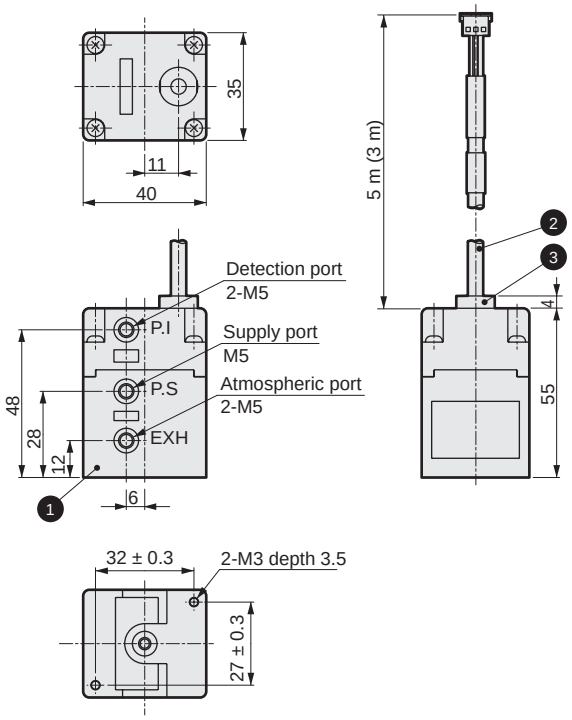



| Symbol | Descriptions |
|---|---|
| **A Option** | |
| B | Bracket for sensor body |
| P | Power supply cable (3 m) |
| O | Output cable (3 m) |

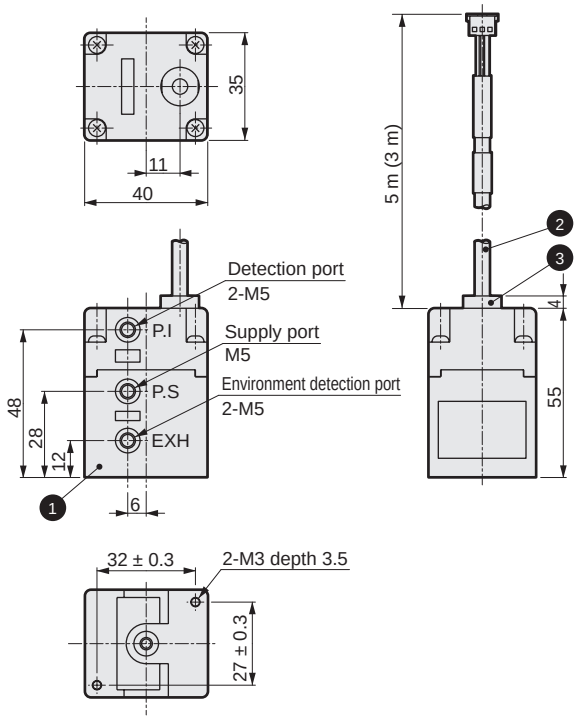
## Internal structure and key component materials  Dimensions

● Sensor body

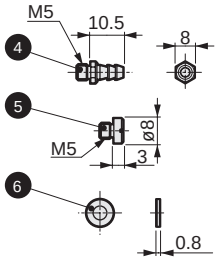
• KML702-G-485




• KML702-D-485



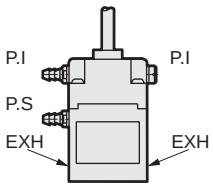

● Nipple, plug, gasket (accessories)

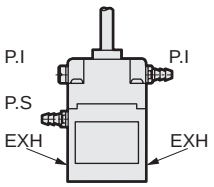



There are two P.I ports and EXH ports on the front and back of the product. Attach the enclosed plug to the ports not being used to prevent leakage.

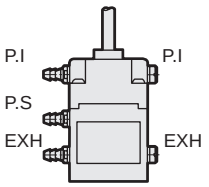
* The EXH port is left open when using gauge pressure method. Do not attach the plug.

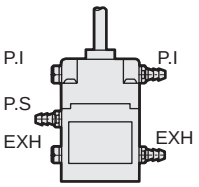
Gauge pressure method



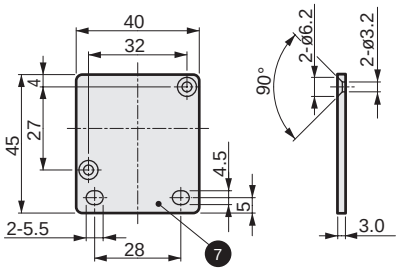

Differential pressure method




● Sensor body bracket (option)

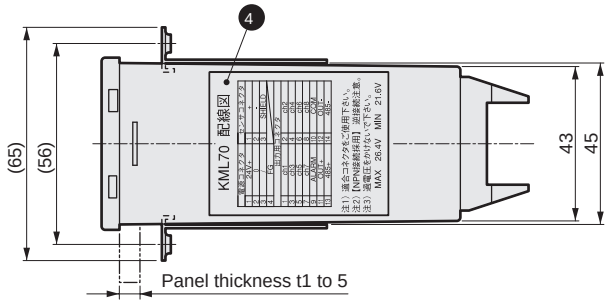
• KML702-B



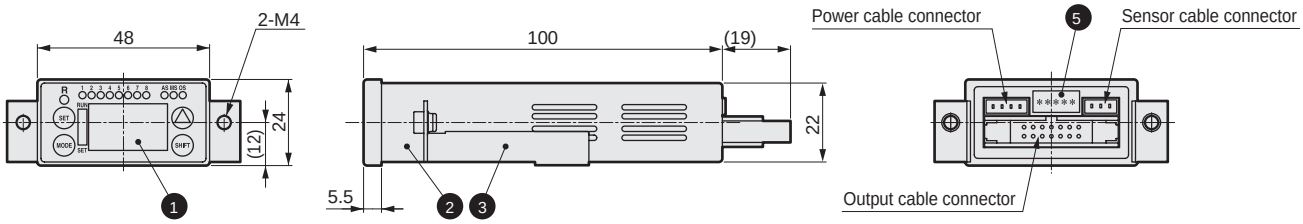

| No. | Parts name | Material |
|---|---|---|
| 1 | Body | PPS |
| 2 | Sensor cable | Polyvinyl chloride |
| 3 | Bush | PA |
| 4 | Nipple | SUS304 |
| 5 | Plug | SUS304 |
| 6 | Gasket | PTFE |
| 7 | Bracket | SUS304 |

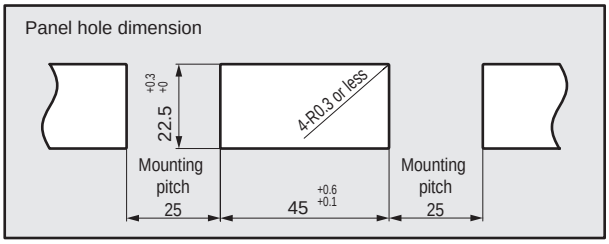
## Internal structure and key component materials Dimensions

● Display section

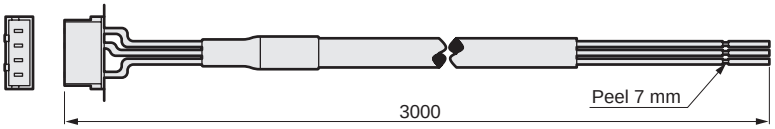



| No. | Parts name | Material drawing number |
|---|---|---|
| 1 | Front panel | |
| 2 | Case | PBT |
| 3 | Installation bracket | SUS304 |
| 4 | Wiring indication plate | |
| 5 | Serial name plate | |

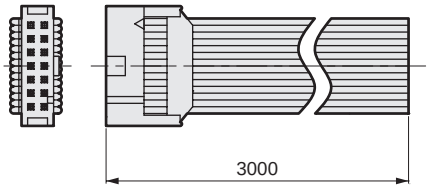


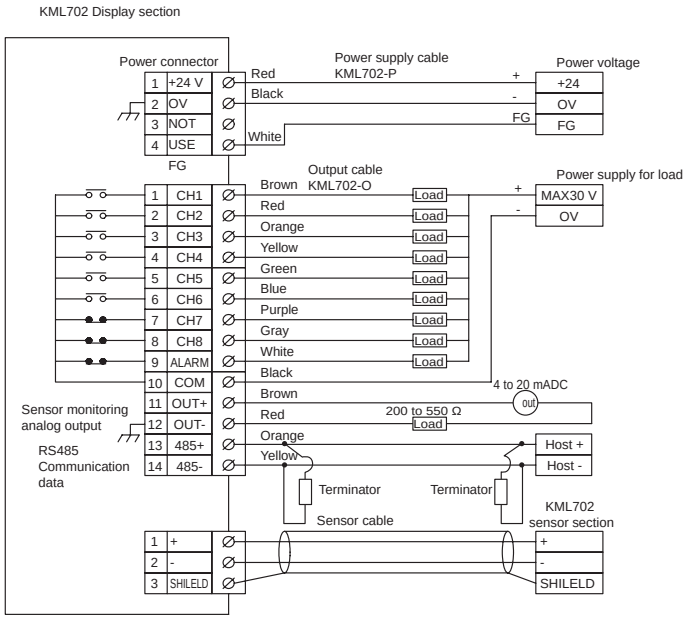

● Power supply cable (option)
- KML702-P

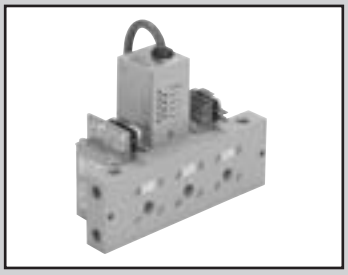



● Output cable (option)
- KML702-O




## Wiring connection diagram





Fine level switch

# KML60 Series

Detect 4-point fluid levels with one detection tube.

## Specifications

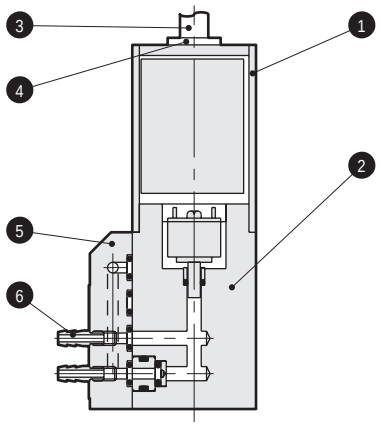
| Descriptions | | KML60-4 | |
|---|---|---|---|
| Working fluid | | Air, $N_2$ (Note 1) | |
| Working pressure range | kPa | 10 to 30 (When detecting water at 10 to 500 mm set water level) | |
| | | 15 to 30 (When detecting water at 10 to 1000 mm set water level) | |
| Fluid temperature | °C | 5 to 50 | |
| Ambient temperature | °C | 5 to 50 | |
| Withstanding pressure | kPa | Supply pressure | 100 |
| | | Detection pressure | 20 (2000 mm when detecting water level) |
| Detected water level range | mm | 10 to 1000 (Note 2) | |
| Power voltage | | 12 to 24 VDC ± 10%<br>Ripple (p-p) 5% or less | |
| Current consumption | mA | 40 or less (at 24 VDC) | |
| Output style | | 4-point NPN open collector | |
| Output rating | | 28 VDC, 80 mA or less | |
| Insulation resistance | MΩ | 100 or more (500 VDC for one minute) | |
| Withstand voltage | | Commercial frequency 500 VAC for one minute | |
| Repeatability | mm | ±10 (10 minutes or more after power ON) (Note 2) | |
| Hysteresis | mm | 4 or less (set water level 10 to 200 mm$H_2O$)<br>20 or less (set water level 200 to 1000 mm$H_2O$) (Note 2) | |
| Response speed | ms | 600 or less (at supply pressure 20 kPa, detection tube inner diameter ø4 mm, length 5 m) | |
| Temperature characteristics | mm/°C | ±1.2 | |
| Detection tube ID size | ømm | 4 | |
| Detection tube length | m | Within 5 | |

Note 1: Use fluids filtered with a 0.3 µm or higher performance filter.
Note 2: The above specifications are for fluid pressure 20 kPa, power voltage 24 VDC, and ambient temperature 20°C. The detected fluid is water.

## Precautions

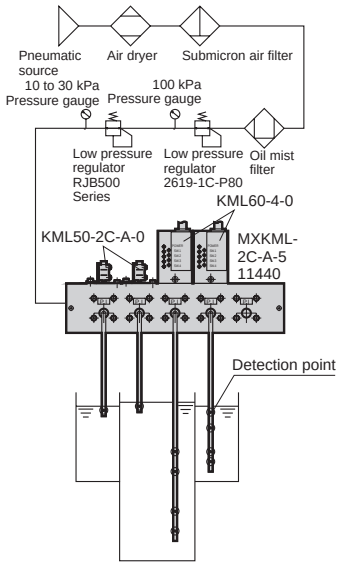
1. Install the switch at a position higher than the fluid level to be detected.
2. Use compressed air filtered for dirt and oil with a submicron filter or microalescer.
3. Use an oil-prohibited low-pressure regulator.
4. Use a ø4 mm ID size piping for detection. Do not install anything that may cause resistance, such as an aperture, in piping.
5. The manifold has eight P·S ports. Mask ports that are not required.
6. This switch cannot be used in a sealed fluid tank or similar fluid tank.
7. Do not block detection piping or detection port with a valve, etc. Supply pressure applied to the sensor chip may result in damage.
8. When using as a mix manifold with the KML50 Series, see KML50 Series precautions for use.
9. Do not stop supply pressure. Chemical liquid atmosphere may flow back from the detection tube to the sensor, causing adverse effects.
10. This switch cannot be used in a chemical liquid atmosphere.

## Internal structure and parts list




| No. | Parts name | Material |
|---|---|---|
| 1 | Cover | PVC |
| 2 | Base | PVC |
| 3 | Sensor cable | PVC |
| 4 | Bush | Nylon 66 |
| 5 | Manifold | PVC |
| 6 | Nipple | SUS304 |

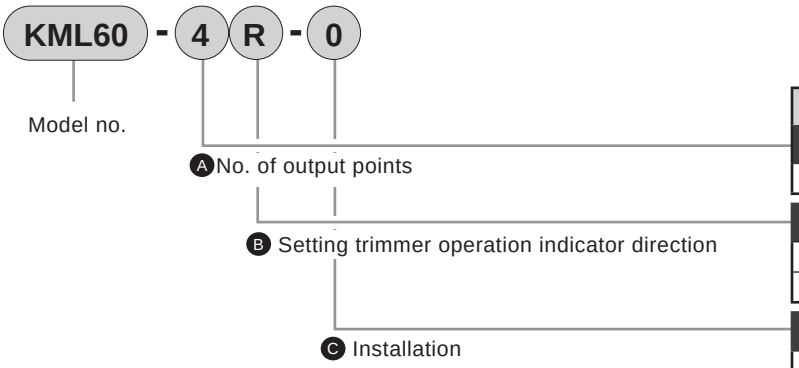
## Usage example




Read the precautions on Intro 7 to 14 before use.

## How to order

● Discrete




| Symbol | Descriptions |
|---|---|
| **A No. of output points** | |
| **4** | 4-point setting type |
| **B Setting trimmer operation indicator direction** | |
| **Blank** | P.I port side |
| **R** | P.I port back side |
| **C Installation (Note 1)** | |
| **Blank** | Discrete |
| **0** | Discrete for manifold |

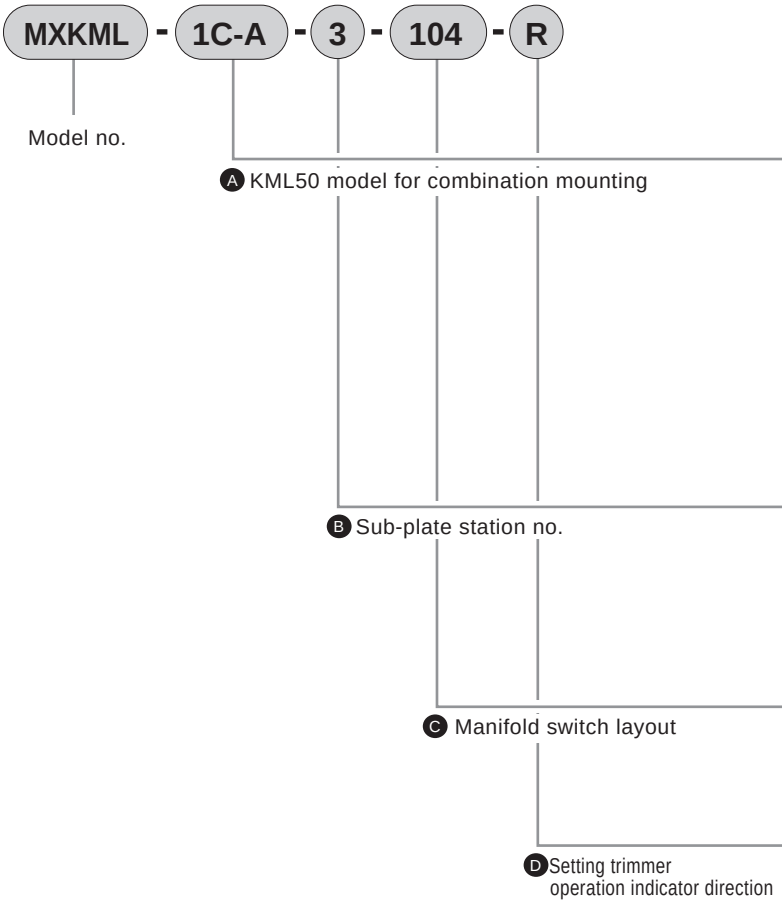
Note 1: When installing the C item 0 product on the manifold sub-base, two of the supply ports on the upper side of the manifold sub-base become unusable. When using top ports on a conventional manifold, other supply ports must be used.

<Example of model number>

**KML60-4R-0**

Model: KML60
A No. of output points : 4 points
B Setting trimmer operation indicator direction : P.I port back side
C Installation : For sub-plate installation

● Manifold




| Symbol | Descriptions |
|---|---|
| **A KML50 model for combination mounting** | |
| **00-0** | KML50 not mounted together |
| **1C-A** | KML50-1C-A-0 combination mounting |
| **1C-B** | KML50-1C-B-0 combination mounting |
| **2C-A** | KML50-2C-A-0 combination mounting |
| **2C-B** | KML50-2C-B-0 combination mounting |
| **0A-A** | KML50-0A-A-0 combination mounting |
| **0A-B** | KML50-0A-B-0 combination mounting |
| **1B-A** | KML50-1B-A-0 combination mounting |
| **2B-A** | KML50-2B-A-0 combination mounting |
| **2B-B** | KML50-2B-B-0 combination mounting |
| **B Sub-plate station no.** | |
| **1** | 1 station |
| **2** | 2 stations |
| **3** | 3 stations |
| **4** | 4 stations |
| **5** | 5 stations |
| **C Manifold switch layout (Note 1, Note 2, Note 3, Note 4)** | |
| **0** | Masking |
| **1** | KML50 type designated with A item |
| **4** | KML60-4-0 |
| **D Setting trimmer operation indicator direction** | |
| **Blank** | P.I port side |
| **R** | P.I port back side |

Note 1: Designate the switch layout on the manifold with 0, 1, or 4 number arrays.
Note 2: Designate the array from the front left (P.I port side) of the manifold.
Note 3: Designate the same number of digits as the sub-plate station no. designated in item B.
Note 4: When using masking, always designate 0 at the masking position.

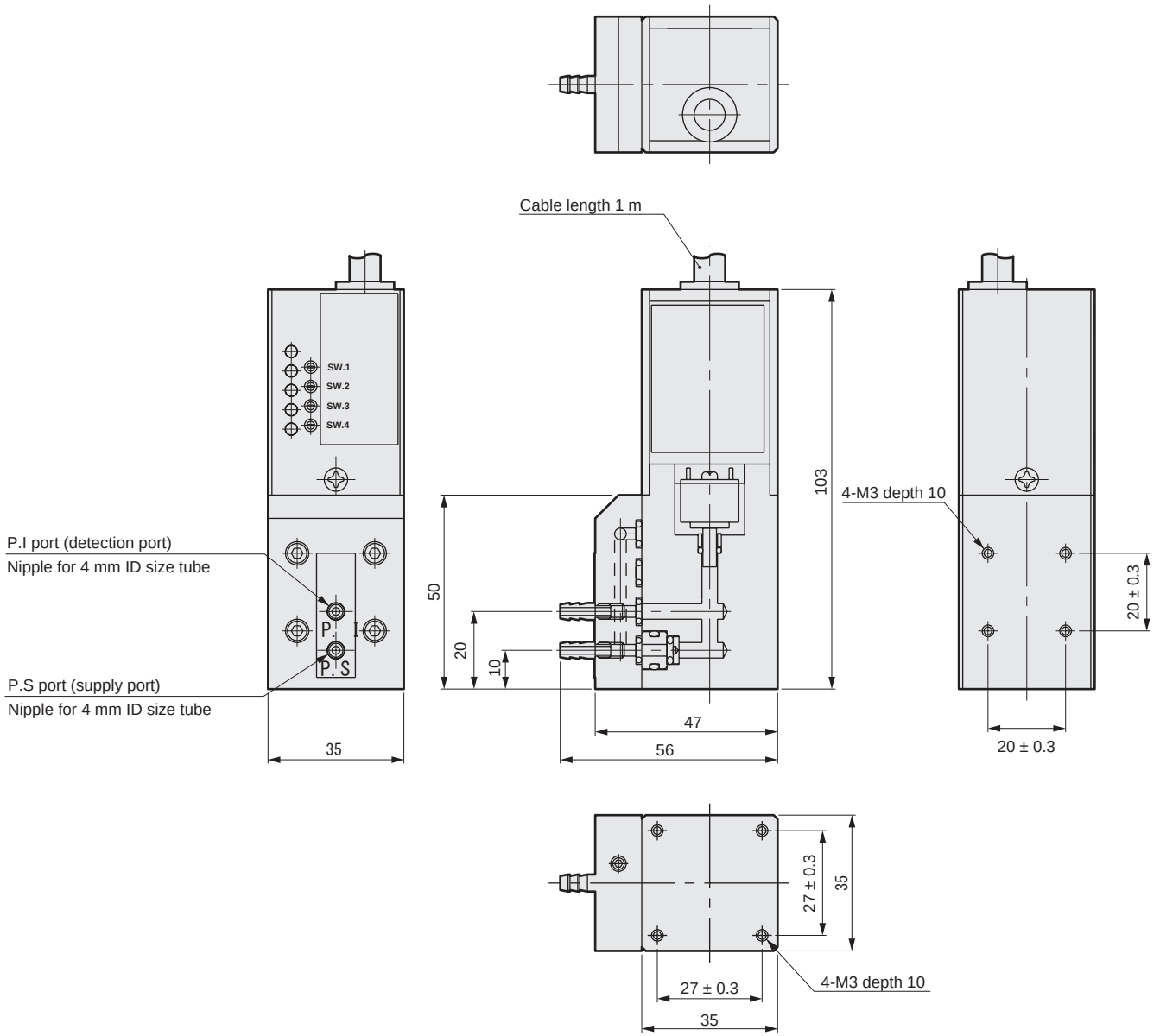
<Example of model number>

**MXKML-1C-A-3-104-R**

Model: MXKML
A KML50 model for combination mounting : KML50-1C-A-0
B Sub-plate station no. : 3 stations
C Manifold switch layout : Arranged in order of KML50-1C-A-0, masking, and KML60-4-0 from front left.
D Setting trimmer operation indicator direction : P.I port back side

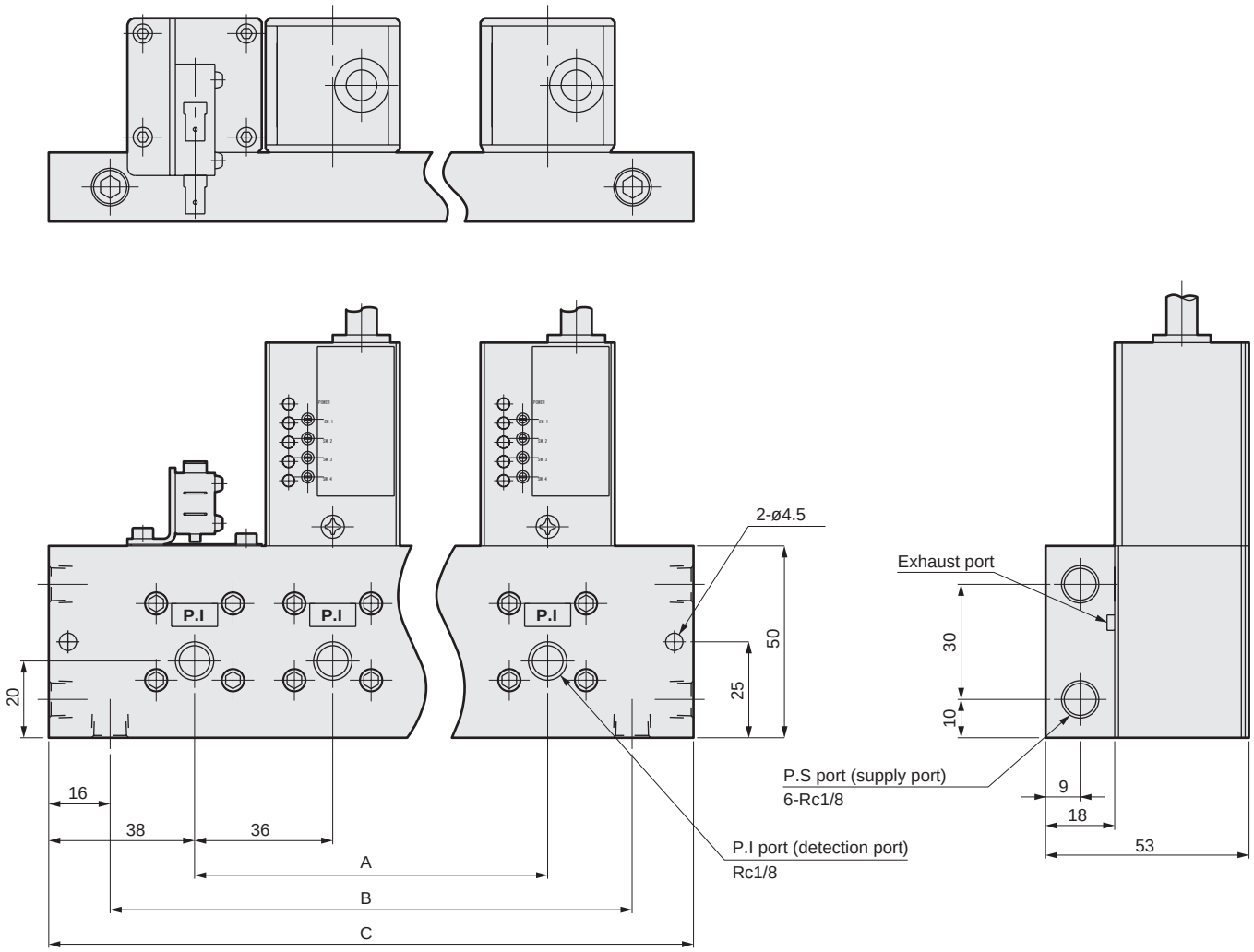
## Dimensions

● KML60-4



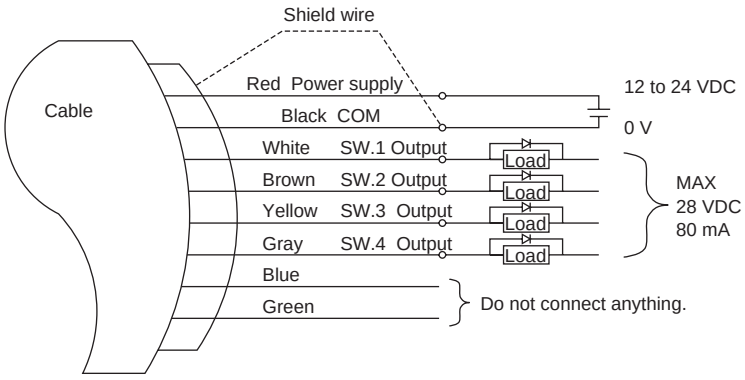
## Dimensions

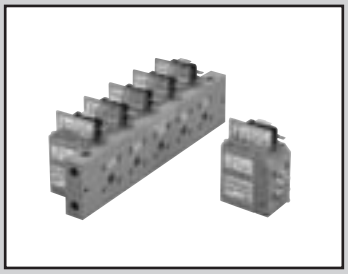
●MXKML-0A-A-*-* (manifold)




| Sub-plate station no. | A | B | C |
|---|---|---|---|
| 1 | - | 66 | 76 |
| 2 | 36 | 102 | 112 |
| 3 | 72 | 138 | 148 |
| 4 | 108 | 174 | 184 |
| 5 | 144 | 210 | 220 |

## Wiring diagram





Fine level switch

# KML50 Series

Fluid level detector with ±1 mm detection accuracy and outstanding installation performance

## Specifications

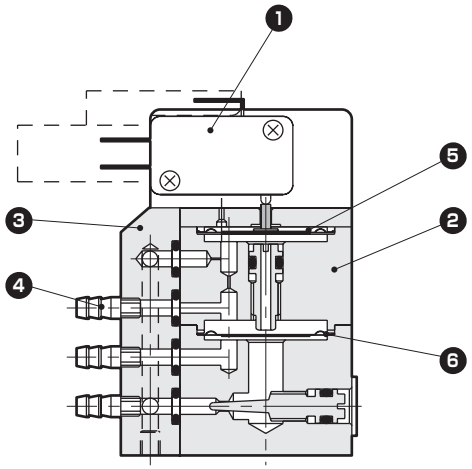
| Descriptions | | KML50-0A-$^{A}_{B}$ | KML50-1$^{B}_{C}$-$^{A}_{B}$ | KML50-2$^{B}_{C}$-$^{A}_{B}$ |
|---|---|---|---|---|
| Working fluid | | Air, $N_2$ | | |
| Working pressure range | kPa | 15 to 35 | 10 to 30 | |
| Fluid temperature | °C | 5 to 60 | | |
| Ambient temperature | °C | 15 to 40 | 5 to 60 | |
| Withstanding pressure | kPa | 50 | | |
| Water level range | mm | 8 to 100 | 1 to 600 | |
| Contact capacity | Type A | 3A 125 V/250 VAC resistance load (micro switch) | | |
| | Type B | 0.25 A 100 VDC resistance load (reed switch) | | |
| Switching level: mm | Switching point | 8 to 12 (Note 1) | 8 to 12 (Note 1) | 1 to 3 (Note 1) |
| | Hysteresis | 5 or less (Note 1) | 2 or less (Note 1) | 2 or less (Note 1) |
| Repeatability | mm | ±1 | | |
| Response speed | ms | 200 or less (at flow rate detection 75 $cm^3$/min (ANR), detection tube ID size ø4 mm, length 2 m) | | |
| Detection tube ID size | ø mm | 4 | | |
| Detection tube length | m | Within 2 | | |
| Air consumption | $cm^3$/min (ANR) | 750 or less (at supply pressure 20kPa) | | |

Remarks: (1) Note 1. The above specifications apply to the supply pressure 20 kPa (ambient temperature 24±2°C). Use supply pressure of highly clean air. These are values for measuring water.
(2) The microswitch is the C contact, and the reed switch is the A contact.

## Precautions

1. Install the switch at a position higher than the fluid level to be detected.
2. Use compressed air filtered for dirt and oil with a submicron filter or microalescer.
3. Use an oil-prohibited low-pressure regulator.
4. The switch is adjusted with water or a fluid with equivalent viscosity before shipment.
5. Use a ø4 mm ID size piping for detection. Do not install anything that may cause resistance, such as an aperture, in piping.
6. The manifold has eight P.S ports. Mask ports that are not required.
7. This switch cannot be used in a sealed fluid tank or similar fluid tank.
8. The switch may be damaged if a load exceeding 50 kPa is applied on the PS port. Gradually increase pressure from 0.
9. Set the switch facing upward at a position higher than the fluid level.
10. The needle is adjusted before shipment, so do not readjust it.
11. Excessive pressure may result in damage if the EXH port is plugged. Leave the EXH port open.
12. If corrosive gas may be led in from the detection tube, do not stop supplied gas. This switch prevents corrosive gas from entering the detector by discharging the detected gas from the detection tube.
13. This switch cannot be used in a chemical liquid atmosphere.

## Internal structure and parts list




| No. | Parts name | Material (for each material combination) | | |
|---|---|---|---|---|
| | | A | B | C |
| 1 | Microswitch | — | | |
| 2 | Body | PVC | A6063 | PVC |
| 3 | Manifold | PVC | A6063 | PVC |
| 4 | Nipple | SUS304 | | |
| 5 | Diaphragm A | U | | |
| 6 | Diaphragm B | PTFE | U | U |

Read the precautions on Intro 7 to 14 before use.

## How to order

● Discrete

KML50 - 1 B - B - ( )

Model no.

Ⓐ Detection class

Ⓑ Material combination

Ⓒ Switch type

Ⓓ Option

| Symbol | Descriptions | |
|---|---|---|
| Ⓐ Detection class | Switching point | Hysteresis |
| 0 (Note 1) | 8 to 12 | 5 |
| 1 (Note 1) | 8 to 12 | 2 |
| 2 (Note 1) | 1 to 3 | 2 |

| Ⓑ Material combination | Body | Diaphragm |
|---|---|---|
| A | PVC | PTFE |
| B | A6063 | U |
| C | PVC | U |

| Ⓒ Switch type | |
|---|---|
| A | Microswitch (C contact) |
| B | Reed switch (A contact) |

| Ⓓ Option | |
|---|---|
| Blank | Discrete |
| 0 | Discrete for manifold |

● Manifold

MKML - 1 B - B - 4 - 2

Model no.

Ⓐ Detection class

Ⓑ Material combination

Ⓒ Switch type

Ⓓ Sub-plate station no.

Ⓔ No. of masks

| Symbol | Descriptions | |
|---|---|---|
| Ⓐ Detection class | Switching point | Hysteresis |
| 0 (Note 1) | 8 to 12 | 5 |
| 1 (Note 1) | 8 to 12 | 2 |
| 2 (Note 1) | 1 to 3 | 2 |

| Ⓑ Material combination | Body | Diaphragm |
|---|---|---|
| A | PVC | PTFE |
| B | A6063 | U |
| C | PVC | U |

| Ⓒ Switch type | |
|---|---|
| A | Microswitch (C contact) |
| B | Reed switch (A contact) |

| Ⓓ Sub-plate station no. | |
|---|---|
| 1 | 1 station |
| 2 | 2 stations |
| 3 | 3 stations |
| 4 | 4 stations |
| 5 | 5 stations |

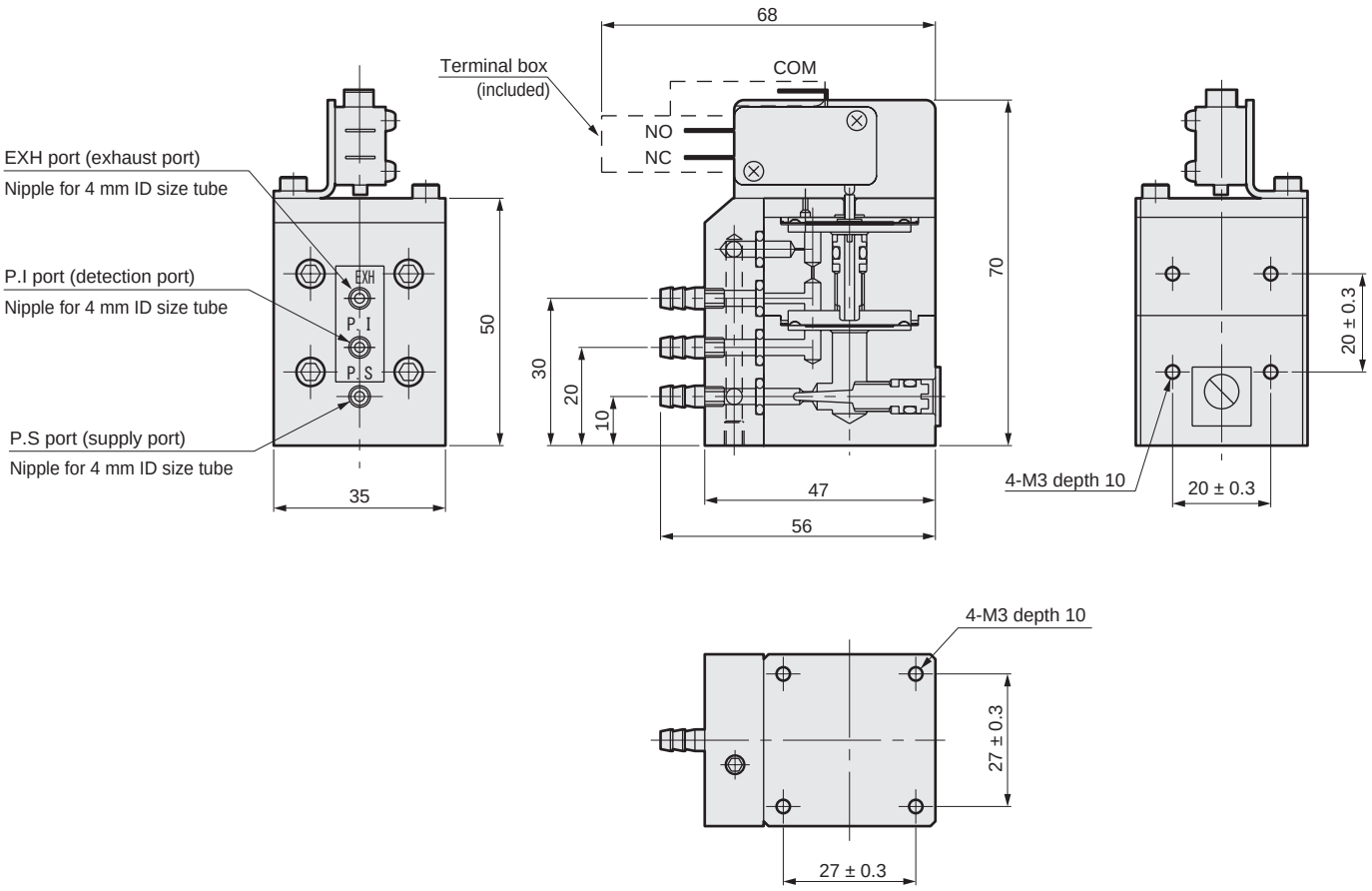
| Ⓔ No. of masks | |
|---|---|
| 0 | No masking |
| 1 | 1 attached |
| 2 | 2 attached |
| 3 | 3 attached |
| 4 | 4 attached |

## Note on model no. selection

Note 1: When item Ⓐ is 0, only A is used for item Ⓑ. If item Ⓐ is 1 or 2, only B or C is used for item Ⓑ.

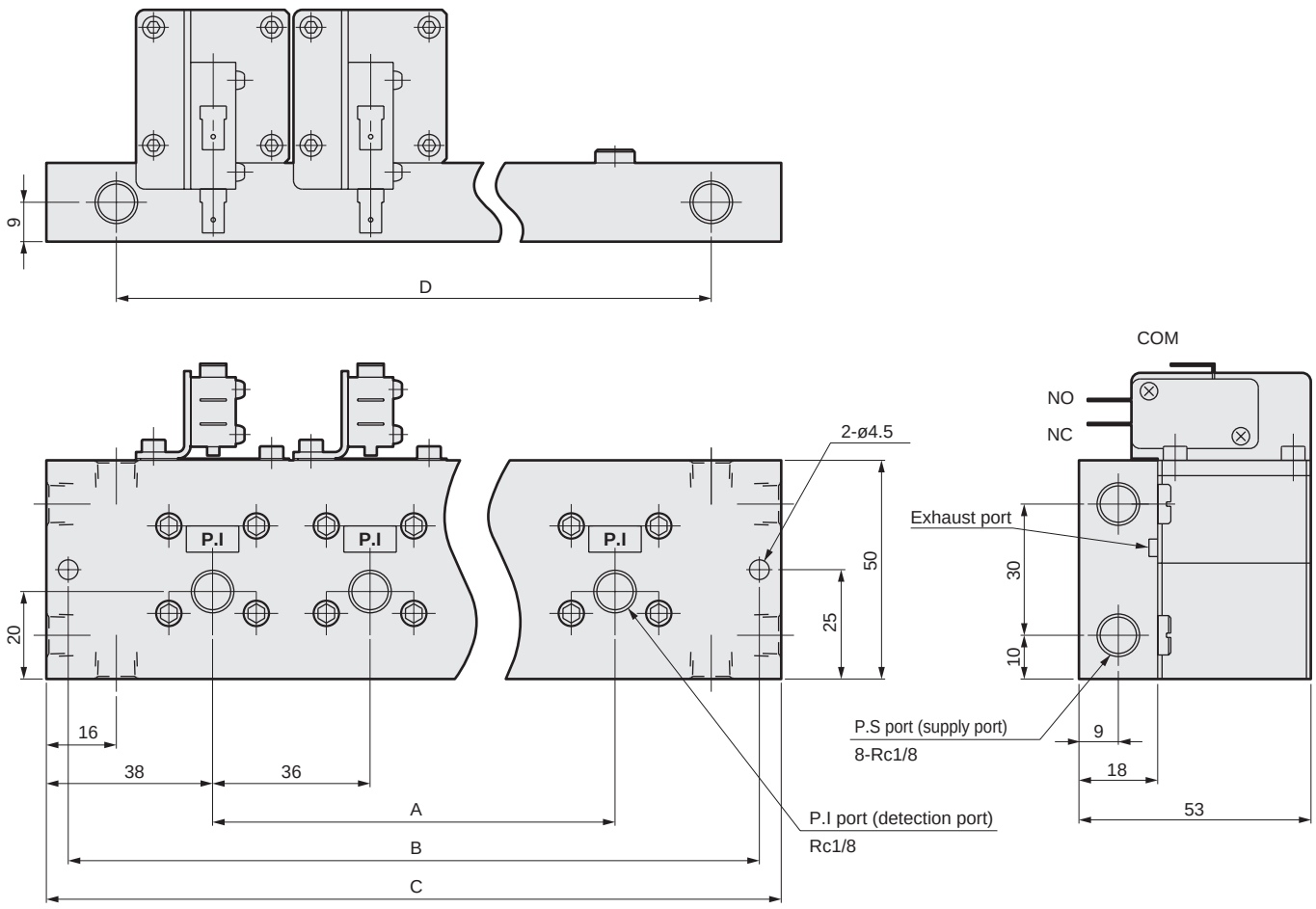
## Dimensions

● KML50-0A-A



## Dimensions

● MKML-0A-A-*-* (manifold)

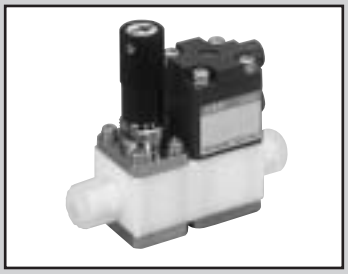



| Sub-plate station no. | A | B | C | D |
|---|---|---|---|---|
| 1 | - | 66 | 76 | 44 |
| 2 | 36 | 102 | 112 | 80 |
| 3 | 72 | 138 | 148 | 116 |
| 4 | 108 | 174 | 184 | 152 |
| 5 | 144 | 210 | 220 | 188 |

■ Custom order

# Other high purity chemical liquid components


| | |
|---|---|
| Microflow adjustment valve | 160 |
| Large bore size chemical liquid valve | 162 |
| Dump valve (2-port valve) | 164 |
| Dump valve (3-port valve) | 168 |



# Microflow adjustment valve Series

Realizing stable microflow adjustment by separating flow control section and valve open/close functions

RoHS

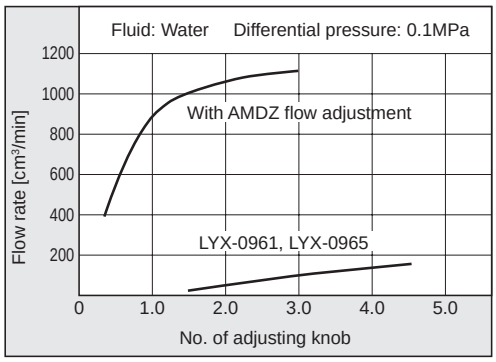
## Specifications

| Descriptions | | LYX-0961-*, LYX-0965-* |
|---|---|---|
| Working fluid | | Chemical liquid, pure water (Note 1) |
| Fluid temperature | °C | 5 to 60 |
| Withstanding pressure | MPa | 0.6 |
| Working pressure range | MPa | 0 to 0.3 |
| Ambient temperature | °C | 0 to 60 |
| Installation attitude | | Free |

Note 1: This valve can not be used with oxidized fluid.
Check the compatibility of the material of each component, working fluid, and ambient atmosphere before use.
Note 2: See AMDZ on page 2 for air-operated valve specifications.

## Flow characteristics/pressure characteristics

Comparison of flow characteristics




## How to order

LYX - 0961 - 6BUS - 1

Ⓐ Type

| Ⓐ Type | |
|---|---|
| 0961 | Air-operated valve integrated type |
| 0965 | Only microflow adjustment valve (no valve closing function) |

Ⓑ Connection

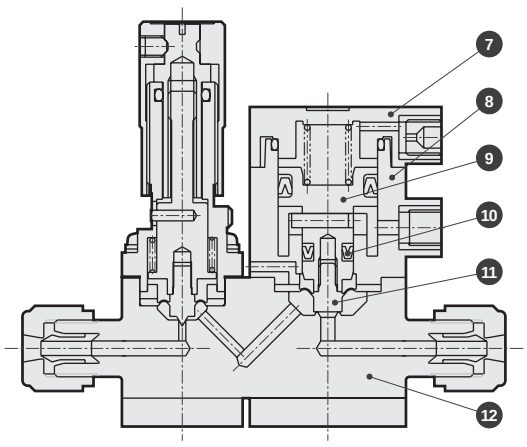
| Ⓑ Connection | | |
|---|---|---|
| 6 | Rc1/8 | |
| 3US | Super type Pillar fitting integrated type | ø3 × ø2 tube connection |
| 6BUS | | 1/8" × 0.086" tube connection |
| 3UF | F-LOCK 20 series fitting integrated type | ø3 × ø2 tube connection |
| 3UR | F-LOCK 60 series fitting integrated type | ø3 × ø2 tube connection |
| 6BUR | | 1/8″ × 1/16″ tube connection |

Ⓒ Actuation (Select only for LYX-0961)

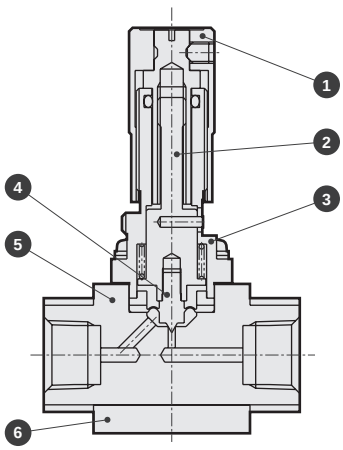
| Ⓒ Actuation | |
|---|---|
| 1 | NC (normally closed) |
| 2 | NO (normally open) |
| 3 | Double acting |

## Internal structure and parts list

●LYX-0961




●LYX-0965



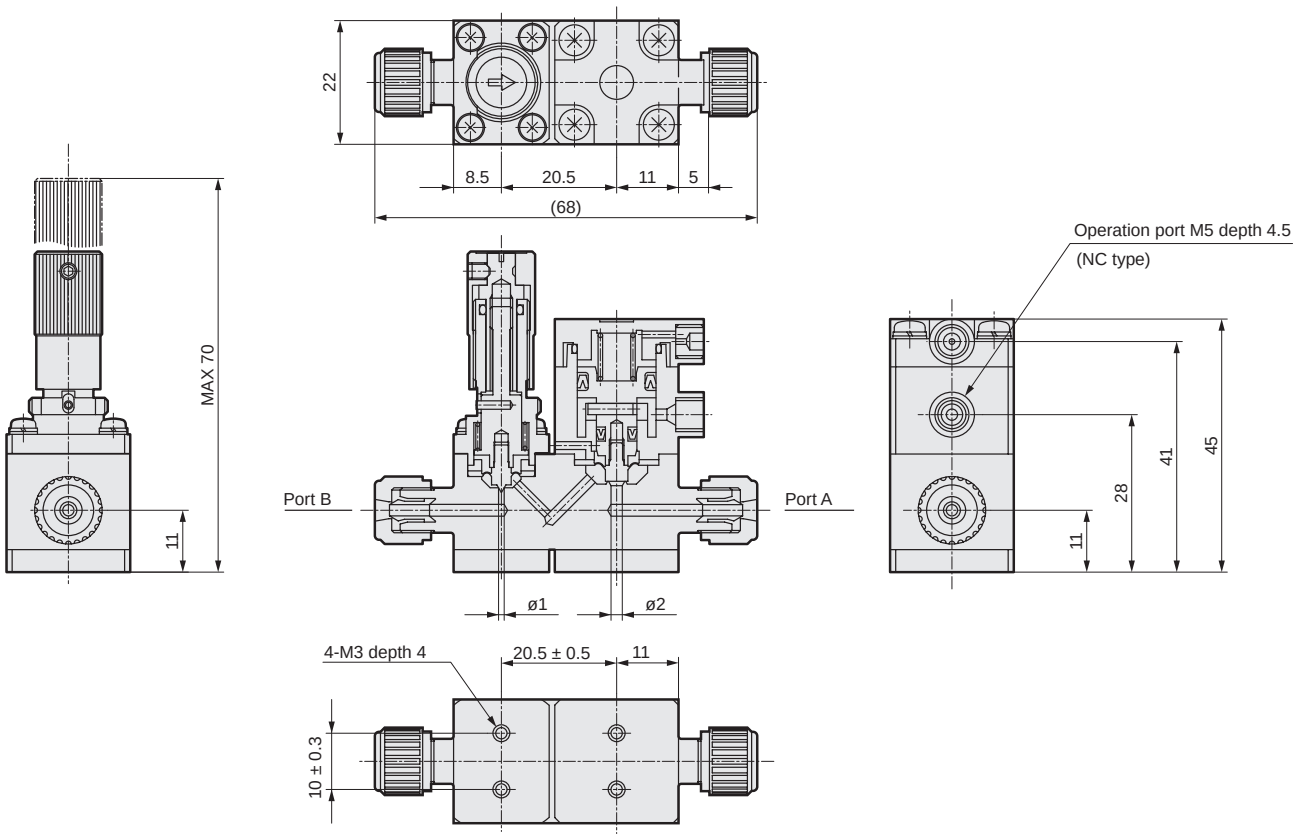

| No. | Parts name | Material |
|---|---|---|
| 1 | Adjusting knob | A5056 |
| 2 | Lower rod | SUS304 |
| 3 | Needle cover | SUS304 |
| 4 | Diaphragm | PTFE |
| 5 | Body | PTFE |
| 6 | Mounting plate | SUS304 |
| 7 | Cover | PPS |
| 8 | Cylinder | PPS |
| 9 | Piston rod | SUS303 |
| 10 | Y packing seal | NBR |
| 11 | Diaphragm | PTFE |
| 12 | Body | PTFE |

The material and structure may differ with the model. Contact CKD for details.

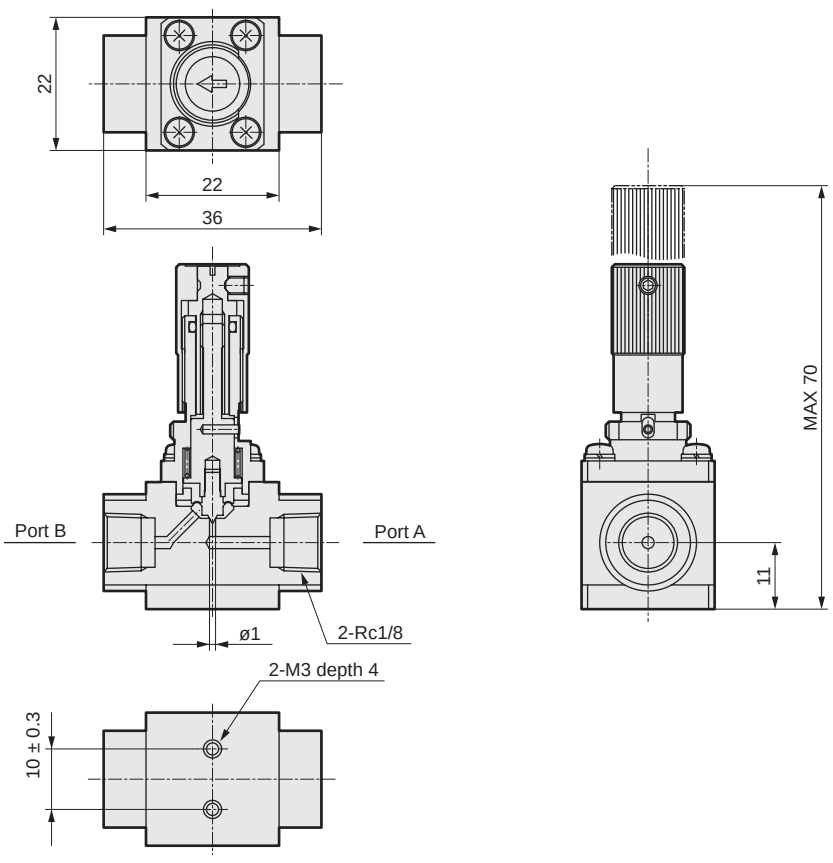
⚠ Read the precautions on Intro 7 to 14 before use.

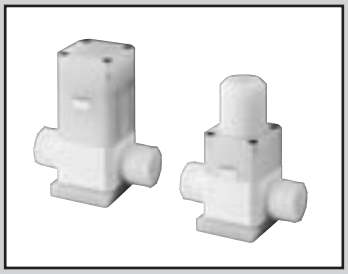
# Dimensions

● LYX-0961-6BUS-1




● LYX-0965-6





# Large bore size chemical liquid valve

Large bore size PFA tube 1.5 inch supported.
Air-operated valves and manual valves

RoHS

## Specifications

| Descriptions | | | LYX |
|---|---|---|---|
| Working fluid | | | Chemical liquid, pure water (Note 1) |
| Fluid temperature | | °C | 10 to 35 |
| Withstanding pressure | | MPa | 0.8 |
| Working pressure range (A → B) | | MPa | 0 to 0.4 |
| Working pressure range (B → A) | | MPa | 0 to 0.4 |
| Valve seat leakage | | $cm^3/min$ | 0 (under water pressure) |
| Back pressure | | MPa | 0 to 0.4 |
| Ambient temperature | | °C | 5 to 35 |
| Frequency | | | 4 times/min or less |
| Installation attitude | | | Free |
| Connection | | | OD 1, 1/2" |
| Orifice | | | ø40 |
| Cv value | | | 24 |
| Operation section | Operation pressure range | MPa | 0.5 to 0.6 |
| | Operation pressure connection port | | Rc1/8 |

Note 1: Check the compatibility of the material of each component, working fluid, and ambient atmosphere before use.

## How to order

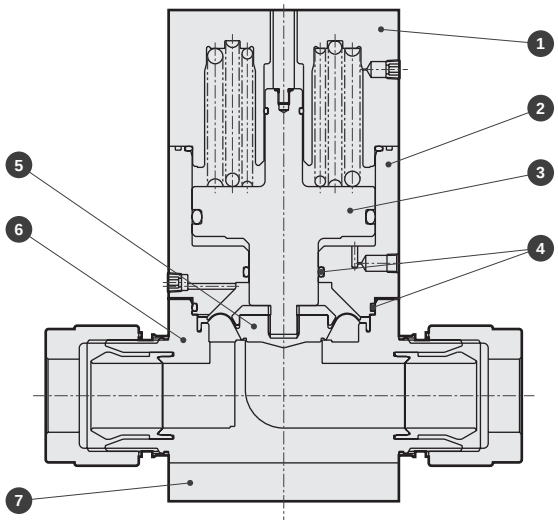
LYX - 1380 - 12BJ - M

- LYX: Model no.
- 1380: Ⓐ Air-operated/manual classification
- 12BJ: Ⓑ Connection
- M: Ⓒ Fluid

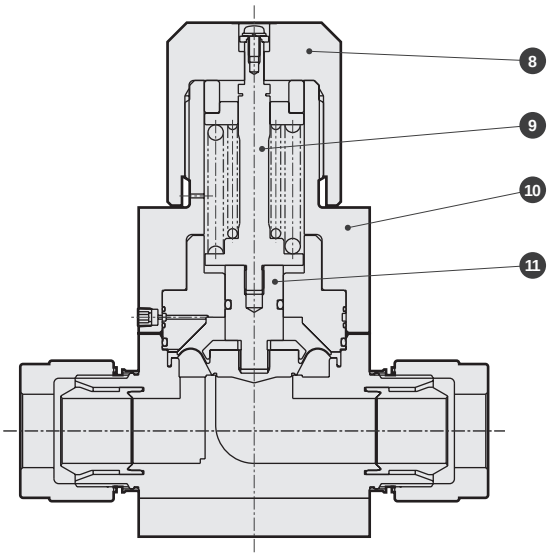
| Symbol | Descriptions |
|---|---|
| **Ⓐ Air-operated/manual classification** | |
| **1380** | Air-operated valve |
| **1381** | Manual valve |
| **Ⓑ Connection** | |
| **12BJ** | Super 300 type Pillar fitting P Series<br>$1^{1}/_{2}$" X $1^{21}/_{64}$" tube connection |
| **Ⓒ Fluid** | |
| **Blank** | Standard |
| **M** | For ammonia |

## Internal structure and parts list

● LYX-1380




● LYX-1381



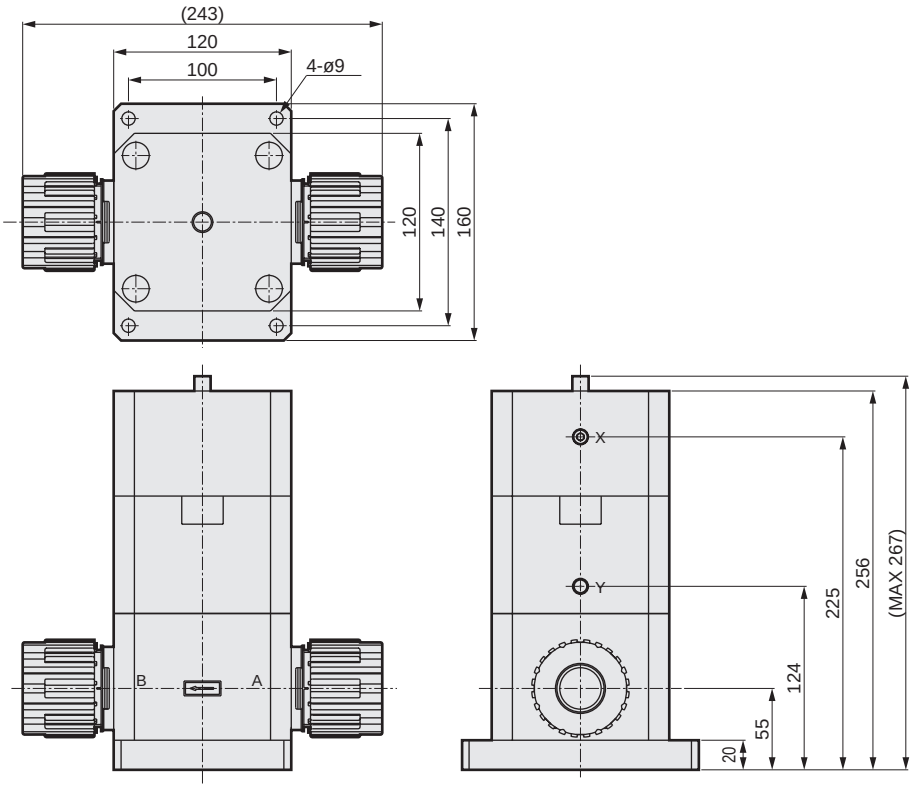

| No. | Parts name | Material (Fluid symbol) | | No. | Parts name | Material (Fluid symbol) | |
|---|---|---|---|---|---|---|---|
| | | Standard | M | | | Standard | M |
| 1 | Cover | PP | | 7 | Mounting plate | PP | |
| 2 | Cylinder | PP | | 8 | Adjusting knob | PE | |
| 3 | Piston rod | PP | | 9 | Shaft | SUS304 (with fluorine resin coating) | |
| 4 | O ring | FKM | EPDM | 10 | Cover | PP | |
| 5 | Diaphragm | PTFE | | 11 | Rod | PP | |
| 6 | Body | PTFE | | | | | |

The material and structure may differ with the model. Contact CKD for details.

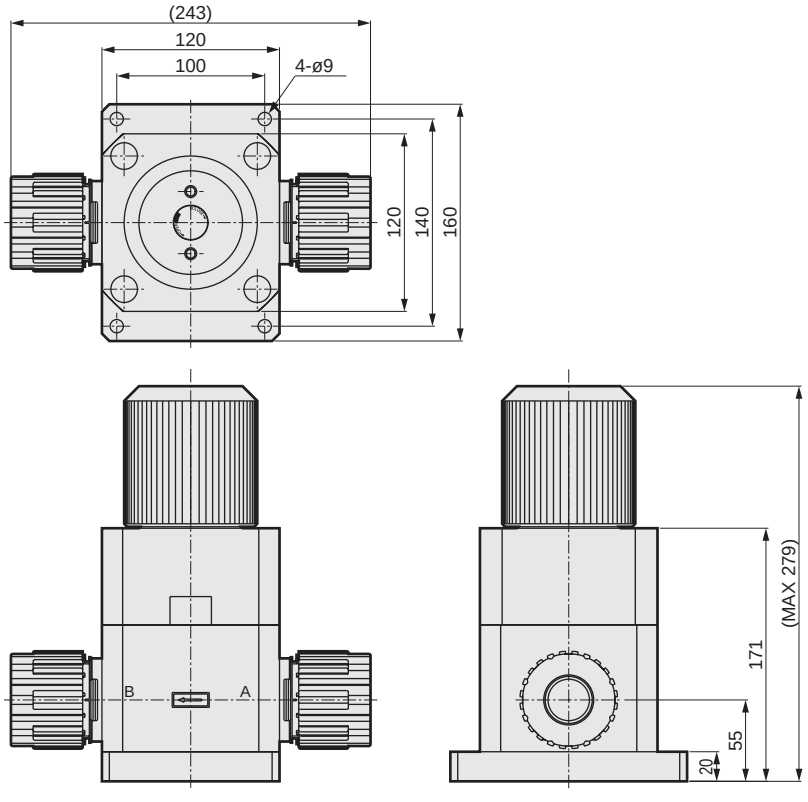
⚠ Read the precautions on Intro 7 to 14 before use.

# Dimensions

● Air-operated valve




● Manual valve



Air-operated valve for chemical liquid

# Dump valve (2 port valve) Series

●Orifice: ø25, ø32, ø40, ø50, ø65, ø75, ø100

RoHS

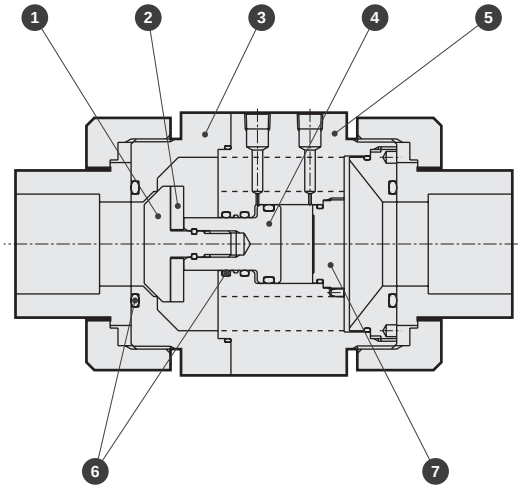
## Specifications

| Descriptions | | LYX-0877 | LYX-0878 | LYX-0879 | LYX-0880 | LYX-1451 | LYX-1452 | LYX-1453 | LYX-1454 |
|---|---|---|---|---|---|---|---|---|---|
| Working fluid | | Chemical liquid, pure water (Note 1) | | | | | | | |
| Fluid temperature | ºC | 5 to 90ºC | | | | 5 to 80ºC | | | |
| Withstanding pressure | MPa | 0.1 | | | | | | | |
| Working pressure range | MPa | 0.02 | | | | | | | |
| Valve seat leakage | $cm^3$/min | 0 (under water pressure) | | | | | | | |
| Ambient temperature | ºC | 0 to 40 | | | | | | | |
| Frequency | | 6 times/min or less | | | | | | | |
| Installation attitude | | Free | | | | | | | |
| Connection | | PVC union fitting integrated type | | | | | | JIS 5K flange type | |
| Nominal of connection | | 25 | 30 | 40 | 50 | 65 | 75 | 80 | 100 |
| Orifice | | ø25 | ø32 | ø40 | ø50 | ø65 | ø78 | ø78 | ø100 |
| Operation section | Operation pressure range MPa | 0.4 to 0.5 | | | | | | | |
| | Operation pressure connection port | Rc1/8 | | | | | | | |

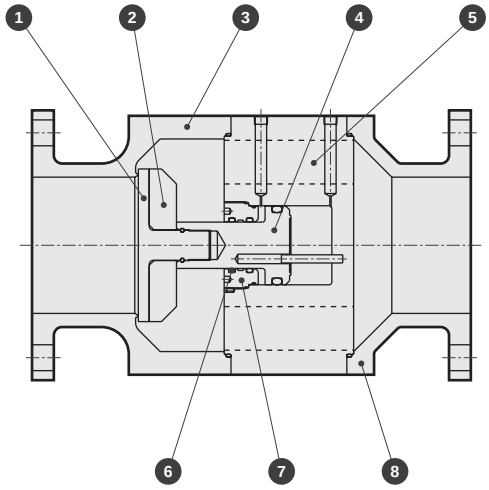
Note 1: Check the compatibility of the material of each component, working fluid, and ambient atmosphere before use.

## Internal structure and parts list

●LYX-0878




●LYX-1454




| No. | Parts name | Material (for each O ring material) | |
|---|---|---|---|
| | | A | I |
| 1 | Main valve | PTFE | |
| 2 | Spacer | PP | |
| 3 | Body | PP | |
| 4 | Piston rod | PP | |
| 5 | Cylinder | PP | |
| 6 | O ring | EPDM | FKM |
| 7 | Cylinder cap | PP | |
| 8 | OUT port | PP | |

The material and structure may differ with the model.
Contact CKD for details.

Read the precautions on Intro 7 to 14 before use.

## How to order

●PVC union fitting integrated type

LYX - 0877-25AU - 2P A

Ⓐ Connection　Ⓑ O ring material

| Symbol / Descriptions \ Orifice | Ⓐ Connection | | | | | |
|---|---|---|---|---|---|---|
| | 0877-25AU | 0878-32AU | 0879-40AU | 0880-50AU | 1451-65AU | 1452-75AU |
| | PVC union fitting | | | | | |
| | Nominal 25 | Nominal 30 | Nominal 40 | Nominal 50 | Nominal 65 | Nominal 75 |
| | ø25 | ø32 | ø40 | ø50 | ø65 | ø75 |
| **Ⓑ O ring material** | | | | | | |
| **A** EPDM | ● | ● | ● | ● | ● | ● |
| **I** FKM | ● | ● | ● | ● | ● | ● |

●Flange connection type

LYX - 1453-80F - 2P A

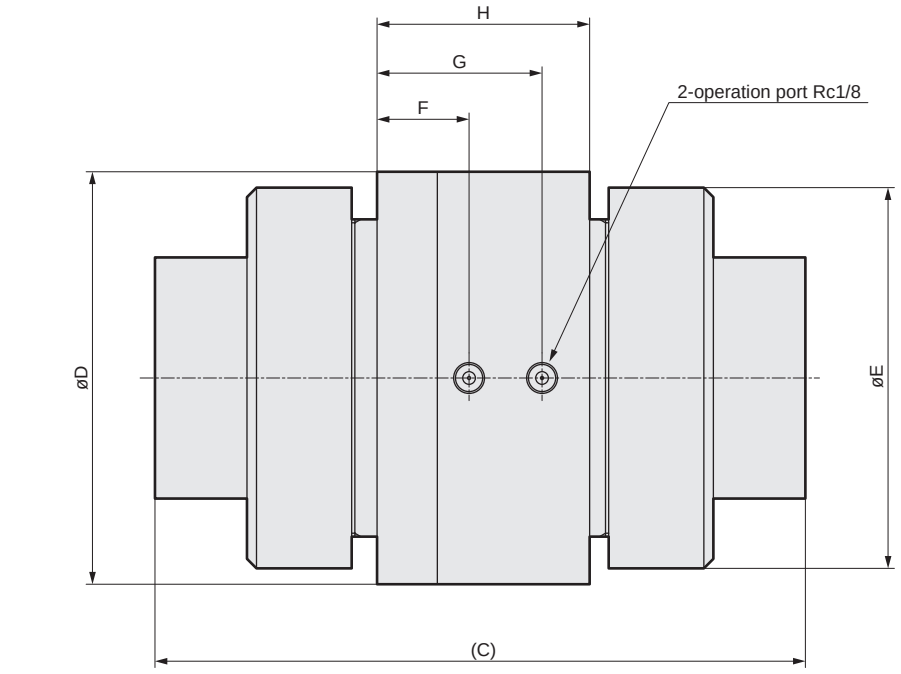
Ⓐ Connection　Ⓑ O ring material

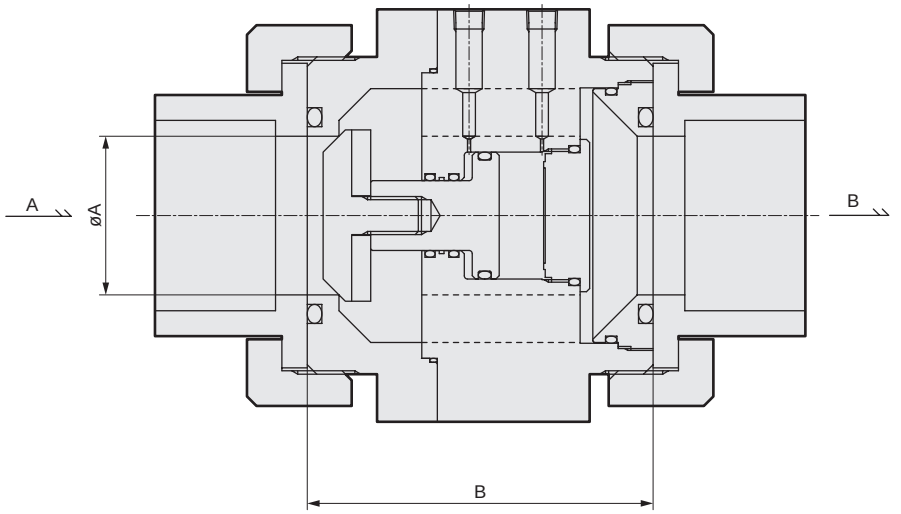
| Symbol / Descriptions \ Orifice | Ⓐ Connection | |
|---|---|---|
| | 1453-80F | 1454-100F |
| | JIS 5K flange type | |
| | Nominal 80 | Nominal 100 |
| | ø75 | ø100 |
| **Ⓑ O ring material** | | |
| **A** EPDM | ● | ● |
| **I** FKM | ● | ● |

# Dump valve (2 port valve)

## Dimensions

● PVC union fitting integrated type

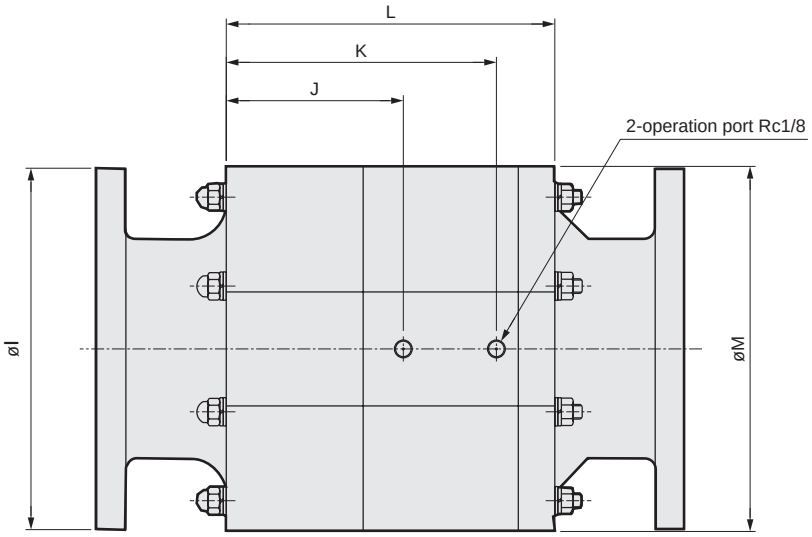


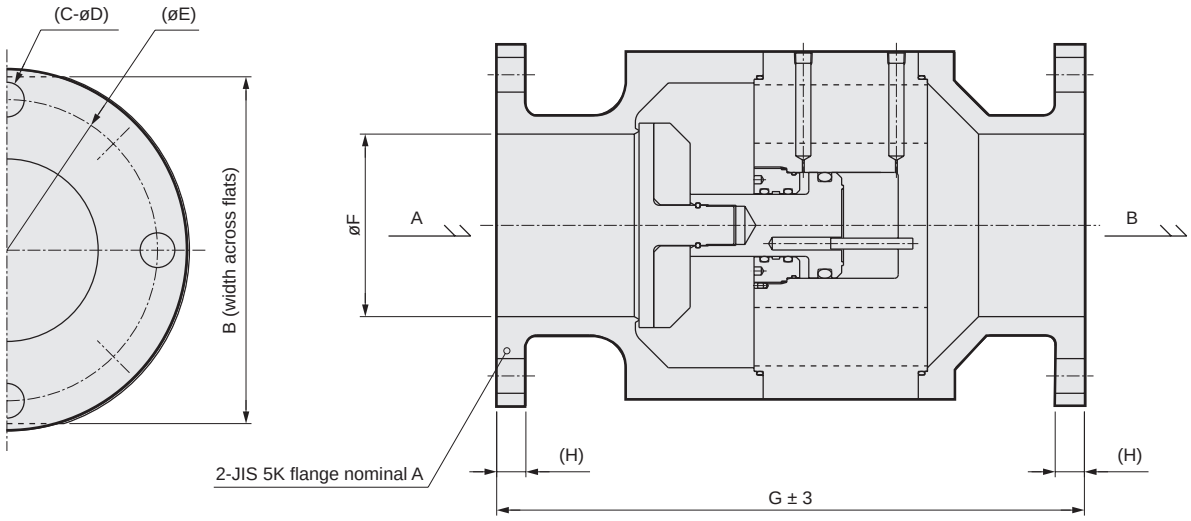




| Dimensions / Model no. | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| LYX-0877-25AU | 25 | 75 | 147 | 76 | 70 | 18 | 32 | 45 |
| LYX-0878-32AU | 32 | 101 | 189 | 100 | 96 | 29 | 49 | 63 |
| LYX-0879-40AU | 40 | 101 | 183 | 100 | 96 | 29 | 49 | 63 |
| LYX-0880-50AU | 50 | 109 | 205 | 130 | 120 | 29 | 52 | 67 |
| LYX-1451-65AU | 65 | 170 | 310 | 160 | 154 | 61.5 | 95 | 110 |
| LYX-1452-75AU | 78 | 175 | 320 | 170 | 164 | 61 | 99 | 115 |

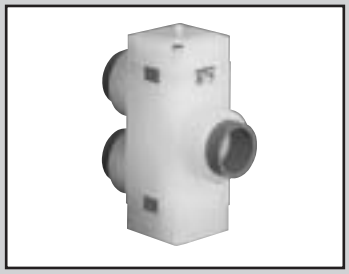
## Dimensions

● Flange connection type




| Dimensions / Model no. | A | B | C | D | E | F | G | H | I | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LYX-1453-80F | 80 | 166 | 4 | 19 | 145 | 78 | 310 | 14 | 180 | 91 | 129 | 170 | 170 |
| LYX-1454-100F | 100 | 190 | 8 | 19 | 165 | 100 | 322 | 16 | 198 | 97 | 148 | 180 | 195 |



Air-operated valve for chemical liquid

# Dump valve (3 port valve) Series

● Orifice: ø32, ø40, ø50

RoHS

## Specifications

| Descriptions | | LYX-0882 | LYX-0883 | LYX-0884 |
|---|---|---|---|---|
| Working fluid | | Chemical liquid, pure water (Note 1) | | |
| Fluid temperature | °C | 5 to 90 | | |
| Withstanding pressure | MPa | 0.1 | | |
| Working pressure range | MPa | 0.02 | | |
| Valve seat leakage | $cm^3$/min | 0 (under water pressure) | | |
| Ambient temperature | °C | 0 to 40 | | |
| Frequency | | 6 times/min or less | | |
| Installation attitude | | Free | | |
| Connection (PVC union fitting integrated type) | | Nominal 30 | Nominal 40 | Nominal 50 |
| Orifice | | ø32 | ø40 | ø50 |
| Operation section | Operation pressure range MPa | 0.4 to 0.5 | | |
| | Operation pressure connection port | Rc1/8 | | |

Note 1: Check the compatibility of the material of each component, working fluid, and ambient atmosphere before use.

## How to order

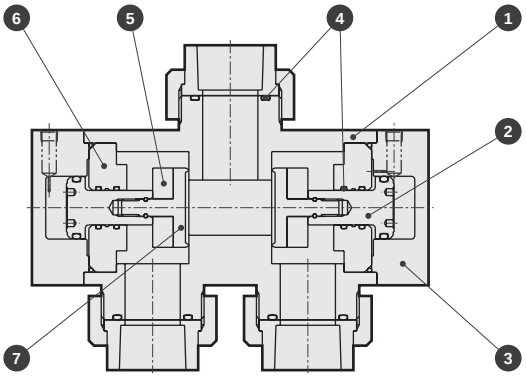
LYX - 0882-32AU - 3P A

Ⓐ Connection　Ⓑ O ring material

| Symbol | Descriptions \ Orifice | Ⓐ Connection 0882-32AU | 0883-40AU | 0884-50AU |
|---|---|---|---|---|
| | | PVC union fitting | | |
| | | Nominal 30 | Nominal 40 | Nominal 50 |
| | | ø32 | ø40 | ø50 |
| Ⓑ O ring material | | | | |
| A | EPDM | ● | ● | ● |
| I | FKM | ● | ● | ● |

## Internal structure and parts list

● LYX-0882

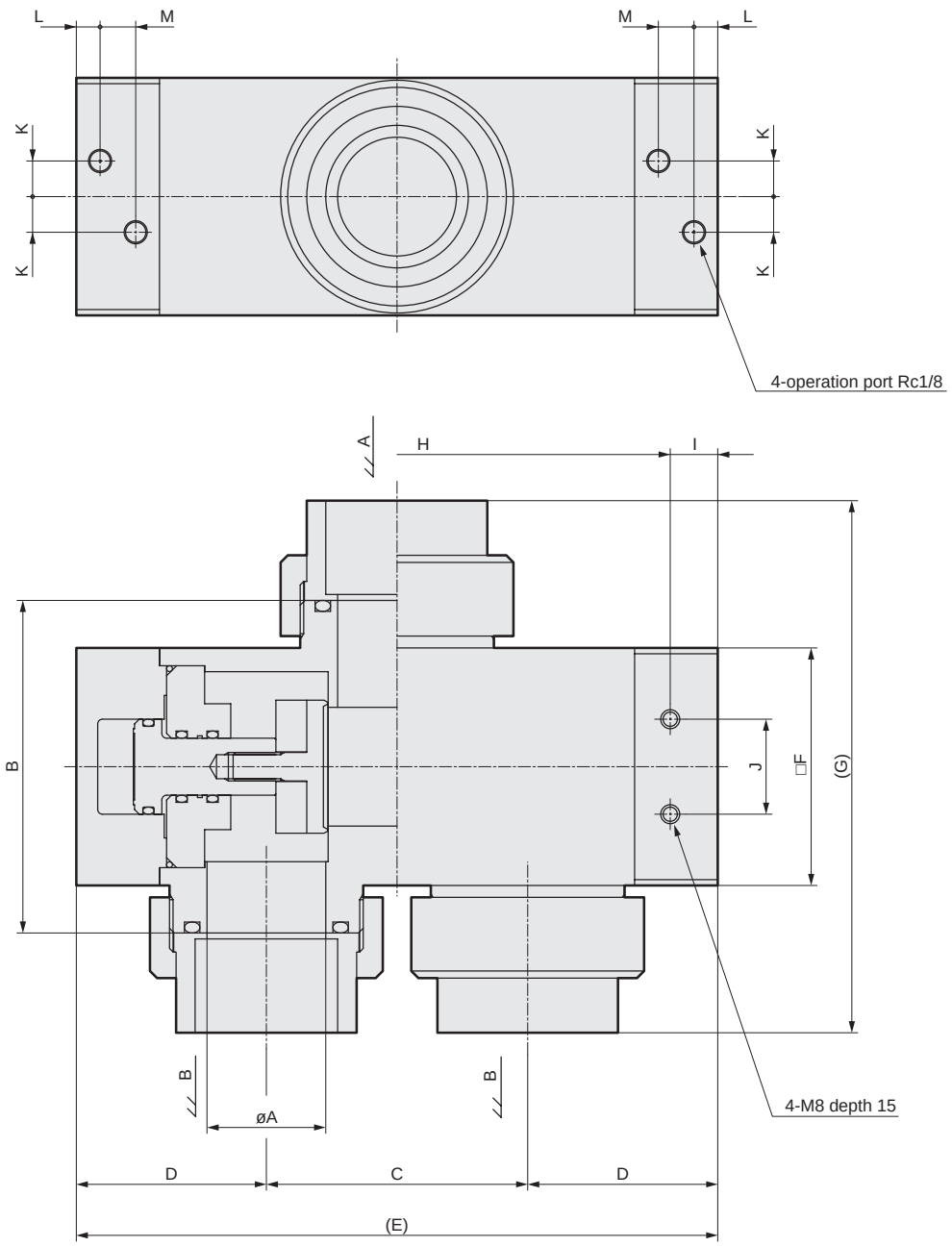



| No. | Parts name | Material (for each O ring material) A | I |
|---|---|---|---|
| 1 | Body | PP | |
| 2 | Piston rod | PP | |
| 3 | Cylinder | PP | |
| 4 | O ring | EPDM | FKM |
| 5 | Spacer | PP | |
| 6 | Cylinder adapter | PP | |
| 7 | Main valve | PTFE | |

The material and structure may differ with the model.
Contact CKD for details.

⚠ Read the precautions on Intro 7 to 14 before use.

## Dimensions

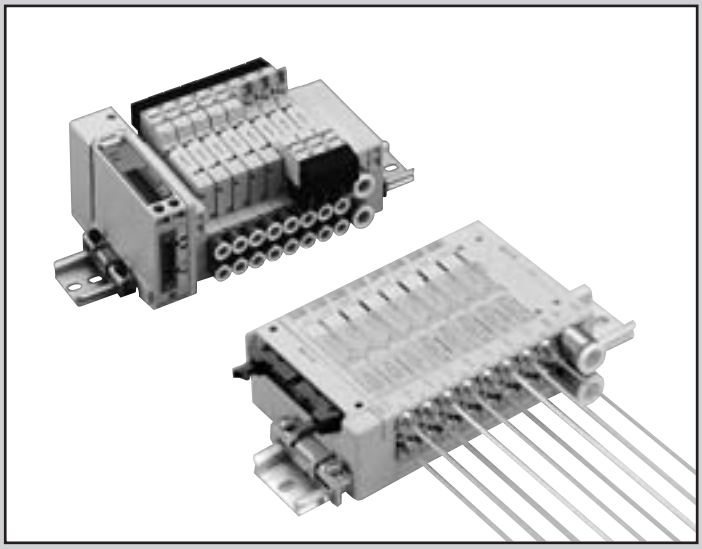



| Dimensions / Model no. | A | B | C | D | E | F | G | H | I | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LYX-0882-32AU | 32 | 130 | 90 | 70 | 230 | 90 | 190 | 200 | 15 | 40 | 15 | 10 | 10 |
| LYX-0883-40AU | 40 | 130 | 90 | 70 | 230 | 90 | 198 | 200 | 15 | 40 | 15 | 10 | 10 |
| LYX-0884-50AU | 50 | 140 | 110 | 80 | 270 | 100 | 224 | 230 | 20 | 40 | 15 | 10 | 15 |

# Related products

## Overview

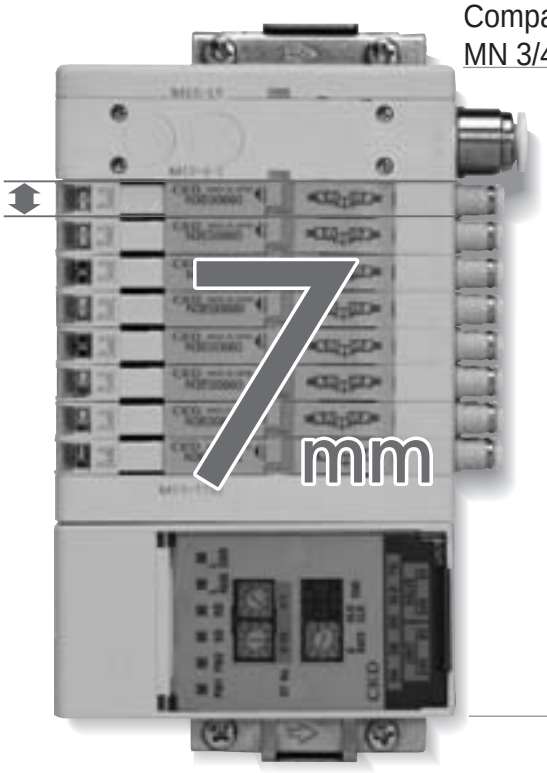
Solenoid valves for controlling air operated valve for chemical liquid are available in line-up.
These compact, space-saving, high-performance solenoid valves have safety functions and are eco-friendly.

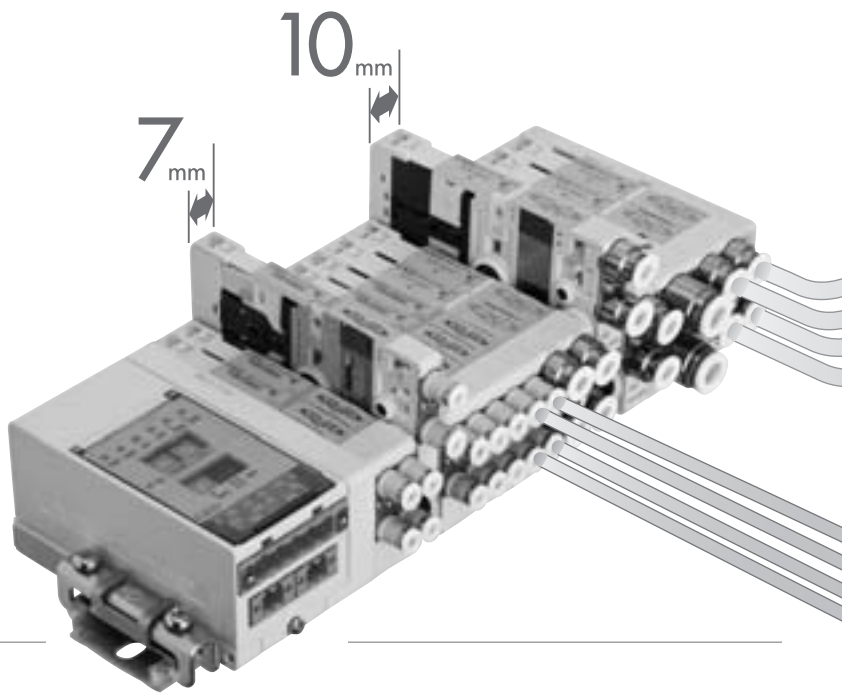


| | | |
|---|---|---|
| MN3E0/MN4E0 | Small solenoid valve | 172 |
| Fiber tube | | 212 |
| EV0000 | Pallet electro pneumatic regulator | 213 |
| MEVT | Thin electro pneumatic regulator | 213 |
| EVD | Digital electro-pneumatic regulator | 214 |

# 7 mm pitch pilot style solenoid valve manifold

Compact and reduced-wiring 3/4 port valve block manifold
MN 3/4 E series




NEW **MN3/4E00 series**

ECO ϕ3 HIGH SPEC SAFETY

Compact, space saving, and low power consumption

## Environment preservation RoHS

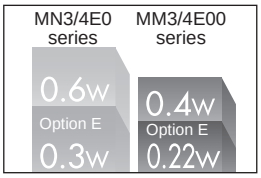
Achieved light weight, a reduction of material use, and energy saving with small size and power saving.
Quickly addressed environmental impact reduction of chemicals and use materials that comply with JIG-101A, Level A including lead-free soldering.

## Compact and space saving NEW

In addition to MN3/4E0 series of 10 mm width valve block type, MN3/4 E00 of 7 mm width valve block type and 7 mm manifold pitch is now available.
The 7 mm pitch and the more compact manifold contributes toward the downsizing and high integration achievement of the device.

## ECO Power saving NEW

MN3/4E0 series: 0.6 W
MN3/4E00 series: 0.4 W
Further reduction of power consumption with power saving type (Option E)




* Value with lamp indicator

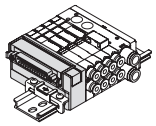
## ϕ3 ø3 push-in fitting lineup NEW

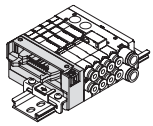
The ø3 tube, which achieves both reduction of piping volume and securing of flow rate, contributes to space saving of the tube piping, along with the ø1.8 tube.

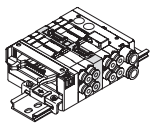
## Variety

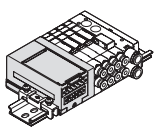
■ Various electric connections and options

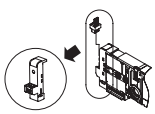
A variety of electric connections are available for all types of connectors and serial transmissions compatible with various networks. Easy plug-in enabled regulator block is also available.

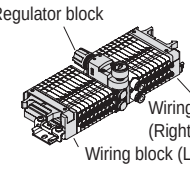

D-sub connector


Flat cable connector


Intermediate wiring block


Serial transmission

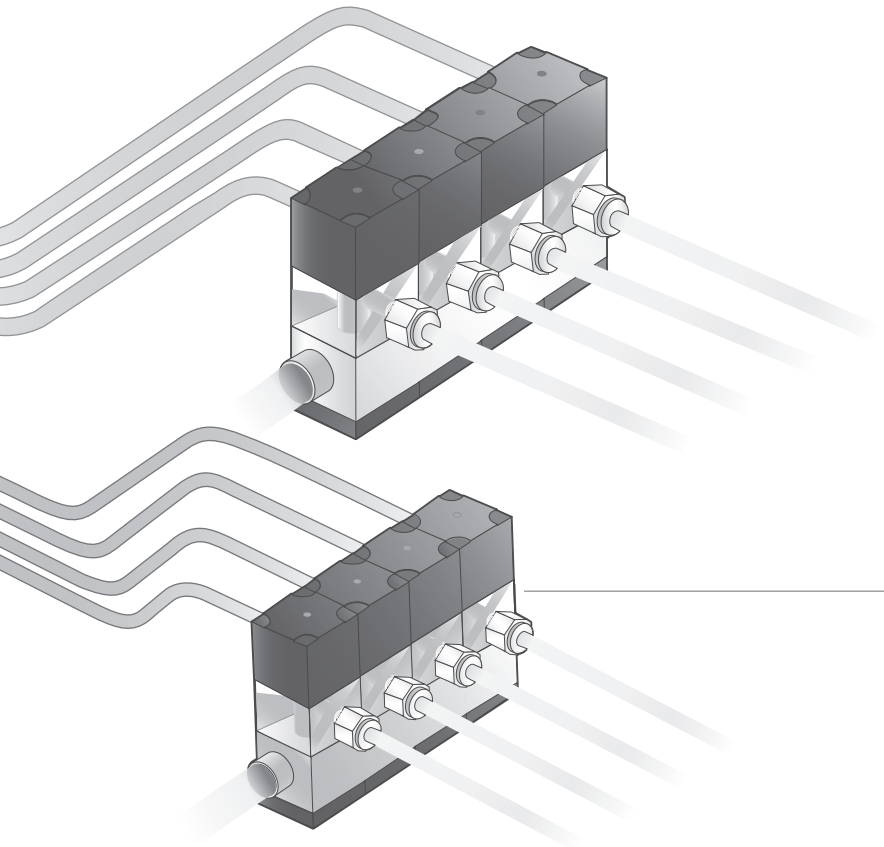

Individual wiring type

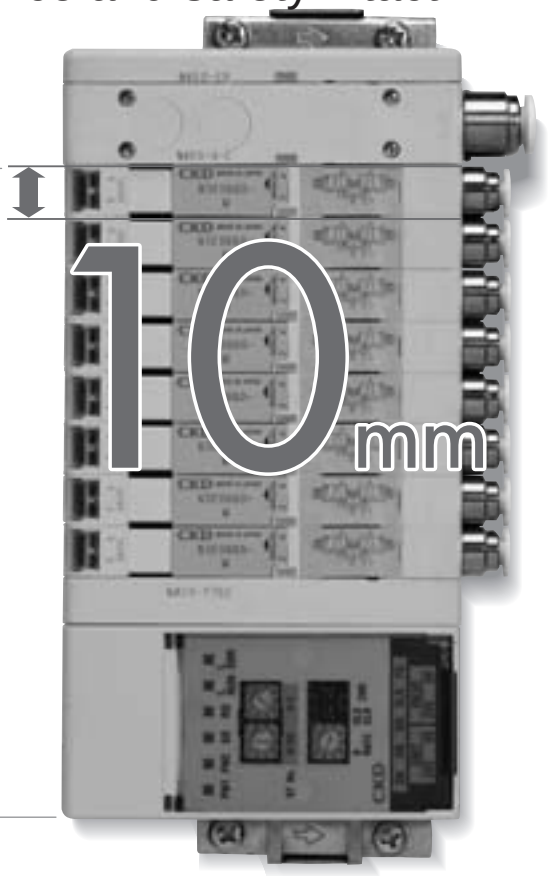



* Left and right mixed wiring is possible.

# is now available with high performance and safety intact

with high integration, space saving, and high performance






## MN3/4E0 series

ECO HIGH SPEC SAFETY

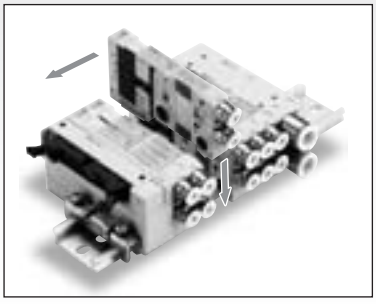
High performance block manifold with excellent responsiveness. Approximately 50% of space saving compared to existing models.

## HIGH SPEC High performance

■12 ms balanced responsiveness between ports A and B.
(In-house data value of two N3E0 3 port valves integrated type)

■ No more bothersome connection work

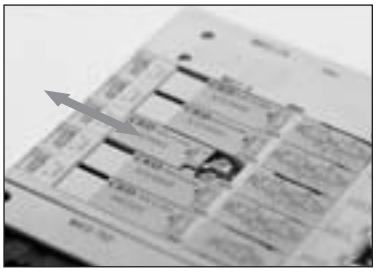
Adoption of connectors allows wiring work to be completed during assembly. Regularity of connector pin array is not lost by electric connection from either left or right wiring block, even if the manifold of the valve is expanded or reduced.



Assembly structure

## SAFETY Safety

■ Prevent malfunctions
A check valve, manual override cover for preventing incorrect operations, and supply filter for preventing the entry of foreign matter are provided as standard.
An ultimate pursuit of safety prevents valve mulfunctions.



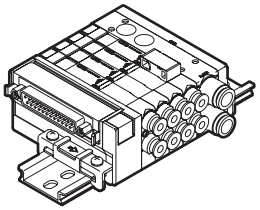
Manual override cover

# A great variety of wiring variations

## Wiring is reduced while pursuing ease-of-use.

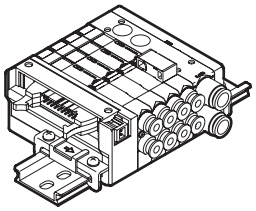
**MN4E0**
**4E00**

### ●D-sub connector (N4E0-T30)



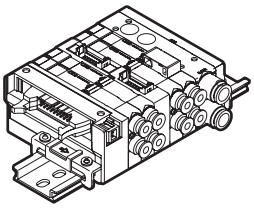
The connector used for T30 wiring, called a D sub-connector, is used widely for FA and OA devices. The 25P type is the connector designated in RS232C Standards that apply to personal computer communication functions.

### ●Flat cable connector (N4E0-T5*)



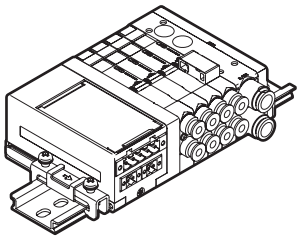
The connector used for T5* wiring complies with MIL Standards (MIL-C-83503). Wiring work is simplified with the pressure welded flat cable. Pin numbers are assigned differently based on the PLC maker, but the function assignment is the same.

### ●Intermediate wiring block (N4E0-TM*)



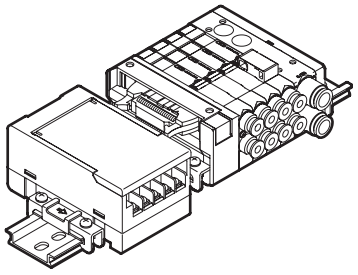
A reduced wiring connection can be made to the center of the manifold. Flat cable connector 10P and RITS connector 6P are available.

### ●Serial transmission (close contact type) (N4E0-T7*)



| | |
|---|---|
| T7D1<br>T7D2 | DeviceNet (16 points, 32 points) |
| T7G1<br>T7G2 | CC-Link (16 points, 32 points) |
| T7N1<br>T7N2 | SUNX S-LINK V (16 points, 32 points) |

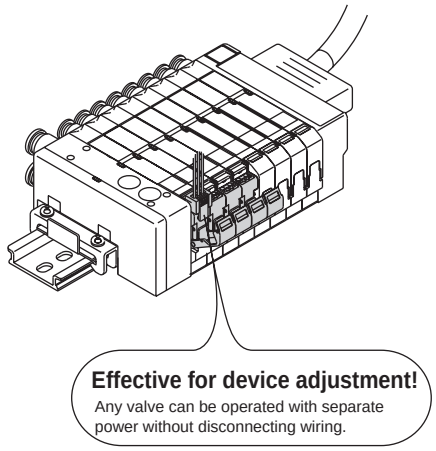
### ●Serial transmission (N4E0-T6*)



Compatible with each network. (Refer to the following table)

| | |
|---|---|
| T6A0<br>T6A1 | Uniwire System (8 points, 16 points) |
| T6C0<br>T6C1 | OMRON CompoBus/S (8 points, 16 points) |
| T6E0<br>T6E1 | SUNX S-LINK (8 points, 16 points) |
| T6G1 | CC-Link (8 points) |
| T6J0<br>T6J1 | Uni Wire H System (8 points, 16 points) |

## ●Built-in individual power supply function (AUX) type (MN3E0 and MN4E0 series only)



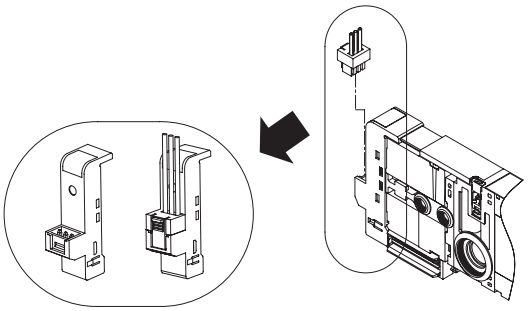

Individual external input is possible with reduced wiring manifold. This lets individual valves be operated without stopping the system.
Any valve can be operated with an external power supply while common wiring is connected.
The height does not differ with this compact design.

● Applications example

Exercise effectiveness at adjustment and maintenance for start-up of a device
When trying to operate any valve electrically without removing the existing wiring.
When trying to shut off any valve electrically without removing the exicting wiring.

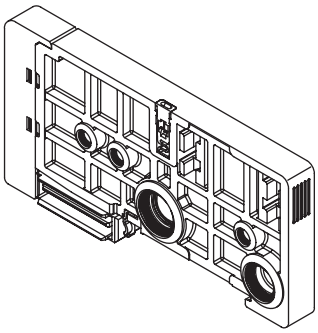
* The valve is cut off from wiring in the manifold when the external input socket is inserted, so this can be used as a temporary individual shut-off switch.

## ●Individual wiring system (Only for MN3E0 MN4E0 Series)

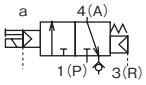
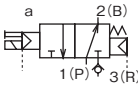
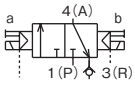
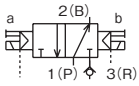
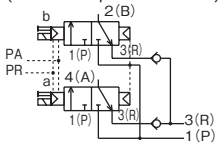
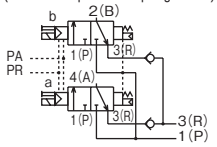
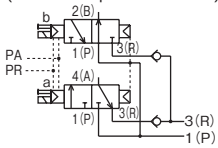
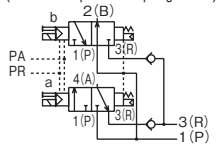
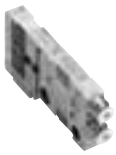
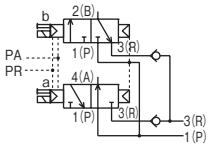
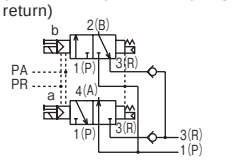
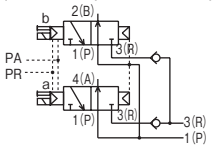
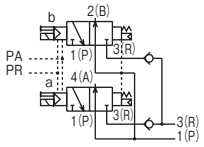
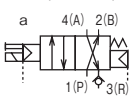
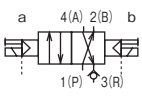
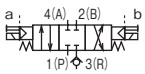
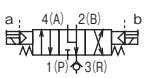
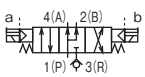


Inputs can be made individually from another system, independent from the common wiring for reduced wiring.

## ●Dummy block

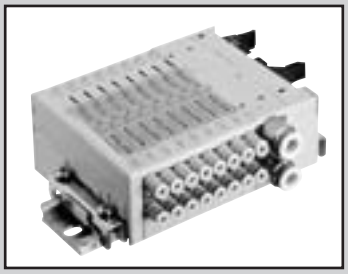


When the expanding manifold of the valve block is expected, it is possible to expand the manifold of the valve block (replacement) without changing the signal assignment of the reduced wiring by adjusting the wiring specifications in advance and using it.

| Series appearance | No. of solenoid position<br>JIS symbol<br><br>The JIS symbols for the actual part may differ from these drawings due to the relation of the space and port position. |
|---|---|
| 3 port valve<br>**MN3E00**<br>3 port valve<br>  <br>(Valve pitch 7.0 mm) | 3 port valve<br>●2-position NC self reset type (Differential pressure spring return)<br>  <br>**N3E0010/N3E010**<br>●2-position NO self reset type (Differential pressure spring return)<br>  <br>**N3E00110/N3E0110**<br>●2-position NC self hold type<br>  <br>**N3E0020/N3E020**<br>●2-position NO self hold type<br>  <br>**N3E00210/N3E0210** |
| **MN3E0**<br>3 port valve<br>  <br>(Valve pitch 10.0 mm) | |
| Dual 3 port valves integrated type<br>**MN3E00**<br>Dual 3 port valves integrated type<br>  <br>(Valve pitch 7.0 mm) | Dual 3 port valves integrated type<br>●NC/NC self reset type (Differential pressure return)<br>  <br>**N3E00660/N3E0660**<br>●NC/NC self reset type (Differential pressure spring return)<br>  <br>**N3E0066S0/N3E066S0**<br>●NC/NO self reset type (Differential pressure return)<br>  <br>**N3E00670/N3E0670**<br>●NC/NO self reset type (Differential pressure spring return)<br>  <br>**N3E0067S0/N3E067S0** |
| **MN3E0**<br>Dual 3 port valves integrated type<br>  <br>(Valve pitch 10.0 mm) | ●NO/NC self reset type (Differential pressure return)<br>  <br>**N3E00760/N3E0760**<br>●NO/NC self reset type (Differential pressure spring return)<br>  <br>**N3E0076S0/N3E076S0**<br>●NO/NO self reset type (Differential pressure return)<br>  <br>**N3E00770/N3E0770**<br>●NO/NO self reset type (Differential pressure spring return)<br>  <br>**N3E0077S0/N3E077S0** |
| 4 port valve<br>**MN4E00**<br>4 port valve<br>  <br>(Valve pitch 7.0 mm) | 4 port valve<br>●2-position single self reset type (Differential pressure spring return)<br>  <br>**N4E0010/N4E010**<br>●2-position double self hold type<br>  <br>**N4E0020/N4E020** |
| **MN4E0**<br>4 port valve<br>  <br>(Valve pitch 10.0 mm) | ●3-position all ports closed<br>  <br>**N4E030**<br>●3-position ABR connection<br>  <br>**N4E040**<br>●3-position PAB connection<br>  <br>**N4E050** |

Note 1 : Effective sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

| | Flow characteristics C [dm³/(s·bar)] Note 1 | Voltage | Solenoid position | | | | | | | | | | | | | A/B port size | | | | | | | Electric connection | | | | | | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 3 port valve | | | | Dual 3 port valves integrated type | | | | 4 port valve | | | | | | | Push-in fitting | | | | Female thread | | | | | | | | |
| | | | Single NC type | Single NO type | Double NC type | Double NO type | A side NC, B side NC | A side NC, B side NO | A side NO, B side NC | A side NO, B side NO | 2-position single | 2-position double | 3-position all ports closed | 3-position A/B/R connection | 3-position P/A/B connection | Mix | ø1.8 | ø3 | ø4 | ø6 | M3 | M5 | Fiber tube fitting | Individual wiring | D-sub connector | Flat cable | Intermediate wiring block | Wiring block mix | Serial transmission | |
| | | | | | | | | | | | | | | | | | C18 | C3 | C4 | C6 | M3 | M5 | CF | D□ | T30□ | T5□ | TM□ | TX | T6□ T7□ | |
| | 0.3 | Note 2 24 DC 12 DC<br>Note 2 Serial transmission is 24 VDC only | ● | ● | ● | ● | | | | | | | | | | ● | ● | ● | ● | | ● | | | | ● | ● | ● | ● | ● | 178 |
| | 0.54 | | ● | ● | ● | ● | | | | | | | | | | ● | ● | | ● | ● | | ● | ● | ● | ● | ● | ● | ● | ● | 192 |
| | 0.3 | | | | | | ● | ● | ● | ● | | | | | | ● | ● | ● | ● | | ● | | | | ● | ● | ● | ● | ● | 178 |
| | 0.50 | | | | | | ● | ● | ● | ● | | | | | | ● | ● | ● | ● | | ● | | ● | ● | ● | ● | ● | ● | ● | 192 |
| | 0.3 | | | | | | | | | | ● | ● | | | | ● | ● | ● | ● | | ● | | | | ● | ● | ● | ● | ● | 178 |
| | 0.54<br>0.50 (N4E030 N4E050) | | | | | | | | | | ● | ● | ● | ● | ● | ● | ● | | ● | ● | | ● | ● | ● | ● | ● | ● | ● | ● | 192 |



Reduced wiring block manifold 3,4 port pilot-operated value.

# MN3E00/ MN4E00 Series

## Common specifications

| Descriptions | | |
|---|---|---|
| Manifold method | | Block manifold |
| Manifold type | | Common supply/common exhaust, check valve integrated Note 1 |
| Working fluid | | Compressed air |
| Type of valve / operation method | | Pilot-operated soft spool valve |
| Max. working pressure | MPa | 0.7 |
| Min. working pressure | MPa | 0.2 |
| Withstanding pressure | MPa | 1.05 |
| Ambient temperature | °C | 5 to 55 |
| Fluid temperature | °C | 5 to 55 |
| Lubrication | | Not required Note 2 |
| Protective structure | | Dust proof |
| Vibration / impact | $m/s^2$ | 50 or less / 300 or less |
| Working environment | | Not permissible to use in environment containing corrosive gas. |
| Manual override | | Non-locking/locking common type/Non-locking only |

Note 1: The check valve blocks the back pressure from adjacent air devices, etc. However, the structure does not allow the pressure seal to be held continuously, so do not use for other than the back pressure block.

## Electrical specifications

| Descriptions | | |
|---|---|---|
| Rated voltage | V | 12, 24 DC |
| Rated voltage fluctuation range | | ±10% (+10%, -5% when using for serial transmission) |
| Rated current A | 24 VDC | 0.017 (0.009) Note 3 |
| | 12 VDC | 0.033 (0.018) Note 3 |
| Power consumption W | 24 VDC | 0.4 (0.22) Note 3 |
| | 12 VDC | |
| Heat resistance class | | B |
| Surge protective circuit | | Surge suppressor attached |
| Indicator | | LED |

Note 2: This product has an oil-free specification. If lubricated, the original grease will spill out and the performance will drop.
Note 3: Values in parentheses are for low exoergic and energy saving circuit type.
When using the valve block low exoergic and energy-saving circuit type, energizing is limited to the plus common.

## Individual specifications

| Descriptions \ Port | | 3 port valve | 4 port valve | Dual 3 port valves integrated type Note 2 |
|---|---|---|---|---|
| Port size | A/B port | ø1.8, ø3, ø4 push-in fitting, M3 | | |
| | P/R port | ø6, ø8 push-in fitting | | |
| | External pilot port | ø6 push-in fitting | | - |
| Response time Note 1 ms | 2-position Single | 20 or less | 20 or less | 20 or less |
| | Double | 20 or less | 20 or less | - |

Note 1: Response time is the value at supply pressure of 0.5 MPa and oil-free.
Note 2: With dual 3 port valves integrated type, the main pressure is used to operate the valving element, and cannot be used with the external pilot.
Check that the supply air flow is sufficient so that the supply pressure does not drop below the minimum working pressure due to the operation of the connecting load (air operated valve), etc.

## Flow characteristics

| | | P→A/B | | A/B→R | |
|---|---|---|---|---|---|
| | | C [$dm^3$/(s • bar)] | b | C [$dm^3$/(s • bar)] | b |
| 3 port valve | 2-position | 0.30 | 0.20 | 0.32 | 0.24 |
| 4 port valve | 2-position | 0.30 | 0.20 | 0.32 | 0.24 |
| Dual 3 port valves integrated type | 2-position | 0.30 | 0.20 | 0.32 | 0.24 |

Note 1 : Effective sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.
Note 2 : Value of ø4 push-in fitting

## Weight

| Wiring block (g) | | D-sub connector type T30 | Flat cable connector type T5* | Intermediate wiring block | | | Serial transmission | |
|---|---|---|---|---|---|---|---|---|
| | | | | TM1A | TM1C | TM52 | T6* | T7* |
| | | 67 | 59 | 32 | 32 | 34 | 205 | 128 |
| Supply and exhaust block (g) | | Q/QZ | QK | QKZ | | QX | | QKX |
| | Fitting Lateral | 64 | 69 | 79 | | 56 | | 61 |
| | Fitting Upward | 90 | 94 | 98 | | 62 | | 66 |
| Valve block (g) | | 2-position single | 2-position double | Dual 3 port valves integrated type | | | | |
| | Fitting Lateral | 31.5 | 35.0 | 35.0 | | | | |
| | Fitting Upward | 37.5 | 41.0 | 41.0 | | | | |
| Dummy block (g) | | MPS/MPD | | | | | | |
| | | 20 | | | | | | |
| Regulator block (g) Note 1 | | - | | | | | | |
| | | 124 | | | | | | |
| End block (g) | | ER/EL | | | | | | |
| | | 40 | | | | | | |
| DIN rail (g) | | - | | | | | | |
| | | 0.19 g/mm | | | | | | |

Note 1: Value differs depending on specification of regulator block.

## Maximum station no. energized by manifold

| Descriptions | | | Double solenoid (double wiring) | Single solenoid | Mix manifold (solenoid number) |
|---|---|---|---|---|---|
| D-sub connector type (25 pin) | T30 | D-sub connector type Left | 12 stations | 24 stations | 24 points |
| | T30R | D-sub connector type Right | 12 stations | 24 stations | 24 points |
| Flat cable connector type | T50 | 20 pin flat cable connector Left (with power supply terminal ) | 8 stations | 16 stations | 16 points |
| | T50R | 20 pin flat cable connector Right (with power supply terminal) | 8 stations | 16 stations | 16 points |
| | T51 | 20 pin flat cable connector Left (without power supply terminal) | 9 stations | 18 stations | 18 points |
| | T51R | 20 pin flat cable connector Right (without power supply terminal) | 9 stations | 18 stations | 18 points |
| | T52 | 10 pin flat cable connector Left (without power supply terminal) | 4 stations | 8 stations | 8 points |
| | T52R | 10 pin flat cable connector Right (without power supply terminal) | 4 stations | 8 stations | 8 points |
| | T53 | 26 pin flat cable connector Left (without power supply terminal) | 12 stations | 24 stations | 24 points |
| | T53R | 26 pin flat cable connector Right (without power supply terminal) | 12 stations | 24 stations | 24 points |
| Intermediate wiring block type | TM1A | RITS connector 6P X 2 pcs. Note 1 | 5 stations | 10 stations | 10 points |
| | TM1C | RITS connector 6P Note 1 | 2 stations | 5 stations | 5 points |
| | TM52 | 10 pin flat cable connector | 4 stations | 8 stations | 8 points |
| Serial transmission type (with unit) | T6A0 | UNIWIRE SYSTEM 8 points | 4 stations | 8 stations | 8 points |
| | T6A1 | UNIWIRE SYSTEM 16 points | 8 stations | 16 stations | 16 points |
| | T6C0 | OMRON CompoBus/S 8 points | 4 stations | 8 stations | 8 points |
| | T6C1 | OMRON CompoBus/S 16 points | 8 stations | 16 stations | 16 points |
| | T6E0 | SUNX S-LINK 8 points | 4 stations | 8 stations | 8 points |
| | T6E1 | SUNX S-LINK 16 points | 8 stations | 16 stations | 16 points |
| | T6J0 | UNIWIRE H SYSTEM 8 points | 4 stations | 8 stations | 8 points |
| | T6J1 | UNIWIRE H SYSTEM 16 points | 8 stations | 16 stations | 16 points |
| | T6G1 | CC-Link 16 points | 8 stations | 16 stations | 16 points |
| Serial transmission type (close contact type) | T7D1 | DeviceNet 16 points | 8 stations | 16 stations | 16 points |
| | T7D2 | DeviceNet 32 points | 16 stations | 32 stations | 32 points |
| | T7G1 | CC-Link 16 points | 8 stations | 16 stations | 16 points |
| | T7G2 | CC-Link 32 points | 16 stations | 32 stations | 32 points |
| | T7N1 | SUNX S-LINK V 16 points | 8 stations | 16 stations | 16 points |
| | T7N2 | SUNX S-LINK V 32 points | 16 stations | 32 stations | 32 points |

Note 1: RITS connector 6P (1473562-6) Tyco Electronics Japan G.K.

## Slave specifications

| Descriptions | | T6C1 T6C0 | T6G1 Note 1 | T6A1 T6A0 | T6J1 T6J0 | T6E1 T6E0 | T7D1 Note 2 T7D2 | T7G1 Note 1 T7G2 | T7N1 T7N2 |
|---|---|---|---|---|---|---|---|---|---|
| Power voltage | Unit side | 24 VDC±10% | | 24 VDC | | | 24 VDC±10% | | |
| | Valve side | 24 VDC+10%, -5% | | +10% -5% | | | 24 VDC+10%, -5% | | |
| | Communication side | - | | - | | | 11 to 25VDC | - | |
| Current consumption | Unit side | T6C1: 60 mA or less T6C0: 40 mA or less (When all points output is ON) | 100 mA or less (When all points output is ON) | 100 mA or less (When all points output is ON) However, current consumption of valve is not included. | | 60 mA or less (When all points output is ON) However, current consumption of valve is not included. | T7D1: 60 mA or less T7D2: 85 mA or less (When all points output is ON) | T7G1: 65 mA or less T7G2: 90 mA or less (When all points output is ON) | T7N1: 40 mA or less T7N2: 50 mA or less (When all points output is ON) |
| | Valve side | 15 mA or less (when all points are OFF) | | | | | 15 mA or less (when all points are turned off) | | |
| | Communication side | - | | - | | | 50 mA or less | - | |
| Output points | | T6C1: 16 points T6C0: 8 points | 16 points | T6A1: 16 points T6A0: 8 points | T6J1: 16 points T6J0: 8 points | T6E1: 16 points T6E0: 8 points | T7D1: 16 points T7D2: 32 points | T7G1: 16 points T7G2: 32 points | T7N1: 16 points T7N2: 32 points |
| Occupation number | | T6C1:2 node address (8-point mode) T6C0:1 node address (8-point mode) | 1 station | T6A1: Output 16 points T6A0: Output 8 points | T6J1: Output 16 points T6J0: Output 8 points | T6E1: FAN-in: 3 T6E0: FAN-in: 3 Note 3 | T7D1: 2 byte T7D2: 4 byte | T7G1: 1 station T7G2: 1 station | T7N1: Output 16 points T7N2: Output 32 points |

Note 1 : Version of CC-Link is 1.10.
Note 2 : Contact CKD for EDS file. (EDS file: Text file of parameters for communicating with each brand masters.)
Note 3 : FAN-in stands for input capacity from D-G line. (It is necessary to calculate the number of connection.)

## Ozone proof

Ozone proof is supported as standard.

## Clean room specifications

(Catalog No. CB-033S A)

- Dust generation preventing structure for use in cleanrooms

** −Voltage− P70

## How to order manifold D-sub/flat cable connector

* Refer to page 182 for serial transmission type.

● Discrete valve block

N 3 E00 1 0 - C3 —— M W EF —— 3

● Block manifold

MN 4 E00 1 0 - C3 - R - M T53 E - 5 - 3

DIN rail mount method

Ⓐ Valve type

Ⓑ Solenoid position

Ⓒ Port size

Ⓓ Pressure adjustment function

Ⓔ Manual override

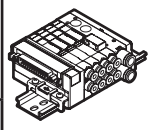
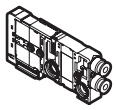
Ⓕ Wiring method

Ⓖ Terminal and connector pin array

Ⓗ Option

Ⓘ Station no.

Ⓙ Voltage

| Type | |
|---|---|
| Block manifold | Discrete valve block |
|  |  |

* Complete “manifold specification sheet” (page 211).

| Symbol | Descriptions | | Block manifold | Discrete valve block |
|---|---|---|---|---|
| **Ⓐ Valve type** | | | | |
| 3 | 3 port valve, dual 3 port valve integrated type | | ● | ● |
| 4 | 4 port valve, 3/4 port valve mix | | ● | ● |
| **Ⓑ Solenoid position (Note 8)** | | | | |
| 1 | 3 port valve | Single NC self reset type | (Differential pressure spring return) | ● | ● |
| 11 | | Single NO self reset type | | ● | ● |
| 2 | | Double NC self hold type | | ● | ● |
| 21 | | Double NO self hold type | | ● | ● |
| 66 | Dual 3 port valves integrated type (Note 1) | A side valve: NC self reset type | (Differential pressure return) | ● | ● |
| 66S | | B side valve: NC self reset type | (Differential pressure spring return) | ● | ● |
| 67 | | A side valve: NC self reset type | (Differential pressure return) | ● | ● |
| 67S | | B side valve: NO self reset type | (Differential pressure spring return) | ● | ● |
| 76 | | A side valve: NO self reset type | (Differential pressure return) | ● | ● |
| 76S | | B side valve: NC self reset type | (Differential pressure spring return) | ● | ● |
| 77 | | A side valve: NO self reset type | (Differential pressure return) | ● | ● |
| 77S | | B side valve: NO self reset type | (Differential pressure spring return) | ● | ● |
| 1 | 4 port valve | 2-position single solenoid self reset type | (Differential pressure spring return) | ● | ● |
| 2 | | 2-position double solenoid self hold type | | ● | ● |
| 8 | Mix manifold | | | ● | |
| **Ⓒ Port size** | | | | | |
| C18 | ø1.8 push-in fitting Lateral (supported tube UP-9402-**) | | | ● | ● |
| CL18 | ø1.8 push-in fitting Upward (supported tube UP-9402-**) | | | ● | ● |
| C3 | ø3 push-in fitting Lateral | | | ● | ● |
| CL3 | ø3 push-in fitting Upward | | | ● | ● |
| C4 | ø4 push-in fitting Lateral | | | ● | ● |
| CL4 | ø4 push-in fitting Upward | | | ● | ● |
| M3 | M3 female thread (with non-rotating) | | | ● | ● |
| CX | Mix push-in fitting | | | ● | |
| **Ⓓ Pressure adjustment function** | | | | | |
| Blank | Without regulator block mounting manifold | | | ● | |
| R | Regulator block mounting manifold (Note 2, 3) | | | ● | |
| **Ⓔ Manual override** | | | | | |
| Blank | Locking/non-locking common type (with manual override cover) | | | ● | ● |
| M | Non-locking dedicated type (with manual override cover) | | | ● | ● |
| **Ⓕ Wiring method** | | | | | |
| Refer to the next page for wiring method. | | | | ● | |
| **Ⓖ Terminal and connector pin array** | | | | | |
| Blank | Standard wiring | | | ● | ● |
| W | Double wiring (Note 4) | | | ● | ● |
| **Ⓗ Option** | | | | | |
| Blank | None | | | ● | ● |
| E | Low exoergic, energy saving circuit integrated type (Note 5) | | | ● | ● |
| F | A/B port filter integrated (Note 6) | | | ● | ● |
| **Ⓘ Station no.** | | | | | (Note 9) |
| 1 | 1 station | | | ● | |
| to | to | | | | |
| 24 | 24 stations (Note 7) | | | | |
| **Ⓙ Voltage** | | | | | |
| 3 | 24 VDC | | | ● | ● |
| 4 | 12 VDC | | | ● | ● |

- Refer to Catalog No. CB-023S-7 for cable model no. with D-sub connector.

### Note on model no. selection

Note 1: Dual 3 port valves integrated type cannot be used for external pilot type. Contact CKD for other working conditions.

Note 2: The type with dual 3 port valves integrated type resets the main valve with the main pressure, so if there is a difference between the pilot pressure and main pressure, the response time may be delayed.

Note 3: Check that the main pressure supplied to the valve block with dual 3 port valves integrated type is not higher than the pilot pressure, and that the main pressure does not drop below 0.2 MPa.

Note 4: Check the connector pin layout (example) given in catalog No. CC-945A for the double wiring specifications. When ordering a discrete valve block, the double wiring designation is limited to the 2 position single solenoid for the 4 port valve, and the 3 port valve.

Note 5: Energizing is limited to the plus common.

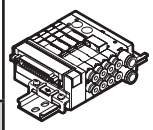
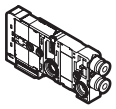
Note 6: A filter (for preventing entry of foreign matter) is incorporated in P port of the supply and exhaust block.

Note 7: It differs depending on specifications. Check that on page 179.

Note 8: Read cautions in the catalog No. CC-945A to find the details of specifications on self reset type. In addition, when mixing dummy block,select mix manifold.

Note 9: Dummy block is also included in the station no.

[Wiring method list]

| Symbol | Descriptions | Type: Block manifold | Type: Discrete valve block |
|---|---|---|---|
| | |  |  |
| **Ⓕ Wiring method** | | | |
| **T30** | 25 pin D sub-connector Left | ● | |
| **T30R** | 25 pin D sub-connector Right | ● | |
| **T50** | 20 pin flat cable connector Left (with power supply terminal) Note 11 | ● | |
| **T50R** | 20 pin flat cable connector Right (with power supply terminal) Note 11 | ● | |
| **T51** | 20 pin flat cable connector Left | ● | |
| **T51R** | 20 pin flat cable connector Right | ● | |
| **T52** | 10 pin flat cable connector Left | ● | |
| **T52R** | 10 pin flat cable connector Right | ● | |
| **T53** | 26 pin flat cable connector Left | ● | |
| **T53R** | 26 pin flat cable connector Right | ● | |
| **TM1A** | Intermediate wiring block RITS connector 6P × 2 pieces Note 12 | ● | |
| **TM1C** | Intermediate wiring block RITS connector 6P Note 12 | ● | |
| **TM52** | Intermediate wiring block 10 pin flat cable connector | ● | |
| **TX** | Wiring block Mix Note 13, 14 | ● | |
| **Blank** | Valve block for reduced wiring | | ● |

Note 11: When mixing the connectors with the T50 or T50R type with power supply terminal, only T50R can be combined with T50, and T50 with T50R.
Note 12: RITS connector 6P (1473562-6) Tyco Electronics Japan G.K.
Note 13: Two pieces are designated in manifold specifications. Contact CKD for 3 pieces or more.
Note 14: If TX is selected for the wiring method, individual wiring cannot be selected.

## How to order manifold Serial transmission

* Refer to page 180 for cable connector type for D-sub connector/flat cable connector.

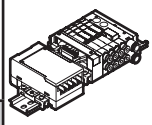
● Discrete valve block

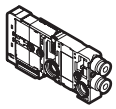
N 3 E00 1 0- C3 —— M W EF —— 3

● Block manifold

MN 4 E00 1 0- C3 - R - M T6G1 E - 5 - 3

- DIN rail mount method
- A Valve type
- B Solenoid position
- C Port size
- D Pressure adjustment function
- E Manual override
- F Wiring method (serial transmission)
- G Terminal and connector pin array
- H Option
- I Station no.
- J Voltage





* Complete “manifold specification sheet” (page 211).

| Symbol | Descriptions | | Type: Block manifold | Type: Discrete valve block |
|---|---|---|---|---|
| **A Valve type** | | | | |
| 3 | 3 port valve, dual 3 port valve integrated type | | ● | ● |
| 4 | 4 port valve, 3/4 port valve mix | | ● | ● |
| **B Solenoid position (Note 8)** | | | | |
| 1 | 3 port valve | Single NC self reset type (Differential pressure spring return) | ● | ● |
| 11 | 3 port valve | Single NO self reset type (Differential pressure spring return) | ● | ● |
| 2 | 3 port valve | Double NC self hold type | ● | ● |
| 21 | 3 port valve | Double NO self hold type | ● | ● |
| 66 | Dual 3port valves integrated type (Note 1) | A side valve: NC self reset type (Differential pressure return) | ● | ● |
| 66S | Dual 3port valves integrated type (Note 1) | B side valve: NC self reset type (Differential pressure spring return) | ● | ● |
| 67 | Dual 3port valves integrated type (Note 1) | A side valve: NC self reset type (Differential pressure return) | ● | ● |
| 67S | Dual 3port valves integrated type (Note 1) | B side valve: NO self reset type (Differential pressure spring return) | ● | ● |
| 76 | Dual 3port valves integrated type (Note 1) | A side valve: NO self reset type (Differential pressure return) | ● | ● |
| 76S | Dual 3port valves integrated type (Note 1) | B side valve: NC self reset type (Differential pressure spring return) | ● | ● |
| 77 | Dual 3port valves integrated type (Note 1) | A side valve: NO self reset type (Differential pressure return) | ● | ● |
| 77S | Dual 3port valves integrated type (Note 1) | B side valve: NO self reset type (Differential pressure spring return) | ● | ● |
| 1 | 4 port valve | 2-position single solenoid self reset type (Differential pressure spring return) | ● | ● |
| 2 | 4 port valve | 2-position double solenoid self hold type | ● | ● |
| 8 | Mix manifold | | ● | |
| **C Port size** | | | | |
| C18 | ø1.8 push-in fitting Lateral (supported tube UP-9402-**) | | ● | ● |
| CL18 | ø1.8 push-in fitting Upward (supported tube UP-9402-**) | | ● | ● |
| C3 | ø3 push-in fitting Lateral | | ● | ● |
| CL3 | ø3 push-in fitting Upward | | ● | ● |
| C4 | ø4 push-in fitting Lateral | | ● | ● |
| CL4 | ø4 push-in fitting Upward | | ● | ● |
| M3 | M3 female thread (with non-rotating) | | ● | ● |
| CX | Mix push-in fitting | | ● | |
| **D Pressure adjustment function** | | | | |
| Blank | Without regulator block mounting manifold | | ● | |
| R | Regulator block mounting manifold (Note 2, 3) | | ● | |
| **E Manual override** | | | | |
| Blank | Locking/non-locking common type (with manual override cover) | | ● | ● |
| M | Non-locking dedicated type (with manual override cover) | | ● | ● |
| **F Wiring method** | | | | |
| Refer to the next page for wiring method. | | | ● | |
| **G Terminal and connector pin array** | | | | |
| Blank | Standard wiring | | ● | ● |
| W | Double wiring (Note 4) | | ● | ● |
| **H Option** | | | | |
| Blank | None | | ● | ● |
| E | Low exoergic, energy saving circuit integrated type (Note 5) | | ● | ● |
| F | A/B port filter integrated (Note 6) | | ● | ● |
| **I Station no.** | | | | (Note 10) |
| 1 | 1 station | | ● | |
| to | to | | | |
| 32 | 32 stations (Note 7) | | | |
| **J Voltage** | | | | |
| 3 | 24 VDC | | ● | ● |

### Note on model No. selection

Note 1: Dual 3 port valves integrated type cannot be used for external pilot type. Contact CKD for other working conditions.

Note 2: The type with dual 3 port valves integrated type resets the main valve with the main pressure, so if there is a difference between the pilot pressure and main pressure, the response time may be delayed.

Note 3: Check that the main pressure supplied to the valve block with dual 3 port valves integrated type is not higher than the pilot pressure, and that the main pressure does not drop below 0.2 MPa.

Note 4: Check the connector pin layout (example) given in catalog No. CC-945A for the double wiring specifications.
When ordering a discrete valve block, the double wiring designation is limited to the 2 position single solenoid for the 4 port valve, and the 3 port valve.

Note 5: Energizing is limited to the plus common.

Note 6: A filter (for preventing entry of foreign matter) is incorporated in P port of the supply and exhaust block.

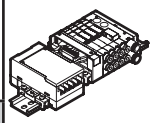
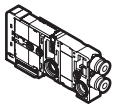
Note 7: It differs depending on specifications. Check that on page 179.

Note 8: Read cautions in the catalog No. CC-945A to find the details of specifications on self reset type.
In addition, when mixing dummy block,select mix manifold.

Note 9: Confirm the due date for T7N2 (S-LINK V 32 points output) in each case.

Note 10: Dummy block is also included in the station no.

[Wiring method list]

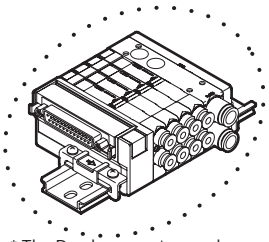
| Symbol | Descriptions | Type: Block manifold | Type: Discrete valve block |
|---|---|---|---|
| | |  |  |
| **Ⓕ Wiring method** | | | |
| **T6A0** | UNIWIRE SYSTEM 8 points | ● | |
| **T6A1** | UNIWIRE SYSTEM 16 points | ● | |
| **T6C0** | OMRON CompoBus/S 8 points | ● | |
| **T6C1** | OMRON CompoBus/S 16 points | ● | |
| **T6E0** | SUNX S-LINK 8 points | ● | |
| **T6E1** | SUNX S-LINK 16 points | ● | |
| **T6J0** | UNIWIRE H SYSTEM 8 points | ● | |
| **T6J1** | UNIWIRE H SYSTEM 16 points | ● | |
| **T6G1** | CC-Link 16 points | ● | |
| **T7D1** | Close contact type DeviceNet 16 points | ● | |
| **T7D2** | Close contact type DeviceNet 32 points | ● | |
| **T7G1** | Close contact type CC-Link 16 points | ● | |
| **T7G2** | Close contact type CC-Link 32 points | ● | |
| **T7N1** | Close contact type SUNX S-LINK V 16 points | ● | |
| **T7N2** | Close contact type SUNX S-LINK V 32 points (Note 9) | ● | |
| **Blank** | Valve block for reduced wiring | | ● |

MEMO

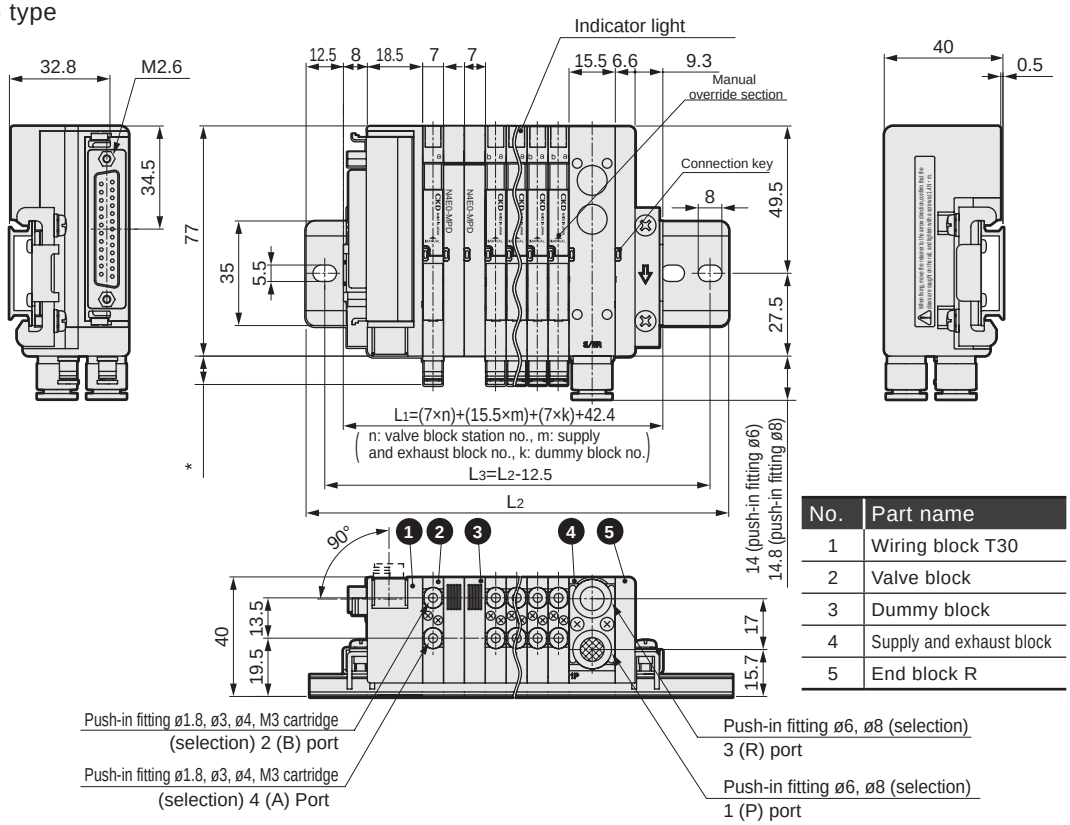
## Dimensions

### MN$^{3}_{4}$E00*-*-T30*-*-*

●D-sub connector (T30) type



* The D-sub connector can be faced to the top or bottom.
* Refer to page 191 to find direction switchover method for connection section.



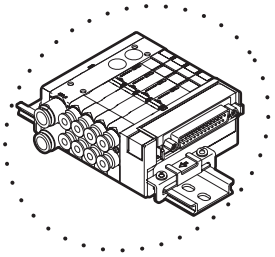

| No. | Part name |
|---|---|
| 1 | Wiring block T30 |
| 2 | Valve block |
| 3 | Dummy block |
| 4 | Supply and exhaust block |
| 5 | End block R |

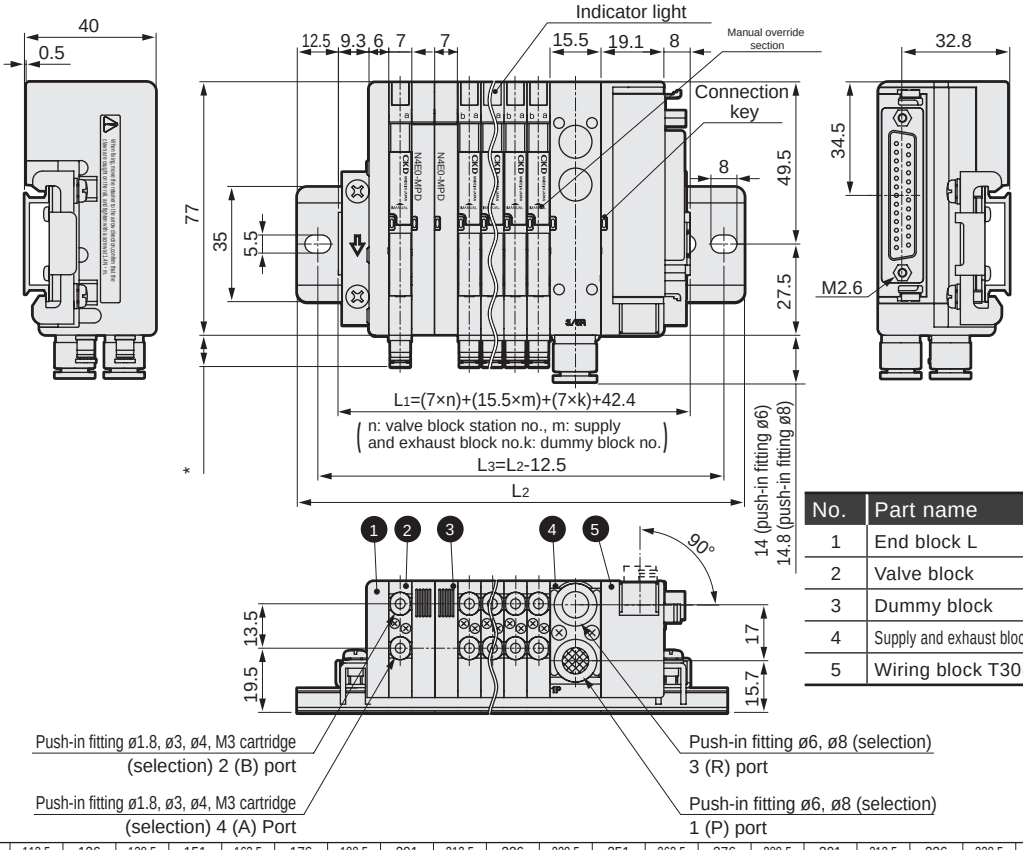
| * Fitting size | | |
|---|---|---|
| Push-in fitting | ø1.8 | 6.8 |
| | ø3 | 9.5 |
| | ø4 | 11.8 |
| M3 female thread | | 6.1 |

* Refer to page 190 for the dimension drawings of the L type push-in fitting for valve block (upward) and L type push-in fitting for supply and exhaust block (upward).

### MN$^{3}_{4}$E00*-*-T30R*-*-*

●D-sub connector right type (T30R)






| No. | Part name |
|---|---|
| 1 | End block L |
| 2 | Valve block |
| 3 | Dummy block |
| 4 | Supply and exhaust block |
| 5 | Wiring block T30R |

| * Fitting size | | |
|---|---|---|
| Push-in fitting | ø1.8 | 6.8 |
| | ø3 | 9.5 |
| | ø4 | 11.8 |
| M3 female thread | | 6.1 |

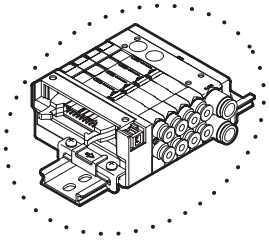
| Manifold length L1 mm | 76 or less | 88.5 or less | 101 or less | 113.5 or less | 126 or less | 138.5 or less | 151 or less | 163.5 or less | 176 or less | 188.5 or less | 201 or less | 213.5 or less | 226 or less | 238.5 or less | 251 or less | 263.5 or less | 276 or less | 288.5 or less | 301 or less | 313.5 or less | 326 or less | 338.5 or less | 351 or less |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Installation rail length L2 mm | 100 | 112.5 | 125 | 137.5 | 150 | 162.5 | 175 | 187.5 | 200 | 212.5 | 225 | 237.5 | 250 | 262.5 | 275 | 287.5 | 300 | 312.5 | 325 | 337.5 | 350 | 362.5 | 375 |
| Installation rail pitch L3 mm | 87.5 | 100 | 112.5 | 125 | 137.5 | 150 | 162.5 | 175 | 187.5 | 200 | 212.5 | 225 | 237.5 | 250 | 262.5 | 275 | 287.5 | 300 | 312.5 | 325 | 337.5 | 350 | 362.5 |

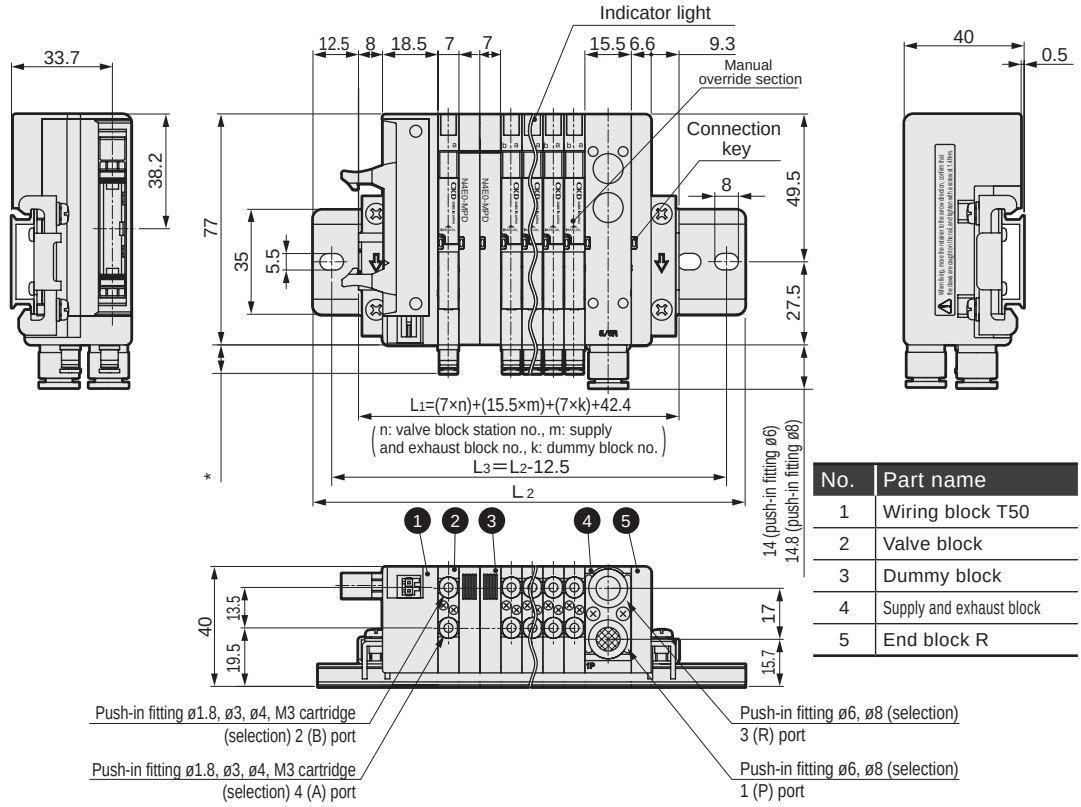
## Dimensions

### MN$^{3}_{4}$E00*-*-T50*-*-*

● Flat cable connector left type (T50)

* There are T51, T52, and T53. The dimensions are the same as T50. Refer to page 187 for the dimensions of connector section.






| No. | Part name |
|---|---|
| 1 | Wiring block T50 |
| 2 | Valve block |
| 3 | Dummy block |
| 4 | Supply and exhaust block |
| 5 | End block R |

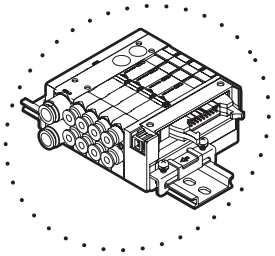
| * Fitting size | | |
|---|---|---|
| Push-in fitting | ø1.8 | 6.8 |
| | ø3 | 9.5 |
| | ø4 | 11.8 |
| M3 female thread | | 6.1 |

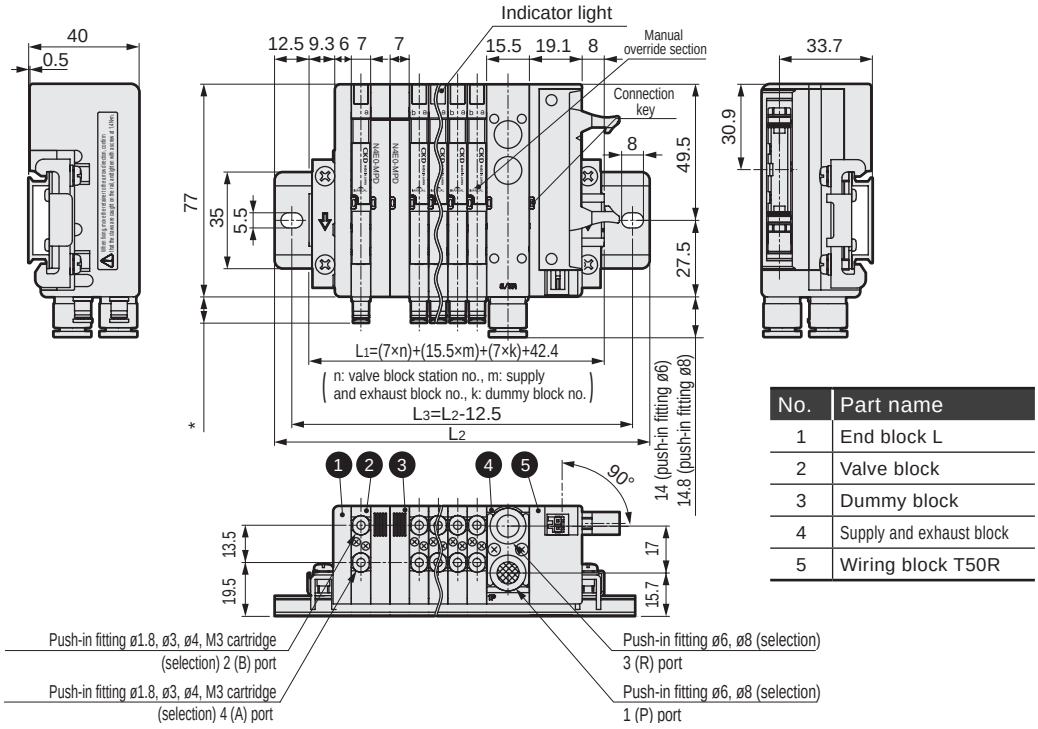
* Refer to page 190 for the dimension drawings of the L type push-in fitting for valve block (upward) and L type push-in fitting for supply and exhaust block (upward).

* The power supply connector can be used with T50 to supply power to the PLC output unit. Refer to page 191 for dimensions when the connector is connected, and to page 75 of precautions on wiring for electrical connection.

### MN$^{3}_{4}$E00*-*-T50R*-*-*

● Flat cable connector right type (T50R)






| No. | Part name |
|---|---|
| 1 | End block L |
| 2 | Valve block |
| 3 | Dummy block |
| 4 | Supply and exhaust block |
| 5 | Wiring block T50R |

| * Fitting size | | |
|---|---|---|
| Push-in fitting | ø1.8 | 6.8 |
| | ø3 | 9.5 |
| | ø4 | 11.8 |
| M3 female thread | | 6.1 |

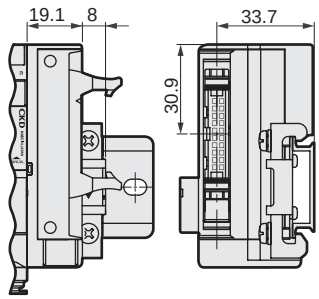
| Manifold length L1 mm | 76 or less | 88.5 or less | 101 or less | 113.5 or less | 126 or less | 138.5 or less | 151 or less | 163.5 or less | 176 or less | 188.5 or less | 201 or less | 213.5 or less | 226 or less | 238.5 or less | 251 or less | 263.5 or less | 276 or less | 288.5 or less | 301 or less | 313.5 or less | 326 or less | 338.5 or less | 351 or less |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Installation rail length L2 mm | 100 | 112.5 | 125 | 137.5 | 150 | 162.5 | 175 | 187.5 | 200 | 212.5 | 225 | 237.5 | 250 | 262.5 | 275 | 287.5 | 300 | 312.5 | 325 | 337.5 | 350 | 362.5 | 375 |
| Installation rail pitch L3 mm | 87.5 | 100 | 112.5 | 125 | 137.5 | 150 | 162.5 | 175 | 187.5 | 200 | 212.5 | 225 | 237.5 | 250 | 262.5 | 275 | 287.5 | 300 | 312.5 | 325 | 337.5 | 350 | 362.5 |

## Dimensions

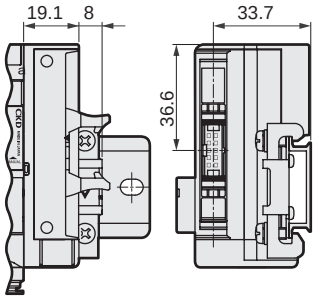
### Flat cable connector (T51R/T52R/T53R): Dimensions of connector section

* This drawing indicates connector type on the right.
Connector type dimension on the left is also the same.

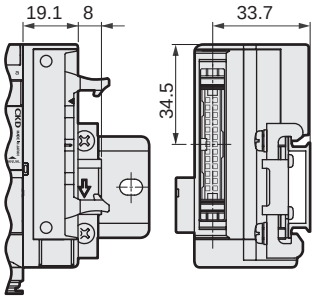
●T51R




●T52R




●T53R

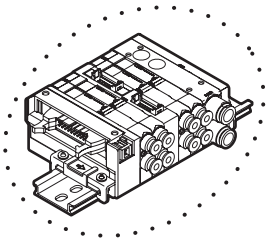


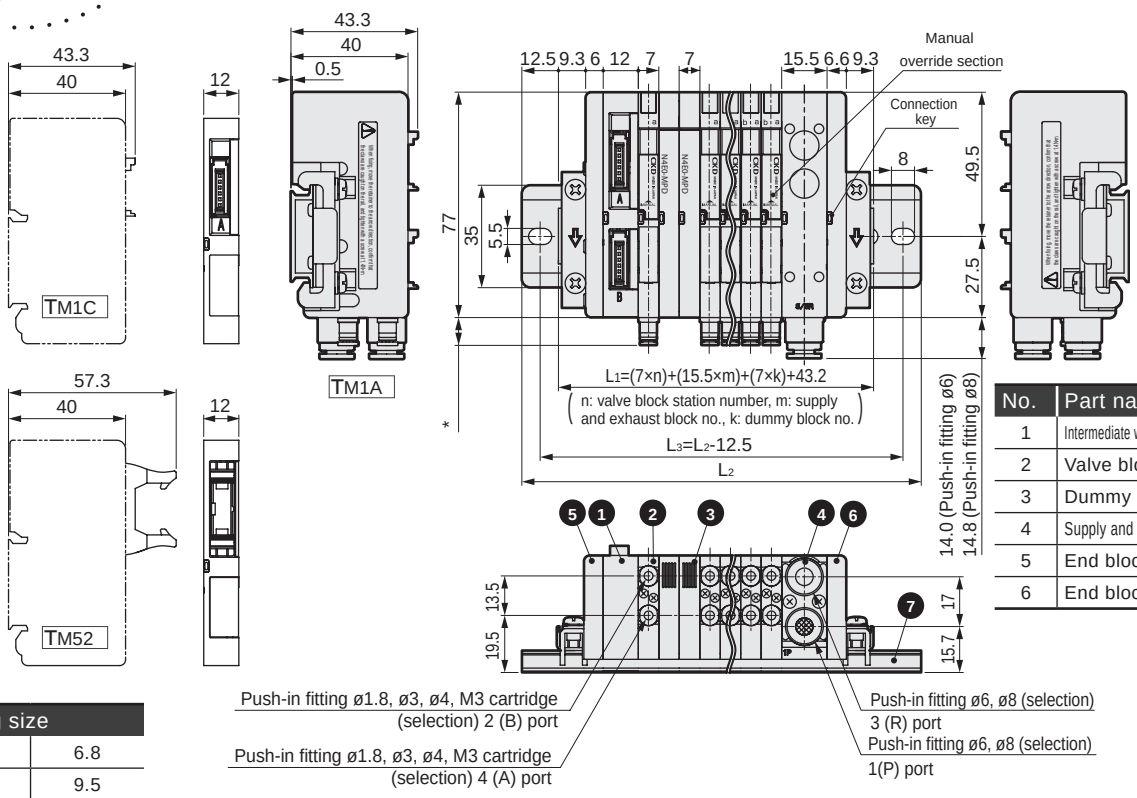

### MN$^{3}_{4}$E00*-*-TM1$^{A}_{C}$*-*-*

●RITS connector intermediate wiring specification (TM1$^{A}_{C}$)

### MN$^{3}_{4}$E00*-*-TM52*-*-*

●10 pin flat cable connector intermediate wiring specification (TM52)






| No. | Part name |
|---|---|
| 1 | Intermediate wiring block TM1A |
| 2 | Valve block |
| 3 | Dummy block |
| 4 | Supply and exhaust block |
| 5 | End block L |
| 6 | End block R |

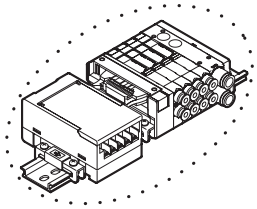
| * Fitting size | | |
|---|---|---|
| Push-in fitting | ø1.8 | 6.8 |
| | ø3 | 9.5 |
| | ø4 | 11.8 |
| M3 female thread | | 6.1 |

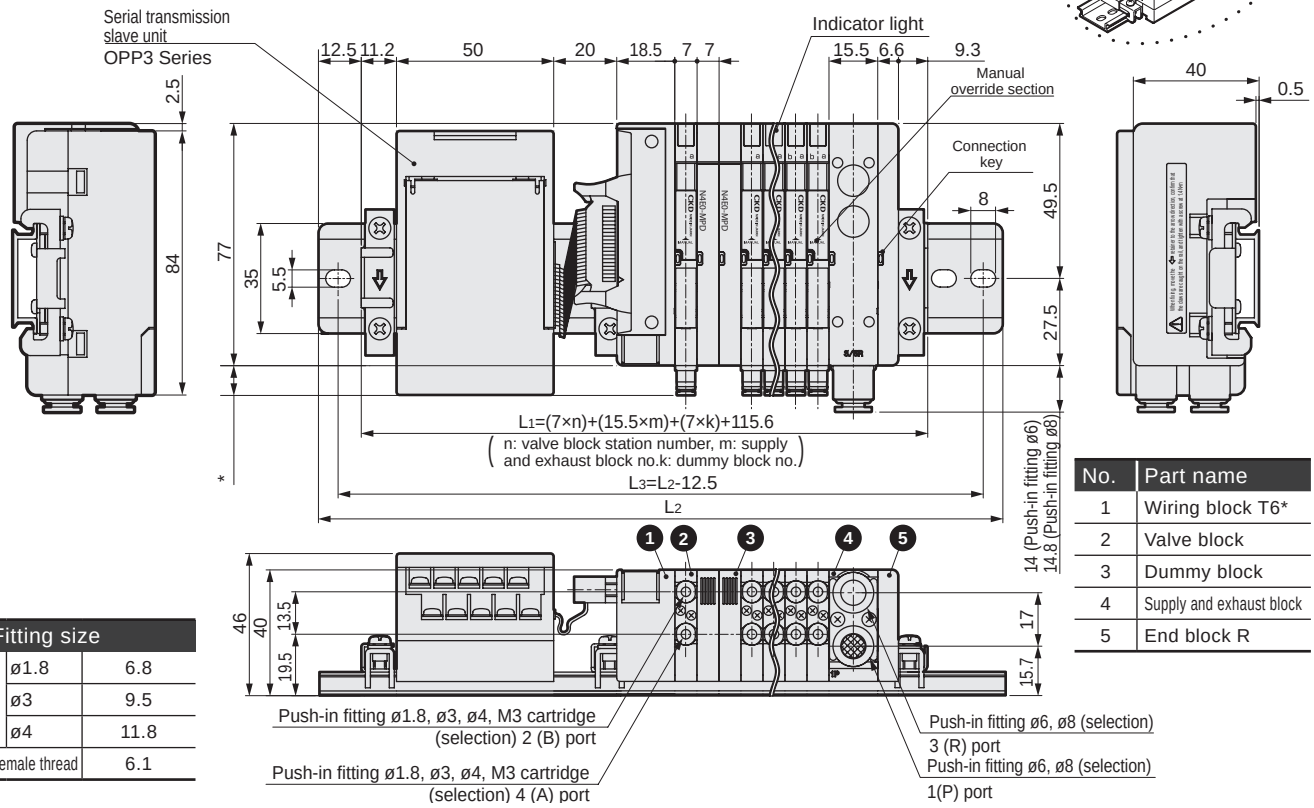
| Manifold length L1 mm | 76 or less | 88.5 or less | 101 or less | 113.5 or less | 126 or less | 138.5 or less | 151 or less | 163.5 or less | 176 or less | 188.5 or less | 201 or less | 213.5 or less | 226 or less | 238.5 or less | 251 or less | 263.5 or less | 276 or less | 288.5 or less | 301 or less | 313.5 or less | 326 or less | 338.5 or less | 351 or less |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Installation rail length L2 mm | 100 | 112.5 | 125 | 137.5 | 150 | 162.5 | 175 | 187.5 | 200 | 212.5 | 225 | 237.5 | 250 | 262.5 | 275 | 287.5 | 300 | 312.5 | 325 | 337.5 | 350 | 362.5 | 375 |
| Installation rail pitch L3 mm | 87.5 | 100 | 112.5 | 125 | 137.5 | 150 | 162.5 | 175 | 187.5 | 200 | 212.5 | 225 | 237.5 | 250 | 262.5 | 275 | 287.5 | 300 | 312.5 | 325 | 337.5 | 350 | 362.5 |

## Dimensions

### MN$^{3}_{4}$E00*-*-T6**-*-*

● Serial transmission type (T6A0/1,T6C0/1,T6E0/1,T6J0/1,T6G1)



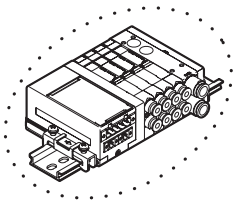


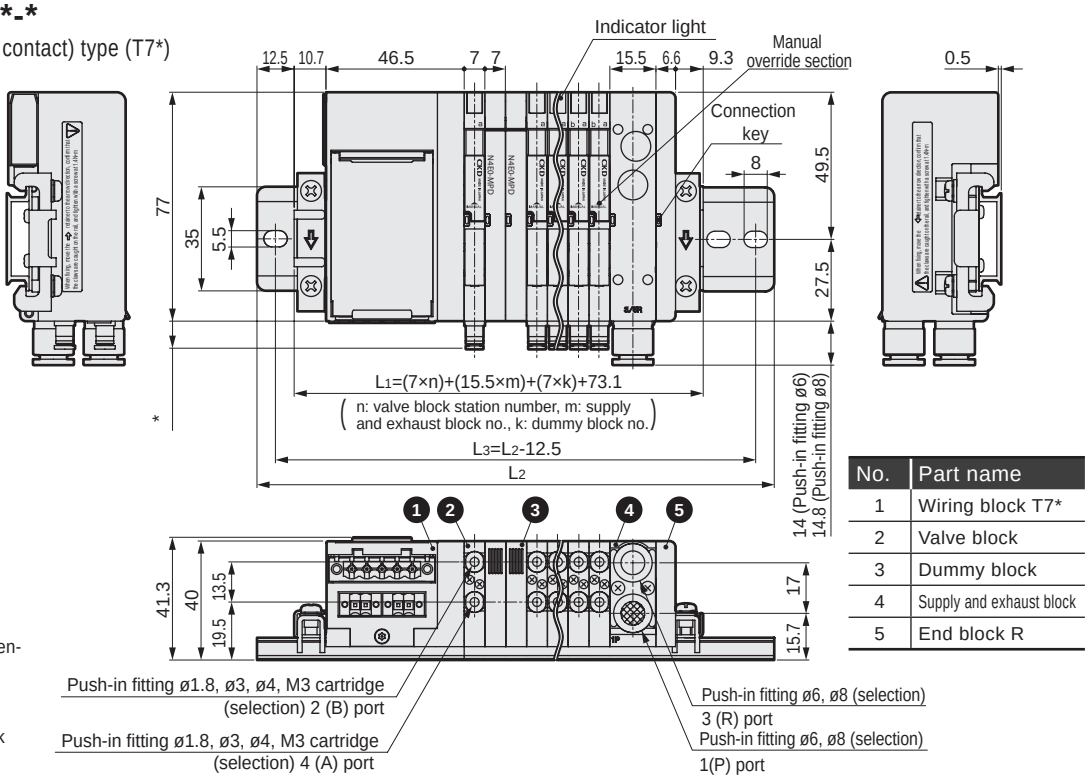

| * Fitting size | | |
|---|---|---|
| Push-in fitting | ø1.8 | 6.8 |
| | ø3 | 9.5 |
| | ø4 | 11.8 |
| M3 female thread | | 6.1 |

| No. | Part name |
|---|---|
| 1 | Wiring block T6* |
| 2 | Valve block |
| 3 | Dummy block |
| 4 | Supply and exhaust block |
| 5 | End block R |

### MN$^{3}_{4}$E00*-*-T7**-*-*

● Serial transmission (close contact) type (T7*)






| * Fitting size | | |
|---|---|---|
| Push-in fitting | ø1.8 | 6.8 |
| | ø3 | 9.5 |
| | ø4 | 11.8 |
| M3 female thread | | 6.1 |

| No. | Part name |
|---|---|
| 1 | Wiring block T7* |
| 2 | Valve block |
| 3 | Dummy block |
| 4 | Supply and exhaust block |
| 5 | End block R |

* Refer to page 190 for the dimension drawings of the L type push-in fitting for valve block (upward) and L type push-in fitting for supply/exhaust block (upward).

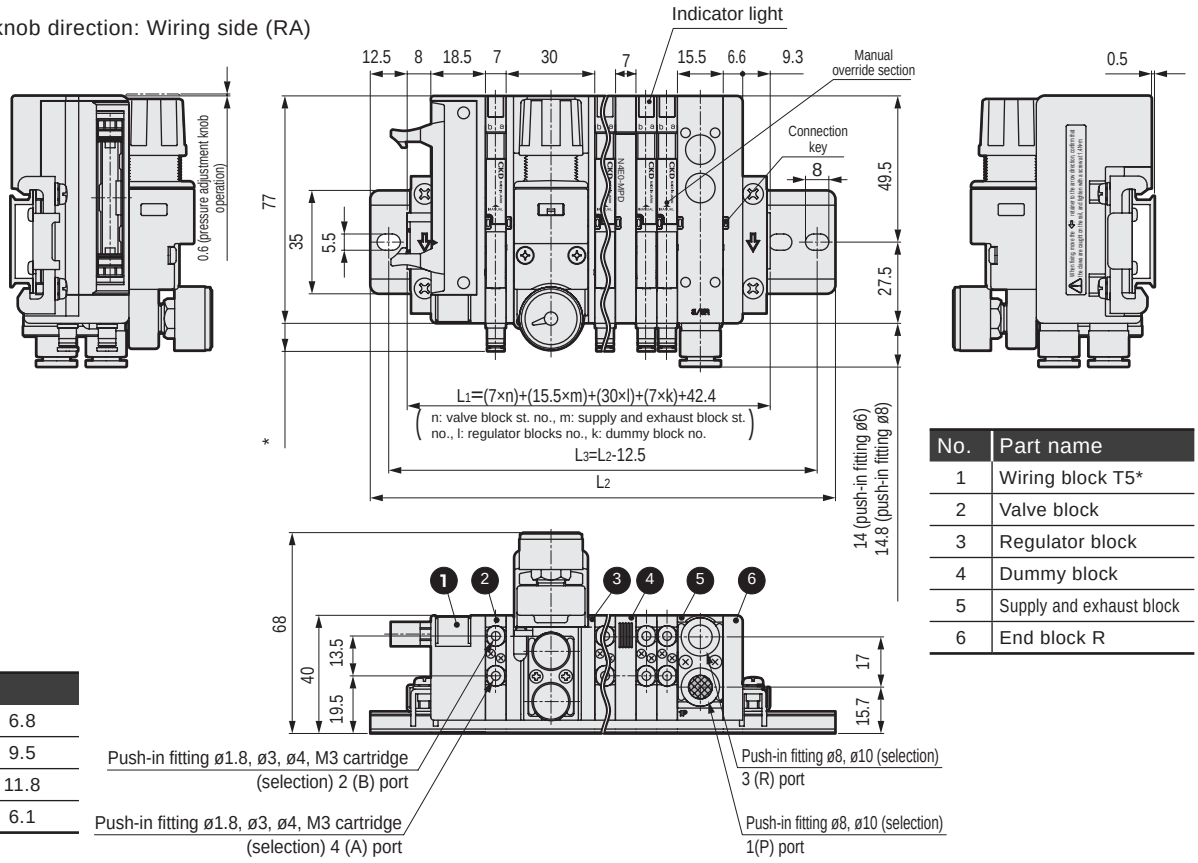
| Manifold length L1 mm | 76 or less | 88.5 or less | 101 or less | 113.5 or less | 126 or less | 138.5 or less | 151 or less | 163.5 or less | 176 or less | 188.5 or less | 201 or less | 213.5 or less | 226 or less | 238.5 or less | 251 or less | 263.5 or less | 276 or less | 288.5 or less | 301 or less | 313.5 or less | 326 or less | 338.5 or less | 351 or less |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Installation rail length L2 mm | 100 | 112.5 | 125 | 137.5 | 150 | 162.5 | 175 | 187.5 | 200 | 212.5 | 225 | 237.5 | 250 | 262.5 | 275 | 287.5 | 300 | 312.5 | 325 | 337.5 | 350 | 362.5 | 375 |
| Installation rail pitch L3 mm | 87.5 | 100 | 112.5 | 125 | 137.5 | 150 | 162.5 | 175 | 187.5 | 200 | 212.5 | 225 | 237.5 | 250 | 262.5 | 275 | 287.5 | 300 | 312.5 | 325 | 337.5 | 350 | 362.5 |

## Dimensions

● Each piping block section (common for all types)

Regulator block
$MN^{3}_{4}$E0*0-*-R-*

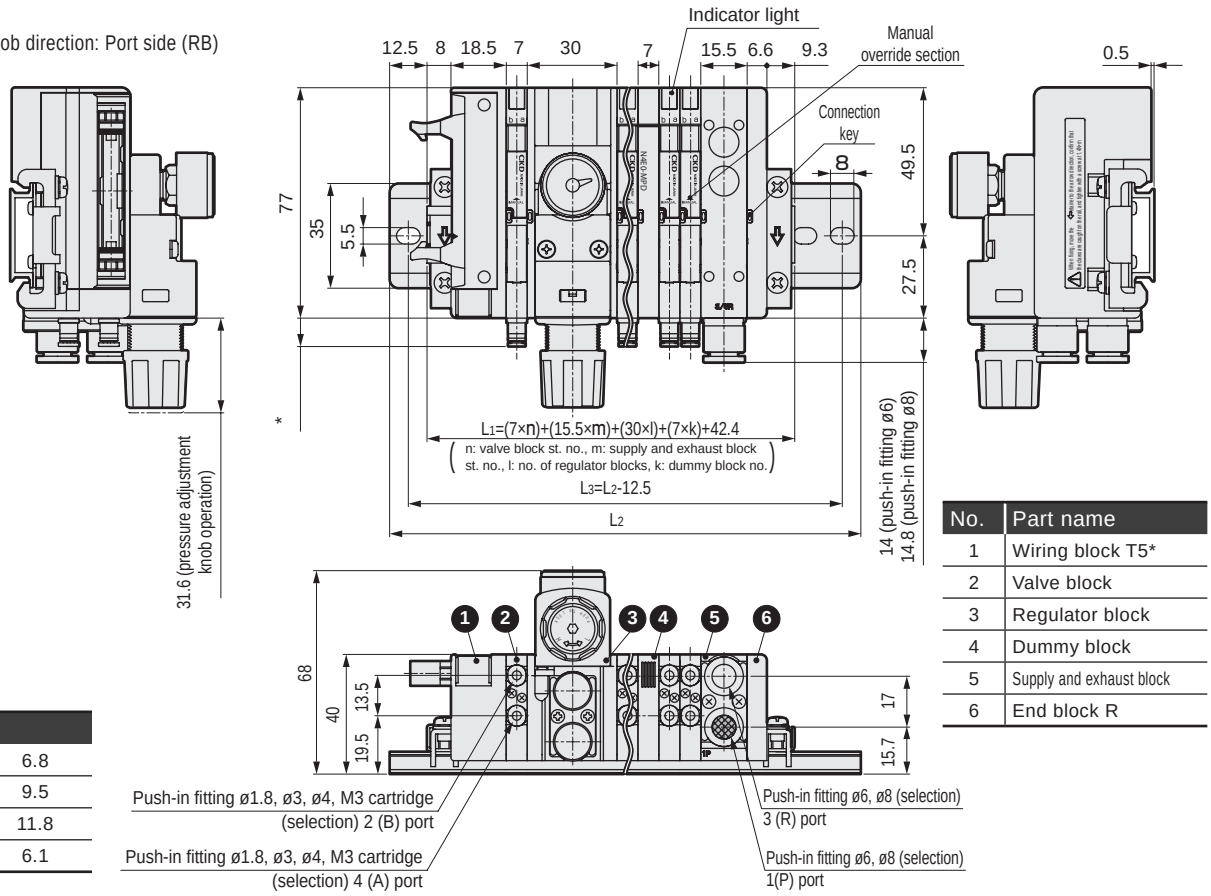
● Adjustment knob direction: Wiring side (RA)




| No. | Part name |
|---|---|
| 1 | Wiring block T5* |
| 2 | Valve block |
| 3 | Regulator block |
| 4 | Dummy block |
| 5 | Supply and exhaust block |
| 6 | End block R |

| * Fitting size | | |
|---|---|---|
| Push-in fitting | ø1.8 | 6.8 |
| | ø3 | 9.5 |
| | ø4 | 11.8 |
| M3 female thread | | 6.1 |

● Adjustment knob direction: Port side (RB)




| No. | Part name |
|---|---|
| 1 | Wiring block T5* |
| 2 | Valve block |
| 3 | Regulator block |
| 4 | Dummy block |
| 5 | Supply and exhaust block |
| 6 | End block R |

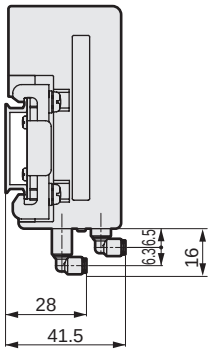
| * Fitting size | | |
|---|---|---|
| Push-in fitting | ø1.8 | 6.8 |
| | ø3 | 9.5 |
| | ø4 | 11.8 |
| M3 female thread | | 6.1 |

## Dimensions

● Piping blocks section (common for all types)

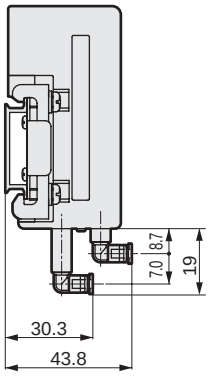
Push-in fittings for fiber tube (upward)

● ø1.8 (CL18)



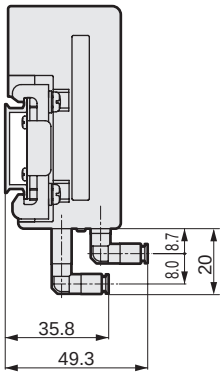

Push-in fitting (upward)

● ø3 (CL3)



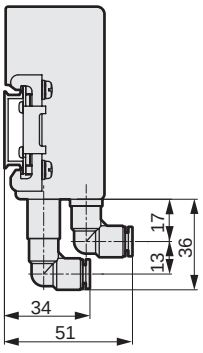

Push-in fitting (upward)

● ø4 (CL4)

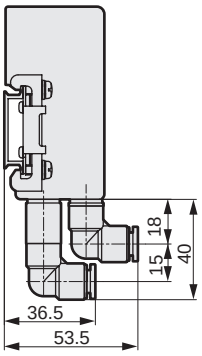



Supply and exhaust block push-in fitting L type (upward)

● ø6(CL6)

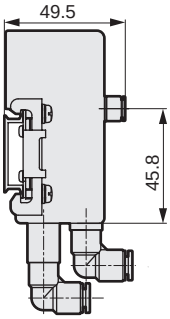



● ø8(CL8)

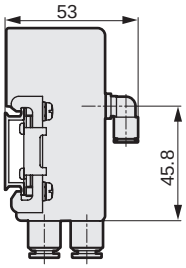



Supply and external block for external pilot

● Upward piping

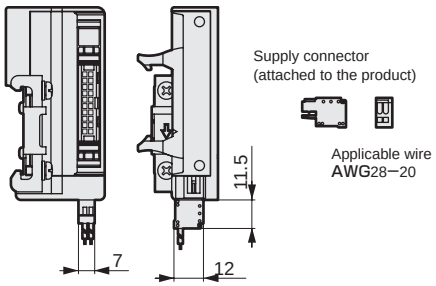



● Lateral piping



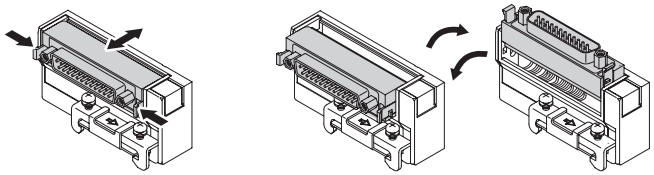
## Dimensions

● Dimension of T50 power supply connector connection




● D-sub connector (T30/T30R): Direction switchover method for connector section

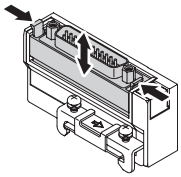
Using in a horizontal state



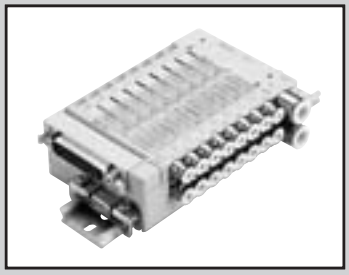
Hold the lever and pull the connector out horizontally.
Push the connector in horizontally when storing it.
(Fix the connector.)

Turn the connector.
Always fix the connector horizontally or vertically when using.

Using in a vertical state



Hold the lever and pull the connector out vertically.
Push the connector in horizontally when storing it.
(Fix the connector.)



Reduced wiring block manifold
pilot-operated 3/4 port valve

# MN3E0/MN4E0 Series

## Common specifications

| Descriptions | | |
|---|---|---|
| Manifold method | | Block manifold |
| Manifold type | | Common supply/common exhaust, check valve integrated Note 1 |
| Working fluid | | Compressed air |
| Type of valve and operation method | | Pilot-operated soft spool valve |
| Max. working pressure | MPa | 0.7 |
| Min. working pressure | MPa | 0.2 |
| Withstanding pressure | MPa | 1.05 |
| Ambient temperature | °C | 5 to 55 |
| Fluid temperature | °C | 5 to 55 |
| Lubrication | | Not required |
| Protective structure | | Dust proof |
| Vibration/impact | $m/s^2$ | 50 or less/300 or less |
| Working environment | | Not permissible to use in environment containing corrosive gas. |
| Manual override | | Locking/non-locking common type |

Note 1: The check valve blocks the back pressure from adjacent air devices, etc. However, the structure does not allow the pressure seal to be held continuously, so do not use for other than the back pressure block.

## Electrical specifications

| Descriptions | | |
|---|---|---|
| Rated voltage V | | 12, 24 DC |
| Rated voltage fluctuation range | | ±10% (+10%, -5% when using for serial transmission) |
| Rated current A | 24 VDC | 0.025 (0.013) Note 2 |
| | 12 VDC | 0.05 (0.025) Note 2 |
| Power consumption W | 24 VDC | 0.6 (0.3) Note 2 |
| | 12 VDC | |
| Heat resistance class | | B |
| Surge protection circuit | | Surge suppressor attached |
| Indicator | | LED |

Note 2: Values in parentheses are for low exoergic, energy saving circuit type. When using the valve block with individual power supply function (AUX) or type with low exoergic, energy-saving circuit, energizing is limited to the plus common.

## Individual specifications

| Descriptions \ Port | | 3 port valve | 4 port valve | Dual 3 port valves integrated type Note 2 |
|---|---|---|---|---|
| Port size | A/B port | ø1.8, ø4, ø6 push-in fitting, M5, fiber tube | | |
| | P/R port | ø6, ø8 push-in fitting | | |
| | External pilot port | ø6 push-in fitting | | - |
| Response time Note 1 ms | 2-position Single | 20 or less | 20 or less | 12 or less |
| | Double | 12 or less | 12 or less | - |
| | 3-position | - | 20 or less | - |

Note 1: Response time is the value at supply pressure of 0.5 MPa and oil-free.

Note 2: With dual 3 port valves integrated type, the main pressure is used to operate the valving element, and cannot be used with the external pilot. Check that the supply air flow is sufficient so that the supply pressure does not drop below the minimum working pressure due to the operation of the connecting load (air operated valve), etc.

## Flow characteristics

| | | | C [$dm^3/(s \cdot bar)$] | b |
|---|---|---|---|---|
| 3 port valve | 2-position | | 0.54 | 0.12 |
| 4 port valve | 2-position | | 0.54 | 0.12 |
| | 3-position | All ports closed | 0.50 | 0.08 |
| | | A/B/R connection | 0.54 | 0.12 |
| | | P/A/B connection | 0.50 | 0.11 |
| Dual 3 port valves integrated type | 2-position | | 0.50 | 0.16 |

Note 1 : Effective sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

## Weight

| Wiring block (g) | | D-sub connector type T30 | Flat cable connector type T5* | Intermediate wiring block TM1A | Intermediate wiring block TM1C | Intermediate wiring block TM52 | Serial transmission T6* | Serial transmission T7* |
|---|---|---|---|---|---|---|---|---|
| | | 67 | 59 | 32 | 32 | 34 | 205 | 128 |
| Supply and exhaust block (g) | | Q/QZ | QK | QKZ | | QX | | QKX |
| | Fitting Lateral | 64 | 69 | 79 | | 56 | | 61 |
| | Fitting Upward | 90 | 94 | 98 | | 62 | | 66 |
| Valve block (g) | | 2-position single solenoid | 2-position double solenoid | 3-position | | Dual 3 port valves integrated type | | |
| | Fitting Lateral | 47.5 | 52 | 53.5 | | 52 | | |
| | Fitting Upward | 54.5 | 59 | 60.5 | | 59 | | |
| Dummy block (g) | | MPS/MPD | | | | | | |
| | | 20 | | | | | | |
| Regulator block (g) Note 1 | | - | | | | | | |
| | | 124 | | | | | | |
| End block (g) | | ER/EL | | | | | | |
| | | 40 | | | | | | |
| DIN rail (g) | | - | | | | | | |
| | | 0.19g/mm | | | | | | |

Note 1: Value differs depending on specification of regulator block.

## Maximum station no. energized by manifold

| Type | | | Double solenoid (double wiring) | Single solenoid | Mix manifold (Solenoid number) |
|---|---|---|---|---|---|
| D-sub connector type (25 pins) | T30 | D-sub connector type Left | 12 stations | 24 stations | 24 points |
| | T30R | D-sub connector type Right | 12 stations | 24 stations | 24 points |
| Flat cable connector type | T50 | 20 pin flat cable connector Left (with power supply terminal) | 8 stations | 16 stations | 16 points |
| | T50R | 20 pin flat cable connector Right (with power supply terminal) | 8 stations | 16 stations | 16 points |
| | T51 | 20 pin flat cable connector Left (without power supply terminal) | 9 stations | 18 stations | 18 points |
| | T51R | 20 pin flat cable connector Right (without power supply terminal) | 9 stations | 18 stations | 18 points |
| | T52 | 10 pin flat cable connector Left (without power supply terminal) | 4 stations | 8 stations | 8 points |
| | T52R | 10 pin flat cable connector Right (without power supply terminal) | 4 stations | 8 stations | 8 points |
| | T53 | 26 pin flat cable connector Left (without power supply terminal) | 12 stations | 24 stations | 24 points |
| | T53R | 26 pin flat cable connector Right (without power supply terminal) | 12 stations | 24 stations | 24 points |
| Intermediate wiring block type | TM1A | RITS connector 6PX2 pcs. Note 1 | 5 stations | 10 stations | 10 points |
| | TM1C | RITS connector 6P Note 1 | 2 stations | 5 stations | 5 points |
| | TM52 | 10 pin flat cable connector | 4 stations | 8 stations | 8 points |
| Serial transmission type (with unit) | T6A0 | UNIWIRE SYSTEM 8 points | 4 stations | 8 stations | 8 points |
| | T6A1 | UNIWIRE SYSTEM 16 points | 8 stations | 16 stations | 16 points |
| | T6C0 | OMRON CompoBus/S 8 points | 4 stations | 8 stations | 8 points |
| | T6C1 | OMRON CompoBus/S 16 points | 8 stations | 16 stations | 16 points |
| | T6E0 | SUNX S-LINK 8 points | 4 stations | 8 stations | 8 points |
| | T6E1 | SUNX S-LINK 16 points | 8 stations | 16 stations | 16 points |
| | T6J0 | UNIWIRE H SYSTEM 8 points | 4 stations | 8 stations | 8 points |
| | T6J1 | UNIWIRE H SYSTEM 16 points | 8 stations | 16 stations | 16 points |
| | T6G1 | CC-Link 16 points | 8 stations | 16 stations | 16 points |
| Serial transmission type (close contact type) | T7D1 | DeviceNet 16 points | 8 stations | 16 stations | 16 points |
| | T7D2 | DeviceNet 32 points | 16 stations | 32 stations | 32 points |
| | T7G1 | CC-Link 16 points | 8 stations | 16 stations | 16 points |
| | T7G2 | CC-Link 32 points | 16 stations | 32 stations | 32 points |
| | T7N1 | SUNX S-LINK V 16 points | 8 stations | 16 stations | 16 points |
| | T7N2 | SUNX S-LINK V 32 points | 16 stations | 32 stations | 32 points |

Note 1: RITS connector 6P (1473562-6) Tyco Electronics Japan G.K.

## Slave station specifications

| Descriptions | | T6C1 T6C0 | T6G1 Note 1 | T6A1 T6A0 | T6J1 T6J0 | T6E1 T6E0 | T7D1 Note 2 T7D2 | T7G1 Note 1 T7G2 | T7N1 T7N2 |
|---|---|---|---|---|---|---|---|---|---|
| Power voltage | Unit side | 24 VDC ± 10% | | 24 VDC | | | 24 VDC ± 10% | | |
| | Valve side | 24 VDC + 10%, -5% | | +10% -5% | | | 24 VDC + 10%, -5% | | |
| | Communication side | - | | - | | | 11 to 25VDC | - | |
| Current consumption | Unit side | T6C1: 60 mA or less<br>T6C0: 40 mA or less<br>(When all points output is ON) | 100 mA or less (When all points output is ON) | 100 mA or less (When all points output is ON)<br>However, current consumption of valve is not included. | | 60 mA or less (When all points output is ON)<br>However, current consumption of valve is not included. | T7D1: 60 mA or less<br>T7D2: 85 mA or less<br>(When all points output is ON) | T7G1: 65 mA or less<br>T7G2: 90 mA or less<br>(When all points output is ON) | T7N1: 40 mA or less<br>T7N2: 50 mA or less<br>(When all points output is ON) |
| | Valve side | 15 mA or less (when all points are turned OFF) | | | | | 15 mA or less (when all points are turned OFF) | | |
| | Communication side | - | | - | | | 50 mA or less | - | |
| Output no. | | T6C1: 16 points<br>T6C0: 8 points | 16 points | T6A1: 16 points<br>T6A0: 8 points | T6J1: 16 points<br>T6J0: 8 points | T6E1: 16 points<br>T6E0: 8 points | T7D1: 16 points<br>T7D2: 32 points | T7G1: 16 points<br>T7G2: 32 points | T7N1: 16 points<br>T7N2: 32 points |
| Occupation number | | T6C1: 2 node address (8-point mode)<br>T6C0: 1 node address (8-point mode) | 1 station | T6A1: Output 16 points<br>T6A0: Output 8 points | T6J1: Output 16 points<br>T6J0: Output 8 points | T6E1: FAN-in: 3<br>T6E0: FAN-in: 3<br>Note 3 | T7D1:2 byte<br>T7D2:4 byte | T7G1: 1 station<br>T7G2: 1 station | T7N1: Output 16 points<br>T7N2: Output 32 points |

Note 1: Version of CC-Link is 1.10.
Note 2: Contact CKD for EDS file. (EDS file: Text file of parameters for communicating with each brand masters.)
Note 3: FAN-in stands for input capacity from D-G line. (It is necessary to calculate the number of connection.)

### Ozone specifications

Ozone specifications can be selected with option "A" in No. "H" for How to Order on pages 194 and 195.

### Clean room specifications

(Catalog No. CB-033S)

- Particle generation preventing structure for use in clean rooms

** -Voltage- **P70**

## How to order manifold D-sub/flat cable connector

* Refer to page 196 for serial transmission type.

● Discrete valve block

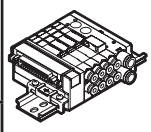
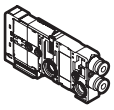
N 3 E0 66 0 - C4 —— M  D2 ( ) F —— 3

● Block manifold

M N 4 E0 1 0 - C4 - R - M T53 D2 W F - 5 - 3

- DIN rail mount method
- Ⓐ Valve type
- Ⓑ Solenoid position
- Ⓒ Port size
- Ⓓ Pressure adjustment function
- Ⓔ Manual override
- Ⓕ Wiring method
- Individual wiring type
- Ⓖ Terminal and connector pin array
- Ⓗ Option
- Ⓘ Station no.
- Ⓙ Voltage

*Complete "manifold specification sheet" (page 211).

| Symbol | Descriptions | | Type: Block manifold | Type: Discrete valve block |
|---|---|---|---|---|
| | | |  |  |
| **Ⓐ Valve type** | | | | |
| **3** | 3 port valve, dual 3 port valve integrated type | | ● | ● |
| **4** | 4 port valve, 3/4 port valve mix | | ● | ● |
| **Ⓑ Solenoid position (Note 10)** | | | | |
| **1** | 3 port valve: Single NC self reset type | (Differential pressure spring return) | ● | ● |
| **11** | 3 port valve: Single NO self reset type | (Differential pressure spring return) | ● | ● |
| **2** | 3 port valve: Double NC self hold type | | ● | ● |
| **21** | 3 port valve: Double NO self hold type | | ● | ● |
| **66** | Dual 3 port valves integrated type (Note 1): A side valve: NC self reset type | (Differential pressure return) | ● | ● |
| **66S** | Dual 3 port valves integrated type (Note 1): B side valve: NC self reset type | (Differential pressure spring return) | ● | ● |
| **67** | Dual 3 port valves integrated type (Note 1): A side valve: NC self reset type | (Differential pressure return) | ● | ● |
| **67S** | Dual 3 port valves integrated type (Note 1): B side valve: NO self reset type | (Differential pressure spring return) | ● | ● |
| **76** | Dual 3 port valves integrated type (Note 1): A side valve: NO self reset type | (Differential pressure return) | ● | ● |
| **76S** | Dual 3 port valves integrated type (Note 1): B side valve: NC self reset type | (Differential pressure spring return) | ● | ● |
| **77** | Dual 3 port valves integrated type (Note 1): A side valve: NO self reset type | (Differential pressure return) | ● | ● |
| **77S** | Dual 3 port valves integrated type (Note 1): B side valve: NO self reset type | (Differential pressure spring return) | ● | ● |
| **1** | 4 port valve: 2-position single solenoid self reset type | (Differential pressure spring return) | ● | ● |
| **2** | 4 port valve: 2-position double solenoid self hold type | | ● | ● |
| **3** | 4 port valve: 3-position all ports closed | | ● | ● |
| **4** | 4 port valve: 3-position A/B/R connection | | ● | ● |
| **5** | 4 port valve: 3-position P/A/B connection | | ● | ● |
| **8** | Mix manifold | | ● | |
| **Ⓒ Port size** | | | | |
| **CF** | ø1.8 barbed fitting (supported tube UP-9102-**) | | ● | ● |
| **C18** | ø1.8 push-in fitting Lateral (supported tube UP-9402-**) | | ● | ● |
| **CL18** | ø1.8 push-in fitting Upward (supported tube UP-9402-**) | | ● | ● |
| **C4** | ø4 push-in fitting Lateral | | ● | ● |
| **CL4** | ø4 push-in fitting Upward | | ● | ● |
| **C6** | ø6 push-in fitting Lateral | | ● | ● |
| **CL6** | ø6 push-in fitting Upward | | ● | ● |
| **M5** | M5 female thread (with non-rotating) | | ● | ● |
| **CX** | Mix push-in fitting | | ● | ● |
| **Ⓓ Pressure adjustment function** | | | | |
| **Blank** | Without regulator block mounting manifold | | ● | |
| **R** | Regulator block mounting manifold (Note 2, 3) | | ● | |
| **Ⓔ Manual override** | | | | |
| **Blank** | Locking/non-locking common type (with manual cover) | | ● | ● |
| **M** | Non-locking dedicated type (with manual cover) | | ● | ● |
| **Ⓕ Wiring method** | | | | |
| Refer to the next page for wiring method. | | | ● | |
| **Ⓖ Terminal and connector pin array** | | | | |
| **Blank** | Standard wiring | | ● | ● |
| **W** | Double wiring (Note 4,5) | | ● | ● |
| **Ⓗ Option** | | | | |
| **Blank** | None | | ● | ● |
| **E** | Low exoergic, energy saving circuit integrated type (Note 6) | | ● | ● |
| **U** | Built-in individual power supply function (AUX) type (Note 6, 7) | | ● | ● |
| **A** | Ozone proof | | ● | ● |
| **F** | A/B port filter integrated (Note 8) | | ● | ● |
| **Ⓘ Station no.** | | | | (Note 11) |
| **1** | 1 station | | ● | |
| **to** | to | | | |
| **24** | 24 stations (Note 9) | | | |
| **Ⓙ Voltage** | | | | |
| **3** | 24 VDC | | ● | ● |
| **4** | 12 VDC | | ● | ● |

- Refer to Catalog No.CB-023A-7 for cable model no. with D-sub connector.

### Note on model no. selection

Note 1: Dual 3 port valves integrated type cannot be used for external pilot type. Contact CKD for other working conditions.

Note 2: The type with dual 3 port valves integrated type resets the main valve with the main pressure, so if there is a difference between the pilot pressure and main pressure, the response time may be delayed.

Note 3: Check that the main pressure supplied to the valve block with dual 3 port valves integrated type is not higher than the pilot pressure, and that the main pressure does not drop below 0.2 MPa.

Note 4: Check the connector pin layout (example) given in Catalog No. CC-945A for the double wiring specifications.
When ordering a discrete valve block, the double wiring designation is limited to the 2 position single solenoid for the 4 port valve, and the 3 port valve.

Note 5: Double wiring cannot be selected for discrete individual wiring valve block

Note 6: Energizing is limited to the plus common.
In addition "E" and "U" cannot be selected simultaneously.

Note 7: For individual wiring, "U" cannot be selected simultaneously.

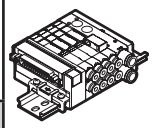
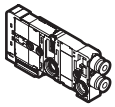
Note 8: A filter (for preventing entry of foreign matter) is incorporated in P port of the supply/exhaust block

Note 9: It differs depending on specifications. Check that on page 193.

Note 10: Read cautions in the catalog No. CC-945A to find the details of specifications on self reset type.
In addition, when mixing dummy block,select mix manifold.

Note 11: Dummy block is also included in the station no.

[Wiring method list]

| Symbol | Descriptions | | Type: Block manifold | Type: Discrete valve block |
|---|---|---|---|---|
| | | |  |  |
| **Ⓕ Wiring method** | | | | |
| **T30** | 25 pin D sub-connector Left | | ● | |
| **T30R** | 25 pin D sub-connector Right | | ● | |
| **T50** | 20 pin flat cable connector Left (with power supply terminal) Note 11 | | ● | |
| **T50R** | 20 pin flat cable connector Right (with power supply terminal) Note 11 | | ● | |
| **T51** | 20 pin flat cable connector Left | | ● | |
| **T51R** | 20 pin flat cable connector Right | | ● | |
| **T52** | 10 pin flat cable connector Left | | ● | |
| **T52R** | 10 pin flat cable connector Right | | ● | |
| **T53** | 26 pin flat cable connector Left | | ● | |
| **T53R** | 26 pin flat cable connector Right | | ● | |
| **TM1A** | Intermediate wiring block RITS connector 6P × 2 pcs. Note 12 | | ● | |
| **TM1C** | Intermediate wiring block RITS connector 6P Note 12 | | ● | |
| **TM52** | Intermediate wiring block 10 pin flat cable connector | | ● | |
| **TX** | Wiring block Mix Note 13, 14 | | ● | |
| **Blank** | Valve block for reduced wiring | | | ● |
| **D2** | Individual wiring type | D-connector 300 mm | ● | ● |
| **D20** | | D-connector 500 mm | ● | ● |
| **D21** | | D-connector 1000 mm | ● | ● |
| **D22** | | D-connector 2000 mm | ● | ● |
| **D23** | | D-connector 3000 mm | ● | ● |
| **D2N** | | D-connector without socket | ● | ● |
| **D3** | | D-connector with socket and terminal | ● | ● |

Note 11: When mixing the connectors with the T50 or T50R type with power terminal, only T50R can be combined with T50, and T50 with T50R.
Note 12: RITS connector 6P (1473562-6) Tyco Electronics Japan G.K.
Note 13: Two pieces are designated in manifold specifications. Contact CKD for 3 pcs. or more.
Note 14: If TX is selected for the wiring method, individual wiring cannot be selected.

## How to order manifold

Serial transmission

*Refer to page 194 for D-sub connector/flat cable connector type.

● Discrete valve block

N 3 E0 66 0- C4 —— M  D2 F —— 3

● Block manifold

M N 4 E0 1 0- C4 - R - M T6G1 D2 W F - 5 - 3

DIN rail mount

Ⓐ Valve type

Ⓑ Solenoid position

Ⓒ Port size

Ⓓ Pressure adjustment function

Ⓔ Manual override

Ⓕ Wiring method (Serial transmission)

Individual wiring type

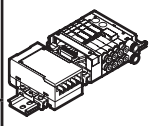
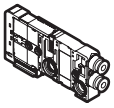
Ⓖ Terminal and connector pin array

Ⓗ Option

Ⓘ Station no.

Ⓙ Voltage

*Complete manifold specification sheet (page 211).

| Type | |
|---|---|
| Block manifold | Discrete valve block |
|  |  |

| Symbol | Descriptions | | | | |
|---|---|---|---|---|---|
| **Ⓐ Valve type** | | | | | |
| **3** | 3 port valve, dual 3 port valve integrated type | | | ● | ● |
| **4** | 4 port valve, 3/4 port valve mix | | | ● | ● |
| **Ⓑ Solenoid position (Note 10)** | | | | | |
| **1** | 3 port valve | Single NC self reset type | (Differential pressure spring return) | ● | ● |
| **11** | 3 port valve | Single NO self reset type | (Differential pressure spring return) | ● | ● |
| **2** | 3 port valve | Double NC self hold type | | ● | ● |
| **21** | 3 port valve | Double NO self hold type | | ● | ● |
| **66** | Dual 3 port valves integrated type (Note 1) | A side valve: NC self reset type | (Differential pressure return) | ● | ● |
| **66S** | Dual 3 port valves integrated type (Note 1) | B side valve: NC self reset type | (Differential pressure spring return) | ● | ● |
| **67** | Dual 3 port valves integrated type (Note 1) | A side valve: NC self reset type | (Differential pressure return) | ● | ● |
| **67S** | Dual 3 port valves integrated type (Note 1) | B side valve: NO self reset type | (Differential pressure spring return) | ● | ● |
| **76** | Dual 3 port valves integrated type (Note 1) | A side valve: NO self reset type | (Differential pressure return) | ● | ● |
| **76S** | Dual 3 port valves integrated type (Note 1) | B side valve: NC self reset type | (Differential pressure spring return) | ● | ● |
| **77** | Dual 3 port valves integrated type (Note 1) | A side valve: NO self reset type | (Differential pressure return) | ● | ● |
| **77S** | Dual 3 port valves integrated type (Note 1) | B side valve: NO self reset type | (Differential pressure spring return) | ● | ● |
| **1** | 4 port valve | 2-position single solenoid self reset type | (Differential pressure spring return) | ● | ● |
| **2** | 4 port valve | 2-position double solenoid self hold type | | ● | ● |
| **3** | 4 port valve | 3-position all ports closed | | ● | ● |
| **4** | 4 port valve | 3-position A/B/R connection | | ● | ● |
| **5** | 4 port valve | 3-position P/A/B connection | | ● | ● |
| **8** | Mix manifold | | | ● | |
| **Ⓒ Port size** | | | | | |
| **CF** | ø1.8 barbed fitting (supported tube UP-9102-**) | | | ● | ● |
| **C18** | ø1.8 push-in fitting Lateral (supported tube UP-9402-**) | | | ● | ● |
| **CL18** | ø1.8 push-in fitting Upward (supported tube UP-9402-**) | | | ● | ● |
| **C4** | ø4 push-in fitting Lateral | | | ● | ● |
| **CL4** | ø4 push-in fitting Upward | | | ● | ● |
| **C6** | ø6 push-in fitting Lateral | | | ● | ● |
| **CL6** | ø6 push-in fitting Upward | | | ● | ● |
| **M5** | M5 female thread (with non-rotating) | | | ● | ● |
| **CX** | Mix push-in fitting | | | ● | ● |
| **Ⓓ Pressure adjustment function** | | | | | |
| **Blank** | Without regulator block mounting manifold | | | ● | |
| **R** | Regulator block mounting manifold (Note 2, 3) | | | ● | |
| **Ⓔ Manual override** | | | | | |
| **Blank** | Locking/non-locking common type (with manual override cover) | | | ● | ● |
| **M** | Non-locking dedicated type (with manual override cover) | | | ● | ● |
| **Ⓕ Wiring method** | | | | | |
| Refer to the next page for wiring method. | | | | ● | |
| **Ⓖ Terminal and connector pin array** | | | | | |
| **Blank** | Standard wiring | | | ● | ● |
| **W** | Double wiring (Note 4, 5) | | | ● | ● |
| **Ⓗ Option** | | | | | |
| **Blank** | None | | | ● | ● |
| **E** | Low exoergic, energy saving circuit integrated type (Note 6) | | | ● | ● |
| **U** | Built-in individual power supply function (AUX) type (Note 6, 7) | | | ● | ● |
| **A** | Ozone proof | | | ● | ● |
| **F** | A/B port filter integrated (Note 8) | | | ● | ● |
| **Ⓘ Station no.** | | | | | (Note 12) |
| **1** | 1 station | | | ● | |
| **to** | to | | | | |
| **32** | 32 stations (Note 9) | | | | |
| **Ⓙ Voltage** | | | | | |
| **3** | 24 VDC | | | ● | ● |

## Note on model No. selection

Note 1: Dual 3 port valves integrated type cannot be used for external pilot type. Contact CKD for other working conditions.

Note 2: The type with dual 3 port valves integrated type resets the main valve with the main pressure, so if there is a difference between the pilot pressure and main pressure, the response time may be delayed.

Note 3: Check that the main pressure supplied to the valve block with dual 3 port valves integrated type is not higher than the pilot pressure, and that the main pressure does not drop below 0.2 MPa.

Note 4: Check the connector pin layout (example) given in catalog No. CC-945A for the double wiring specifications.
When ordering a discrete valve block, the double wiring designation is limited to the 2 position single solenoid for the 4 port valve, and the 3 port valve.

Note 5: Double wiring cannot be selected for discrete individual wiring valve block.

Note 6: Energizing is limited to the plus common.
In addition "E" and "U" cannot be selected simultaneously.

Note 7: For individual wiring, "U" cannot be selected simultaneously.

Note 8: A filter (for preventing entry of foreign matter) is incorporated in P port of the supply/exhaust block

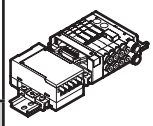
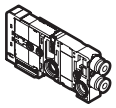
Note 9: It differs depending on specifications. Check that on page 193.

Note 10: Read cautions in the catalog No. CC-945A to find the details of specifications on self reset type.
In addition, when mixing dummy block,select mix manifold.

Note 11: Confirm the due date for T7N2 (S-LINK V 32 points output) in each case.

Note 12: Dummy block is also included in the station no.

[Wiring method list]

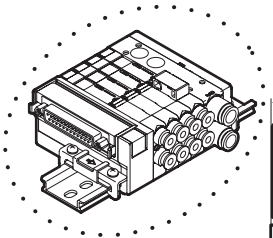
| Symbol | | Descriptions | Type: Block manifold | Type: Discrete valve block |
|---|---|---|---|---|
| | |  | |  |
| **F Wiring method** | | | | |
| **T6A0** | | UNIWIRE SYSTEM 8 points | ● | |
| **T6A1** | | UNIWIRE SYSTEM 16 points | ● | |
| **T6C0** | | OMRON CompoBus/S 8 points | ● | |
| **T6C1** | | OMRON CompoBus/S 16 points | ● | |
| **T6E0** | | SUNX S-LINK 8 points | ● | |
| **T6E1** | | SUNX S-LINK 16 points | ● | |
| **T6J0** | | UNIWIRE H SYSTEM 8 points | ● | |
| **T6J1** | | UNIWIRE H SYSTEM 16 points | ● | |
| **T6G1** | | CC-Link 16 points | ● | |
| **T7D1** | | Close contact type DeviceNet 16 points | ● | |
| **T7D2** | | Close contact type DeviceNet 32 points | ● | |
| **T7G1** | | Close contact type CC-LINK 16 points | ● | |
| **T7G2** | | Close contact type CC-LINK 32 points | ● | |
| **T7N1** | | Close contact type SUNX S-Link V 16 points | ● | |
| **T7N2** | | Close contact type SUNX S-Link V 32 points (Note 11) | ● | |
| **Blank** | | Valve block for reduced wiring | | ● |
| **D2** | Individual wiring type | D-connector 300 mm | ● | ● |
| **D20** | | D-connector 500 mm | ● | ● |
| **D21** | | D-connector 1000 mm | ● | ● |
| **D22** | | D-connector 2000 mm | ● | ● |
| **D23** | | D-connector 3000 mm | ● | ● |
| **D2N** | | D-connector without socket | ● | ● |
| **D3** | | D-connector with socket and terminal | ● | ● |

MEMO

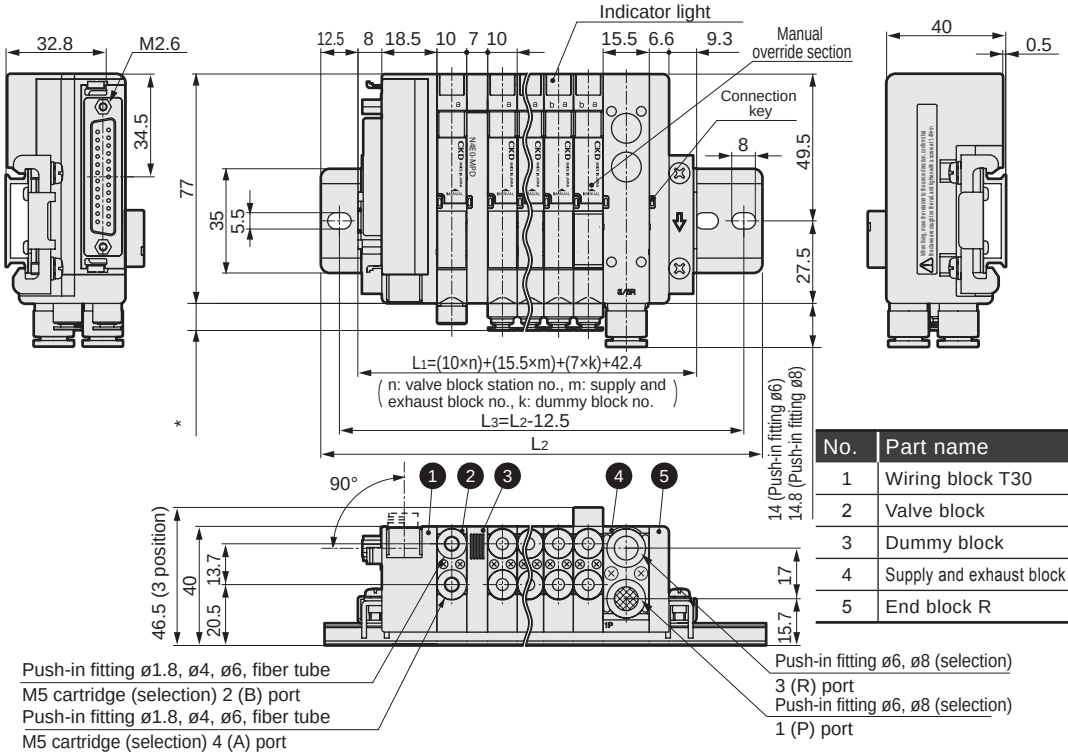
## Dimensions

### MN$^{3}_{4}$E0*-*-T30*-*-*

●D-sub connector (T30) type



- The D-sub connector can be faced to the top or bottom.
- Refer to page 205 for direction switchover method of connector section.



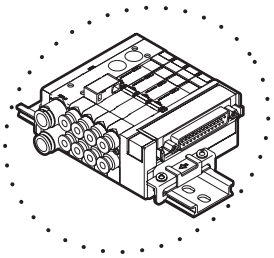

| No. | Part name |
|---|---|
| 1 | Wiring block T30 |
| 2 | Valve block |
| 3 | Dummy block |
| 4 | Supply and exhaust block |
| 5 | End block R |

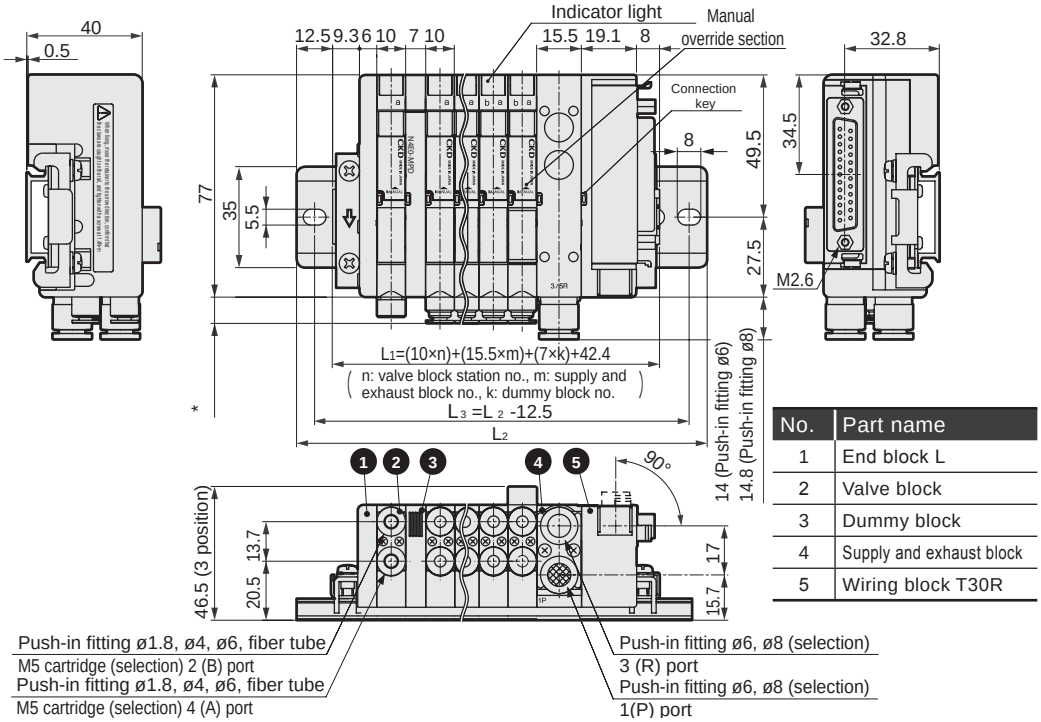
| * Fitting size | | |
|---|---|---|
| Push-in fitting | ø1.8 | 5.5 |
| | ø4 | 9.1 |
| | ø6 | 10.7 |
| Fiber tube | | 8.5 |
| M5 female thread | | 6.9 |

* Refer to page 205 for the dimension drawings of the L type push-in fitting for valve block (upward), L type push-in fitting for air supply and exhaust block (upward), and built-in individual power supply function (AUX) type.

### MN$^{3}_{4}$E0*-*-T30R*-*-*

●D-sub connector right type (T30R)






| No. | Part name |
|---|---|
| 1 | End block L |
| 2 | Valve block |
| 3 | Dummy block |
| 4 | Supply and exhaust block |
| 5 | Wiring block T30R |

| * Fitting size | | |
|---|---|---|
| Push-in fitting | ø1.8 | 5.5 |
| | ø4 | 9.1 |
| | ø6 | 10.7 |
| Fiber tube | | 8.5 |
| M5 female thread | | 6.9 |

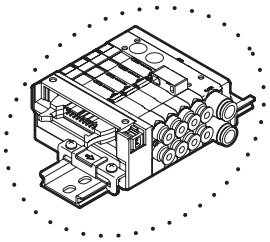
| Manifold length L 1 mm | 76 or less | 88.5 or less | 101 or less | 113.5 or less | 126 or less | 138.5 or less | 151 or less | 163.5 or less | 176 or less | 188.5 or less | 201 or less | 213.5 or less | 226 or less | 238.5 or less | 251 or less | 263.5 or less | 276 or less | 288.5 or less | 301 or less | 313.5 or less | 326 or less | 338.5 or less | 351 or less |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Installation rail length L2 mm | 100 | 112.5 | 125 | 137.5 | 150 | 162.5 | 175 | 187.5 | 200 | 212.5 | 225 | 237.5 | 250 | 262.5 | 275 | 287.5 | 300 | 312.5 | 325 | 337.5 | 350 | 362.5 | 375 |
| Installation rail pitch L3 mm | 87.5 | 100 | 112.5 | 125 | 137.5 | 150 | 162.5 | 175 | 187.5 | 200 | 212.5 | 225 | 237.5 | 250 | 262.5 | 275 | 287.5 | 300 | 312.5 | 325 | 337.5 | 350 | 362.5 |

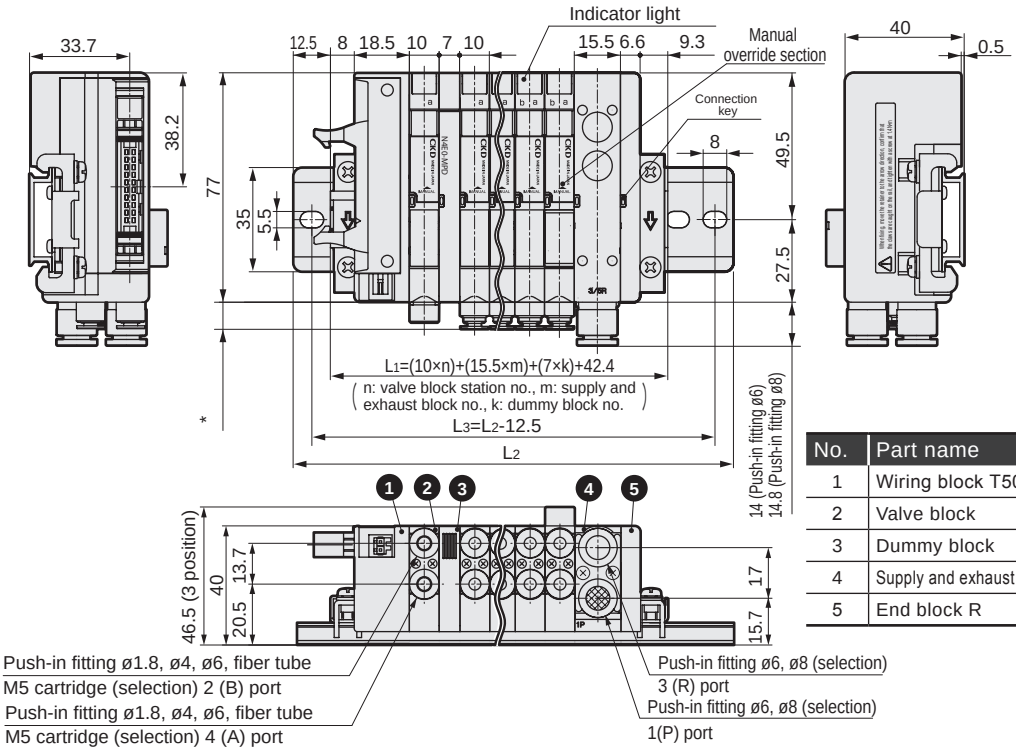
## Dimensions

### MN$^{3}_{4}$E0*-*-T50*-*-*

● Flat cable connector left type (T50)

* There are T51, T52, and T53. The dimensions are the same as T50. Refer to page 201 for the dimension of connector section.






| No. | Part name |
|---|---|
| 1 | Wiring block T50 |
| 2 | Valve block |
| 3 | Dummy block |
| 4 | Supply and exhaust block |
| 5 | End block R |

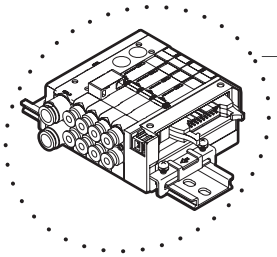
| * Fitting size | | |
|---|---|---|
| Push-in fitting | ø1.8 | 5.5 |
| | ø4 | 9.1 |
| | ø6 | 10.7 |
| Fiber tube | | 8.5 |
| M5 female thread | | 6.9 |

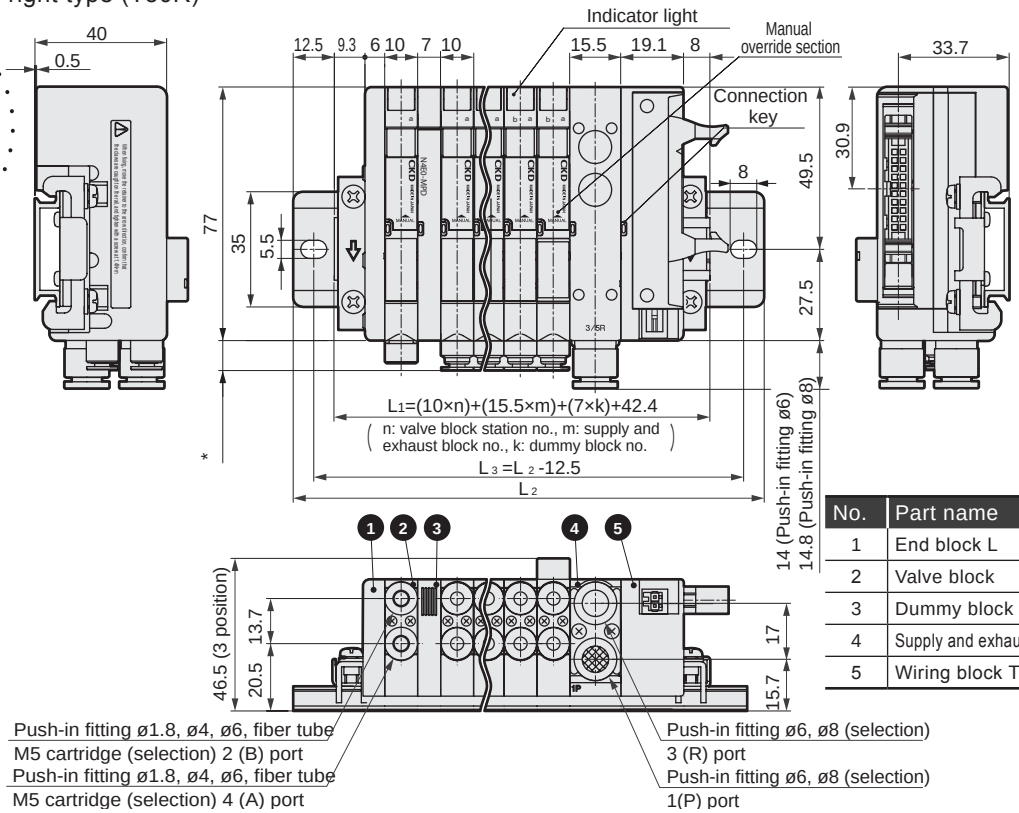
* Refer to page 205 for the dimension drawings of the L type push-in fitting for valve block (upward), fitting for fiber tube, and L type push-in fitting for air supply and exhaust block (upward).

* The power supply connector can be used with T50 to supply power to the PLC output unit. Refer to page 205 for dimensions when the connector is connected, and to Catalog No. CC-945A of precautions on wiring for electrical connection.

### MN$^{3}_{4}$E0*-*-T50R*-*-*

● Flat cable connector right type (T50R)






| No. | Part name |
|---|---|
| 1 | End block L |
| 2 | Valve block |
| 3 | Dummy block |
| 4 | Supply and exhaust block |
| 5 | Wiring block T50R |

| * Fitting size | | |
|---|---|---|
| Push-in fitting | ø1.8 | 5.5 |
| | ø4 | 9.1 |
| | ø6 | 10.7 |
| Fiber tube | | 8.5 |
| M5 female thread | | 6.9 |

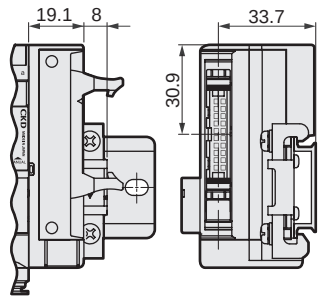
| Manifold length L1 mm | 76 or less | 88.5 or less | 101 or less | 113.5 or less | 126 or less | 138.5 or less | 151 or less | 163.5 or less | 176 or less | 188.5 or less | 201 or less | 213.5 or less | 226 or less | 238.5 or less | 251 or less | 263.5 or less | 276 or less | 288.5 or less | 301 or less | 313.5 or less | 326 or less | 338.5 or less | 351 or less |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Installation rail length L2 mm | 100 | 112.5 | 125 | 137.5 | 150 | 162.5 | 175 | 187.5 | 200 | 212.5 | 225 | 237.5 | 250 | 262.5 | 275 | 287.5 | 300 | 312.5 | 325 | 337.5 | 350 | 362.5 | 375 |
| Installation rail pitch L3 mm | 87.5 | 100 | 112.5 | 125 | 137.5 | 150 | 162.5 | 175 | 187.5 | 200 | 212.5 | 225 | 237.5 | 250 | 262.5 | 275 | 287.5 | 300 | 312.5 | 325 | 337.5 | 350 | 362.5 |

## Dimensions

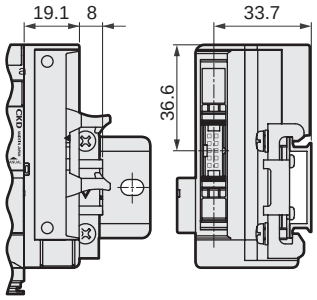
### Flat cable connector (T51R/T52R/T53R): Dimensions of connector section

* This drawing indicates connector type on the right. Connector type dimension on the left is also the same.

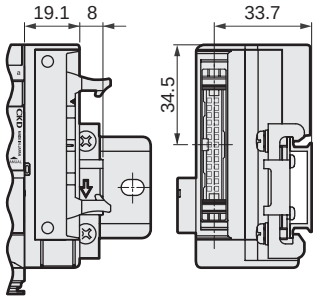
●T51R




●T52R




●T53R

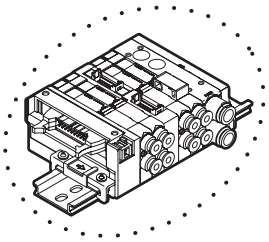


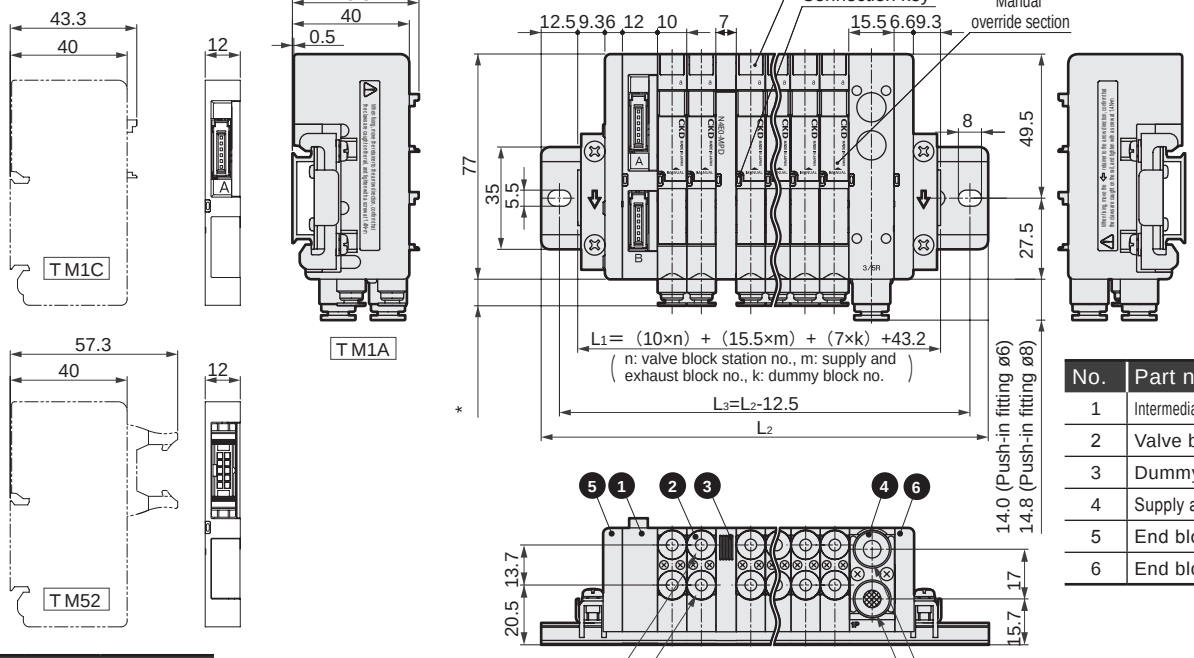

### MN$^{3}_{4}$E0*-*-TM1$^{A}_{C}$*-*-*

●RITS connector intermediate wiring specification (TM1$^{A}_{C}$)

### MN$^{3}_{4}$E0*-*-TM52*-*-*

●10 pin flat cable connector intermediate wiring specification (TM52)






| No. | Part name |
|---|---|
| 1 | Intermediate wiring block TM1A |
| 2 | Valve block |
| 3 | Dummy block |
| 4 | Supply and exhaust block |
| 5 | End block L |
| 6 | End block R |

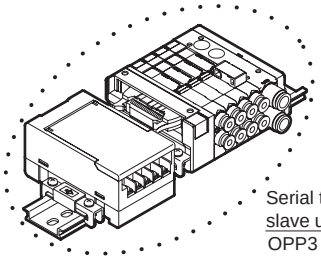
| * Fitting size | | |
|---|---|---|
| Push-in fitting | ø1.8 | 5.5 |
| | ø4 | 9.1 |
| | ø6 | 10.7 |
| Fiber tube | | 8.5 |
| M5 female thread | | 6.9 |

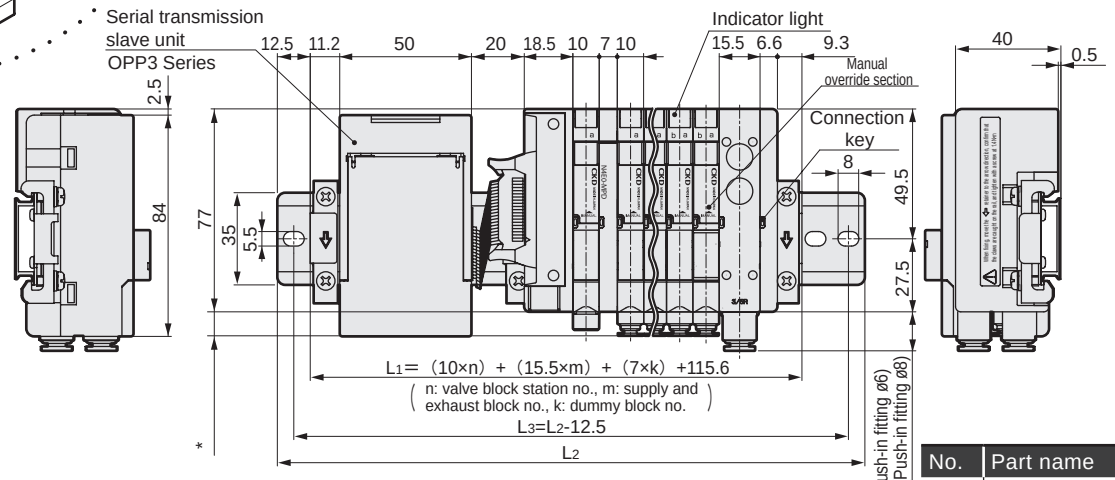
| Manifold length L1 mm | 76 or less | 88.5 or less | 101 or less | 113.5 or less | 126 or less | 138.5 or less | 151 or less | 163.5 or less | 176 or less | 188.5 or less | 201 or less | 213.5 or less | 226 or less | 238.5 or less | 251 or less | 263.5 or less | 276 or less | 288.5 or less | 301 or less | 313.5 or less | 326 or less | 338.5 or less | 351 or less |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Installation rail length L2 mm | 100 | 112.5 | 125 | 137.5 | 150 | 162.5 | 175 | 187.5 | 200 | 212.5 | 225 | 237.5 | 250 | 262.5 | 275 | 287.5 | 300 | 312.5 | 325 | 337.5 | 350 | 362.5 | 375 |
| Installation rail pitch L3 mm | 87.5 | 100 | 112.5 | 125 | 137.5 | 150 | 162.5 | 175 | 187.5 | 200 | 212.5 | 225 | 237.5 | 250 | 262.5 | 275 | 287.5 | 300 | 312.5 | 325 | 337.5 | 350 | 362.5 |

## Dimensions

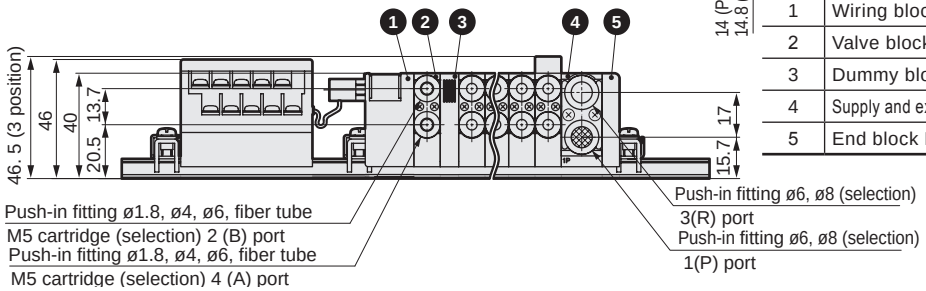
### MN$^{3}_{4}$E0*-*-T6**-*-*

● Serial transmission type (T6A0/1,T6C0/1,T6E0/1,T6J0/1,T6G1)





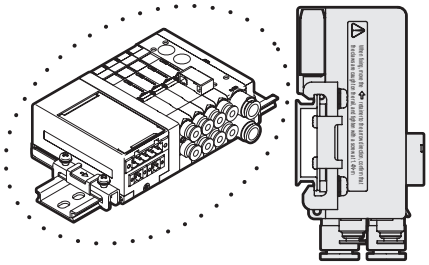

| * Fitting size | | |
|---|---|---|
| Push-in fitting | ø1.8 | 5.5 |
| | ø4 | 9.1 |
| | ø6 | 10.7 |
| Fiber tube | | 8.5 |
| M5 female thread | | 6.9 |

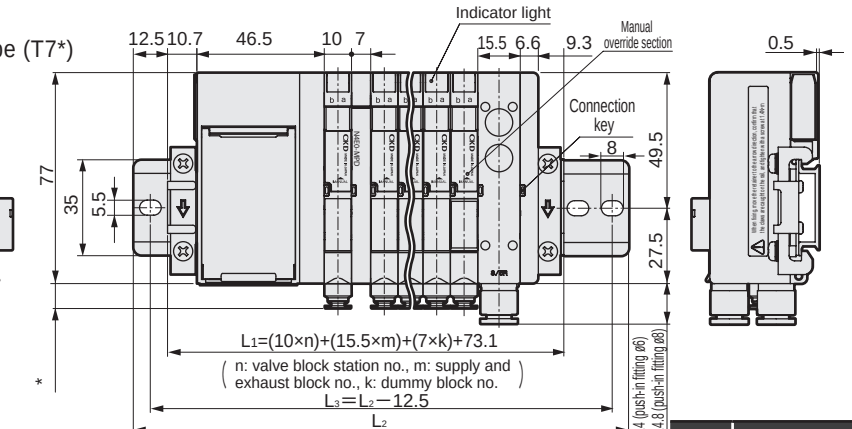



| No. | Part name |
|---|---|
| 1 | Wiring block T6* |
| 2 | Valve block |
| 3 | Dummy block |
| 4 | Supply and exhaust block |
| 5 | End block R |

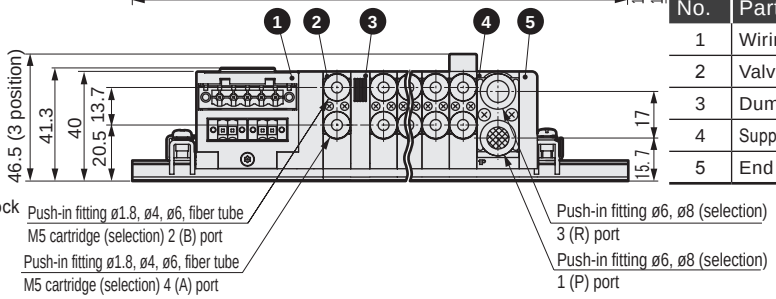
### MN$^{3}_{4}$E0*-*-T7**-*-*

● Serial transmission (close contact) type (T7*)






| * Fitting size | | |
|---|---|---|
| Push-in fitting | ø1.8 | 5.5 |
| | ø4 | 9.1 |
| | ø6 | 10.7 |
| Fiber tube | | 8.5 |
| M5 female thread | | 6.9 |




| No. | Part name |
|---|---|
| 1 | Wiring block T7* |
| 2 | Valve block |
| 3 | Dummy block |
| 4 | Supply and exhaust block |
| 5 | End block R |

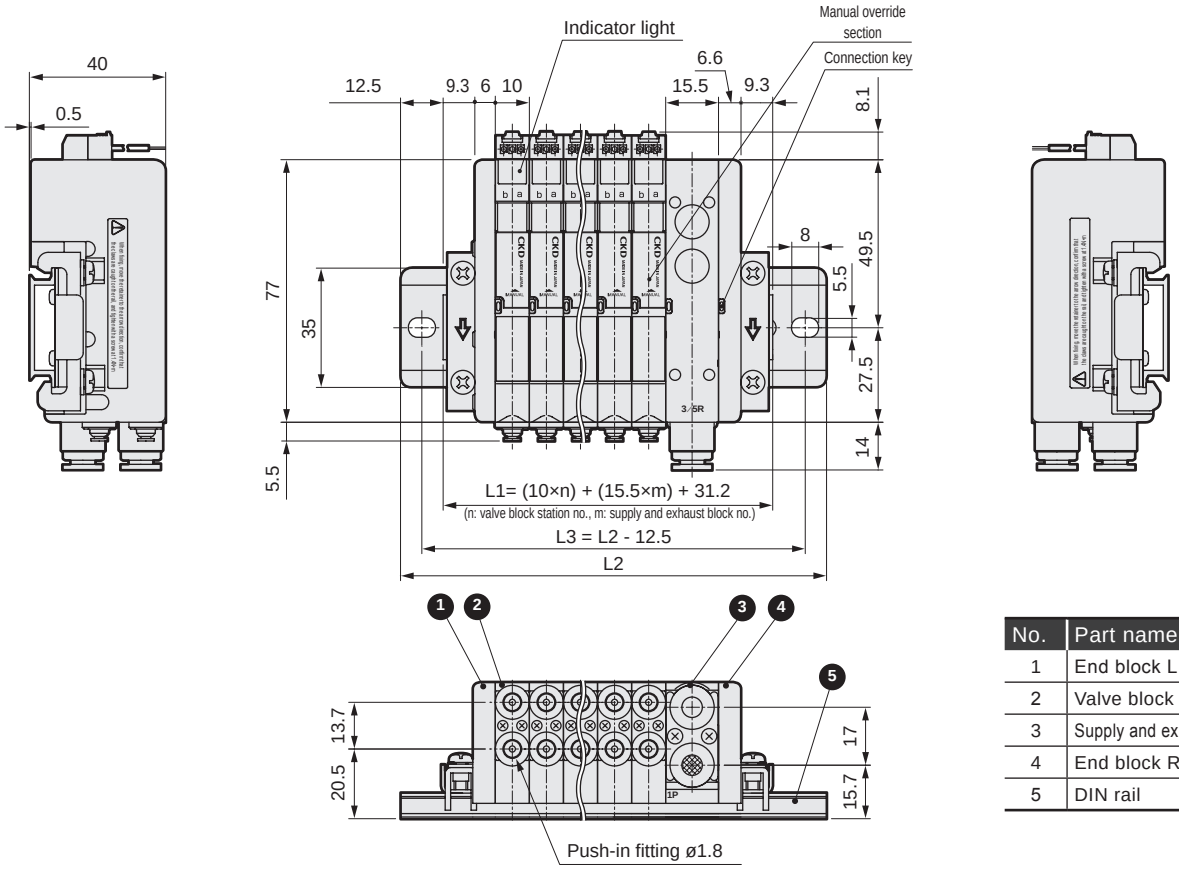
* Refer to page 205 for the dimension drawings of the L type push-in fitting for valve block (upward), fitting for fiber tube, and L type push-in fitting for air supply and exhaust block (upward).

| Manifold length L1 mm | 76 or less | 88.5 or less | 101 or less | 113.5 or less | 126 or less | 138.5 or less | 151 or less | 163.5 or less | 176 or less | 188.5 or less | 201 or less | 213.5 or less | 226 or less | 238.5 or less | 251 or less | 263.5 or less | 276 or less | 288.5 or less | 301 or less | 313.5 or less | 326 or less | 338.5 or less | 351 or less |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Installation rail length L2 mm | 100 | 112.5 | 125 | 137.5 | 150 | 162.5 | 175 | 187.5 | 200 | 212.5 | 225 | 237.5 | 250 | 262.5 | 275 | 287.5 | 300 | 312.5 | 325 | 337.5 | 350 | 362.5 | 375 |
| Installation rail pitch L3 mm | 87.5 | 100 | 112.5 | 125 | 137.5 | 150 | 162.5 | 175 | 187.5 | 200 | 212.5 | 225 | 237.5 | 250 | 262.5 | 275 | 287.5 | 300 | 312.5 | 325 | 337.5 | 350 | 362.5 |

## Dimensions

### MN$^{3}_{4}$E0*-*- (D2 to D3)-*-*

● Individual wiring connector type (D2,D20,D21,D22,D23,D2N,D3)




| No. | Part name |
|---|---|
| 1 | End block L |
| 2 | Valve block |
| 3 | Supply and exhaust block |
| 4 | End block R |
| 5 | DIN rail |

*This drawing shows the ø1.8 push-in fitting, lateral type (C18).

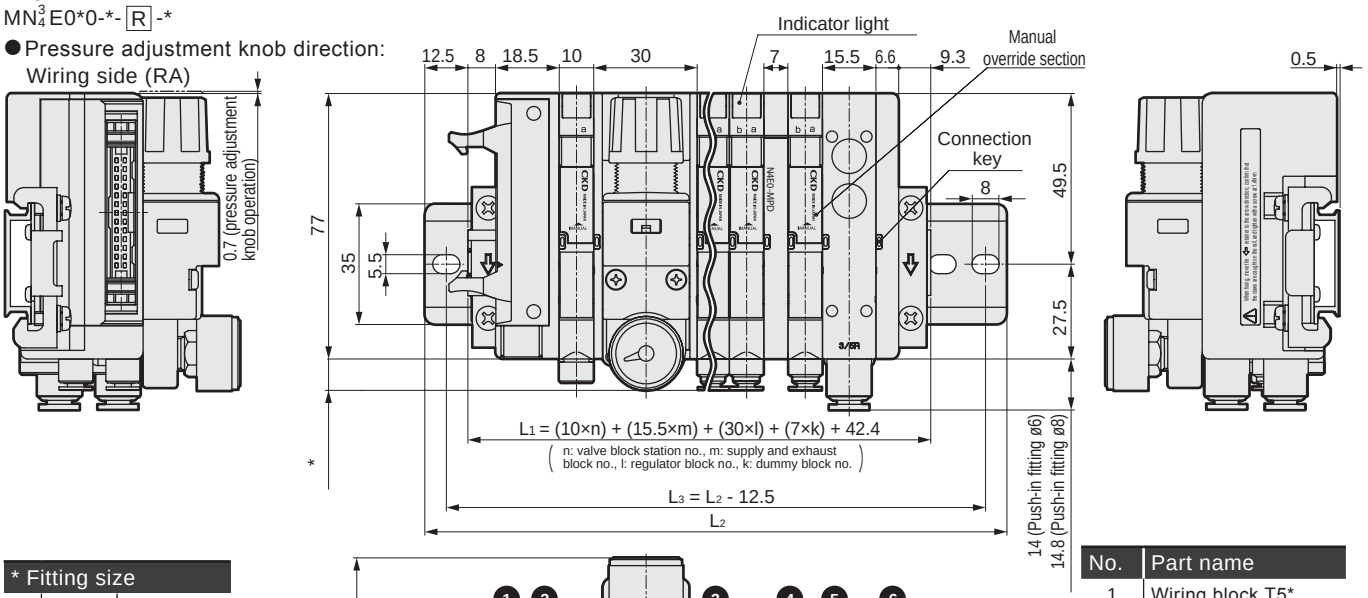
## Dimensions

● Each piping block section (common for all types)

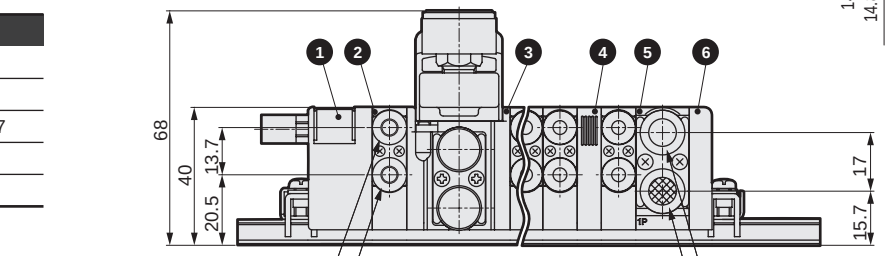
Regulator block

$MN^{3}_{4}E0*0-*-\boxed{R}-*$

● Pressure adjustment knob direction: Wiring side (RA)




| * Fitting size | | |
|---|---|---|
| Push-in fitting | ø1.8 | 5.5 |
| | ø4 | 9.1 |
| | ø6 | 10.7 |
| Fiber tube | | 8.5 |
| M5 female thread | | 6.9 |




Push-in fitting ø1.8, ø4, ø6, fiber tube
M5 cartridge (selection) 2 (B) port

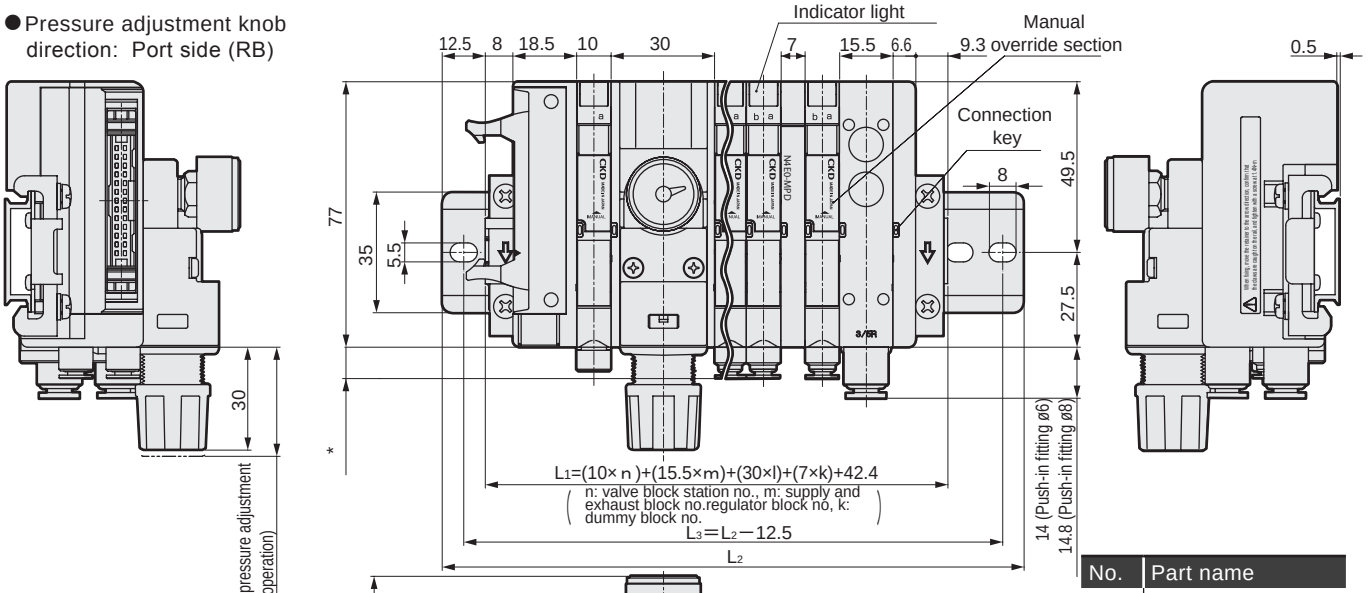
Push-in fitting ø1.8, ø4, ø6, fiber tube
M5 cartridge (selection) 4 (A) port

Push-in fitting ø6, ø8 (selection)
3 (R) port

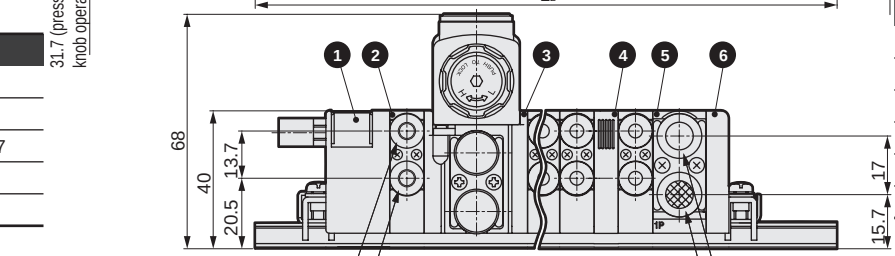
Push-in fitting ø6, ø8 (selection)
1(P) port

| No. | Part name |
|---|---|
| 1 | Wiring block T5* |
| 2 | Valve block |
| 3 | Regulator block |
| 4 | Dummy block |
| 5 | Supply and exhaust block |
| 6 | End block R |

● Pressure adjustment knob direction: Port side (RB)




| * Fitting size | | |
|---|---|---|
| Push-in fitting | ø1.8 | 5.5 |
| | ø4 | 9.1 |
| | ø6 | 10.7 |
| Fiber tube | | 8.5 |
| M5 female thread | | 6.9 |




Push-in fitting ø1.8, ø4, ø6, fiber tube
M5 cartridge (selection) 2 (B) port

Push-in fitting ø1.8, ø4, ø6, fiber tube
M5 cartridge (selection) 4 (A) port

Push-in fitting ø6, ø8 (selection)
3 (R) port

Push-in fitting ø6, ø8 (selection)
1(P) port

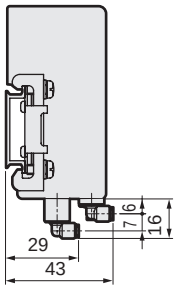
| No. | Part name |
|---|---|
| 1 | Wiring block T5* |
| 2 | Valve block |
| 3 | Regulator block |
| 4 | Dummy block |
| 5 | Supply and exhaust block |
| 6 | End block R |

## Dimensions

● Piping blocks section (common for all types)

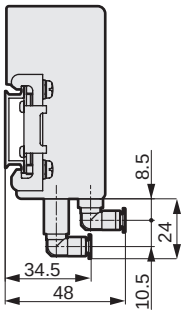
Push-in fittings for fiber tube (upward)

● ø1.8 (CL18)

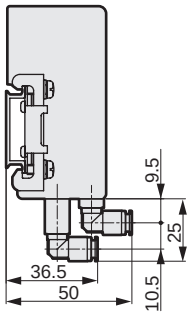



L type push-in fittings for valve block (upward)

● ø4 (CL4)

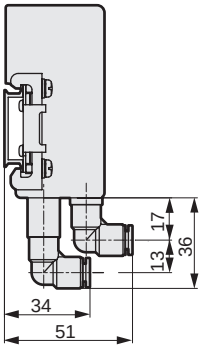



● ø6 (CL6)

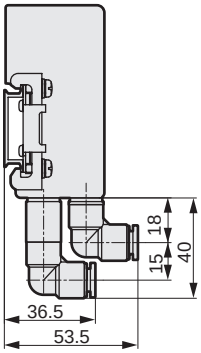



L type push-in fitting for supply and exhaust block (upward)

● ø6 (CL6)

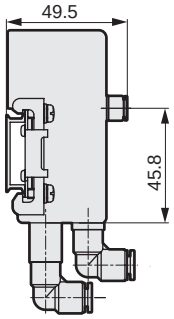



● ø8 (CL8)

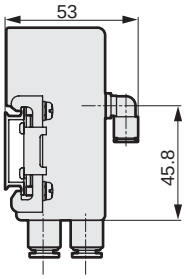



Supply and exhaust block for external pilot

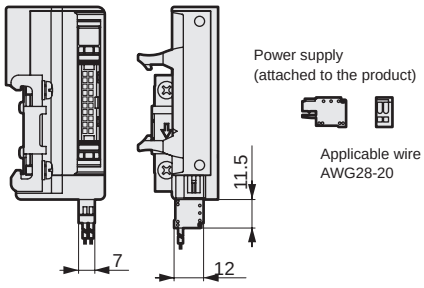
● Upward piping



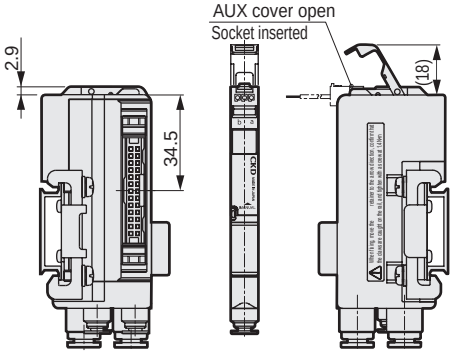

● Lateral piping




● Dimension of T50 power supply connector connection

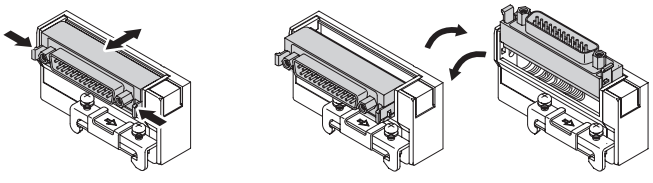



● Built-in individual power supply function (AUX) type




● D-sub connector (T30/T30R): Direction switchover method for connector section

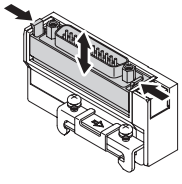
Using in a horizontal state



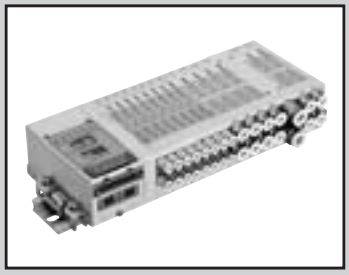
Hold the lever and pull the connector out horizontally.
Push the connector in horizontally when storing it.
(Fix the connector.)

Turn the connector.
Always fix the connector horizontally or vertically when using.

Using in a vertical state



Hold the lever and pull the connector vertically.
Push the connector in horizontally when storing it.
(Fix the connector.)



MN4E0/MN4E00 Mix manifold

# MN3EX0/MN4EX0 Series

● Applicable cylinder bore size: ø4 to ø32

RoHS

## Specifications

Common to each series. Refer to pages 178 and 192.

## How to order

Block manifold

MN **4** EX0 - **C4** - **R** - **M** **T53** **E** - **5** - **3**

- MN: DIN rail mount method
- 4: Ⓐ Valve type
- C4: Ⓑ Port size
- R: Ⓒ Pressure adjustment function
- M: Ⓓ Manual override
- T53: Ⓕ Terminal and connector pin array
- Ⓔ Wiring method
- E: Ⓖ Option
- 5: Ⓗ Station no.
- 3: Ⓘ Voltage

| Symbol | Descriptions |
|---|---|
| **Ⓐ Valve type** | |
| **3** | 3 port valve, dual 3 port valve integrated type |
| **4** | 4 port valve, 3/4 port valve mix |
| **Ⓑ Port size** | |
| **C18** | ø1.8 push-in fitting Lateral (supported tube UP-9402) |
| **CL18** | ø1.8 push-in fitting Upward (supported tube UP-9402) |
| **C4** | ø4 push-in fitting Lateral |
| **CL4** | ø4 push-in fitting Upward |
| **CX** | Mix push-in fitting |
| **Ⓒ Pressure adjustment function** | |
| **Blank** | Without regulator block mounting manifold |
| **R** | Regulator block mounting manifold (Note 1, 2) |
| **Ⓓ Manual override** | |
| **Blank** | Manual override with manual cover (locking/non-locking common type) |
| **M** | Manual override with manual cover (non-locking dedicated type) |
| **Ⓔ Wiring method** | |
| Refer to the next page for wiring method. | |
| **Ⓕ Terminal and connector pin array** | |
| **Blank** | Standard wiring |
| **W** | Double wiring (Note 3) |
| **Ⓖ Option** | |
| **Blank** | None |
| **E** | Low exoergic, energy saving circuit type (Note 4) |
| **A** | Ozone proof |
| **F** | A/B port filter integrated (Note 5) |
| **Ⓗ Station number** (Note 8) | |
| **1** | 1 station |
| **to** | to |
| **32** | 32 stations (Note 6) |
| **Ⓘ Voltage** | |
| **3** | 24 VDC |
| **4** | 12 VDC |

## Note on model no. selection

Note 1: The type with dual 3 port valves integrated type resets the main valve with the main pressure, so if there is a difference between the pilot pressure and main pressure, the response time may be delayed.

Note 2: Check that the main pressure supplied to the valve block with dual 3 port valves integrated type is not higher than the pilot pressure, and that the main pressure does not drop below 0.2 MPa.

Note 3: Check the connector pin layout (example) given in catalog No. CC-945A for the double wiring specifications.
When ordering a discrete valve block, the double wiring designation is limited to the 2 position single solenoid for the 4 port valve, and the 3 port valve.

Note 4: Energizing is limited to the plus common.

Note 5: A filter (for preventing entry of foreign matter) is incorporated in P port of the supply and exhaust block.

Note 6: It differs depending on specifications. Check that on pages 179 and 193.

Note 7: Confirm the due date for T7N2 (S-LINK V 32 points output) in each case.

Note 8: Dummy block is also included in the station no.

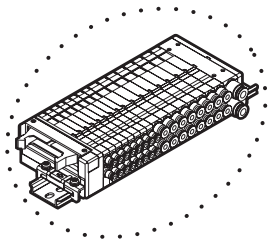
## [Wiring method list]

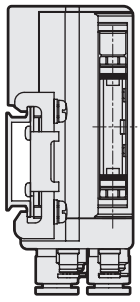
| Symbol | Descriptions |
|---|---|
| **Ⓔ Wiring method** | |
| **TM1A** | Intermediate wiring block RITS connector 6P × 2 pcs. |
| **TM1C** | Intermediate wiring block RITS connector 6P |
| **TM52** | Intermediate wiring block 10 pins flat cable connector 8 points supported |
| **T30** | 25 pin D sub-connector Left |
| **T30R** | 25 pin D sub-connector Right |
| **T50** | 20 pin flat cable connector Left (with power supply terminal) |
| **T50R** | 20 pin flat cable connector Right (with power supply terminal) |
| **T51** | 20 pin flat cable connector Left |
| **T51R** | 20 pin flat cable connector Right |
| **T52** | 10 pin flat cable connector Left |
| **T52R** | 10 pin flat cable connector Right |
| **T53** | 26 pin flat cable connector Left |
| **T53R** | 26 pin flat cable connector Right |
| **TX** | Wiring block mix |
| **T6A0** | UNIWIRE SYSTEM 8 points |
| **T6A1** | UNIWIRE SYSTEM 16 points |
| **T6C0** | OMRON CompoBus/S 8 points |
| **T6C1** | OMRON CompoBus/S 16 points |
| **T6E0** | SUNX S-LINK 8 points |
| **T6E1** | SUNX S-LINK 16 points |
| **T6J0** | UNIWIRE H SYSTEM 8 points |
| **T6J1** | UNIWIRE H SYSTEM 16 points |
| **T6G1** | CC-Link 16 points |
| **T7D1** | Close contact type DeviceNet 16 points |
| **T7D2** | Close contact type DeviceNet 32 points |
| **T7G1** | Close contact type CC-Link 16 points |
| **T7G2** | Close contact type CC-Link 32 points |
| **T7N1** | Close contact type SUNX S-LINK V 16 points |
| **T7N2** | Close contact type SUNX S-LINK V 32 points (Note 7) |
| **D2** | Individual wiring type* D-connector 300 mm |
| **D20** | D-connector 500 mm |
| **D21** | D-connector 1000 mm |
| **D22** | D-connector 2000 mm |
| **D23** | D-connector 3000 mm |
| **D2N** | D-connector without socket |
| **D3** | D-connector with socket and terminal |

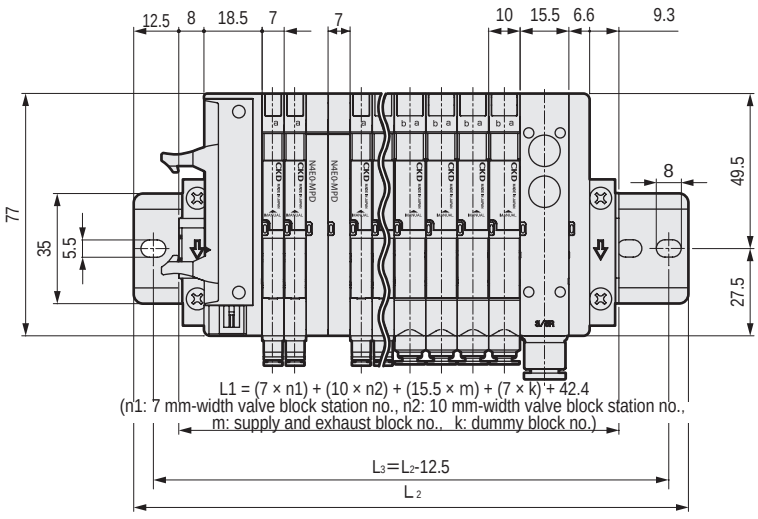
* Individual wiring: Individual wiring specification can be designated at any valve block (N3E0 and N4E0 only).

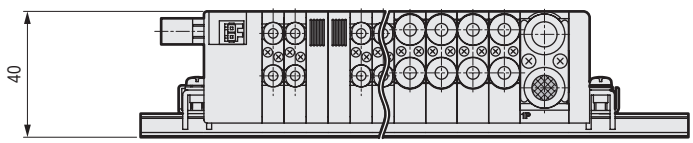
## Mix block dimensions

### MN$^{3}_{4}$EX0



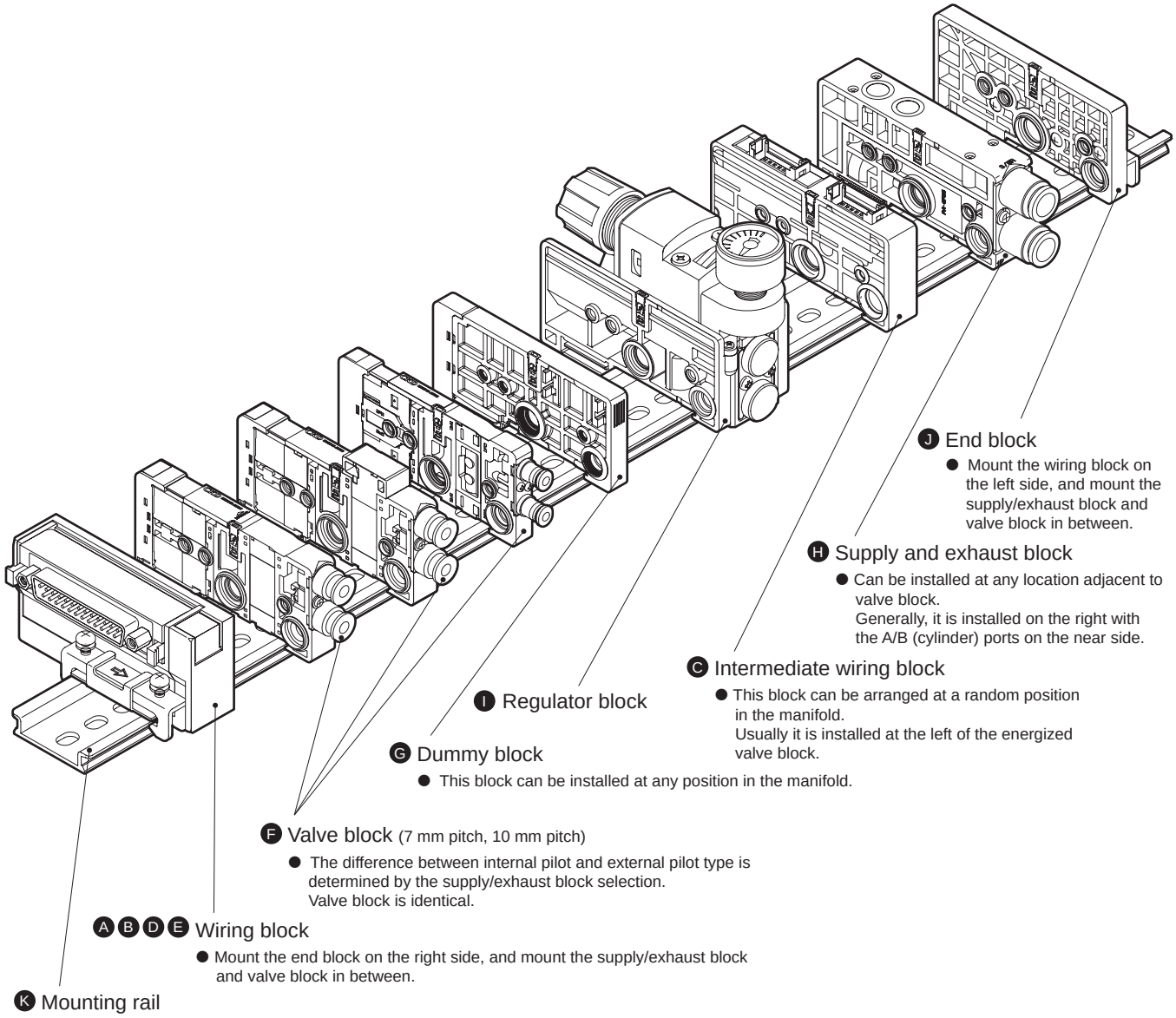




## Block manifold: Block configurations

Free assembly lets multiple stations be expanded and serviced.



**J** End block
- Mount the wiring block on the left side, and mount the supply/exhaust block and valve block in between.

**H** Supply and exhaust block
- Can be installed at any location adjacent to valve block.
  Generally, it is installed on the right with the A/B (cylinder) ports on the near side.

**C** Intermediate wiring block
- This block can be arranged at a random position in the manifold.
  Usually it is installed at the left of the energized valve block.

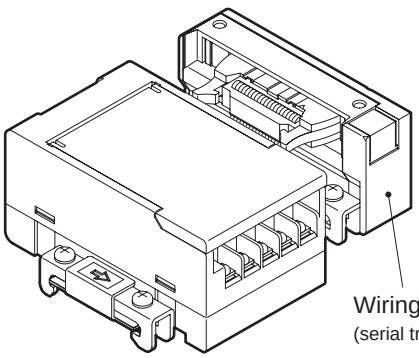
**I** Regulator block

**G** Dummy block
- This block can be installed at any position in the manifold.

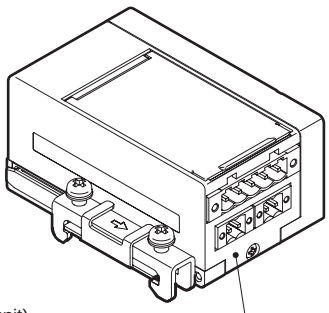
**F** Valve block (7 mm pitch, 10 mm pitch)
- The difference between internal pilot and external pilot type is determined by the supply/exhaust block selection.
  Valve block is identical.

**A** **B** **D** **E** Wiring block
- Mount the end block on the right side, and mount the supply/exhaust block and valve block in between.

**K** Mounting rail



Wiring block
(serial transmission slave unit)



Wiring block
(serial transmission slave unit
(close contact type))

MEMO

# How to fill MN3E/MN4E series manifold specification sheet

●Manifold model no. (example) (When mixing the dummy block, select mix manifold and fill in the station no. including dummy block)

**MN 4 E0 8 0 – CX – R – M – T50RD2 W F – 10 – 3**

Ⓐ Model no. Ⓑ Solenoid position Ⓒ Port size Ⓓ Pressure adjustment function Ⓔ Manual override Ⓕ Wiring method Ⓖ Terminal and connector pin array Ⓗ Option Ⓘ Station no. Ⓙ Voltage

(Refer to pages 180, 182, 194, and 196 for manifold model no.)

•When completing this form, select the type from the "Block configurations" (Page 208).
•Complete from the left end, with the piping port on the near side, regardless of the wiring block method.

| Part name | Model no. | Layout (1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36) | Quantity |
|---|---|---|---|
| Wiring block | N4E0-T 50R | ○ at 15 | 1 |
| | N4E0-T | | |
| Arrangement assigned when individual wiring mixed(can be assigned only 10 mm)* | | ○ ○ at 2 3 | 2 |
| Valve block 7 mm pitch | N E00 0- | Designate individual wiring | |
| | N E00 0- | | |
| | N E00 0- | Station no. : 10th station | |
| | N E00 0- | | |
| Valve block 10 mm pitch | N 3 E0 1 0- C6 | ○ ○ at 2 3 | 2 |
| | N 4 E0 1 0- C4 | ○ at 5 | 1 |
| | N 4 E0 2 0- C4 | ○ at 6 ○ at 9 | 2 |
| | N 4 E0 3 0- C4 | ○ ○ ○ at 11 12 13 | 3 |
| Dummy block | N4E0-MPS | | |
| | N4E0-MPD | ○ ○ at 7 8 | 2 |
| Supply and exhaust block | N4E0-Q Z - 8 - S | ○ at 10 | 1 |
| | N4E0-Q-8 | ○ at 14 | 1 |
| | N4E0-Q - - - - | | |
| Regulator block | N4E0-R A - FL - C8 | ○ at 4 | 1 |
| | N4E0-R - - - | | |
| | N4E0-R - - - | | |
| End block | N4E0-E L | ○ at 1 | 1 |
| | N4E0-E | | |
| Mounting rail | L2= | Station no. : 1st station | |
| Accessories | Blanking plug (push-in fitting): ø1.8 ø3 ø4 ø6 ø8 | Silencer: ø6 ø8 | Push-in fitting tube remover: □ not required (check) |
| | Barbed thread fitting for ø1.8 tube (10 pcs./1 set): N4E0-JOINT-PTN2-M3 N4E0-JOINT-PTN2-M5 N4E0-JOINT-PTN2-6 | Cable with D-sub connector: N4T-CABLE-D0 - | |
| | Socket assembly for electric supply (for individual wiring and AUX): N4E0-SOCKET- - 3M0-SOCKET-SET | Connector for wiring block TM1: N4E0-TM-CONNECTOR | |

( Fill in the integral multiple of 12.5. )

## Preparing the manifold specifications

●Complete from the left with the piping port on the near side, regardless of wiring block.
●Indicate the total number of blocks designated in the required quantity at the right end of the table.
●Indicate the quantity for the required accessories.
●Indicate the mounting rail length. (Indicate only when a length other than the standard length is required. Indicate the integral multiple of 12.5)

## Obtaining the DIN rail length

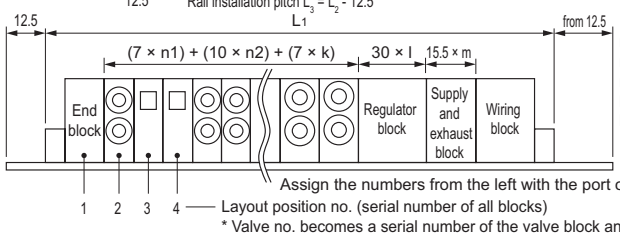
Obtain the mounting rail length and pitch based on the manifold length ($L_1$) with the following calculation formula.
The obtained rail length is the standard length and there is no need to indicate it in the specifications. Indicate the length in the specifications only when different from the standard length.

Manifold length $L_1$ = (Valve block 7 × □) + (Valve block 10 × □) + (Dummy block 7 × □) + (Supply and exhaust block 15.5 × □) + (Regulator block 30 × □) + (Wiring block (including end block) □) ..... Select from the right table.

Installation rail length $L_2 = L_2' \times 12.5$

$L_2' = \frac{L_1 + 25}{12.5}$ →Round up decimal point and use integer number.

Rail installation pitch $L_3 = L_2 - 12.5$

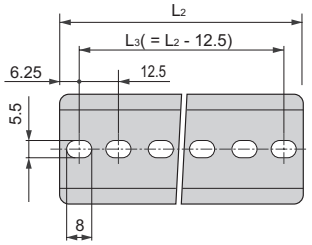



Assign the numbers from the left with the port on the near side.

Layout position no. (serial number of all blocks)

* Valve no. becomes a serial number of the valve block and the dummy block, which is different from the layout position no.

n1: 7 mm width valve block no.
n2: 10 mm width valve block no.
m: supply and exhaust block no.
l: regulator block no.
k: dummy block no.




### Wiring block width Dimensions

| Wiring block | | Dimensions (mm) |
|---|---|---|
| T30/T30R | Left or right wiring block | 42.4 |
| T5*/T5*R | Left or right wiring block | 42.4 |
| TM* | Intermediate wiring block | 43.2 |
| TM*×2 | Intermediate wiring block x 2 | 55.2 |
| TM*+T3*/T5* | Intermediate wiring block+Left or right wiring block | 54.4 |
| T30/T5*+T30R/T5*R | Left wiring block+ Right wiring block | 53.6 |
| T6* | Serial transmission slave unit | 115.6 |
| T7* | Serial transmission slave unit (close contact type) | 73.1 |

# MN3E/MN4E series manifold specifications

●Contact ● Quantity Set ● Request date: / /

Issue / /

| Slip No. | Order No. |
|---|---|

Your company name

Contact

Order no.

●Manifold model no. (When mixing the dummy block, select mix manifold and fill in the station no. including dummy block.)

7/10 mm-pitch Mix manifold

**MN □ EX0 – □ – □ – □ □ □ □ – □ – □** (Refer to page 206 for manifold model no.)

70 mm-pitch Manifold

**MN □ E00 □ 0 – □ – □ – □ □ □ □ – □ – □** (Refer to pages 180 and 182 for manifold model no.)

10 mm-pitch Manifold

**MN □ E0 □ 0 – □ – □ – □ □ □ □ – □ – □** (Refer to pages 194 and 196 for manifold model no.)

Ⓐ Model no. Ⓑ Solenoid position classification Ⓒ Port size Ⓓ Pressure adjustment function Ⓔ Manual override Ⓕ Wiring method Ⓖ Terminal and connector pin array Ⓗ Option Ⓘ Station no. Ⓙ Voltage

•When completing this form, select the type from the "Block configurations" (page 208).
•Complete from the left end, with the piping port on the near side, regardless of the wiring block method.

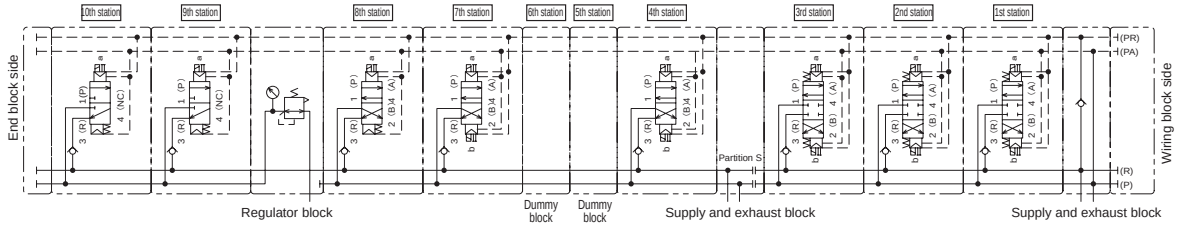
| Part name | Model no. | Layout 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 | Quantity |
|---|---|---|---|
| Wiring block | N4E0-T □ | | |
| | N4E0-T □ | | |
| Arrangement assigned when individual wiring mixed(can be assigned only 10 mm)* | | | |
| Valve block 7 mm pitch | N□E00□0-□ | | |
| | N□E00□0-□ | | |
| | N□E00□0-□ | | |
| | N□E00□0-□ | | |
| Valve block 10 mm pitch | N□ E0□0-□ | | |
| | N□ E0□0-□ | | |
| | N□ E0□0-□ | | |
| | N□ E0□0-□ | | |
| Dummy block | N4E0-MPS | | |
| | N4E0-MPD | | |
| Supply and exhaust block | N4E0-Q□-□-□-□ | | |
| | N4E0-Q□-□-□-□ | | |
| | N4E0-Q□-□-□-□ | | |
| Regulator block | N4E0-R□-□-□ | | |
| | N4E0-R□-□-□ | | |
| | N4E0-R□-□-□ | | |
| End block | N4E0-E □ | | |
| | N4E0-E □ | | |
| Mounting rail | L2 = □ (Fill in the integral multiple of 12.5.) | | |

Accessories

| Blanking plug (push-in fitting) | | | | | | | | | | | | Silencer | | | | Push-in fitting tube remover □ not required (check) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ø1.8 | | ø3 | | ø4 | | ø6 | | ø8 | | ø6 | | ø8 | | | | |
| Barbed thread fitting for ø1.8 tube (10 pcs./1 set) | | | | | | | | | | | | | | | | Cable with D-sub connector |
| N4E0-JOINT-PTN2-M3 | | N4E0-JOINT-PTN2-M5 | | | | N4E0-JOINT-PTN2-6 | | | | | | | | | | N4T-CABLE-D0□-□ |
| Socket assembly for electric supply (for individual wiring and AUX) | | | | | | | | | | | | | | | | Connector for wiring block TM1 |
| N4E0-SOCKET-□-□ | | | | | | 3M0-SOCKET-SET | | | | | | | | | | N4E0-TM-CONNECTOR |

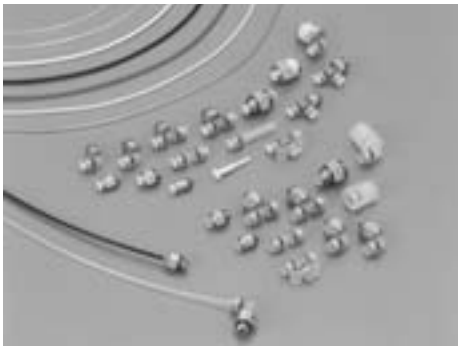
*** The total number of individual wiring point is 16 points for the wiring method T** and individual wiring mixed method.**
**If TX is selected for the wiring connection method, individual wiring cannot be selected.**

**Reference circuit diagram**
**This is the circuit diagram from the manifold (example) on the previous page. Use this for reference.**



# Push-in fittings for fiber tube®

(Fitting/Tube)



(Catalog No. CC-784 (Jpn.))

## This new ultra-thin tube greatly improves usability with enlarged bore size and push-in fitting.

- New structure of outer diameter grasping type incorporated
- Bore size enlarged from ø1.0 to ø1.2, increasing flow by 3-fold
- Small tube piping volume conserves energy and space
- Series for clean models uses highly corrosion-resistant material
- Push-in attachable/detachable fitting, standard PG series, and clean CG series available

### Specifications

- Fiber tube

| Descriptions | | Antistatic type UP-9402-F1 | Clean type EH-5802 |
|---|---|---|---|
| Working fluid | | Compressed air (Note 1) | |
| Working pressure range (20°C) (Note 2) | | -100 kPa to 0.8 MPa | -100 kPa to 1.0 MPa |
| Ambient temperature range | °C | -10 to 60 (no freezing) | |
| O.D. x I.D. | mm | ø1.8 x ø1.2 | |
| Inner diameter accuracy | mm | ±0.1 | |
| Outer diameter accuracy | mm | ±0.1 | |
| Durometer hardness | | HDA 94 | HDD 58 |
| Min. bending radius (JIS B 8381) | mm | 4 | 5 |
| Min. installation radius | mm | 4 | 7 |
| Burst pressure (20°C) | MPa | 2.5 | 3.8 |
| Volume resistivity | Ω•cm | $10^{10}$ to $10^{12}$ | - |
| Material | | Antistatic urethane | Special polyolefin |
| Color | | Black, white, clear, clear blue, clear green, yellow (Note 3), red (Note 3) | Black, transparent |

Note 1: Contact CKD for other working fluids.
Note 2: Refer to "Relation of working temperature and pressure (constant vacuum break)" graph for details on working pressure range.
Note 3: Yellow and red are available as customized orders.

- Push-in fitting (Standard type)

| Descriptions | | PG Series |
|---|---|---|
| Working fluid | | Compressed air (Note 1) |
| Working pressure range | | -100 kPa to 1.0 MPa |
| Ambient temperature range | °C | -10 to 60 (no freezing) |
| Applicable tube | | Fiber tube (UP-9402-F1, EH-5802) Note 2 |

Note 1: Contact CKD for other working fluids.
Note 2: Fiber tube for barbed fitting (UP-9102-F1) cannot be used.
Note 3: This joint is sold as a set of 10 pieces.

- Push-in fitting (Clean type)

| Descriptions | | CG Series |
|---|---|---|
| Working fluid | | Clean air (Note 1) |
| Working pressure range | | -100 kPa to 1.0 MPa |
| Ambient temperature range | °C | -10 to 60 (no freezing) |
| Lubricant | | Oil-prohibition |
| Applicable tube | | Fiber tube (UP-9402-F1, EH-5802) Note 2 |

Note 1: This fitting uses rubber EPDM, and cannot be applicable to fluids containing mineral oils. Contact CKD when using other working fluids.
Note 2: Fiber tube for barbed fitting (UP-9102-F1) cannot be used.
Note 3: Sold in single piece.

# EV0000 Series

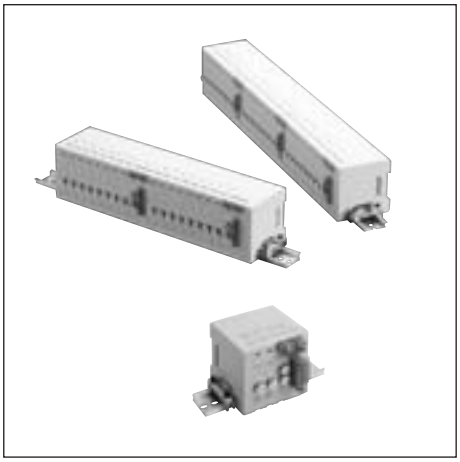
## High precision air pressure proportional pilot valve enabling ultimate space saving of device.

- Compact and light weight
- Non-bleeding
- High precision and quick response
- Various input signals
- Easy wiring
- Pressure monitor enabled
- Equivalent to protective structure IP64
- Two systems of piping port
- Common exhaust

### Specifications

| Descriptions | | EV0100 | EV0500 |
|---|---|---|---|
| Working fluid | | Clean compressed air | |
| Max. working pressure | | 200 kPa | 0.7 MPa |
| Min. working pressure | | Control pressure + Max. control pressure x 0.1 | |
| Withstanding pressure | (Inlet side) | 300 kPa | 1.05 MPa |
| | (Output side) | 150 kPa | 0.75 MPa |
| Control pressure range | | 0 to 98 kPa | 0 to 0.49 MPa |
| Hysteresis | | 1% F.S. or less | |
| Linearity | | ±0.5% F.S. or less | |
| Resolution | | 0.5% F.S. or less | |
| Repeatability | | 0.5% F.S. or less | |
| Maximum flow rate (ANR) | | 2 ℓ/min | 6 ℓ/min |
| Step response | (Loadless) | 0.2 sec. or lower | |
| | (15 cm³ load) | 0.5 sec. or lower | |

# MEVT Series



## Thin electro pneumatic regulator, manifold type to meet PC control and reduced wiring

- Thin type of 14 mm, light weight of 80 g.
- Support network.
- Display the operation status with two colors.
- Easy piping and wiring tasks.
- Two installation directions.
- High precision and quick response.
- Eco-friendly product.

### Specifications

| Descriptions | | EVT100 | EVT500 |
|---|---|---|---|
| Working fluid | | Clean compressed air | |
| Max. working pressure | | 200 kPa | 0.7 MPa |
| Min. working pressure | | Control pressure + Max. control pressure x 0.1 | |
| Withstanding pressure | (Inlet side) | 300 kPa | 1.05 MPa |
| | (Output side) | 150 kPa | 0.75 MPa |
| Control pressure range | | 0 to 100kPa | 0 to 0.5 MPa |
| Hysteresis | | 0.4% F.S. or less | |
| Linearity | | ±0.5% F.S. or less | |
| Resolution | | 0.1% F.S. or less | |
| Repeatability | | 0.3% F.S. or less | |
| Maximum flow rate (ANR) | | 2 ℓ/min | 6 ℓ/min |
| Step response | (Loadless) | 0.1 sec. or lower | |
| | (15 cm³ load) | 0.5 sec. or lower | |

# EVD Series

## Digital electro-pneumatic regulator pursuing compact, high-function and user-friendliness

- Outstanding user-friendliness and installation performance
  - Mounted digital display, which allows us to see control status in one glance
  - Provided parallel input type as standard
  - Compact design
  - Enabled two connection directions with D-sub connector method
  - Enabled module connection
- High-function with microcomputer incorporated
  - Error display function
  - Zero/span adjustment function
  - Direct memory function
  - Switch output function
- Enabled highly accurate and quick response pressure control
- Eco-friendly design
  - Lead free and PVC free
  - Materials are indicated
  - Energy-saving with auto power off function

### Specifications

●EVD-1000

| Descriptions | | EVD-1100-*08□ Analog type (*...0/1/2) | EVD-1100/ P08□ Parallel type | EVD-1500/ *08□ Analog type (*...0/1/2) | EVD-1500/ P08□ Parallel type | EVD-1900/ *08□ Analog type (*...0/1/2) | EVD-1900/ P08□ Parallel type |
|---|---|---|---|---|---|---|---|
| Working fluid | | Clean compressed air (equivalent to ISO 1.3.2) | | | | | |
| Max. working pressure | | 160 kPa | | 700 kPa | | 1000 kPa | |
| Min. working pressure | | Control pressure+50 kPa | | Control pressure+100 kPa | | | |
| Withstanding pressure | (Inlet side) | 240 kPa | | 1050 kPa | | 1500 kPa | |
| | (Output side) | 150 kPa | | 750 kPa | | 1350 kPa | |
| Hysteresis | | 0.5% F.S. or less | | | | | |
| Linearity | | ±0.3% F.S. or less | | | | | |
| Resolution | | 0.2% F.S. or less | | | | | |
| Repeatability | | 0.3% F.S. or less | | | | | |
| Maximum flow rate (ANR) | | 60 ℓ/min | | 400 ℓ/min | | | |
| Step response | (Loadless) | 0.2 sec. or less | | | | | |

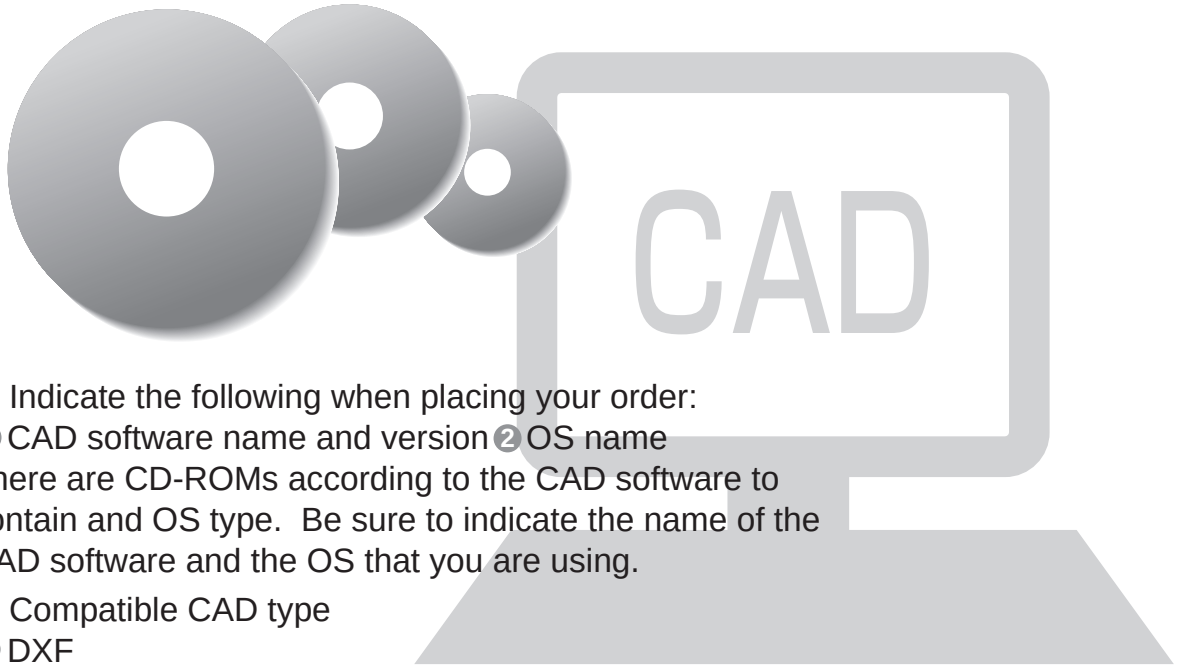
●EVD-3000

| Descriptions | | EVD-3100/ *08□ EVD-3100/ *10□ Analog type (*...0/1/2) | EVD-3100/ P08□ EVD-3100/ P10□ Parallel type | EVD-3500/ *08□ EVD-3500/ *10□ Analog type (*...0/1/2) | EVD-3500/ P08□ EVD-3500/ P10□ Parallel type | EVD-3900/ *08□ EVD-3900/ *10□ Analog type (*...0/1/2) | EVD-3900/ P08□ EVD-3900/ P10□ Parallel type |
|---|---|---|---|---|---|---|---|
| Working fluid | | Clean compressed air (equivalent to ISO 1.3.2) | | | | | |
| Max. working pressure | | 160 kPa | | 700 kPa | | 1000 kPa | |
| Min. working pressure | | Control pressure + 50 kPa | | Control pressure + 100 kPa | | | |
| Withstanding pressure | (Inlet side) | 240 kPa | | 1050 kPa | | 1500 kPa | |
| | (Output side) | 150 kPa | | 750 kPa | | 1350 kPa | |
| Hysteresis | | 0.5% F.S. or less | | | | | |
| Linearity | | ±0.3% F.S. or less | | | | | |
| Resolution | | 0.2% F.S. or less | | | | | |
| Repeatability | | 0.3% F.S. or less | | | | | |
| Maximum flow rate (ANR) | | 700 ℓ/min | | 1500 ℓ/min | | | |
| Step response | (Loadless) | 0.2 sec. or less | | | | | |

# CKD Electronic Catalog Guide (CAD DATA)

## Using and ordering the Electronic Catalog

The CKD Electronic Catalog is a collection of CAD drawings including dimensions (CAD data) related to pneumatic components and control components. This data is provided on CD-ROM to aid in CAD design.
Please contact your CKD sales person or your nearest sales office for details of this CD.




■ Indicate the following when placing your order:
❶ CAD software name and version ❷ OS name
There are CD-ROMs according to the CAD software to contain and OS type. Be sure to indicate the name of the CAD software and the OS that you are using.

■ Compatible CAD type
❶ DXF

### Downloading from the Internet Web site:

http://www.ckd.co.jp/english/

DXF data can be used from the

CKD website Component Products > Product guide general catalog

## CKD Electronic Catalog contents (CAD DATA)

CAD DATA were contained in CD ROM "CKD Dagital Catalog Ver. 5".

# How to use Electronic Catalog

### ■ Operating the CAD

Contact each CAD maker for details on operaling CAD

- How to open file
- How to create drawing
- Usable data format

### ■ Confirmation before use

Confirm "README.txt" stored in CD-ROM CKD electronic catalog for

- How to use
- Precautions
- Version information

### ■ Electronic catalog file list

Refer to

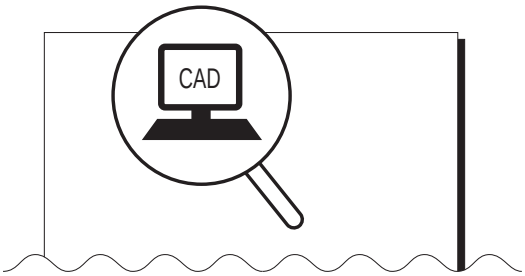
- List.xls

for the latest file list of the electronic catalog file list. Contained in CD-ROM.

# Searching Electronic Catalog file name

## 1 Searching from this catalog

CAD data is available for items with a CAD mark.

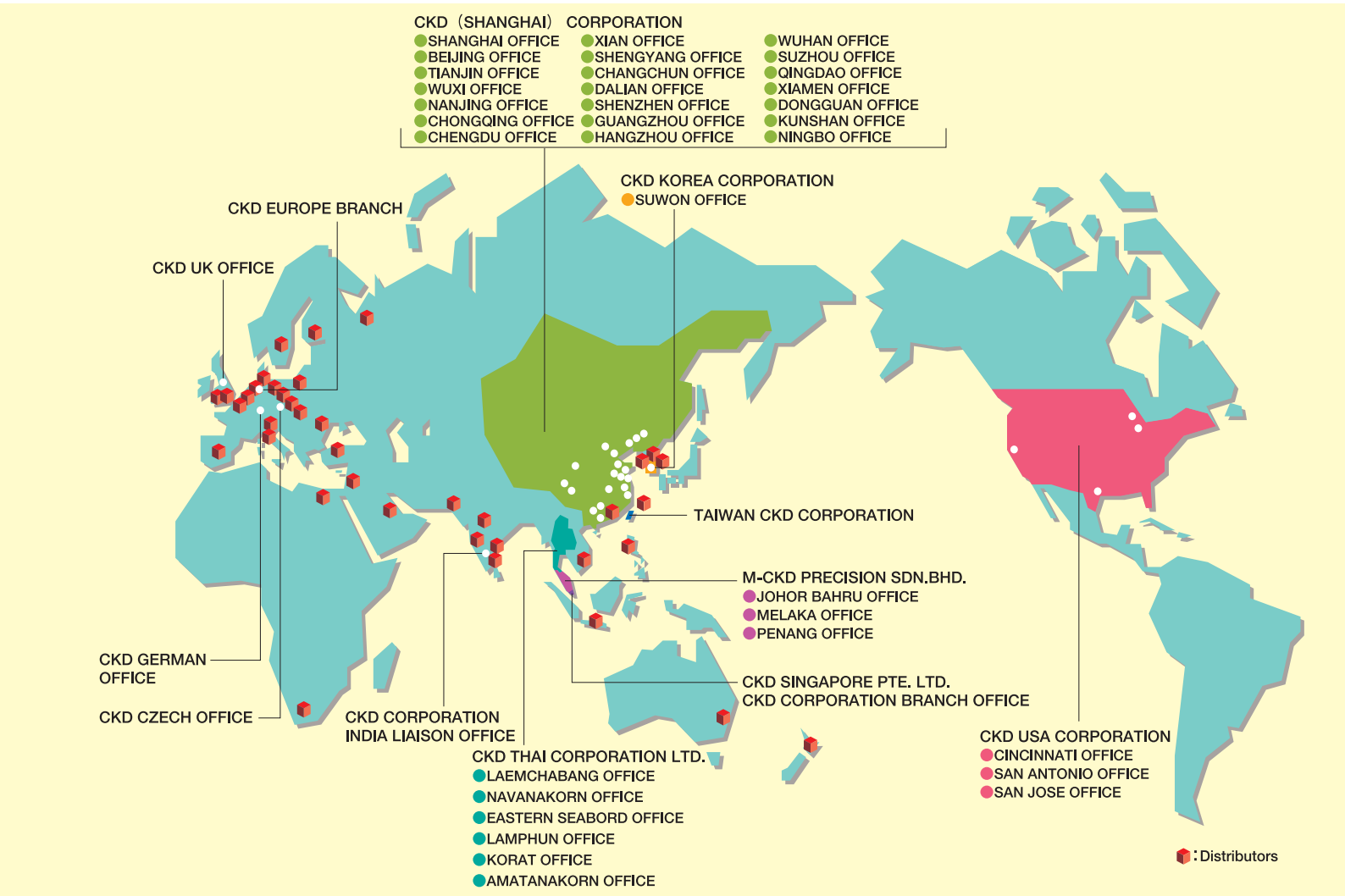



## 2 Searching from CD-ROM

When the CD-ROM is inserted in the drive, "CAD Data Search Software" starts and the search screen on the left opens. (*1) Required CAD data is searched for and saved in the hard disk.

*1: If the automatic start function is not set, start up "Kensaku.exe" in the CD-ROM. This search software need not be installed.

# WORLD-NETWORK

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