CKD

Components for Pure water/Chemical liquids

Wet Fine Components General Catalog

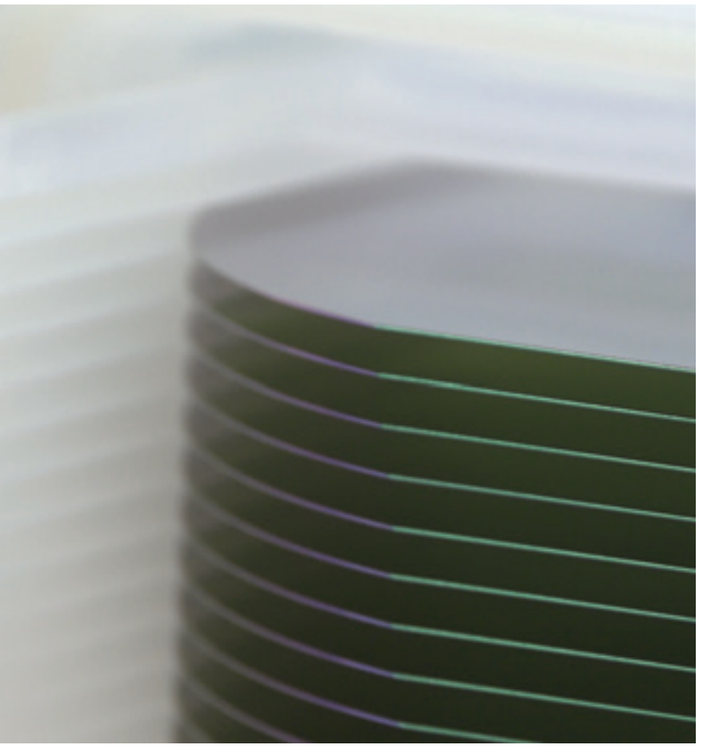
Chemical Processes Components

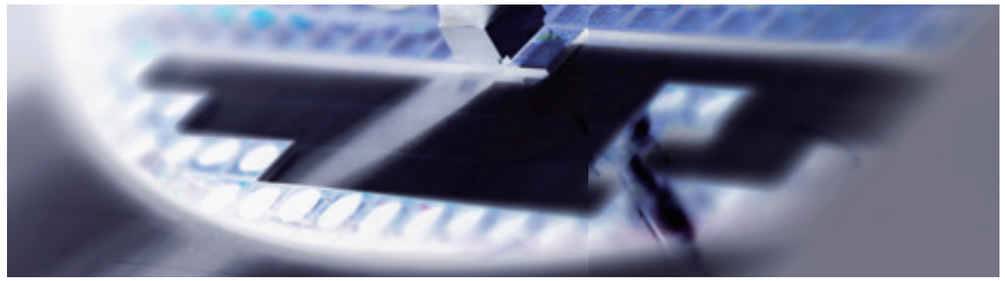
CKD Corporation

CB-031A 15

Pioneering the future of process control.

Wet Fine system ideal for semiconductor/liquid crystal manufacturing processes using pure water, chemical liquids, etc.





Ultra Fine concept

Introducing an all-clean process for essential factors of product development from design to evaluation, manufacturing and production.

We carry out thorough cleanliness control based on CKD's unique concept.

Variety of fitting variations

Fittings of 6 models by 4 manufacturers can be integrated for various equipment and applications.

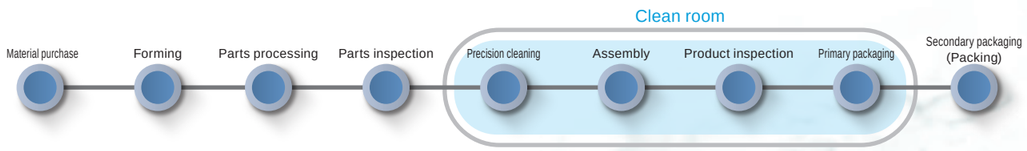
Fitting system	Super type pillar fitting	Super 300 Pillar fitting P Series	F-LOCK 20A Series fitting	F-LOCK 60 Series fitting	Final Lock fitting	Flaretek fitting
Manufacturer	Japan Pillar Industry Co., Ltd.	Japan Pillar Industry Co., Ltd.	Flowell Co., Ltd.	Flowell Co., Ltd.	Kurabo Industries Co., Ltd..	Entegris,Inc.

A consistent quality control system that ensures high cleanliness, including parts and products.

In-house production system

In every production process from processing to assembly, inspection and packaging, we have established a completely consistent quality control system not only at the product level but down to the parts level. For cleanliness, which is an important point of quality, we have incorporated in-house standards such as quantities of chemical liquid residue, organic carbon content, specific oil content and other impurity standards, and established solid quality.

Production process example



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Series variation

Category	Photo	Series	Features	Model No.	
Air operated Valve		Part3R Series	New standard of air operated valve for chemical liquids. A high end product that supports a wide range of pressure, temperature and fluid conditions.	AMD**3R (2-port)	
				AMG**3R (3-port) (*1)	
				GAMD**3R (Manifold) (*1)	
		Part2 Series	Standard of air operated valve for chemical liquids. This series has the most abundant connection options for molded parts.	AMD**2 (2-port)	
				AMG**2 (3-port) (*1)	
				GAMD**2 (Manifold) (*1)	
				GAMD0*2A (Split manifold) (*1)	
		Part1 Series (Compact)	Basic air operated valve for chemical liquids for coater/developer.	AMDZ*, AMD0* (2-port)	
				AMGZ0, AMG00 (3-port)	
		Liquid supply	A valve designed to support high pressure and high back pressure in chemical liquid supply facilities and the like in semiconductor manufacturing plants.	AMD*1H	
		Metal-free	A valve designed to support strong acid (hydrochloric acid, hydrofluoric acid) lines in chemical liquid supply facilities and the like in semiconductor manufacturing plants.	AMD*1M	
		Large bore size	1.5″ large diameter air operated valve (machined body).	LYX-1380	
		Polyvinyl chloride type	Middle range valve that can be used for pure water control in FPD with PVC body and solar cell production lines.	AMD*1L	
		Liquid discharge	An air operated valve that can instantaneously discharge a large amount of waste fluid.	LYX-0877 to 0880, LYX-1451 to 1454	
Manual Valve		Part3RN Series	New standard of manual valve for chemical liquids. A high-end product corresponding to a variety of pressure/temperature/fluid conditions. Improved reliability with new mechanisms such as tightening prevention mechanism and malfunction prevention lock ring.	MMD*03RN (2-port)	
				GMMD*03RN (Manifold)	
		Part2 Series	Standard manual valve for chemical liquids. This series has the most abundant connection options for molded parts.	MMD*02 (2-port)	
				GMMD*02 (Manifold)	
		Liquid supply	A valve designed to support high pressure and high back pressure in chemical liquid supply facilities and the like in semiconductor manufacturing plants.	MMD*0H	
		Metal-free	A valve designed to support strong acid (hydrochloric acid, hydrofluoric acid) lines in chemical liquid supply facilities and the like in semiconductor manufacturing plants.	MMD*0M	
		Large bore size	1.5" large bore size (cutting body)	LYX-1381	

Category	Photo	Series	Features	Model No.	
Drip prevention Valve		Single unit	It has a compact structure that ensures draining and controls the drip prevention with high precision.	AMS	
		Air operated integrated	It has a compact structure that ensures draining and controls the drip prevention with high precision. An integrated type Air operated valve that's been downsized and reduces steps in piping.	AMDS	

Orifice Diameter	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1, 1/4"	1, 1/2"	1, 7/8"	3 mm	6 mm	8 mm	10 mm	12 mm	16 mm	20 mm	25 mm	30 mm	40 mm	50 mm	65 mm	75 mm	80 mm	100 mm	Super Type	Super 300	F-LOCK20	F-LOCK20A	F-LOCK60	Final Lock	Flaretek	PFA pipe for welding	Polyvinyl chloride union	Rc thread	SUS tube	Double barbed	JIS 5K flange	PVDV union fitting	coater/developer	Cleaning	Chemical liquid feed equipment	Listed page
	Connection size (tube outer diameter) (* PVC union, JIS 5K flange, PVDF union connection products have a nominal diameter)																								Connection														Applications (Semiconductor /FPD)			
2 to 20mm	●	●	●	●	●	●					●	●	●	●			●									●			●													2
3.5 to 20mm		●	●	●	●	●					●	●	●	●			●									●			●										●	●	●	22
3.5 to 20mm		●	●	●	●	●					●	●	●	●			●									●			●													34
3.5 to 20mm	●	●	●	●	●	●					●	●	●	●			●								●	●	●		●	●	●		●	●	●	●						48
6 to 20mm			●	●	●	●							●	●			●								●	●	●		●	●	●								●	●	●	74
6 to 20mm			●	●	●	●							●	●			●								●	●	●		●	●	●											82
6 mm		●	●	●							●	●	●	●											●																	90
2 to 4mm	●	●								●	●														●	●	●		●	●	●			●					●			100
2 to 4mm	●	●								●	●														●	●	●		●	●	●											104
10 to 25mm				●	●	●	●		●																	●					●	●									●	108
8 to 22mm			●	●	●	●							●	●			●									●														●	●	112
40 mm								●																		●															●	122
18 to 50mm															●	●	●	●	●	●													●						●	●		124
25 to 100mm																	●	●	●	●	●	●	●	●									●				●	●		●	●	132
8 to 20mm			●	●	●	●							●	●			●									●														●	●	140
8 to 20mm			●	●	●	●							●	●			●									●														●	●	144
6.3 to 20mm			●	●	●	●							●	●			●								●	●	●		●	●	●			●	●	●				●	●	148
6 to 20mm			●	●	●	●							●	●			●								●	●	●		●	●	●											162
10 to 25mm		●		●	●	●	●																			●					●	●									●	170
8 to 22mm			●	●	●	●							●	●			●									●														●	●	174
40 mm								●																		●															●	178

Drip Back Volume	1/8"	1/4"	3/8"	1/2"	3/4"	1"	3 mm	6 mm	8 mm	10 mm	12 mm	25 mm	Super Type	Super 300	F-LOCK20	F-LOCK20A	F-LOCK60	Final Lock	Flaretek	Rc thread	PVDV union fitting	Coater/Developer	Cleaning	Chemical liquid feed equipment	Listed page
	Connection size (tube outer diameter)												Connection									Applications			
$0.04cm^3$, $0.12cm^3$	●	●					●	●					●	●	●		●	●	●	●		●			182
$0.04cm^3$, $0.12cm^3$	●	●					●	●					●	●	●		●	●	●			●			186

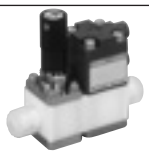
*1: The combination of actuations of the 3-port valve actuator differs depending on the model No. The following table shows the combinations of actuations of the actuator that can be selected for each model. (Refer to each product page for details such as how to select the model.)

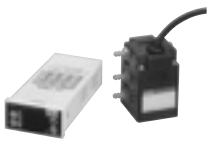
Model No. \ Actuator Actuation Combination	NC+NO	NC+NC	NO+NO	Double acting + Double acting
AMG**3R AMG**2 AMG**	●			
GAMD**3R GAMD**2		●	●	●
GAMD0*2A	●	●	●	●

●: Available

Series variation

Category	Photo	Series	Features	Model No.	
Regulator		Pilot operated	A regulator designed to stabilize the pressure fluctuation of chemical liquids and pure water supply parts using pilot air control.	PMP	
		Manual	A manual regulator for controlling the pressure of pure water, etc.	PYM/PMM	

Category	Photo	Series	Features	Model No.	
Flow rate adjustment Valve		Motorized	Motorized flow rate adjusting valve (needle valve). The set flow rate can be remotely adjusted.	MNV	
		Manual	Manual flow rate adjusting valve (needle valve).	FMD	
		Manual fine flow rate	Manual flow rate adjusting valve that can adjust ultra-low flow rates.	LYX-0961 LYX-0965	

Category	Photo	Features	Model No.	
Fine level Switch		Detects with high accuracy the level of fluids including pure water, acids, alkalis and solvents, and outputs electrical signals.	KML703	
			KML60	
			MXKML	
			KML50	
			MKML	

	Recommended Flow rate	Connection size (tube outer diameter) (* PVDF union connection products have nominal diameter)													Connection									Applications			Listed page
		1/8"	1/4"	3/8"	1/2"	3/4"	1"	3 mm	6 mm	8 mm	10 mm	12 mm	25 mm		Super Type	Super 300	F-LOCK20	F-LOCK20A	F-LOCK60	Final Lock	Flaretek	Rc thread	PVDV union fitting	Coater/Developer	Cleaning	Chemical liquid feed equipment	
	0.2 to 20 ℓ /min		●	●	●	●	●		●		●	●	●			●			●					●	●		192
	-	●	●	●						●	●		●		●	●	●		●	●	●	●	●	●			198

	Orifice size	Connection size (tube outer diameter)													Connection									Applications			Listed page
		1/8"	1/4"	3/8"	1/2"	3/4"	1"	3 mm	6 mm	8 mm	10 mm	12 mm	25 mm		Super Type	Super 300	F-LOCK20	F-LOCK20A	F-LOCK60	Final Lock	Flaretek	Rc thread	PVDV union fitting	Coater/Developer	Cleaning	Chemical liquid feed equipment	
	3.4 mm			●												●									●		206
	1.6mm, 3.5mm		●	●					●		●					●									●		208
	-	●						●							●	●	●		●			●		●	●		212

	Detection Point (Single unit)	Type	Repeatability	Applications			Listed page
				Coater/Developer	Cleaning	Chemical liquid feed equipment	
	8 points	Single unit	±3 mm				216
	4 points	Single unit	±10 mm				220
	4 points	Manifold	±10 mm		●		
	1 points	Single unit	±1 mm				224
	1 points	Manifold	±1 mm				

Safety Precautions

Be sure to read this section before use.

When designing and manufacturing equipment using CKD wet fine system products, the manufacturer is obligated to ensure that the safety of the mechanism, pneumatic control circuit and/or water control circuit and the system that runs the electrical controls are secured. It is important to select, use, handle and maintain CKD products appropriately to ensure their safe usage.
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.

2 Use this product in accordance with specifications.

This product must be used within its stated specifications. In addition, never modify or additionally machine this product.
This product is intended for use in general industrial machinery equipment or parts. It is not intended for use outdoors (except for products with outdoor specifications) or for use under the following conditions or environments. (Note that this product can be used when CKD is consulted prior to its usage and the customer consents to CKD product specifications. The customer should provide safety measures to avoid danger in the event of problems.)

❶ Use for applications requiring safety, including nuclear energy, railways, aircraft, marine vessels, vehicles, medical devices, devices or applications in contact with beverages or foodstuffs, amusement devices, emergency cutoff circuits, press machines, brake circuits, or safety devices or applications.
❷ Use for applications where life or assets could be significantly affected, and special safety measures are required.

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

ISO4414, JIS B 8370(Pneumatic fluid power - General rules and safety requirements for systems and their components)
JFPS2008 (Principles for pneumatic cylinder selection and use)
Including the High Pressure Gas Safety Act, Industrial Safety and Health Act, other safety rules, organization standards and regulations, etc.

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

❶ Inspect and service the machine and devices after confirming safety of all systems related to this product.
❷ Note that there may be hot or charged sections even after operation is stopped.
❸ 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.
❹ 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 the warnings and cautions on the following pages to prevent accidents.

■ Precautions are ranked as “DANGER”, “WARNING”, and “CAUTION” in this section.

DANGER: In the case where the product operation is mishandled and/or when the urgency of a dangerous situation is high, it may lead to fatalities or serious injuries.
WARNING: A dangerous situation may occur if handling is mistaken, leading to fatal or serious injuries.
CAUTION: A dangerous situation may occur if handling is mistaken, leading to minor injuries or property damage.

Note that some items indicated with “CAUTION” may lead to serious results depending on the conditions. All items contain important information and must be observed.

Warranty

1 Warranty period

The product specified herein is warranted for one and a half (1.5) years from the date of delivery to the location specified by the customer.

2 Warranty coverage

If the product specified herein fails for reasons attributable to CKD within the warranty period specified above, CKD will promptly provide a replacement for the faulty product or a part thereof or repair the faulty product at one of CKD's facilities free of charge.
However, following failures are excluded from this warranty:

1) Failure caused by handling or use of the product under conditions and in environments not conforming to those stated in the catalog, the Specifications, or the Instruction Manual.
2) Failure caused by use of the product exceeding its durability (cycles, distance, time, etc.) or caused by consumable parts.
3) Failure not caused by the product.
4) Failure caused by use not intended for the product.
5) Failure caused by modifications/alterations or repairs not carried out by CKD.
6) Failure caused by reasons unforeseen at the level of technology available at the time of delivery.
7) Failure caused by acts of nature and disasters beyond control of CKD.

The warranty stated herein covers only the delivered product itself. Any loss or damage induced by failure of the delivered product is excluded from this warranty.
Note: For details on the durability and consumable parts, contact your nearest CKD sales office.

3 Compatibility check

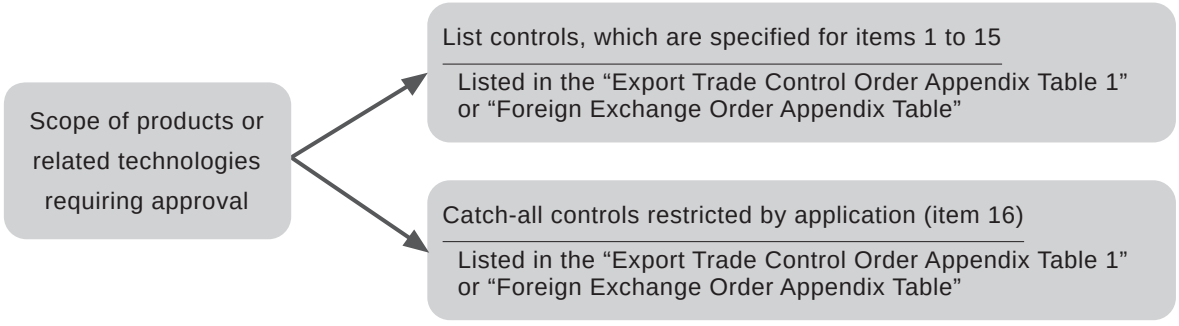
The customer is responsible for confirming the compatibility of CKD products with the customer's systems, machines and equipment.

Precautions for export

1 Security Trade Control

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

- List controls, which are specified for items 1 to 15
- "Catch-all controls" that do not indicate specifications by item, but restrict by application (Section 16)



An application for approval is received by the Security Export Licensing Division of the Ministry of Economy, Trade and Industry or local bureaus of the Ministry of Economy, Trade and Industry.

2 Products and related technologies in this catalog

The products and related technologies in this catalog are subject to the list controls of the Foreign Exchange and Foreign Trade Control Law.
For information on the products or related technologies subject to the list controls of the Foreign Exchange and Foreign Trade Control Law, refer to the applicable product page.
If exporting or providing products or related technologies that fall under the list controls, be sure to obtain export permission under the Foreign Exchange and Foreign Trade Control Law.
In addition, when exporting or providing the 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 catalog.

Fine System Components

Safety Precautions

Be sure to read this section before use.

Design/selection

1. Checking the specifications

WARNING

■ This product cannot be used as an emergency shut-off valve.
The valves listed in this catalog are not designed as valves to ensure safety such as emergency cutoff valves. When using in such a system, always take separate measures that will ensure safety.

■ Incorrect equipment selection and handling can cause problems not only in this product, but also to your system. For equipment selection and handling, it is the customer's responsibility to check the specifications of this product and the compatibility with your system before use.

■ Working fluids
For information on the compatibility of product materials, working fluids, and ambient atmospheres, refer to the compatibility checklist on Intro Page 17 as a basic reference. For fluids not listed in the checklist or new fluids (including different concentration levels), contact and inquire with CKD beforehand. The PYM and PMM Series cannot be used for corrosive fluids. The PMM Series cannot be used for solvents or alcohol.

■ Fluid temperature
Use within the specified working fluid temperature range.

■ Fluid pressure range
Use the products within the fluid pressure given in the specifications listed in this catalog.

■ Ambient environment
(1) Check the compatibility of product component materials and ambient atmosphere. (Do not use this product in a corrosive or explosive atmosphere.)
(2) Do not allow fluid to come into contact with the product body.
(3) Use this product within the ambient temperature range.
(4) Do not use this product outdoors or in a place where it may be subjected to vibration or impact, or near a heat source.

2. Design

WARNING

■ When using a working fluid that may be hazardous to the human body, isolate the valve so that no one can approach it.

■ Liquid ring
When the valve opens and closes, the diaphragm moves up and down, which accordingly causes the flow path capacity to change inside the valve. For this reason, as the fluid is an incompressible fluid (liquid), extreme pressures will be created in the valve when operating under conditions that seal the fluid in the valve (liquid ring). In this case, install a release valve on the primary or secondary side of the valve, preventing a liquid ring circuit from forming.

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

■ The Rc thread is piped according to "For Rc threads" on the following page (1), but the screw-in part may leak due to thermal cycling. When using the product under these conditions, select the integrated fitting type.

3. With sensor option

WARNING

■ Application, load current, voltage, temperature, impact, environment, etc., outside the specifications will result in damage or operation faults. Use the device as instructed in the specifications.

■ Never use this product in an explosive gas atmosphere. Option with sensor does not have an explosive-proof structure. Never use in an explosive gas atmosphere as explosions or fires could result.

■ It cannot be used in high steam and dusty environments or in direct contact with water, chemicals, etc., or in atmospheres of corrosive gases.

■ Take care when using this product for an interlock circuit.
When using the option with sensor for an interlock signal requiring high reliability, provide a double interlock by installing a mechanical protective function or other sensor as a guard if problems occur. Regularly inspect and confirm that the interlock activates correctly.

■ Pay attention to the contact capacity.
Do not use a load that exceeds the sensor's max. contact capacity. This may lead to failure.

■ Pay attention to the protection circuit.
- When an inductive load (relay or solenoid valve) is connected, a surge voltage is generated when the sensor is turned OFF. Provide a protection circuit.
- When a capacious load (capacitor) is connected, starting current is generated when the sensor is turned ON. Provide a protection circuit.
- If the wiring length increases, the wiring capacity will be reached and a rush current will occur, damaging the sensor or shortening the service life. Provide a protection circuit.

■ Do not use this product in surge generating areas.
If there are devices and components (solenoid lifters, high frequency induction furnace, motors, etc.) around the sensor that generate a large surge, consider surge protection of the source as it may lead to deterioration or damage of the sensor internal circuit element.

CAUTION

■ Be careful of the internal voltage drop caused by serial connection.
- When serially connecting several sensors, the sensor voltage drop is the total voltage drop of all connected sensors. Check load specifications and determine the number of connections so as not to exceed the maximum load current of the sensor.

Mounting, installation and adjustment

1. Mounting

⚠ WARNING

■ Incorrect mounting or piping will result in product trouble, may cause trouble in the user's system, and may result in death or serious injury. The user is responsible for making sure that the operator has read the instruction manual and fully comprehends the system, fluid characteristics, compatibility between the fluid and related products, and other safety-related information.

⚠ CAUTION

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

2. Piping

⚠ WARNING

■ Always flush the piping before installing the valve. Debris or foreign matter in the fluid may prevent the valve from functioning correctly. When there is contamination, install a filter on the primary side of the valve according to the circuit used.

■ For products that have an arrow displayed, ensure that the piping is performed so that the flow of the fluid is consistent with the direction of the arrow.

■ When piping, do not apply tension, compression, bending or other forces to the valve body from the piping.

■ For NC and NO, ports that are not pressurized with operating pressure should be open to the atmosphere. If direct intake and exhaust from the valve should be avoided due to reasons such as ambient atmospheric conditions or airborne dirt, remove the set screw and install piping in order to allow intake and exhaust elsewhere as preferable.

■ Use the driving solenoid valve connected to the drive unit according to the specifications or applications.

⚠ CAUTION

■ For information on PFA fitting tubes, refer to the latest instruction manuals issued by fitting manufacturers and install accordingly. Since fitting installation requires dedicated installation jigs, contact fitting manufacturers separately.
Distance to adjacent fitting is short for AMG, GAMD, and GMMD. Note that installation may be difficult with ordinary tools. Contact CKD as fitting manufacturers' dedicated installation jigs may not be usable. (Super 300 pillar fitting, Final Lock fitting)

■ When installing the union fitting, make sure that the O-ring is inserted in the groove of the body and firmly tighten until the O ring collapses. If it is not securely tightened, fluid may leak outside, which could be dangerous.

■ The PFA for welding pipes must be welded using the PFAWork with an expert in pipe welding.

■ When installing piping, avoid any application of stress on the valve body, such as bending, tension, or compression. Also, make sure that the pipes' support position and method do not produce piping load on the valve.

■ Fix the equipment to the mounting plate in addition to using fittings as support when installing a valve.

■ To install the Rc thread section, follow the procedure below.

(1) For Rc threads

Wind PTFE seal tape three or four times around a fitting compliant to a JIS B 0203 pipe taper thread.
Tighten at 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) Operating port

As port cracking and screw damage may result, tighten with 0.4 to 0.6N•m.
For AMD3/4/5*2, AMG3/4/502 or GAMD3/4/5*2, when using metal and PPS fittings, select a model with reinforcing ring (refer to applicable model pages). Do not use metal fittings for AMD4/5/61H and AMD3/51M.

Mounting, installation and adjustment

3. With sensor option

⚠ CAUTION

■ Do not drop or apply impact.
Do not drop, bump or apply excessive impact when handling. Even if the body is not damaged, sensor components could break or malfunction.

■ Do not carry the valve body by the sensor's lead wire.
Never do this: it not only causes disconnection of lead wires, but since stress is applied to the internal sensor, it may also damage the sensor internal element.

■ Do not wire together with power lines or high voltage lines.
Avoid the use of parallel wiring or wiring in the same conduit as that of power lines or high voltage lines. The control circuit containing the sensor could malfunction due to noise.

■ Do not short-circuit the load.
If turned ON in a state of load short-circuit, excess current will flow and the sensor will be damaged.

■ Pay attention to the lead wire connection.
Turn OFF power to the device in the electric circuit to be connected before starting wiring. If operated while the power is turned ON, it may cause accidents due to electric shock or unpredicted operation.

■ Check the power supply fluctuations so that the power supply input does not exceed the rating.

■ When using a commercially available switching regulator on the power supply, be sure to ground the power supply frame ground (F.G.) terminal.

■ When using a component (switching regulator, inverter motor, etc.) that could generate noise around the component, be sure to ground the sensor frame ground (F.G.) terminal.

4. Electric needle valve MNV series

⚠ WARNING

■ Note that the product surface will be hot when used under high temperature conditions. Touching it directly may result in burns.

■ When the valve operates, a tiny amount of permeated gas from the chemical liquid will be released though the vent hole on the side of the cover. Do not put your face or hands near the vent hole. When touching the valve, use corrosion-resistant gloves and do not touch with bare hands.

Use/maintenance

1. Before use

⚠ WARNING

- Use this product under the max. working pressure and max. working pressure range.

⚠ CAUTION

- Do not disassemble.
- Do not apply strong impact to the product by dropping it, etc. This may cause malfunction or damage to the product.
- For information on the compatibility of product materials, working fluids, and ambient atmospheres, refer to the compatibility checklist on Intro Page 17 as a basic reference. For fluids not listed in the checklist or new fluids (including different concentration levels), contact and inquire with CKD beforehand.
  - Fluids that contain particles, such as slurry and UV curing agent, or could solidify or jell may affect performance.
  - If the fluid is highly absorbable, such as liquid containing a surfactant or stripping solution, the fluid may permeate through the parts.

  Conduct periodic inspections, and if there is any abnormality, take necessary measures such as replacing the parts.
- When using gases such as N_2 gas and air, valve seat leakage up to 1cm3/min (at pneumatic pressure) may occur.
- Rapid changes in fluid temperature may cause the valve seat to warp unevenly, leading to valve seat leakage.
- As for operating air, use air or inert gas passed through a filter with a degree of filtration of 5 μm or more.
- Since it is precision cleaned, clean packed and delivered assuming installation in a clean room, handle with care.
- Do not overly tighten the flow rate/bypass adjustment knob.
- Do not use valves as footing or place any heavy objects on top of the valves.
- If the product has been out of use for a long period, perform a test run before starting the actual operation.
- The valve operating time may change due to the piping conditions, pressure conditions, operation intervals and the like of the operating air. Be sure to confirm that there are no problems before using the valve after it is installed on the actual machine.
- Turbulent flow occurs on the secondary side of the valve. When installing a device that requires laminar flow, e.g. a flow rate meter, on the secondary side of the valve, make sure to keep enough distance between the valve and the device so that the device is not affected by turbulent flow.
- Never attempt to disassemble the product. It is very dangerous, as some products include high-load springs.
- Do not allow fluid to come into contact with the product body.
- Static electricity

  Fluororesin is easily charged and becomes further charged by flowing gas or liquids. As static electricity may cause external leakage or ignition, be sure to take measures to remove static electricity to the extent possible.

2. With sensor option

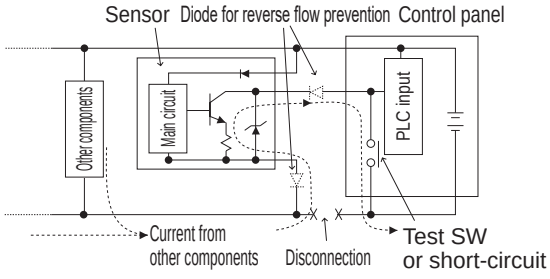
⚠ WARNING

- Do not apply overcurrent.

  If overcurrent flows to the sensor due to a load short-circuit, etc., the sensor will be damaged with a risk of ignition. Provide an overcurrent protection circuit, such as a fuse, for the output wire and power cable as needed.

⚠ CAUTION

- Pay attention to reverse currents caused by disconnected wires and wiring resistance.
  - When other Components, including a sensor, are connected to the same power supply as the sensor, and the output wire and power cable negative (-) side are short-circuited to check the operation of the control panel input unit, or if the power cable negative (-) side is disconnected, reverse current could flow to the sensor's output circuit and cause damage.



  - Take the following measures to prevent damage caused by reverse current:

(1) Avoid centralizing current at the power cable, especially a negative power cable, and use as thick a cable as possible.
(2) Sensorlimit the number of components connected to the same power supply as
(3) SensorInsert a diode parallel to the output line to prevent reverse current.
(4) SensorInsert a diode parallel to the power cable's negative (-) side to prevent reverse current.

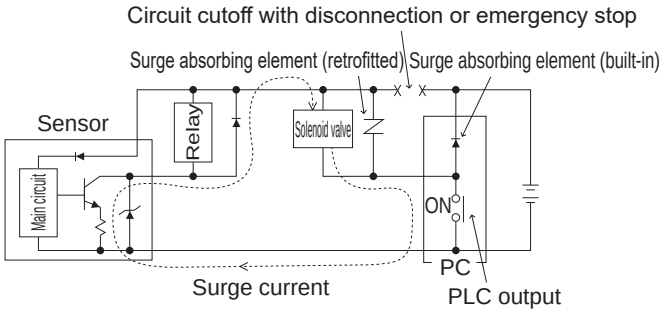
Safety Precautions

Be sure to read this section before use.

Use/maintenance

■ Pay attention to surge current flow-around.

●When sensor power is shared with an inductive load that generates surges, such as a solenoid valve or relay, if the circuit is cut off while the inductive load is functioning, surge current could enter the output circuit and cause damage depending on where the surge absorbing element is installed.



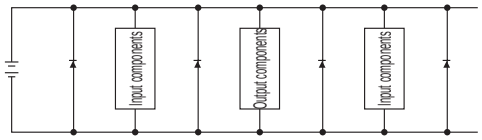
●Take the measures below to prevent damage from sneak surge current.

Output system comprising the inductive load, such as the solenoid valve and relay, andSensorand other power supplies for the input system must be separated.

(2)If a separate power supply cannot be used, directly install a surge absorption element for all inductive loads. Consider that the surge absorption element connected to the PLC, etc., protects only the individual device.

(3)SensorInsert a diode parallel to the output line to prevent reverse current.

(4)Connect a surge absorption element to places on the power wiring shown in the figure below, as a measure against disconnections in unspecified areas.



When devices are connected to a connector, the output circuit could be damaged by the above if the connector is disconnected while power is ON. Turn power OFF before connecting or disconnecting the connector.

3. Air operated manual valve for chemical liquids AMD/MMD Series

⚠ CAUTION

■ For the AMD Series with flow rate adjustment and MMD Series, make sure to turn the adjusting knob open beyond the specified dial position from the fully closed state to ensure appropriate setting. If used below this level, vibration or flow rate fluctuation may occur depending on the working conditions. (Refer to pages 116 to 120) Changes in fluid temperature may also affect flow rate depending on the working conditions. Use MMD**2 Series either fully closed or fully opened. The intermediate position cannot be used. Tighten the knob of MMD**2 Series within the torque range shown in the table below. If it is loose, there is a possibility that the knob may rotate due to pump vibration or the like.

Model No.	MMD302	MMD402	MMD502
Knob tightening Torque	0.8 to 1.5	1.0 to 1.8	1.5 to 2.5

(N·m)

4. Air operated valve for chemical liquids AMD/GAMD Series

⚠ CAUTION

■ In the AMD/GAMD Series, water hammer and vibration may occur in certain fluid pressure conditions. In most cases, this can be resolved by adjusting the open-close speed using a speed controller, etc. If a problem persists, review and revise the fluid pressure and piping conditions.

5. Air operated manual valve for chemical liquids AMD*1H/MMD*0H Series
Air operated manual valve for chemical liquids AMD*1M/MMD*0M Series

⚠ CAUTION

■ When collecting permeated gas from the diaphragm or detecting leakage, remove the set screw from the detection port and use it as the piping port. If the piping is made of fluororesin, tighten it by 0.4 N·m or less. Use the MMD*0H or MMD50M Series either fully closed or fully opened. The intermediate position cannot be used.

6. Manual Valve for Chemical Liquids MMD Part 3RN/GMMD Part 3 RN Series

⚠ CAUTION

■ When operating the valve, turn the knob until it spins loosely (there should be a click). If you hold the lock ring while turning the knob, it will not spin; valve seat deterioration or product damage may be caused by over tightening.

■ If the knob spins loosely but the valve fails to close or open, insert a screwdriver or similar tool into the hole on the knob side and turn the knob. If the green indicator inside the hole is visible, forced operation is possible. If the green indicator is not visible from the hole, turn the knob to adjust the position.

Use/maintenance

- The structure uses knob rotation for sealing, so that if the valve is left closed for long periods, valve seat leakage may occur. When temperature changes take place, retighten the knob.
- Make sure to turn the knob more than 1/2 rotation from the fully closed state to ensure appropriate setting. If used below this level, vibration or flow rate fluctuation may occur depending on the working conditions. After operation, lower the lock ring and fix the knob. If not fixed, the knob may rotate and cause flow rate fluctuation.
- When transporting valves with misoperation prevention covers attached, hold the entire valve rather than the misoperation cover alone.
- Attach the misoperation prevention cover with the lock ring lowered. This can prevent misoperation and erroneous knob operation.
- When mounting the misoperation prevention cover to prevent knob operation, use a padlock or similar to keep it locked.
- Note that the misoperation prevention cover cannot be used with the GMMD Series.

7. Fine regulator PMM/PYM/PMP Series

⚠ CAUTION

- In the PMM, PYM or PMP Series, vibration may occur due to fluctuations in fluid pressure, flow rate, or supply pressure or to piping conditions, which may affect the product life. If this occurs, review and revise the fluid pressure and flow rate conditions.
- Since the regulator operates with a small opening, applying a fluid mixed with foreign matter may damage the valve seat and cause the performance to deteriorate. We recommend installing a filter on the primary side of the regulator when there is a possibility of foreign matter contamination.
- 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.
- In the PMP Series, bubbles may be generated in the liquid by the pilot air passing through the diaphragm membrane. We recommend not to keep pressurizing the pilot air when not in use.

8. Maintenance and inspection

⚠ DANGER

- When replacing the valve, thoroughly replace the remaining chemical liquid with pure water or air so that it does not affect the surrounding Component and humans. While the upper side of the diaphragm (cylinder side) does not come into contact with the fluid, it may be exposed to chemical atmosphere due to gas permeation from the thin film part. For your safety, follow the precautions below:
  1)Since a small amount of transmitted gas is released from the breathing hole on the cylinder side by the operation of the valve, do not let anyone near the breathing hole during valve operation.
  2)In addition, crystals may adhere to the breathing hole and its vicinity.
  3)When touching the valve, use corrosion-resistant gloves and do not touch with bare hands.
- Valves used with chemical liquids may have chemical atmosphere remaining between the actuator and the diaphragm. Never attempt to disassemble the product. If disassembly is necessary, contact CKD or a dealership.
- Perform the following periodic inspection once or twice a year to ensure that the valve is achieving optimal functionality.
  1)Inspection for leakage to the valve exterior
  2)Inspection for leakage from fitting
  3)Check for abnormalities such as discoloration, deformation, corrosion of the components

⚠ WARNING

- Read the instruction manual thoroughly and make sure you understand the content before performing maintenance.
- Always drain the operating air and fluid before performing maintenance.
- Before starting maintenance or inspection, read the material safety data sheet (SDS) for the chemical liquid and wear the necessary protective gear.
- When using chemical liquids such as high permeability hydrochloric acid, hydrofluoric acid, or nitric acid for long periods, it can lead to deterioration of parts other than the wetted parts and accidents such as external leakage due to transmission gas. Check for abnormalities such as discoloration, deformation, or corrosion of the components once or twice a year as periodic inspection for safety.

⚠ CAUTION

- When replacing a product, always replace it with a product with the same model No. Specifications may differ even when the appearance is the same.
- Store unused products in a location where they are not exposed to direct sunlight or high temperatures. When handling the product, do not apply impact or damage it by throwing, dropping, or allowing it to catch on something.

Fine System Components

Safety Precautions

Be sure to read this section before use.

Product and working fluid compatibility checklist

* This checklist is created based on previous evaluations and experience, and does not guarantee performance. * When the working fluid is other than pure water, check with a chemical expert regarding the compatibility between the working fluid and the product material in order to determine usability.

Fluid name		Application: Cleaning equipment / Chemical liquid feed equipment										
		Air operated valve										
		2-port						3-port		Manifold		
		AMDZ*3R AMD0*3R AMD3*3R AMD4*3R AMD5*3R  ...Page 2	AMD0*2  ...48-Page	AMD3*2 AMD4*2 AMD5*2  ...Page 52	AMD41H AMD51H AMD61H  ...Page 108	AMD31M AMD51M  ...Page 112	AMD41L AMD51L AMD61L AMD71L AMD81L  ...Page 124	AMGZ03R AMG003R AMG303R AMG403R AMG503R  ...Page 22	AMG302 AMG402 AMG502  ...Page 74	GAMDZ*3R GAMD0*3R GAMD3*3R GAMD4*3R GAMD5*3R  ...Page 36	GAMD0*2A  ...Page 90	GAMD3*2 GAMD4*2 GAMD5*2  ...Page 82
Pure water		○	○	○	○	○	○	○	○	○	○	○
Acidic fluids	Sulfuric acid	○	○	○	○	○	x	○	○	○	○	○
	Hydrochloric acid	○	○	○ (*8)	○	○	x	○	○ (*8)	○	○	○ (*8)
	Nitric acid	○	○ (*6)	○ (*6)	○	○	x	○	○ (*6)	○	△	○ (*6)
	Hydrofluoric acid (*1)	○ (*5)	○	○(*6,8)	○	○	x	○ (*5)	○(*6,8)	○ (*5)	○	○(*6,8)
	Phosphoric acid	○	○	○	○	○	x	○	○	○	○	○
	Ammonium fluoride (*1)	○ (*5)	○	○ (*6)	○	○	x	○ (*5)	○ (*6)	○ (*5)	○	○ (*6)
	Hydrogen peroxide solution	○	○	○	○	○	x	○	○	○	○	○
	Ozone water	△	△	△	△	△	x	△	△	△	△	△
	Sulfuric acid + hydrogen peroxide solution (*2)	○	○	○	○	○	x	○	○	○	○	○
	Sulfuric acid + ozone	△	△	△	△	△	x	△	△	△	△	△
Basic fluids	Sodium hydroxide	○	○	○	○	○	x	○	○	○	○	○
	Potassium hydroxide	○	○	○	○	○	x	○	○	○	○	○
	Aqueous ammonia	○	○ (*7)	○ (*7)	○ (*7)	△	x	○	○ (*7)	○	○ (*7)	○ (*7)
Organic fluids	Acetone	x	○ (*7)	○ (*9)	○ (*7)	-(*10)	x	x	○ (*7)	x	○ (*7)	○ (*7)
	Butyl acetate	x	○ (*7)	○ (*9)	○ (*7)	-(*10)	x	x	○ (*7)	x	○ (*7)	○ (*7)
	Isopropyl alcohol	○	○	○	○	-(*10)	x	○	○	○	○	○
Others/ mixture (*1)	Paint thinner	x	○	○	○	-(*10)	x	x	○	x	○	○
	Resist	○	○	○	○	-(*10)	x	○	○	○	○	○
	Developing solution	○	○	○	○	-(*10)	x	○	○	○	○	○
	Slurry	○	○	○	○	-(*10)	x	○	○	○	○	○
	Plating solution	○	○	○	○	-(*10)	x	○	○	○	○	○
	Stripping solution (*3)	○	○	○	○	-(*10)	x	○	○	○	○	○
Gas	Air/nitrogen gas (*4)	○	○	○	○	○	○	○	○	○	○	○

Judgment	○	Usable.(For details, refer to the product pages.)
	△	Contact CKD for details.(May be available depending on conditions.)
	x	Unusable.

Since this is often a mixture of various chemical liquids, the total effects cannot be grasped. Check adequately the compatibility of product component materials and working fluids in order to determine usability.

*1: For use with hydrofluoric acid or chemical liquids containing hydrofluoric acid, or when the fluid temperature exceeds 40°C, consult with CKD.
*2 : Contact CKD when using sulfuric acid + hydrogen peroxide solution at 100°C or more.
*3 : Replace periodically when using amine-based stripping solution at fluid temperature 80°C or more. Consider min. once a year as a guideline.
*4: For gases, 1 cm max.^{3} Valve seat leakage of /min (at pneumatic pressure) may occur.
*5 : For hydrofluoric acid or chemical liquids containing hydrofluoric acid, the fluid temperature is 5 to 80°C. Body with bypass cannot be used.
*6 : Select option "P".
*7 : Select option "M".
*8 : Support is available with made to order products offering countermeasures for acidic fluids and permeating fluids. Contact CKD separately.
*9 : For metal piping, select the stainless steel body type. For fluororesin piping, select the option "M".
*10: It is recommended to use the AMD**H Series or AMD**2 Series suitable for these chemical liquids.
*11: As it is a highly permeable chemical liquid, permeated gas may contaminate the pilot air, which may adversely affect the operating Component. Consult with CKD if protection is needed for the operating components.

	Application: Cleaning equipment / Chemical liquid feed equipment								Application: Coater/developer			Peripheral components				
	Manual valve						Flow rate adjusting valve		Air operated valve		Air operated drip prevention valve Valve/drip prevention Valve integrated	Fine regulator				
	2-port				Manifold		Manual	Motorized	2-port	3-port		Pilot operated		Manual		
	MMD303RN MMD403RN MMD503RN	MMD302 MMD402 MMD502	MMD40H MMD50H MMD60H	MMD30M MMD50M	GMMD303RN GMMD403RN GMMD503RN	GMMD302 GMMD402 GMMD502	FMD00	MNV	AMDZ* AMD0*	AMGZ0 AMG00	AMSZ2 AMS022	PMP002 PMP202	PMP402	PYM10	PMM20	PMM50
	 ...Page 140	...Page 148	 ...Page 170	 ...Page 174	 ...Page 144	 ...Page 162	 ...Page 208	 ...Page 206	 ...Page 100	 ...Page 104	 ...Page 182 AMDSZ0 AMDS00  ...Page 186	  ...Page 192	 ...Page 192	 ...Page 198	 ...Page 200	 ...Page 202
	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	○	○	○	△	○	○	○	○	x	x	△	○	△ (*8)	x	x	x
	○	○ (*8)	○	○	○	○ (*8)	○	x	x	x	△	△(*11)	△ (*8)	x	x	x
	○	○	○	○	○	○	○	x	x	x	△	△(*11)	△ (*8)	x	x	x
	○ (*5)	○(*6,8)	○	○	○ (*5)	○(*6,8)	○	x	x	x	△	△(*11)	△ (*8)	x	x	x
	○	○	○	○	○	○	○	○	x	x	△	○	△ (*8)	x	x	x
	○ (*5)	○ (*6)	○	△	○ (*5)	○ (*6)	○	x	x	x	△	○(*11)	△ (*8)	x	x	x
	○	○	○	○	○	○	○	○	x	x	△	○	△ (*8)	x	x	x
	△	△	x	△	△	△	x	x	x	x	△	△	△ (*8)	x	x	x
	○	○	○	△	○	○	○	○	x	x	△	○	△ (*8)	x	x	x
	△	△	x	△	△	△	x	x	x	x	△	△	△ (*8)	x	x	x
	○	○	○	△	○	○	○	△	○	○	○	○	△	△	△	x
	○	○	○	△	○	○	○	△	○	○	○	○	△	△	△	x
	○	○	○ (*7)	△	○	○	○	x	△	△	△	△(*11)	△ (*8)	△	x	x
	x	○	○ (*7)	-(*10)	x	○	x	x	○	○	○	△	△	△	△	x
	x	○	○ (*7)	-(*10)	x	○	x	x	○	○	○	△	△	△	△	x
	○	○	○	-(*10)	○	○	○	x	○	○	○	○	○	△	△	x
	x	○	○	-(*10)	x	○	x	x	○	○	○	△	△	△	△	x
	○	○	○	-(*10)	○	○	x	x	○	○	○	○	△	△	△	x
	○	○	○	-(*10)	○	○	○	x	○	○	○	○	△	△	△	x
	○	○	○	-(*10)	○	○	○	x	△	△	△	○	△	△	△	x
	○	○	○	-(*10)	○	○	○	x	x	x	△	○	△ (*8)	x	x	x
	○	○	○	-(*10)	○	○	△	x	○	○	○	○	△	△	△	x
	○	○	○	○	○	○	○	○	○	○				○		

■ Metal piping/stainless steel body

- For metal piping, select the stainless steel body.
  (Contact CKD regarding models with no stainless steel body option. May be available depending on the model.)
- Stainless steel body cannot be used with acidic fluids.

■ Safety and performance related precautions

- Contact CKD to consider the impact on the component materials when using with ozone or organic solvent-based fluids.
- Fluororesin is easily charged and becomes further charged by flowing gas or fluids. As static electricity may cause external leakage or ignition, be sure to take measures to remove static electricity to the extent possible.
- Fluids that contain particles, such as slurry and UV curing agent, or could solidify or jell may affect performance.
- If the fluid is highly absorbable, such as liquid containing a surfactant or stripping solution, the fluid may permeate through the parts.
- When using chemical liquids such as high permeability hydrochloric acid, hydrofluoric acid, or nitric acid for long periods, it can lead to deterioration of parts other than the wetted parts due to transmission gas.
- Check for abnormalities such as discoloration, deformation, or corrosion of the components once or twice a year as periodic inspection for safety.

Air operated valve

AMD-Part3R New

Overview

Standard of air operated valve for chemical liquids. Body structure revised, PVDF adopted in the actuator, all-in-one model that supports various specifications.
(Connection:1/8" to 1" supported)

Features

- Working pressure range expanded
  A⇔B: 0.5MPa
- Supports a variety of chemical liquids as standard
  Acid/alkali alike widely compatible
- Improved ease of use
  Fluid pressure (to 0.5MPa) and fluid temperature (120°C)
- 3 types of mounting methods
  2 types of flange Bottom mounting available

AMD*1H

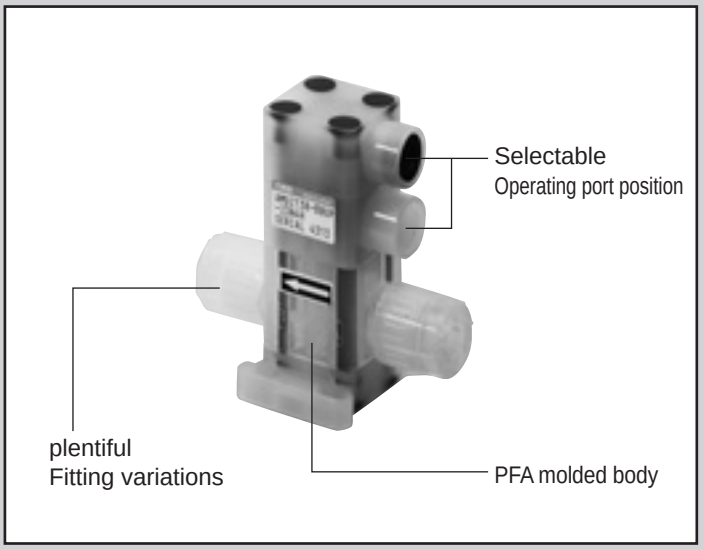
- A valve designed to support high pressure and high back pressure in chemical liquid lines in semiconductor manufacturing lines.

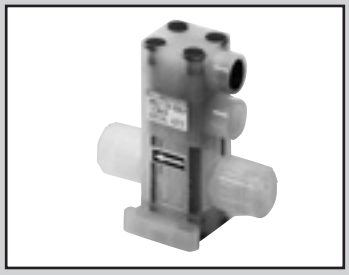
AMD*1M (metal-free)

- A valve designed to support strong acid (hydrochloric acid, hydrofluoric acid) lines in semiconductor manufacturing lines.

GAMD0*2A

- A manifold valve that can be combined in various ways by blocking the body.





Air operated valve for chemical liquids

AMDZ*3R Series

● Connection tube size: ø3, ø6, 1/8″, 1/4"

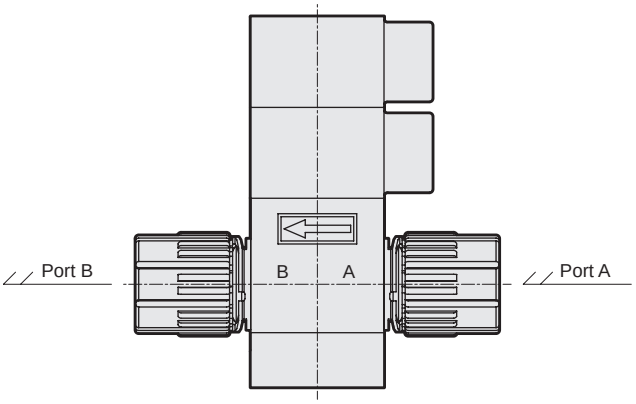
RoHS CAD

Specifications

Item			AMDZ*3R		
Working fluid			Pure water, chemical liquids, air, N_2Gas (*1)		
Fluid temperature		°C	5 to 120 (*2, *3)		
Proof pressure		MPa	1.0		
Working pressure (A→B)		MPa	0 to 0.5		
Working pressure (B→A)		MPa	0 to 0.5		
Valve seat leakage		cm^3/min	0 (water pressure)		
Back pressure		MPa	0 to 0.5		
Ambient temperature		°C	0 to 60		
Frequency			30 cycles/min. or less		
Mounting orientation			Unrestricted		
Connection			O.D. ø3 tube connection (integrated fitting) O.D. 1/8" tube connection (integrated fitting) O.D. ø6 tube connection (integrated fitting) O.D. 1/4" tube connection (integrated fitting)		
Orifice size			ø2	ø3.5	ø4
Cv			0.07	0.22	0.25
Operating section	Operating pressure	MPa	NC/NO: 0.4 to 0.5, double acting: 0.3 to 0.4		
	Operating port		Rc1/8 (operation ports used NC: port Y NO: port X Double acting: ports X, Y)		
Weight		kg	0.07		

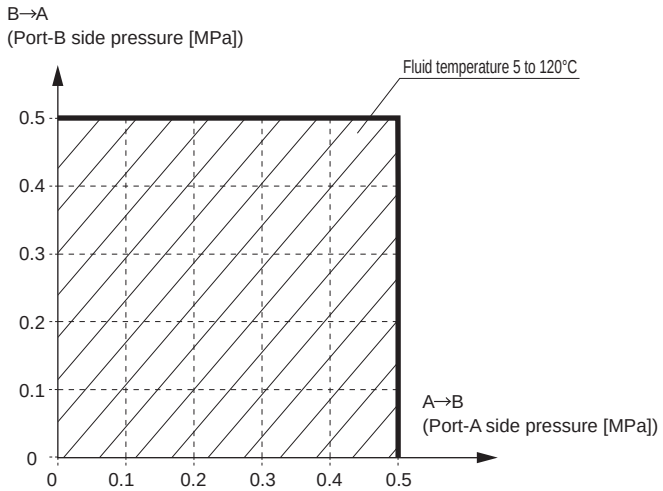
*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*2: For hydrofluoric acid or chemical liquids containing hydrofluoric acid, use within the range of 5 to 80°C.
*3: If the connection is F-LOCK60 Series fittings, the temperature range is 5 to 100°C.
*4: Refer to page 116 for flow characteristics.

Structure diagram and parts list



Part name	Material
Actuator	PVDF and others
Diaphragm	PTFE
Body	PFA, PTFE
Mounting plate	PVDF

Working pressure



⚠ Always read the precautions on Intro Pages 9 to 18 before use.

How to order

AMDZ (1) **3R** - (6UP) - (Z0) (N) (4) (X)

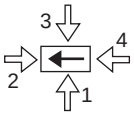
- 1: Model No.
- 6UP: B Connection
- Z0: C Actuator option
- N: D Body option
- 4: E Operating port direction
- X: F Mounting method

A Actuation	
1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting

Precautions for model No. selection

Note: Made-to-order product if the body material is PTFE.

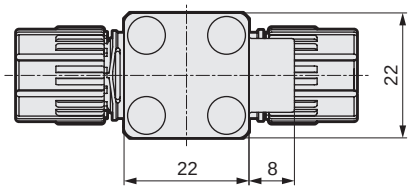
B Connection (Note)	3UP	6BUP	6UP	8BUP	6UR	8BUR
	Super 300 Pillar fitting P series integrated				F-LOCK 60 Series Integrated fitting	
	ø3xø2Tube connection	1/8"x0.086"Tube connection	ø6xø4Tube connection	1/4"x5/32"Tube connection	ø6xø4Tube connection	1/4"x5/32"Tube connection

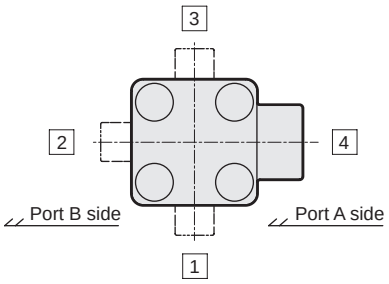
Code	Description \ OliffeyS diameter	ø2		ø4		ø3.5	
C Actuator option							
Z0	ON/OFF only	●	●	●	●	●	●
10	With flow adjustment (NC only)	●	●	●	●	●	●
D Body option		**Body material**					
N	Normal body	PFA				PTFE	
E Operating port direction							
4	 With valve viewed from above, ← indicates fluid flow in the direction of ⇦ indicates the operating port direction.	●	●	●	●	●	●
1		●	●	●	●	●	●
2		●	●	●	●	●	●
3		●	●	●	●	●	●
F Mounting method							
X	Bottom mounting	●	●	●	●	●	●
H	4-point flange mounting	●	●	●	●	●	●

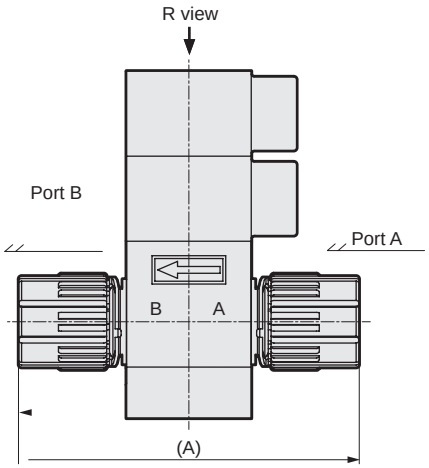
Dimensions

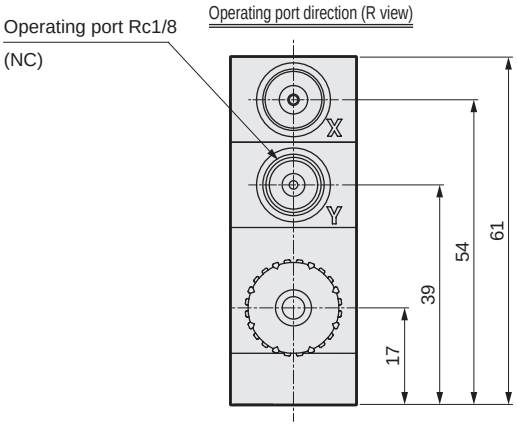
● Z0 ON/OFF only + N Normal body

• AMDZ*3R-*-Z0N**







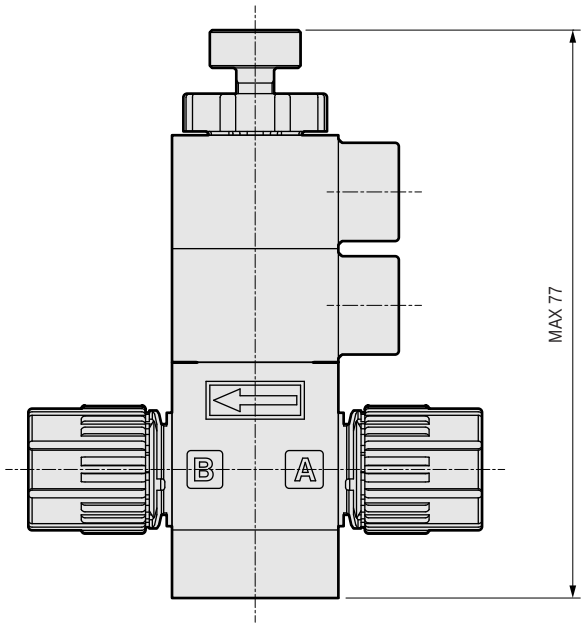


Connection	A
3UP	50
6BUP	50
6UP	60
8BUP	60
6UR	82
8BUR	84

Dimensions

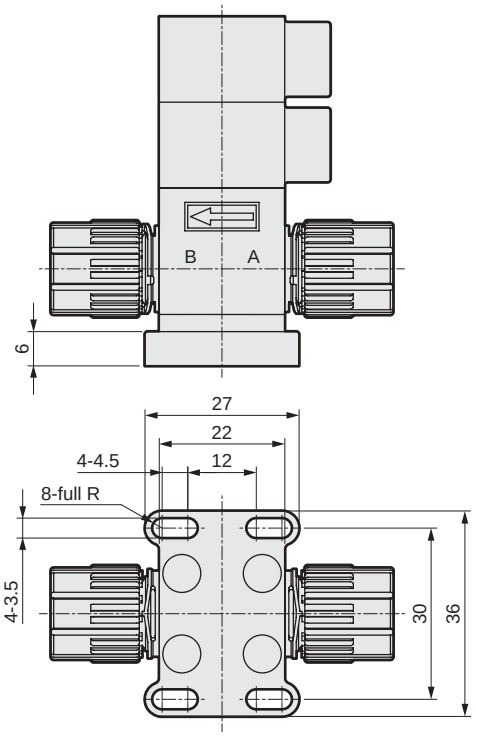
● 10 With flow rate adjustment

• AMDZ*3R-*-10N**



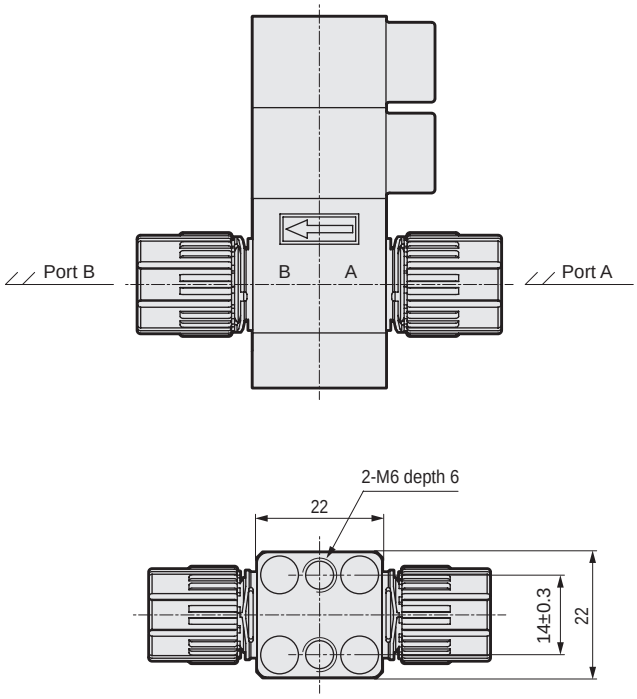
● H 4-point flange mounting

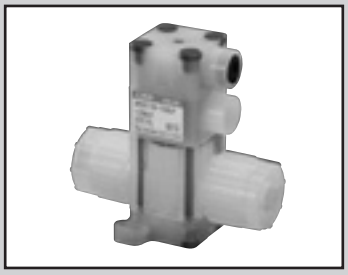
• AMDZ*3R-*-***H



● X Bottom mounting

• AMDZ*3R-*-***X





Air operated valve for chemical liquids

AMD0*3 R Series

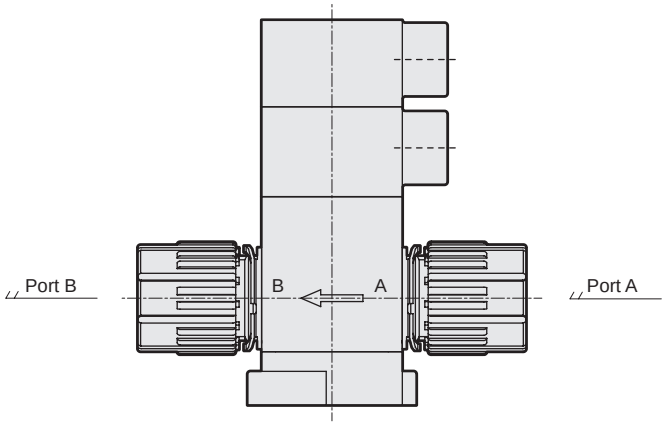
●Connection tube size: ø6, ø8, ø10, 1/4″, 3/8"

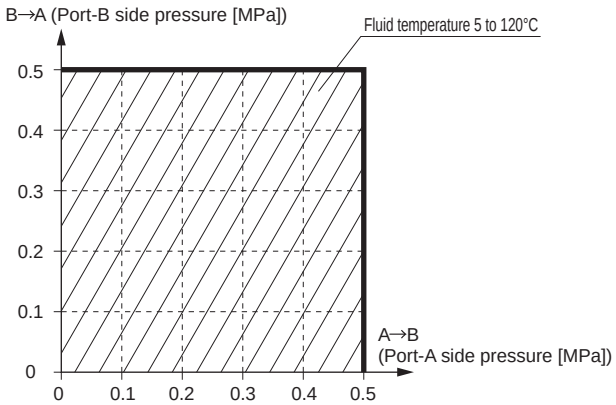
Specifications

Item			AMD0*3R				
Working fluid			Chemical liquids, pure water, air, N_2Gas (*1)				
Fluid temperature		°C	5 to 120 (*3, *4)				
Proof pressure		MPa	1.0				
Working pressure (A→B)		MPa	0 to 0.5				
Working pressure (B→A)		MPa	0 to 0.5				
Valve seat leakage		cm^3/min	0 (water pressure)				
Back pressure		MPa	0 to 0.5				
Ambient temperature		°C	0 to 60				
Frequency			30 cycles/min. or less				
Mounting orientation			Unrestricted				
Connection			O.D. ø6/ø8/ø10 tube connection (integrated fitting) O.D. 1/4" / 3/8" tube connection (integrated fitting)				
Orifice size			ø3.5	ø4	ø6	ø7	ø8
Cv			0.28	0.34	0.64	0.7	0.8
Operating section	Operating pressure	MPa	NC/NO: 0.35 to 0.5 Double acting: 0.3 to 0.4				
	Operating port		Rc1/8 (operation ports used NC: port Y NO: port X Double acting: ports X, Y)				
Weight		kg	0.10				

*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*2: Refer to page 116 for flow characteristics.
*3: For hydrofluoric acid or chemical liquids containing hydrofluoric acid, use within the range of 5 to 80°C.
*4: If the connection method is F-LOCK60 Series fittings, the temperature range is 5 to 100°C.

Structure diagram and parts list





Part name	Material
Actuator	PVDF and others
Diaphragm	PTFE
Body	PFA, PTFE
Mounting plate	PVDF

⚠ Always read the precautions on Intro Pages 9 to 18 before use.

How to order

AMD0 (1) 3R - (10UP) - (00) (N) (4) (F)

- 1 — Model No.
- 1 — Ⓐ Actuation
- 10UP — Ⓑ Connection
- 00 — Ⓒ Actuator Option
- N — Ⓓ Body Option
- 4 — Ⓔ Operating port direction
- F — Ⓕ Mounting method

Ⓐ Actuation

1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting

Ⓑ Connection (*1)

6UP	8BUP	8UP	10UP	10BUP	6UR	8BUR	8UR	10UR	10BUR
Super 300 Pillar fitting P series integrated					F-LOCK 60 Series Integrated fitting				
ø6xø4Tube connection	1/4"x5/32"Tube connection	ø8xø6Tube connection	ø10xø8Tube connection	3/8"x1/4"Tube connection	ø6xø4Tube connection	1/4"x5/32"Tube connection	ø8xø6Tube connection	ø10xø8Tube connection	3/8"x1/4"Tube connection
ø4		ø6	ø8		ø3.5		ø6	ø7	ø6

Code	Description / Orifice size	6UP	8BUP	8UP	10UP	10BUP	6UR	8BUR	8UR	10UR	10BUR
Ⓒ Actuator option											
00	ON/OFF only (with indicator)	●	●	●	●	●	●	●	●	●	●
10	With flow rate adjustment	●	●	●	●	●	●	●	●	●	●
Ⓓ Body option	**Body material**										
N	Normal body	PFA					PTFE				
Ⓔ Operating port direction (*2)											
4	With valve viewed from above, ← indicates fluid flow in the direction of ⇐ indicates the operating port direction. (3 ⇩, 4 ⇨, 2 ⇦, 1 ⇧)	●	●	●	●	●	●	●	●	●	●
1		●	●	●	●	●	●	●	●	●	●
2		●	●	●	●	●	●	●	●	●	●
3		●	●	●	●	●	●	●	●	●	●
Ⓕ Mounting method(*2)											
F	Flange mounting	●	●	●	●	●	●	●	●	●	●
H	4-point flange mounting	●	●	●	●	●	●	●	●	●	●
X	Bottom mounting	●	●	●	●	●	●	●	●	●	●

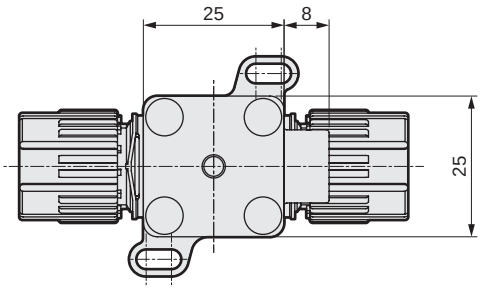
Precautions for model No. selection

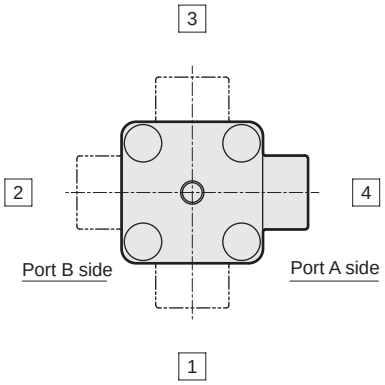
*1: Made-to-order product if the body material is PTFE.
*2: Refer to dimensions for operating port direction and mounting plate.

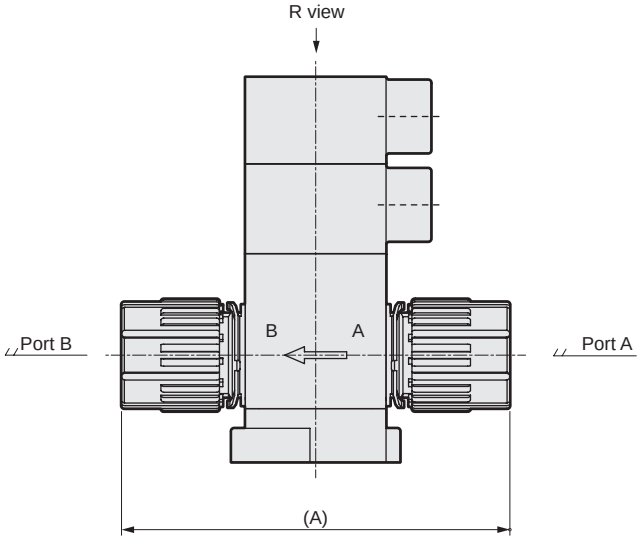
Dimensions

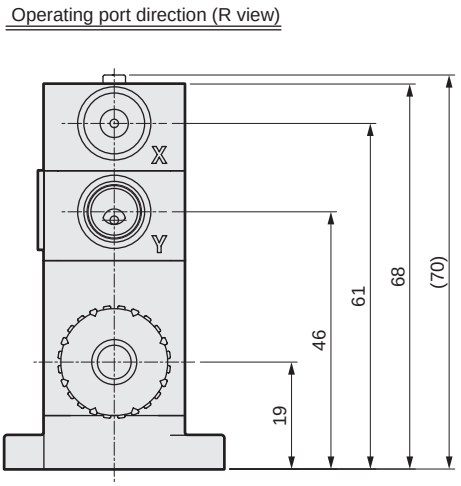
● 00 ON/OFF only (with indicator)

・AMD0*3R- *1 -00N**







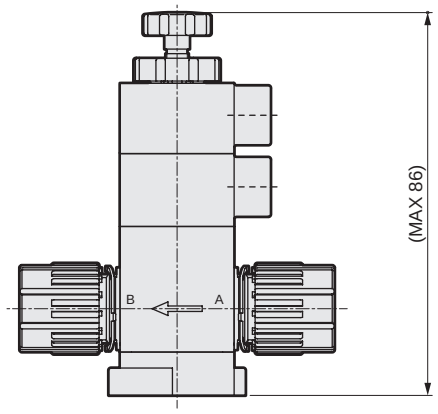


*1 (connection method)	A
6UP	63
8BUP	63
8UP	69
10UP	75
10BUP	75
6UR	85
8BUR	87
8UR	87
10UR	99
10BUR	103

Dimensions

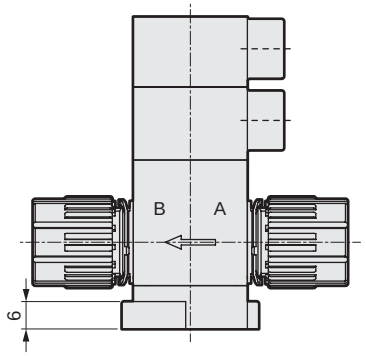
● 10 With flow rate adjustment

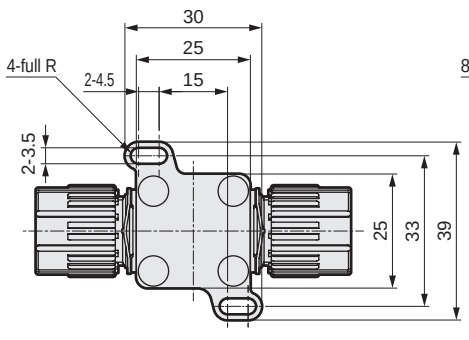
・AMD0*3R-*-10N**



● F Flange mounting

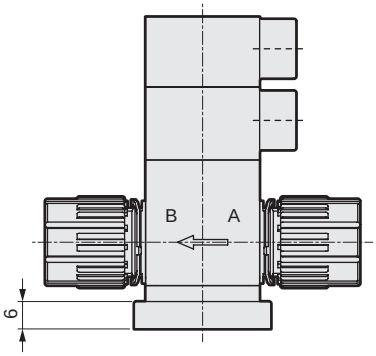
・AMD0*3R-*-***F

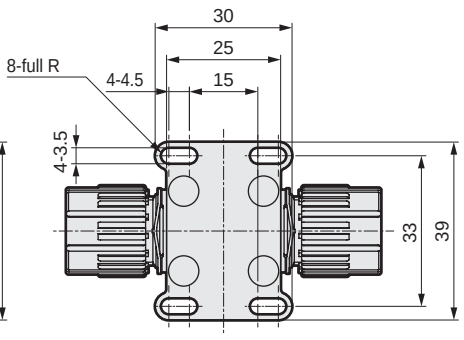




● H 4 pointsFlange mounting

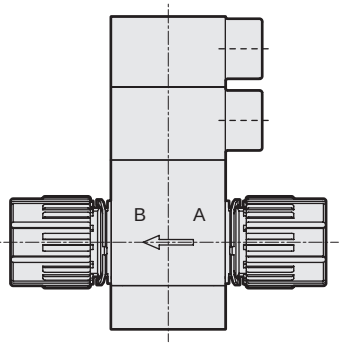
・AMD0*3R-*-***H

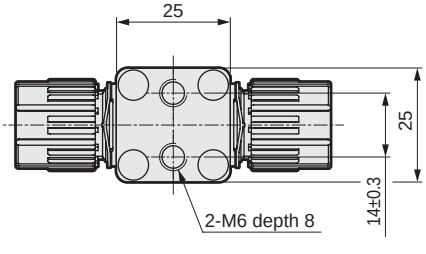


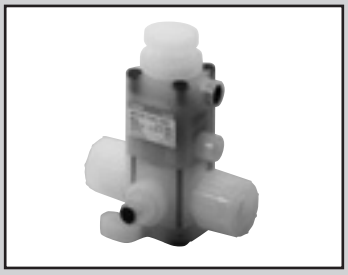


● X Bottom mounting

・AMD0*3R-*-***X







Air operated valve for chemical liquids

AMD3 *3 R Series

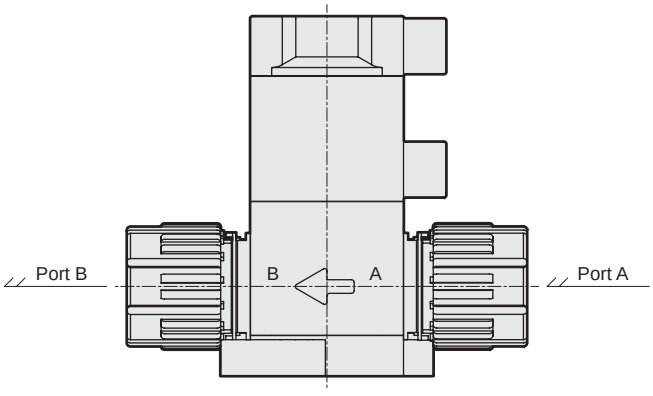
● Connection tube size: ø10, ø12, 3/8″, 1/2"

Specifications

Item		AMD3*3R				
Body option		N (normal body)			B (body with bypass)	
Working fluid		Chemical liquids, pure water, air, N_2Gas (*1)				
Fluid temperature	°C	5 to 120 (*2, *3)			5 to 90	
Proof pressure	MPa	1.0				
Working pressure (A→B)	MPa	0 to 0.5			Refer to figure below for "Working pressure"	
Working pressure (B→A)	MPa	0 to 0.5			Refer to figure below for "Working pressure"	
Valve seat leakage	cm^3/min	0 (water pressure)				
Back pressure	MPa	0 to 0.5			Refer to figure below for "Working pressure"	
Ambient temperature	°C	0 to 60 (0 to 50 when sensor attached)				
Frequency		30 cycles/min. or less				
Mounting orientation		Unrestricted				
Connection		O.D. ø10/ø12 tube connection (integrated fitting) O.D. 3/8" / 1/2" tube connection (integrated fitting)				
Orifice size		ø6	ø7	ø8	ø9	ø10
Cv		0.7	1	1.25	1.6	1.8
Bypass orifice size		-			ø2.3	
Operating section	Operating pressure MPa	NC/NO: 0.35 to 0.5 Double acting: 0.3 to 0.4				
	Operating port	Rc1/8 (operation ports used NC: port Y NO: port X Double acting: ports X, Y)				
Sensor		Refer to pages 46 and 47.				
Weight	kg	0.21			0.23	

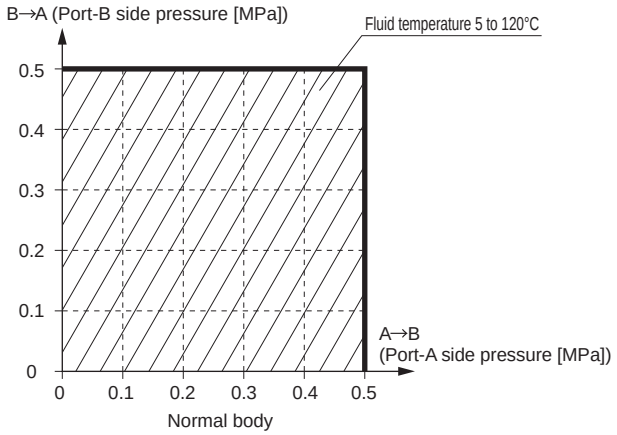
*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.) Body with bypass cannot be used for hydrofluoric acid or chemical liquids containing hydrofluoric acid.
*2: For hydrofluoric acid or chemical liquids containing hydrofluoric acid, use within the range of 5 to 80°C.
*3: If the connection is F-LOCK60 Series fittings, the temperature range is 5 to 100°C.
*4: Refer to page 116 for flow characteristics.

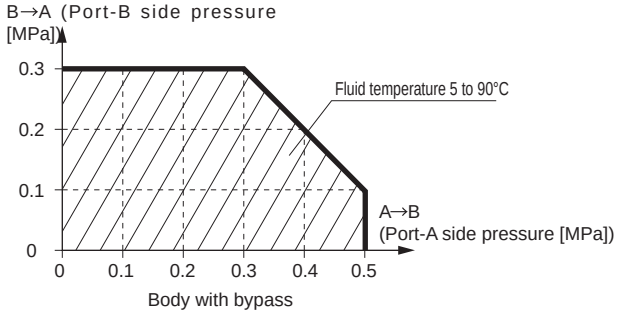
Structure diagram and parts list



Part name	Material
Actuator	PVDF and others
Diaphragm	PTFE
Body	PFA, PTFE
Mounting plate	PVDF

Working pressure





⚠ Always read the precautions on Intro Pages 9 to 18 before use.

How to order

AMD3 (1) 3R - (10UP) - (00) (N) (4) (F)

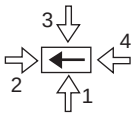
- Model No.
- (A) Actuation
- (B) Connection
- (C) Actuator Option
- (D) Body Option
- (E) Operating port direction
- (F) Mounting method

(A) Actuation	
1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting

(B) Connection (*1)	10UP	10BUP	12UP	15BUP	10UR	10BUR	12UR	15BUR
	Super 300 Pillar fitting P series integrated				F-LOCK 60 Series Integrated fitting			
	ø10xø8Tube connection	3/8"x1/4"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection	ø10xø8Tube connection	3/8"x1/4"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection

Code	Description			Orifice size	10UP	10BUP	12UP	15BUP	10UR	10BUR	12UR	15BUR
					ø8		ø10		ø7	ø6	ø9	
(C) Actuator option												
00	ON/OFF only (with indicator)				●	●	●	●	●	●	●	●
10	With flow rate adjustment				●	●	●	●	●	●	●	●
With sensor	Transistor	Cable direction (*2)	Cable length									
A1	NPN	Operating port side	1m		●	●	●	●	●	●	●	●
A3			3m		●	●	●	●	●	●	●	●
B1		Opposite side to operating port	1m		●	●	●	●	●	●	●	●
B3			3m		●	●	●	●	●	●	●	●
C1	PNP	Operating port side	1m		●	●	●	●	●	●	●	●
D1		Opposite side to operating port	1m		●	●	●	●	●	●	●	●

(D) Body option		Body material			
N	Normal body	PFA	PFA	PTFE	PTFE
B	Body with bypass	PTFE	PFA	PTFE	PTFE

(E) Operating port direction (*2)			10UP	10BUP	12UP	15BUP	10UR	10BUR	12UR	15BUR
4		With valve viewed from above, ← indicates fluid flow in the direction of ⇦ indicates the operating port direction.	●	●	●	●	●	●	●	●
1			●	●	●	●	●	●	●	●
2			●	●	●	●	●	●	●	●
3			●	●	●	●	●	●	●	●

(F) Mounting method(*2)		10UP	10BUP	12UP	15BUP	10UR	10BUR	12UR	15BUR
F	Flange mounting	●	●	●	●	●	●	●	●
H	4-point flange mounting	●	●	●	●	●	●	●	●
X	Bottom mounting	●	●	●	●	●	●	●	●

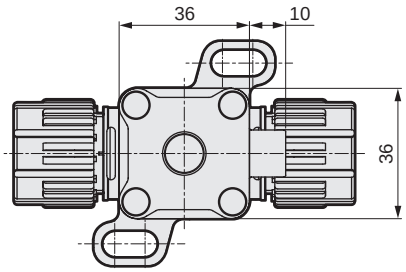
Precautions for model No. selection

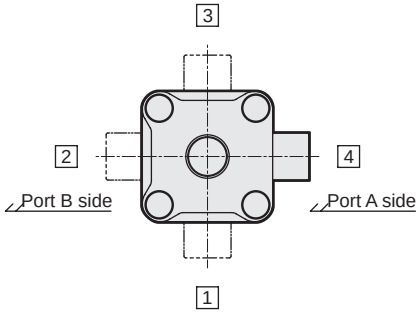
*1: Made-to-order product if the body material is PTFE.
*2: Refer to dimensions for operating port direction, sensor cable direction, and mounting plate.

Dimensions

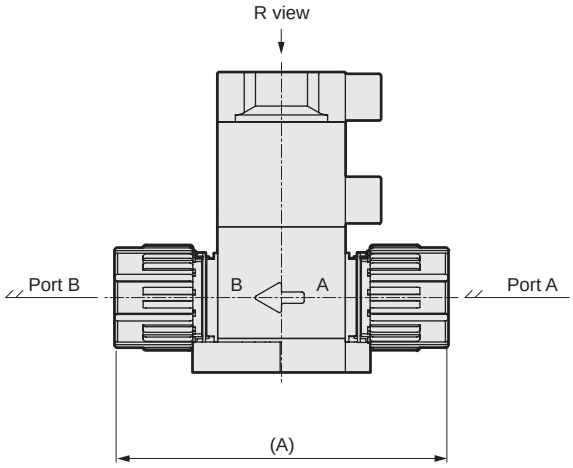
● 00 ON/OFF only (with indicator) + N Normal body

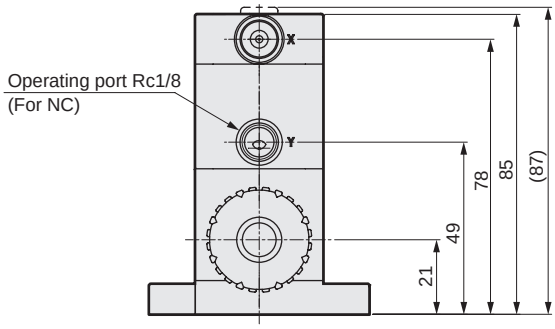
• AMD3*3R- *1 -00N**





Operating port direction (R view)

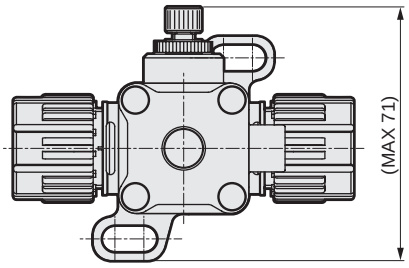


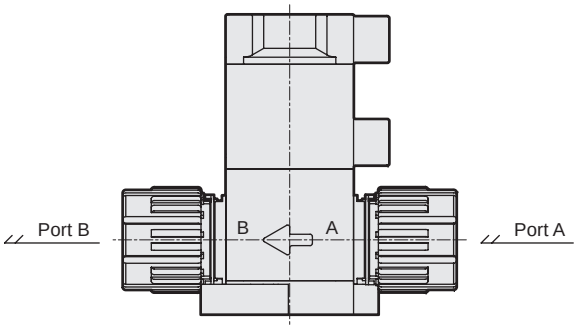


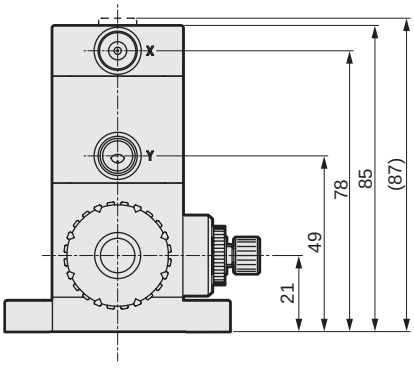
*1 (connection method)	A
10UP	86
10BUP	86
12UP	94
15BUP	94
10UR	110
10BUR	114
12UR	110
15BUR	114

● 00 ON/OFF only (with indicator) + B Body with bypass

• AMD3*3R-*-00B**



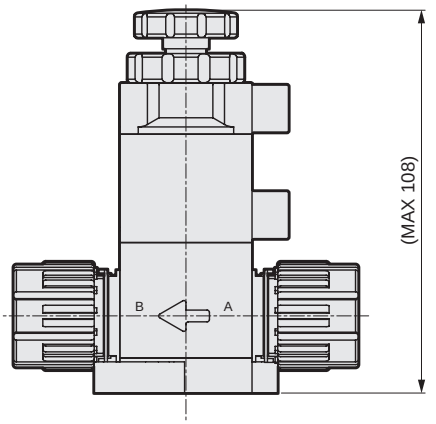




Dimensions

● 10 With flow rate adjustment

• AMD3*3R-*-10***

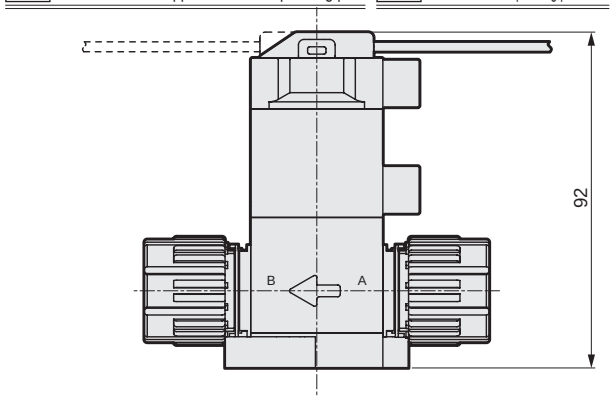


● A* B* C* D* With sensor

• AMD3*3R-*-A/B/C/D****

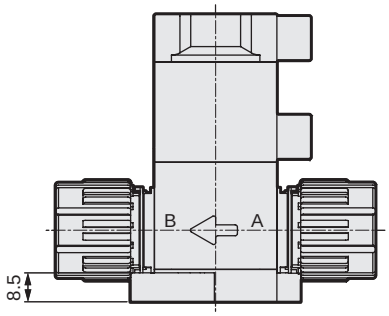
B* D* Cable direction: Opposite side to operating port

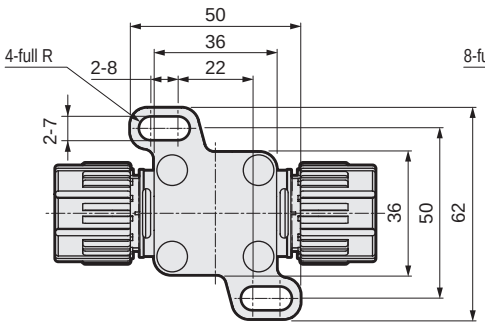
A* C* Cable direction: Operating port side



● F Flange mounting

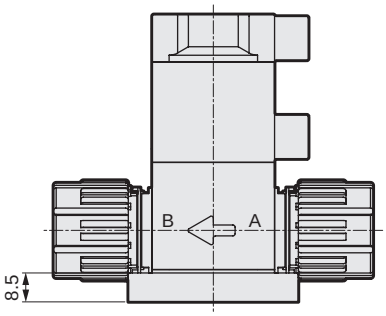
• AMD3*3R-*-***F

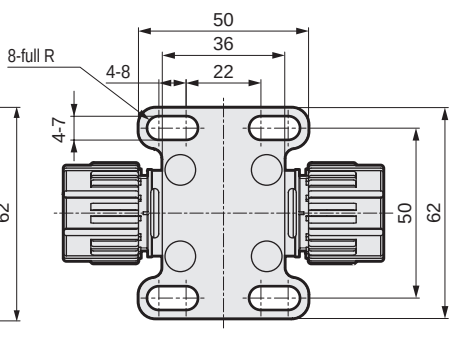




● H 4 pointsFlange mounting

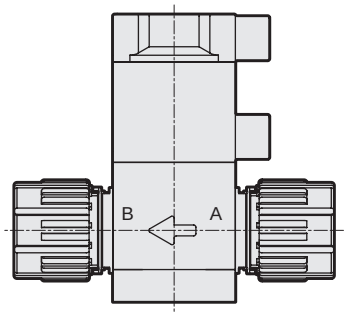
• AMD3*3R-*-***H

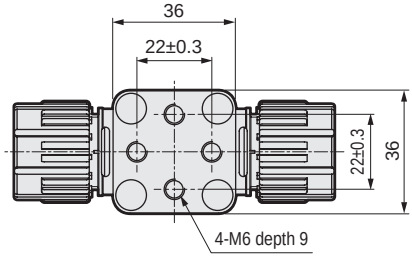


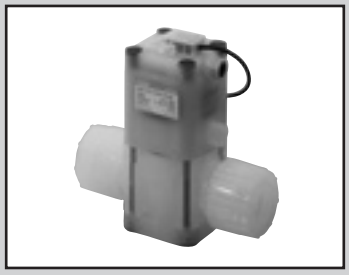


● X Bottom mounting

• AMD3*3R-*-***X







Air operated valve for chemical liquids

AMD4*3R Series

● Connection tube size: 3/4"

RoHS CAD

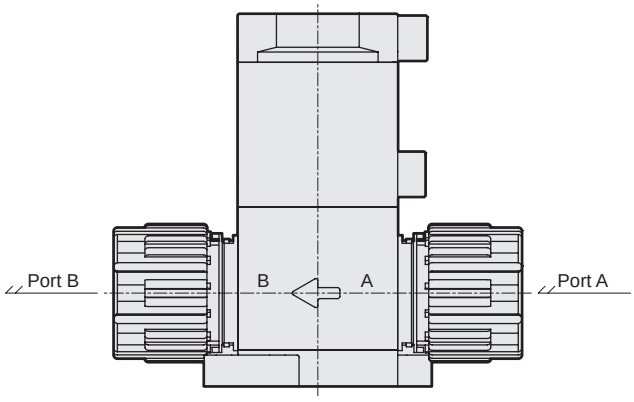
Export controlled items

Specifications

Item		AMD4*3R	
Body option		**N (normal body)**	**B (body with bypass)**
Working fluid		Chemical liquids, pure water, air, N_2Gas (*1)	
Fluid temperature	°C	5 to 120 (*2, *3)	5 to 90
Proof pressure	MPa	1.0	
Working pressure (A→B)	MPa	0 to 0.5	Refer to figure below for "Working pressure"
Working pressure (B→A)	MPa	0 to 0.5	Refer to figure below for "Working pressure"
Valve seat leakage	cm^3/min	0 (water pressure)	
Back pressure	MPa	0 to 0.5	Refer to figure below for "Working pressure"
Ambient temperature	°C	0 to 60 (0 to 50 when sensor attached)	
Frequency		20 cycle/min. or less	
Mounting orientation		Unrestricted	
Connection		O.D. 3/4" tube connection (integrated fitting)	
Orifice size		ø15	ø16
Cv		4.5	5
Bypass orifice size		-	ø6
Operating section	Operating pressure MPa	NC/NO: 0.35 to 0.5 Double acting: 0.3 to 0.4	
	Operating port	Rc1/8 (operation ports used NC: port Y NO: port X Double acting: ports X, Y)	
Sensor		Refer to pages 46 and 47.	
Weight	kg	0.48	0.49

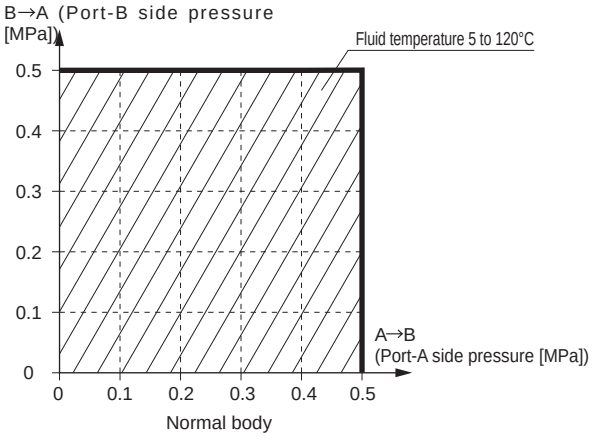
*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.) Body with bypass cannot be used for hydrofluoric acid or chemical liquids containing hydrofluoric acid.
*2: For hydrofluoric acid or chemical liquids containing hydrofluoric acid, use within the range of 5 to 80°C.
*3: If the connection is F-LOCK60 Series fittings, the temperature range is 5 to 100°C.
*4: Refer to page 116 for flow characteristics.

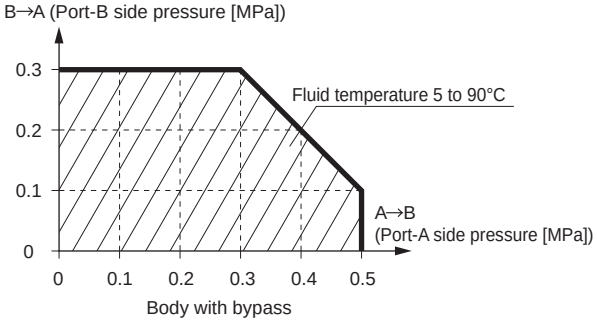
Structure diagram and parts list



Part name	Material
Actuator	PVDF and others
Diaphragm	PTFE
Body	PFA, PTFE
Mounting plate	PVDF

Working pressure





⚠ Always read the precautions on Intro Pages 9 to 18 before use.

How to order

AMD4 (1) 3R - (20BUP) - (00) (N) (4) (F)

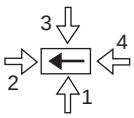
- Model No.
- (1) Ⓐ Actuation
- (20BUP) Ⓑ Connection
- (00) Ⓒ Actuator Option
- (N) Ⓓ Body Option
- (4) Ⓔ Operating port direction
- (F) Ⓕ Mounting method

Ⓐ Actuation	
1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting

Ⓑ Connection (*1)	
20BUP	**20BUR**
Super 300 Pillar fitting P series integrated	F-LOCK 60 Series Integrated fitting
3/4"x5/8"Tube connection	3/4"x5/8"Tube connection

Code	Description \ Orifice size			ø16	ø15
Ⓒ Actuator option					
00	ON/OFF only (with indicator)			●	●
10	With flow rate adjustment			●	●
With sensor	Transistor	Cable direction (*2)	Cable length		
A1	NPN	Operating port side	1m	●	●
A3			3m	●	●
B1		Opposite side to operating port	1m	●	●
B3			3m	●	●
C1	PNP	Operating port side	1m	●	●
D1		Opposite side to operating port	1m	●	●

Ⓓ Body option		Body material	
N	Normal body	PFA	PTFE
B	Body with bypass	PFA	PTFE

Ⓔ Operating port direction (*2)				
4		With valve viewed from above, ← indicates fluid flow in the direction of ⇦ indicates the operating port direction.	●	●
1			●	●
2			●	●
3			●	●

Ⓕ Mounting method (*2)			
F	Flange mounting	●	●
H	4-point flange mounting	●	●
X	Bottom mounting	●	●

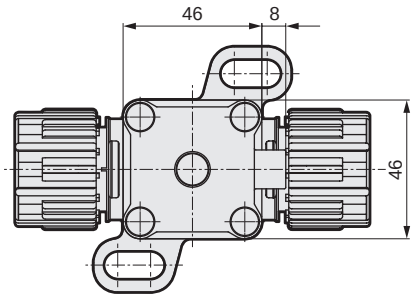
Precautions for model No. selection

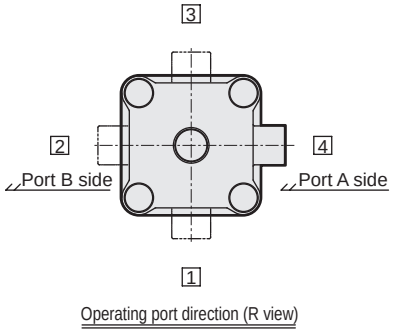
*1: Made-to-order product if the body material is PTFE.
*2: Refer to dimensions for operating port direction, sensor cable direction, and mounting plate.

Dimensions

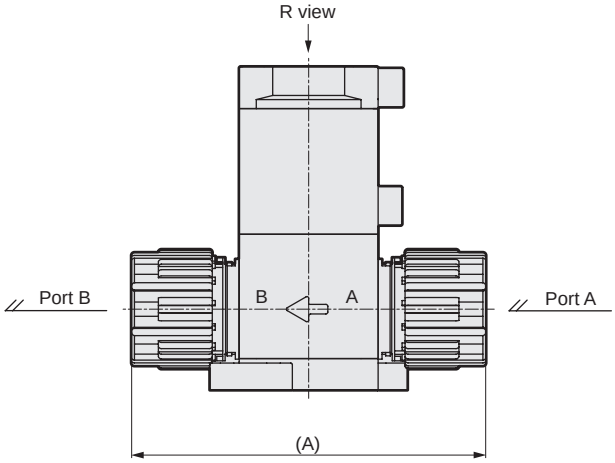
● 00 ON/OFF only (with indicator) + N Normal body

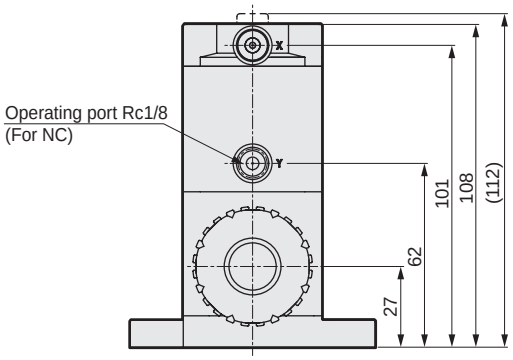
• AMD4*3R- *1 -00N**





Operating port direction (R view)

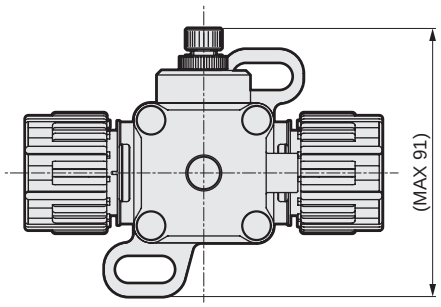


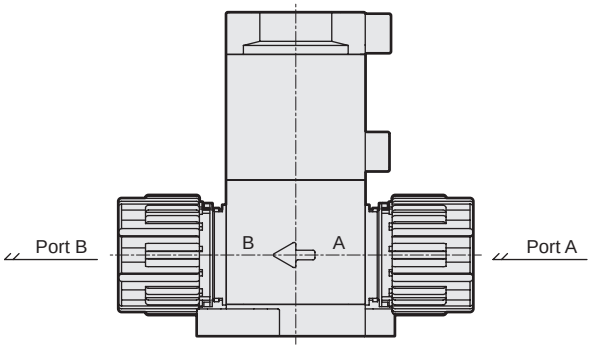


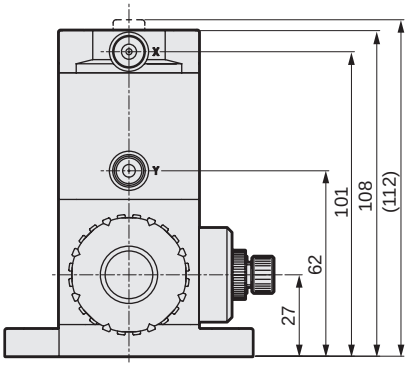
*1 (connection method)	A
20BUP	118
20BUR	134

● 00 ON/OFF only (with indicator) + B Body with bypass

• AMD4*3R-*-00B**



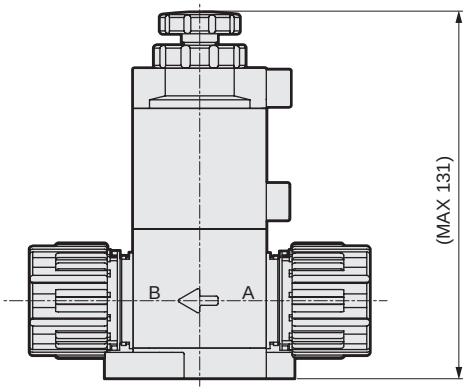




Dimensions

● 10 With flow rate adjustment

• AMD4*3R-*-10***

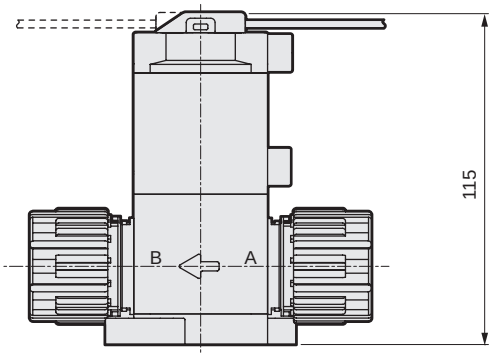


● A* B* C* D* With sensor

• AMD4*3R-*-$^{A\,B\,C\,D}$****

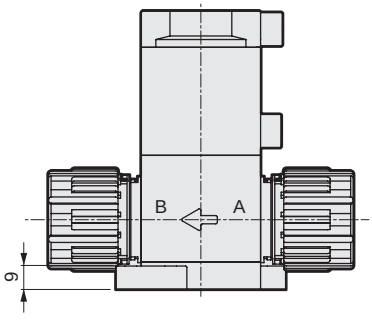
B* D* Cable direction: Opposite side to operating port

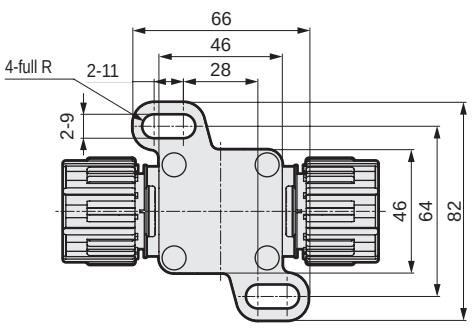
A* C* Cable direction: Operating port side



● F Flange mounting

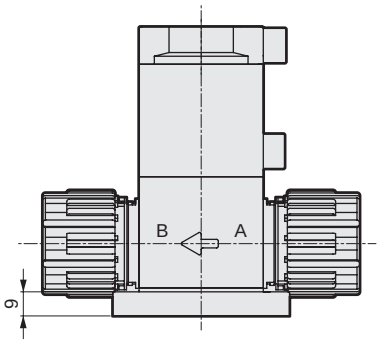
• AMD4*3R-*-***F

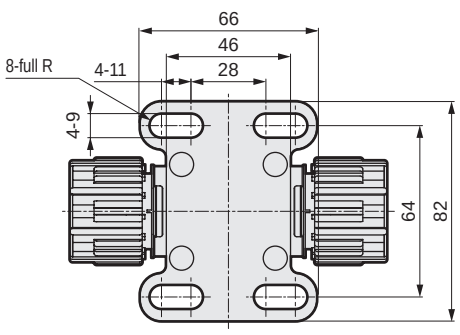




● H 4 pointsFlange mounting

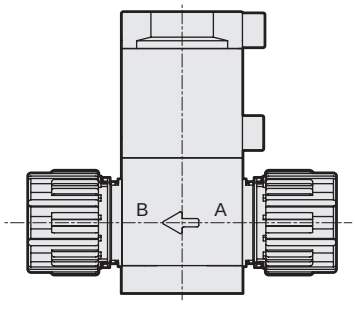
• AMD4*3R-*-***H

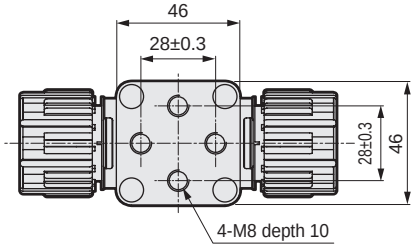


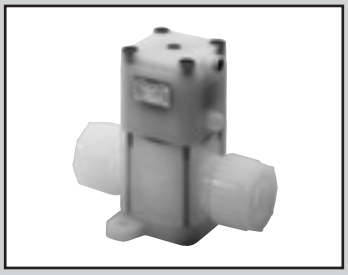


● X Bottom mounting

• AMD4*3R-*-***X







Air operated valve for chemical liquids

AMD5*3R Series

●Connection tube size: ø25, 1"

RoHS CAD

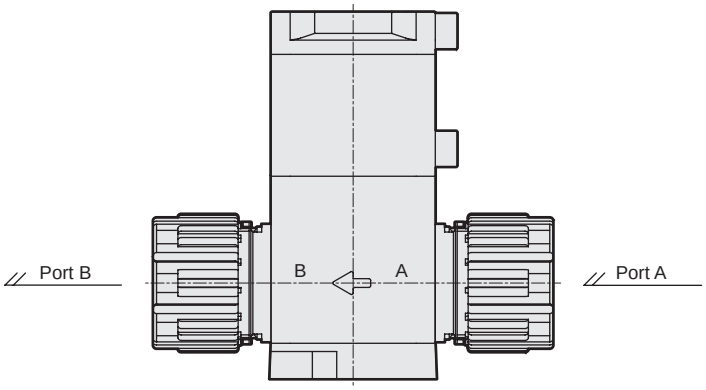
Export controlled items

Specifications

Item			AMD5*3R	
Body option			**N (normal body)**	**B (body with bypass)**
Working fluid			Chemical liquids, pure water, air, N_2Gas (*1)	
Fluid temperature		°C	5 to 120 (*2, *3)	5 to 90
Proof pressure		MPa	1.0	
Working pressure (A→B)		MPa	0 to 0.5	Refer to figure below for "Working pressure"
Working pressure (B→A)		MPa	0 to 0.5	Refer to figure below for "Working pressure"
Valve seat leakage		cm^3/min	0 (water pressure)	
Back pressure		MPa	0 to 0.5	Refer to figure below for "Working pressure"
Ambient temperature		°C	0 to 60 (0 to 50 when sensor attached)	
Frequency			20 cycle/min. or less	
Mounting orientation			Unrestricted	
Connection			O.D. ø25 tube connection (integrated fitting) O.D. 1" tube connection (integrated fitting)	
Orifice size			ø20	
Cv			8	
Bypass orifice size			-	ø6
Operating section	Operating pressure	MPa	NC/NO: 0.35 to 0.5 Double acting: 0.3 to 0.4	
	Operating port		Rc1/8 (operation ports used NC: port Y NO: port X double acting: ports X, Y)	
Sensor			Refer to pages 46 and 47.	
Weight		kg	0.91	1.0

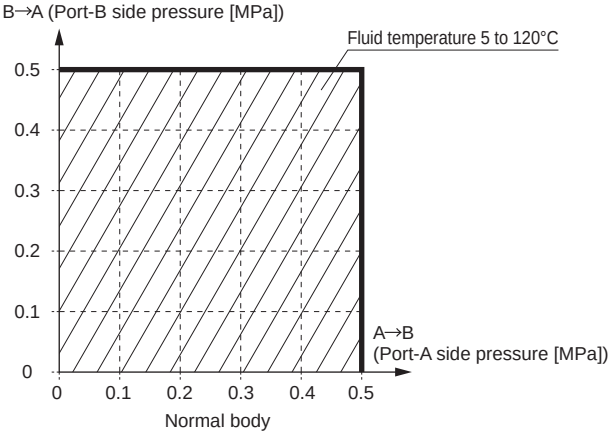
*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.) Body with bypass cannot be used for hydrofluoric acid or chemical liquids containing hydrofluoric acid.
*2: For hydrofluoric acid or chemical liquids containing hydrofluoric acid, use within the range of 5 to 80°C.
*3: If the connection is F-LOCK60 Series fittings, the temperature range is 5 to 100°C.
*4: Refer to page 116 for flow characteristics.

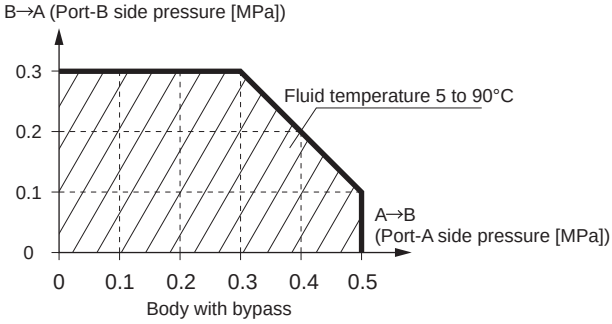
Structure diagram and parts list



Part name	Material
Actuator	PVDF and others
Diaphragm	PTFE
Body	PFA, PTFE
Mounting plate	PVDF

Working pressure





⚠ Always read the precautions on Intro Pages 9 to 18 before use.

How to order

AMD5 (1) 3R - (25BUP) - (00) (N) (4) (F)

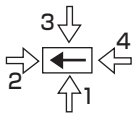
- 1: Model No.
- Ⓐ Actuation
- Ⓑ Connection
- Ⓒ Actuator Option
- Ⓓ Body Option
- Ⓔ Operating port direction
- Ⓕ Mounting method

Ⓐ Actuation	
1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting

Ⓑ Connection (*1)			
25UP	25BUP	25UR	25BUR
Super 300 Pillar fitting P series integrated		F-LOCK 60 Series Integrated fitting	
ø25xø22Tube connection	1"x7/8"Tube connection	ø25xø22Tube connection	1"x7/8"Tube connection

Code	Description \ Orifice size			ø20			
Ⓒ Actuator option							
00	ON/OFF only (with indicator)			●	●	●	●
10	With flow rate adjustment			●	●	●	●
With sensor	Transistor	Cable direction (*2)	Cable length				
A1	NPN	Operating port side	1m	●	●	●	●
A3			3m	●	●	●	●
B1		Opposite side to operating port	1m	●	●	●	●
B3			3m	●	●	●	●
C1	PNP	Operating port side	1m	●	●	●	●
D1		Opposite side to operating port	1m	●	●	●	●

Ⓓ Body option		Body material	
N	Normal body	PFA	PTFE
B	Body with bypass	PTFE	PTFE

Ⓔ Operating port direction (*2)					
4		With valve viewed from above, ← indicates fluid flow in the direction of ⇦ indicates the operating port direction.	●	●	●	●
1			●	●	●	●
2			●	●	●	●
3			●	●	●	●

Ⓕ Mounting method (*2)					
F	Flange mounting	●	●	●	●
H	4-point flange mounting	●	●	●	●
X	Bottom mounting	●	●	●	●

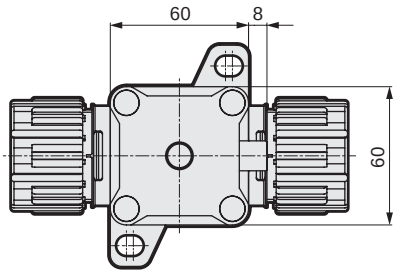
Precautions for model No. selection

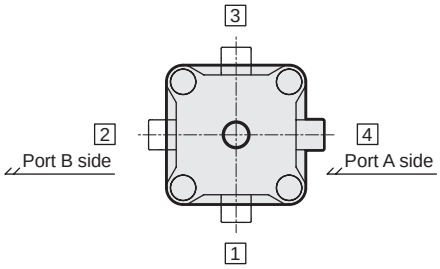
*1: Made-to-order product if the body material is PTFE.
*2: Refer to dimensions for operating port direction, sensor cable direction, and mounting plate.

Dimensions

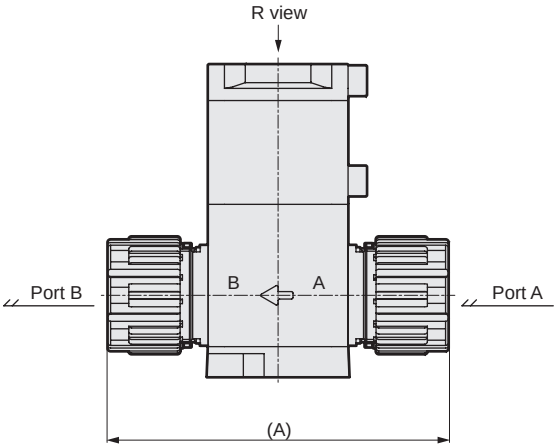
● 00 ON/OFF only (with indicator) + N Normal body

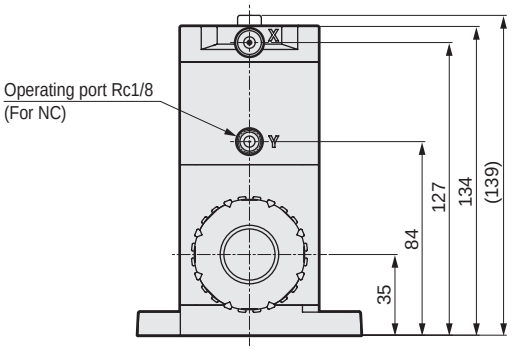
• AMD5*3R- *1 -00N**





Operating port direction (R view)

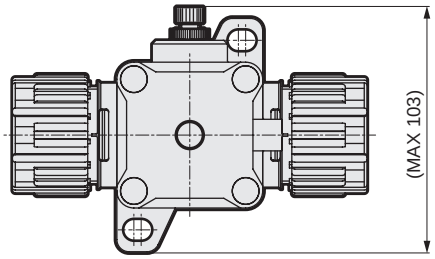


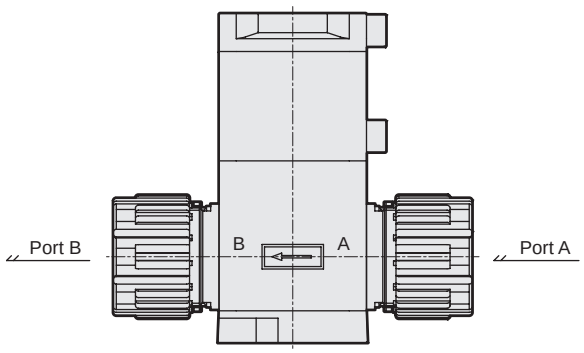


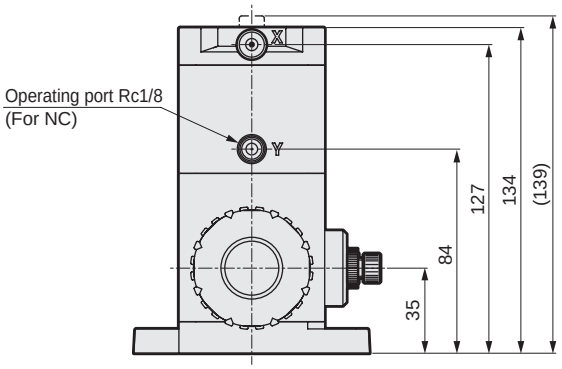
*1 (connection method)	A
25UP	146
25BUP	146
25UR	159
25BUR	162

● 00 ON/OFF only (with indicator) + B Body with bypass

• AMD5*3R-*-00B**



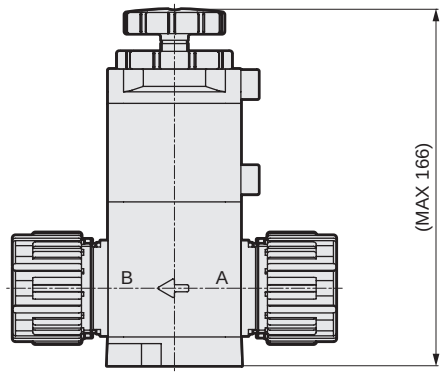




Dimensions

● 10 With flow rate adjustment

• AMD5*3R-*-10***

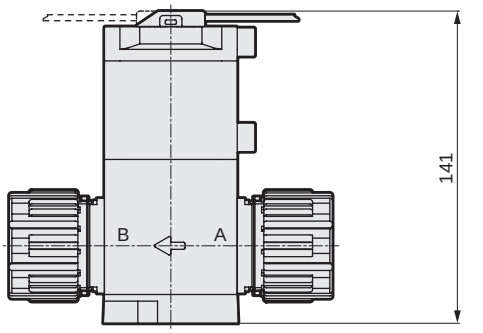


● A* B* C* D* With sensor

• AMD5*3R-*-$^{A\ B\ C\ D}$****

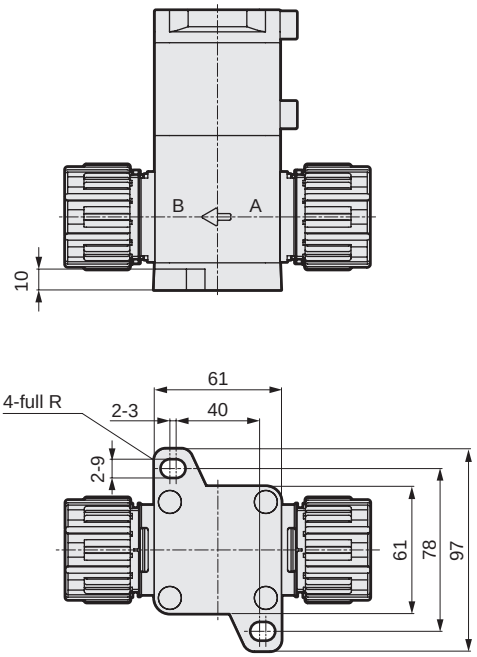
B* D* Cable direction: Opposite side to operating port

A* C* Cable direction: Operating port side



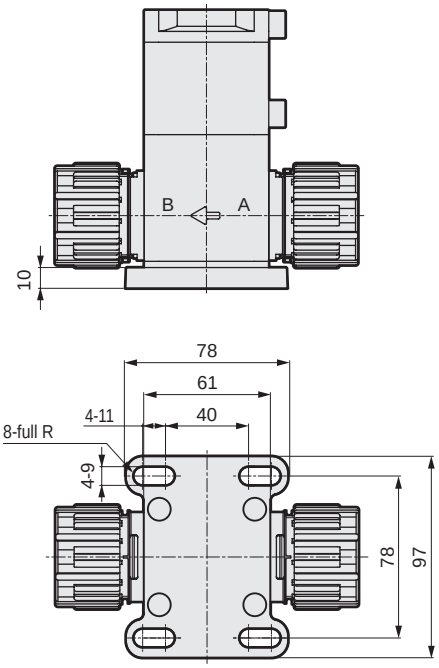
● F Flange mounting

• AMD5*3R-*-***F



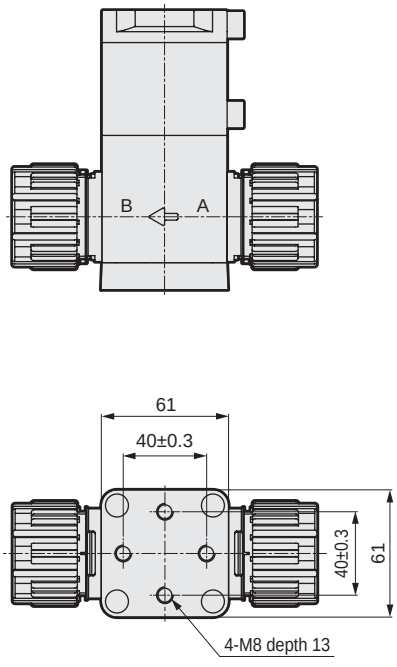
● H 4 pointsFlange mounting

• AMD5*3R-*-***H



● X Bottom mounting

• AMD5*3R-*-***X



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

AMGZ03R Series

● Connection tube size: ø6, 1/4"

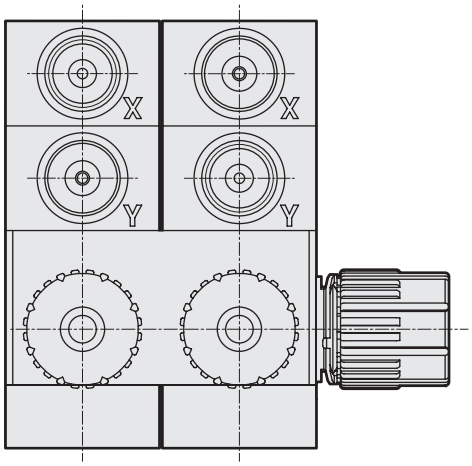
RoHS CAD Made-to-order product

Specifications

Item			AMGZ03R
Working fluid			Pure water, chemical liquids, air, N_2Gas (*1)
Fluid temperature		°C	5 to 120 (*2, *3)
Proof pressure		MPa	1.0
Working pressure (A→B)		MPa	0 to 0.5
Working pressure (B→A)		MPa	0 to 0.5
Valve seat leakage		cm^3/min	0 (water pressure)
Back pressure		MPa	0 to 0.5
Ambient temperature		°C	0 to 60
Frequency			30 cycles/min. or less
Mounting orientation			Unrestricted
Connection			O.D. ø6 tube connection (integrated fitting) O.D. 1/4" tube connection (integrated fitting)
Orifice size			ø3.5, ø4
Operating section	Operating pressure	MPa	NC/NO: 0.4 to 0.5
	Operating port		Rc1/8
Weight		kg	0.13

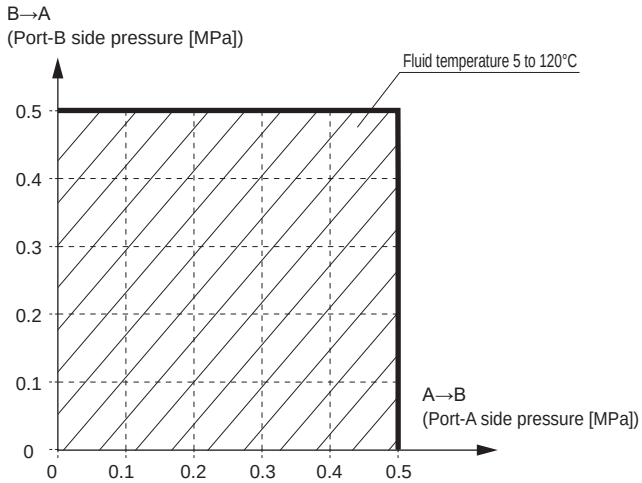
*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*2: For hydrofluoric acid or chemical liquids containing hydrofluoric acid, use within the range of 5 to 80°C.
*3: If the connection is F-LOCK60 Series fittings, the temperature range is 5 to 100°C.

Structure diagram and parts list



Part name	Material
Actuator	PVDF and others
Diaphragm	PTFE
Body	PTFE
Mounting plate	PVDF

Working pressure



⚠ Always read the precautions on Intro Pages 9 to 18 before use.

How to order

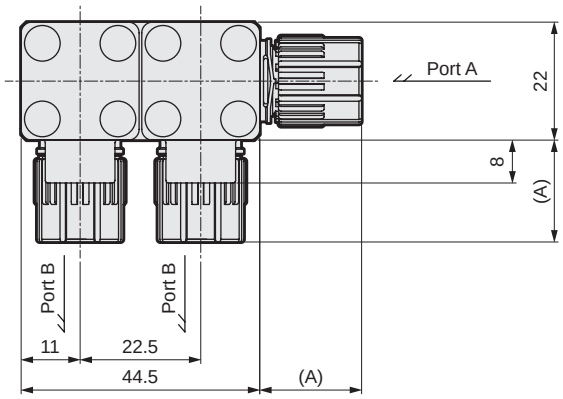
AMGZ03R - 6UP - Z0 L

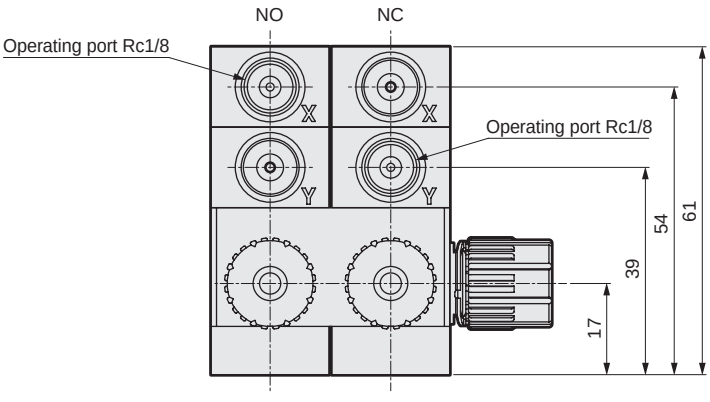
- Model No.
- A Connection
- B Actuator option
- C Port A position

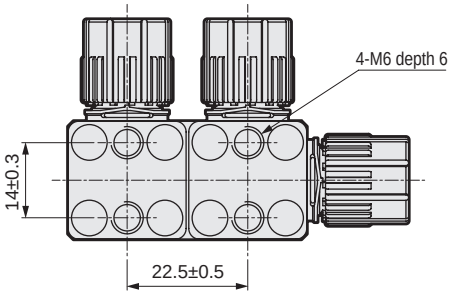
Code	Description / Orifice size	A Connection (Note) 6UP ø6x ø4Tube connection	6UP 1/4"x5/32"Tube connection	8BUP ø6x ø4Tube connection	8BUP 1/4"x5/32"Tube connection
		Super 300 Pillar fitting P series integrated		F-LOCK 60 Series Integrated fitting	
		ø4		ø3.5	
	Body material	PTFE			
B Actuator option					
Z0	ON/OFF only	●	●	●	●
C Port A position					
L	Left	●	●	●	●
R	Right	●	●	●	●

Dimensions

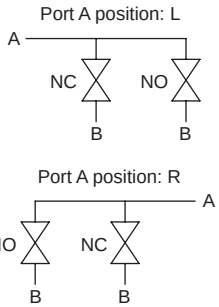
●AMGZ03R- *1 -Z0R

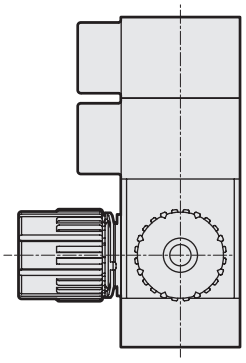




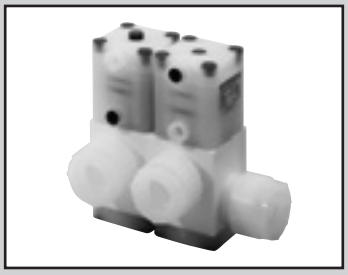


*:NC and NO arrangements differ by port A position. The valve close to the port A side is NC, while the other is NO.





Connection *1	A
6UP	19
8BUP	19
6UR	30
8BUR	31



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

AMG003R Series

● Connection tube size: ø6, ø8, ø10, 1/4″, 3/8"

Made-to-order product

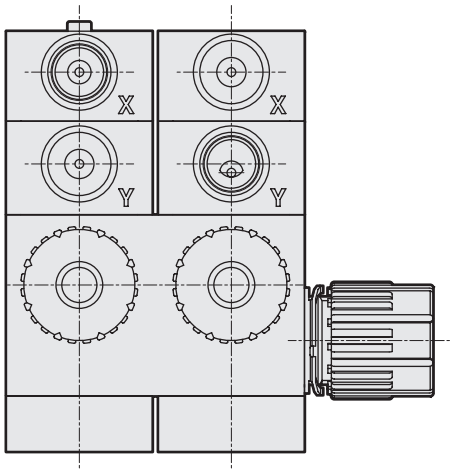
RoHS CAD

Specifications

Item		AMG003R
Working fluid		Chemical liquids, pure water, air, N_2Gas (*1)
Fluid temperature	°C	5 to 120 (*2, *3)
Proof pressure	MPa	1.0
Working pressure (A→B)	MPa	0 to 0.5
Working pressure (B→A)	MPa	0 to 0.5
Valve seat leakage	cm^3/min	0 (water pressure)
Back pressure	MPa	0 to 0.5
Ambient temperature	°C	0 to 60
Frequency		30 cycles/min. or less
Mounting orientation		Unrestricted
Connection		O.D. ø6/ø8/ø10 tube connection (integrated fitting) O.D. 1/4" / 3/8" tube connection (integrated fitting)
Orifice size		ø3.5 to ø8
Operating section	Operating pressure MPa	NC/NO: 0.35 to 0.5
	Operating port	Rc1/8
Weight	kg	0.22

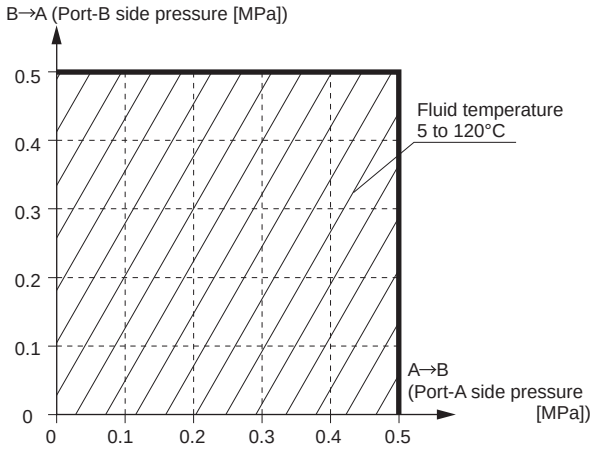
*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*2: For hydrofluoric acid or chemical liquids containing hydrofluoric acid, use within the range of 5 to 80°C.
*3: If the connection method is F-LOCK60 Series fittings, the temperature range is 5 to 100°C.

Structure diagram and parts list



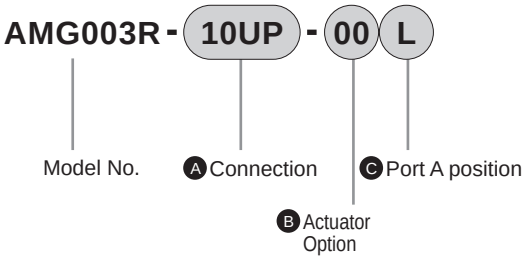
Part name	Material
Actuator	PVDF and others
Diaphragm	PTFE
Body	PTFE
Mounting plate	PVDF

Working pressure



⚠ Always read the precautions on Intro Pages 9 to 18 before use.

How to order



		A Connection									
		6UP	8BUP	8UP	10UP	10BUP	6UR	8BUR	8UR	10UR	10BUR
		Super 300 Pillar fitting P series integrated					F-LOCK 60 Series Integrated fitting				
		ø6xø4Tube connection	1/4"x5/32"Tube connection	ø8xø6Tube connection	ø10xø8Tube connection	3/8"x1/4"Tube connection	ø6xø4Tube connection	1/4"x5/32"Tube connection	ø8xø6Tube connection	ø10xø8Tube connection	3/8"x1/4"Tube connection
Code / Description: Orifice size		ø4		ø6	ø8		ø3.5		ø6	ø7	ø6
Body material		PTFE									
B Actuator option											
00	ON/OFF only (with indicator)	●	●	●	●	●	●	●	●	●	●
10	With flow rate adjustment	●	●	●	●	●	●	●	●	●	●
C Port A position (*1)											
L	Left	●	●	●	●	●	●	●	●	●	●
R	Right	●	●	●	●	●	●	●	●	●	●

Precautions for model No. selection

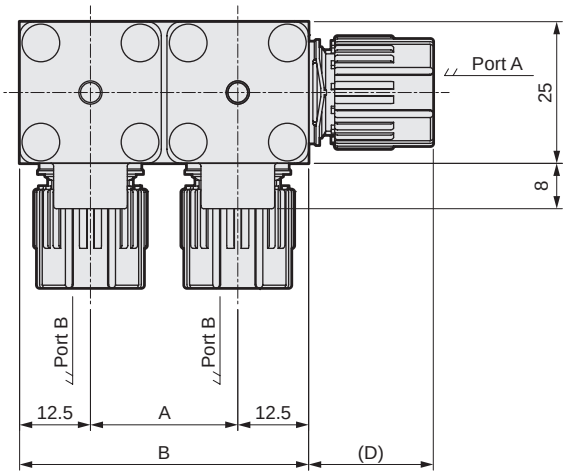
*1: Refer to dimensions for port A position.

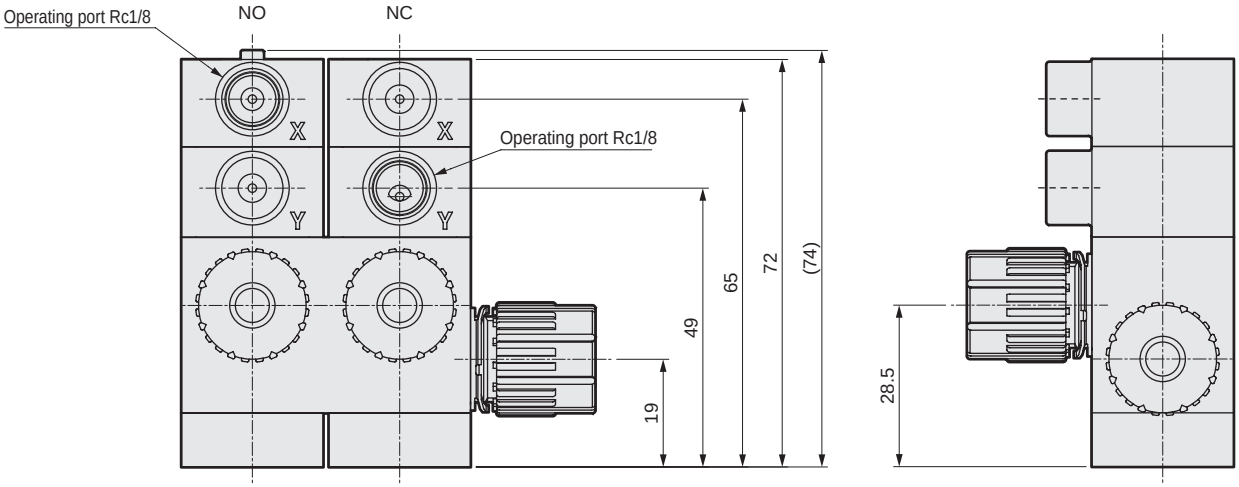
Dimensions

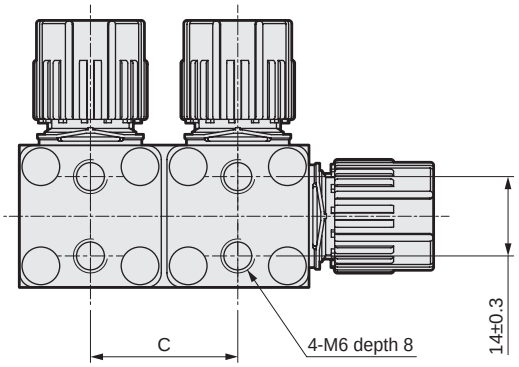
● 00 ON/OFF only (with indicator)

・AMG003R-

*: Note that NC and NO arrangements differ by port A position.
The valve close to the port A side is NC, while the other is NO.







Dimensions

AMG003R

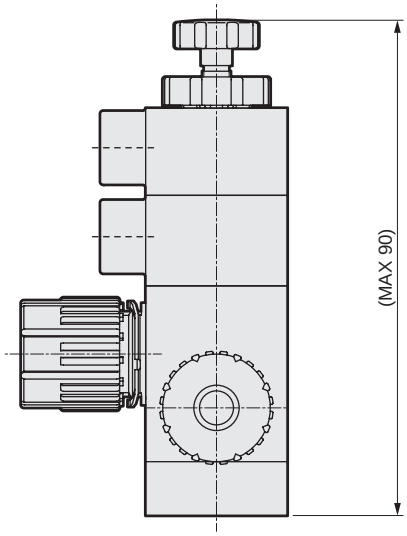
*1 (connection method)	A	B	C
6UP 8BUP 8UP 6UR 8BUR 8UR	26	51	26±0.3
10UP 10BUP 10UR 10BUR	31	56	31±0.3

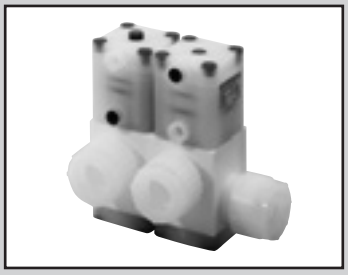
AMG003R, GAMD0*3R

*1 (connection method)	D
6UP	19
8BUP	19
8UP	22
10UP	25
10BUP	25
6UR	30
8BUR	31
8UR	31
10UR	37
10BUR	39

● 10 With flow rate adjustment

・AMG*03R-*-10*





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

AMG$^{3}_{4}$$_{5}$03R Series

- Connection tube size:
  ø10, ø12, ø25, 3/8″, 1/2", 3/4", 1"

Made-to-order product

Export controlled items

*Applicable: AMG403R, 503R

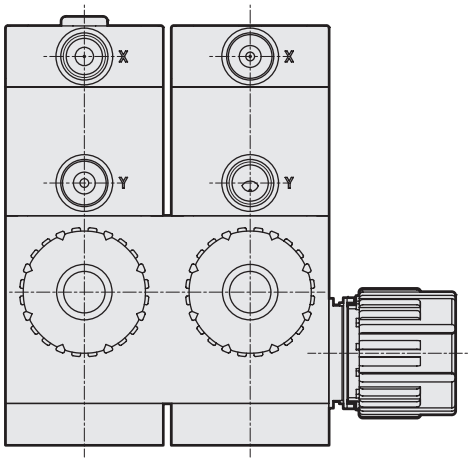
RoHS CAD

Specifications

Item		AMG303R	AMG403R	AMG503R
Working fluid		Chemical liquids, pure water, air, N_2Gas (*1)		
Fluid temperature	°C	5 to 120 (*2, *3)		
Proof pressure	MPa	1.0		
Working pressure (A→B)	MPa	0 to 0.5		
Working pressure (B→A)	MPa	0 to 0.5		
Valve seat leakage	cm^3/min	0 (water pressure)		
Back pressure	MPa	0 to 0.5		
Ambient temperature	°C	0 to 60 (0 to 50 when sensor attached)		
Frequency		30 cycles/min. or less	20 cycle/min. or less	
Mounting orientation		Unrestricted		
Connection		O.D. ø10/ø12 tube connection (Integrated fitting) O.D. 3/8" / 1/2" tube connection (integrated fitting)	O.D. 3/4" tube connection (Integrated fitting)	O.D. ø25 tube connection (Integrated fitting) O.D. 1" tube connection (Integrated fitting)
Orifice size		ø6 to ø10	ø15 to ø16	ø20
Operating section	Operating pressure MPa	NC/NO: 0.35 to 0.5		
	Operating port	Rc1/8		
Sensor		Refer to pages 46 and 47.		
Weight	kg	0.50	1.0	2.1

*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*2: For hydrofluoric acid or chemical liquids containing hydrofluoric acid, use within the range of 5 to 80°C.
*3: If the connection method is F-LOCK60 Series fittings, the temperature range is 5 to 100°C.

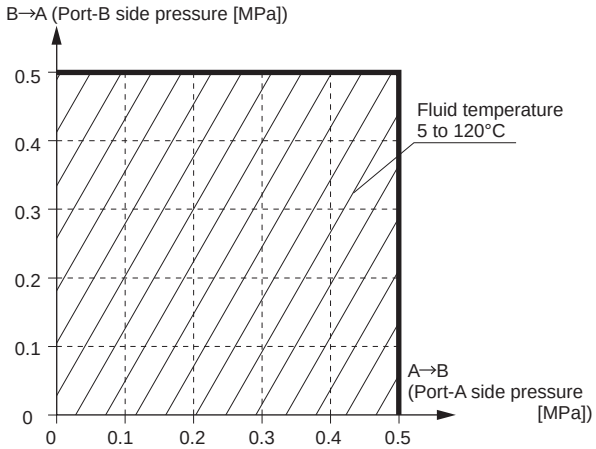
Structure diagram and parts list



Part name	Material
Actuator	PVDF and others
Diaphragm	PTFE
Body	PTFE
Mounting plate	PVDF

Working pressure

●AMG303R, AMG403R, AMG503R



Always read the precautions on Intro Pages 9 to 18 before use.

How to order

AMG303R - 10UP - 00 L

- AMG303R: Model No.
- 10UP: Ⓐ Connection
- 00: Ⓑ Actuator Option
- L: Ⓒ Port A position

				Ⓐ Connection							
				10UP	10BUP	12UP	15BUP	10UR	10BUR	12UR	15BUR
				Super 300 Pillar fitting P series integrated				F-LOCK 60 Series Integrated fitting			
				ø10xø8Tube connection	3/8"x1/4"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection	ø10xø8Tube connection	3/8"x1/4"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection
Code	Description \ Orifice size			ø8		ø10		ø7	ø6	ø9	
Body material				PTFE							
Ⓑ Actuator option											
00	ON/OFF only (with indicator)			●	●	●	●	●	●	●	●
10	With flow rate adjustment			●	●	●	●	●	●	●	●
With sensor	Transistor	Cable direction (Note)	Cable length								
A1	NPN	Operating port side	1m	●	●	●	●	●	●	●	●
A3			3m	●	●	●	●	●	●	●	●
B1		Opposite side to operating port	1m	●	●	●	●	●	●	●	●
B3			3m	●	●	●	●	●	●	●	●
C1	PNP	Operating port side	1m	●	●	●	●	●	●	●	●
D1		Opposite side to operating port	1m	●	●	●	●	●	●	●	●
Ⓒ Port A position (Note)											
L	Left			●	●	●	●	●	●	●	●
R	Right			●	●	●	●	●	●	●	●

Precautions for model No. selection

Note: Refer to Dimensions for sensor cable direction and port A position.

How to order

AMG403R- 20BUP - 00 L

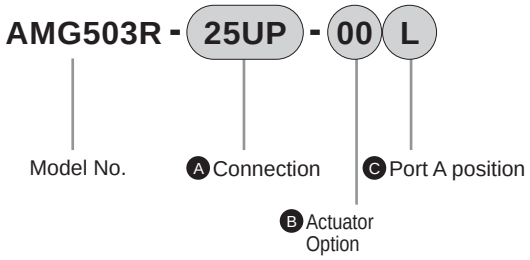
- Model No.
- Ⓐ Connection
- Ⓑ Actuator Option
- Ⓒ Port A position

Code	Description \ Orifice size				Ⓐ Connection 20BUP	Ⓐ Connection 20BUR
					Super 300 Pillar fitting P series integrated	F-LOCK 60 Series Integrated fitting
					3/4"x5/8"Tube connection	3/4"x5/8"Tube connection
	Body material				PTFE	
Ⓑ Actuator option						
00	ON/OFF only (with indicator)				●	●
10	With flow rate adjustment				●	●
With sensor	Transistor	Cable direction (Note)		Cable length		
A1	NPN	Operating port side		1m	●	●
A3				3m	●	●
B1		Opposite side to operating port		1m	●	●
B3				3m	●	●
C1	PNP	Operating port side		1m	●	●
D1		Opposite side to operating port		1m	●	●
Ⓒ Port A position (Note)						
L	Left				●	●
R	Right				●	●

Precautions for model No. selection

Note: Refer to Dimensions for sensor cable direction and port A position.

How to order



		A Connection			
		25UP	25BUP	25UR	25BUR
		Super 300 Pillar fitting P series integrated		F-LOCK 60 Series Integrated fitting	
		ø25xø22Tube connection	1"x7/8"Tube connection	ø25xø22Tube connection	1"x7/8"Tube connection
Code	Description / Orifice size	ø20			
Body material		PTFE			
B Actuator option					
00	ON/OFF only (with indicator)	●	●	●	●
10	With flow rate adjustment	●	●	●	●
With sensor	Transistor / Cable direction (Note) / Cable length				
A1	NPN / Operating port side / 1m	●	●	●	●
A3	NPN / Operating port side / 3m	●	●	●	●
B1	NPN / Opposite side to operating port / 1m	●	●	●	●
B3	NPN / Opposite side to operating port / 3m	●	●	●	●
C1	PNP / Operating port side / 1m	●	●	●	●
D1	PNP / Opposite side to operating port / 1m	●	●	●	●
C Port A position (Note)					
L	Left	●	●	●	●
R	Right	●	●	●	●

Precautions for model No. selection

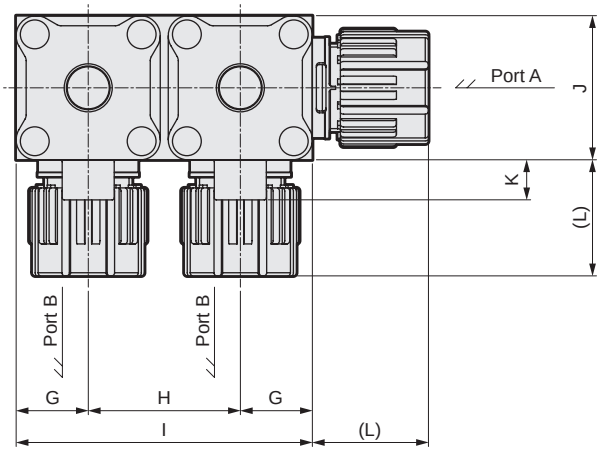
Note: Refer to Dimensions for sensor cable direction and port A position.

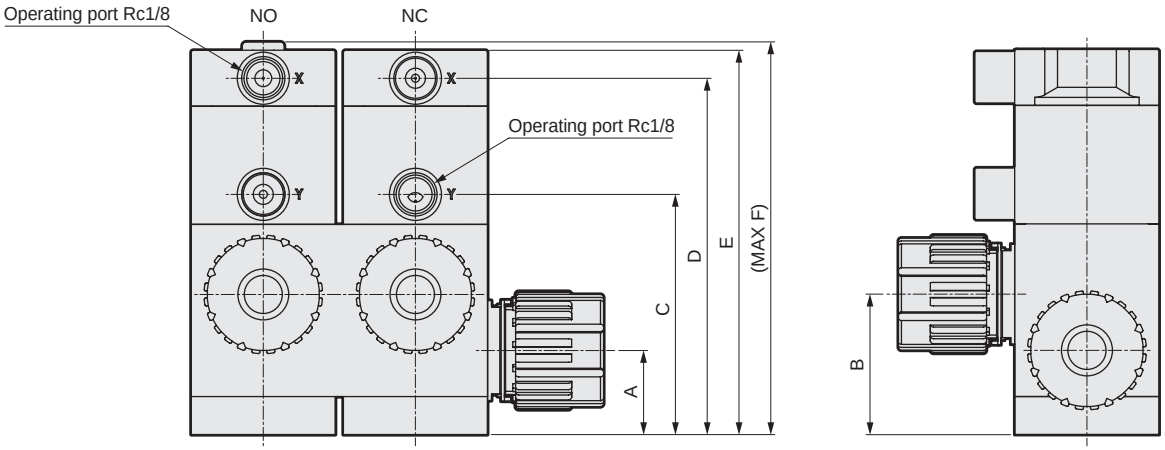
Dimensions

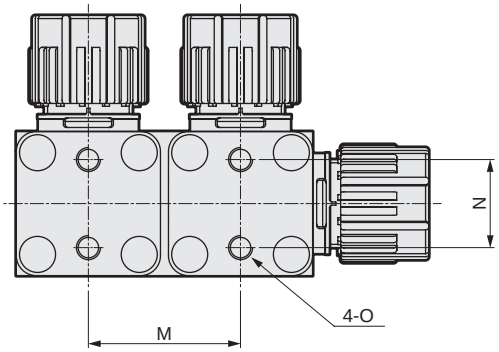
● 00 ON/OFF only (with indicator)

- AMG303R- *1
- AMG403R- *1
- AMG503R- *1

*: Note that NC and NO arrangements differ by port A position.
The valve close to the port A side is NC, while the other is NO.







Dimensions

Model No.	A	B	C	D	E	F	G	H	I	J	K	Q	R
AMG303R	21	35	60	89	96	98	18	38	74	36	10	119	103
AMG403R	27	46	78	118	125	128	23	48	94	46	8	148	132
AMG503R	35	60	99	142	149	154	30	62	122	60	8	181	156

Model No.	M	N	O
AMG303R	38±0.3	22±0.3	M6 depth 9
AMG403R	48±0.4	28±0.3	M8 depth 10
AMG503R	62±0.4	40±0.3	M8 depth 13

AMG303R (10 mm / 3/8")

*1 (connection method)	L
10UP	25
10BUP	25
10UR	37
10BUR	39

AMG303R(12mm / 1/2")

*1 (connection method)	L
12UP	29
15BUP	29
12UR	37
15BUR	39

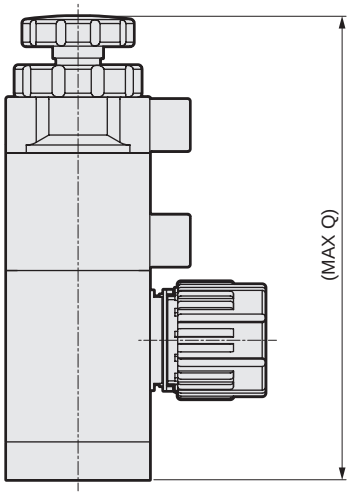
AMG403R

*1 (connection method)	L
20BUP	36
20BUR	44

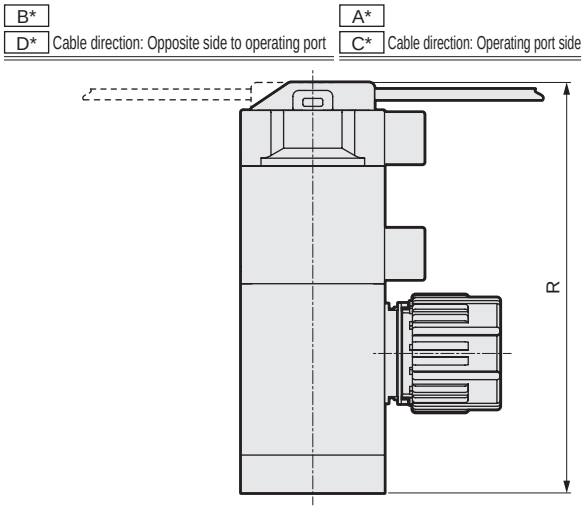
AMG503R

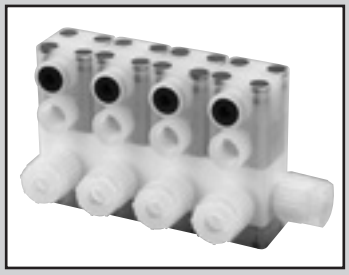
*1 (connection method)	L
25UP	43
25BUP	43
25UR	49.5
25BUR	51

● 10 With flow rate adjustment
• AMG*03R-*-10*



● A* B* C* D* With sensor
• AMG*03R-*-A B C D**





Air operated valve for chemical liquids (manifold/branch valve)

GAMDZ*3R Series

● Connection tube size: ø6, 1/4"

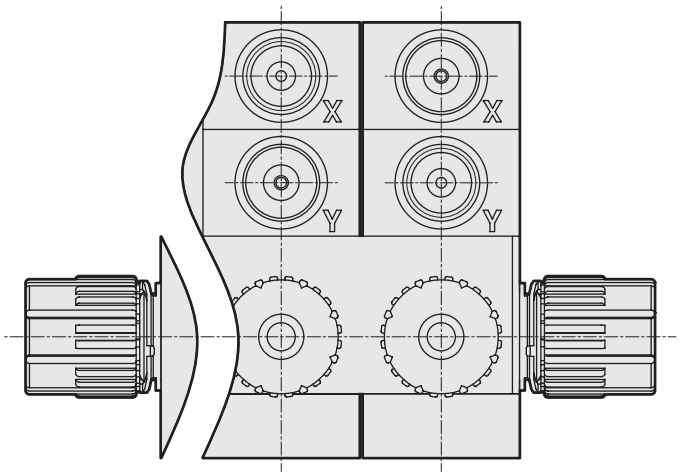
RoHS CAD Made-to-order product

Specifications

Item			GAMDZ*3R
Working fluid			Pure water, chemical liquids, air, N_2Gas (*1)
Fluid temperature		°C	5 to 120 (*2, *3)
Proof pressure		MPa	1.0
Working pressure (A→B)		MPa	0 to 0.5
Working pressure (B→A)		MPa	0 to 0.5
Valve seat leakage		cm^3/min	0 (water pressure)
Back pressure		MPa	0 to 0.5
Ambient temperature		°C	0 to 60
Frequency			30 cycles/min. or less
Mounting orientation			Unrestricted
Connection			O.D. ø6 tube connection (integrated fitting) O.D. 1/4" tube connection (integrated fitting)
Orifice size			ø3.5, ø4
Operating section	Operating pressure	MPa	NC/NO: 0.4 to 0.5, double acting: 0.3 to 0.4
	Operating port		Rc1/8 (operation ports used NC: port Y NO: port X Double acting: ports X, Y)
Weight		kg	0.08 (1 station), 0.14 (2 stations), 0.21 (3 stations), 0.27 (4 stations), 0.33 (5 stations)

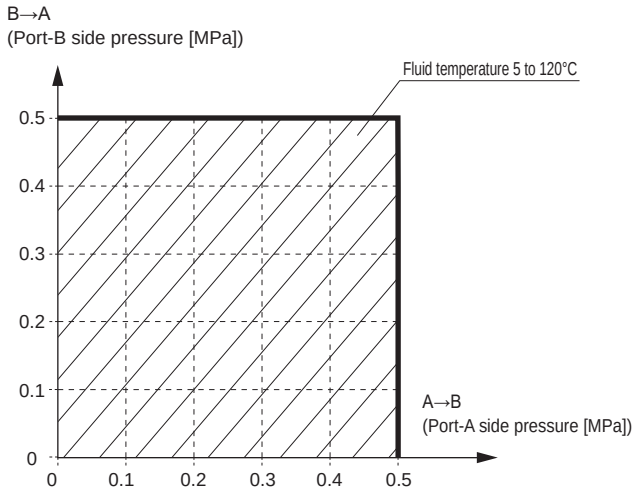
*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*2: For hydrofluoric acid or chemical liquids containing hydrofluoric acid, use within the range of 5 to 80°C.
*3: If the connection is F-LOCK60 Series fittings, the temperature range is 5 to 100°C.

Structure diagram and parts list



Part name	Material
Actuator	PVDF and others
Diaphragm	PTFE
Body	PTFE
Mounting plate	PVDF

Working pressure



⚠ Always read the precautions on Intro Pages 9 to 18 before use.

How to order

GAMDZ **1** 3R - **6UP** - **Z0** **3** **W**

- 1 — Model No.
- 6UP — B Connection
- Z0 — C Actuator option
- 3 — D Station No.
- W — E Port A position

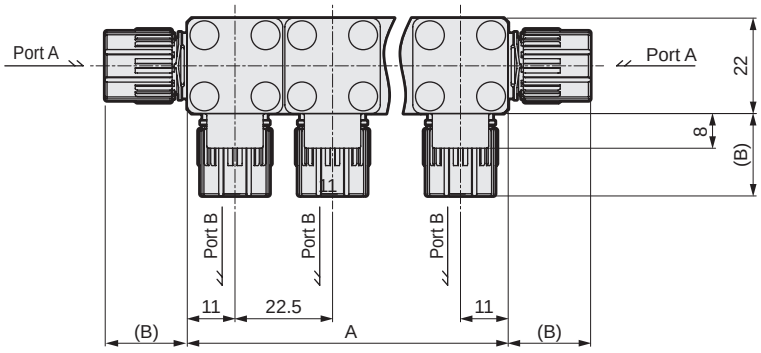
A Actuation	
1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting

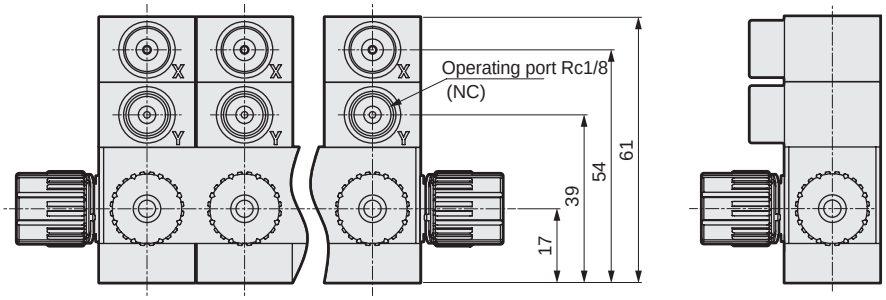
B Connection	6UP	8BUP	6UR	8BUR
	Super 300 Pillar fitting P series integrated		F-LOCK 60 Series Integrated fitting	
	ø6xø4Tube connection	1/4"x5/32"Tube connection	ø6xø4Tube connection	1/4"x5/32"Tube connection
Code / Description / Oliffey size	ø4		ø3.5	
Body material	PTFE			
C Actuator option				
Z0 ON/OFF only	●	●	●	●
D Station No.				
1 1 stations	●	●	●	●
to to				
5 5 stations				
E Port A position				
L Left	●	●	●	●
R Right	●	●	●	●
W Both sides	●	●	●	●

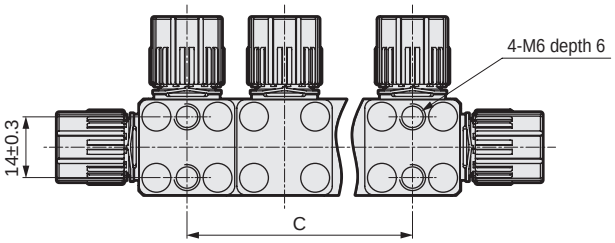
Dimensions

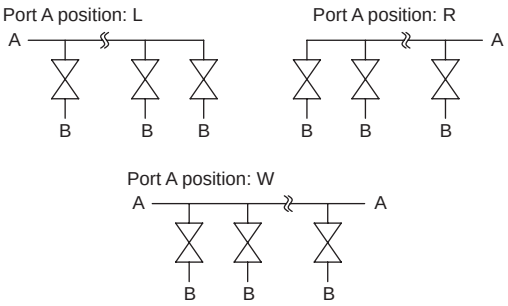
●ON-OFF only type

• GAMDZ*3R- *1



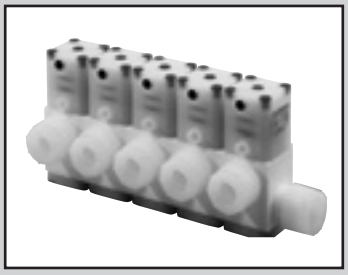






Station No.	A	C
1 stations	22	-
2 stations	44.5	22.5±0.5
3 stations	67	45±0.7
4 stations	89.5	67.5±1.0
5 stations	112	90±1.0

Connection *1	B
6UP	19
8BUP	19
6UR	30
8BUR	31



Air operated valve for chemical liquids (manifold/branch valve)

GAMD0*3R Series

Made-to-order product

●Connection tube size: ø6, ø8, ø10, 1/4″, 3/8"

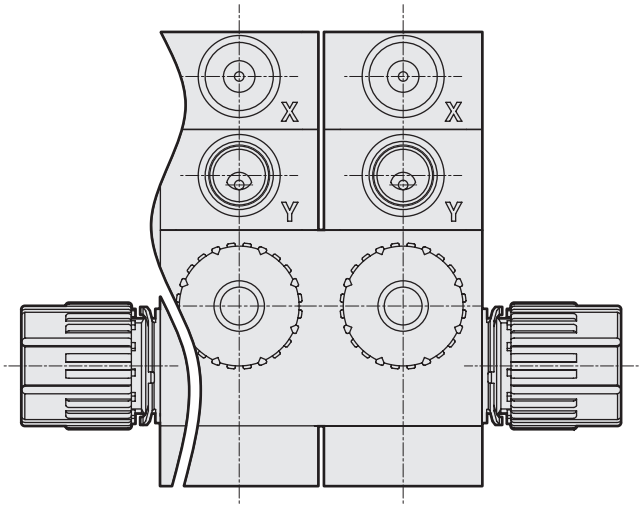
RoHS CAD

Specifications

Item		GAMD0*3R
Working fluid		Chemical liquids, pure water, air, N_2Gas (*1)
Fluid temperature	°C	5 to 120 (*2, *3)
Proof pressure	MPa	1.0
Working pressure (A→B)	MPa	0 to 0.5
Working pressure (B→A)	MPa	0 to 0.5
Valve seat leakage	cm^3/min	0 (water pressure)
Back pressure	MPa	0 to 0.5
Ambient temperature	°C	0 to 60
Frequency		30 cycles/min. or less
Mounting orientation		Unrestricted
Connection		O.D. ø6/ø8/ø10 tube connection (integrated fitting) O.D. 1/4" / 3/8" tube connection (integrated fitting)
Orifice size		ø3.5 to ø8
Operating section	Operating pressure MPa	NC/NO: 0.35 to 0.5 Double acting: 0.3 to 0.4
	Operating port	Rc1/8 (operation ports used NC: port Y NO: port X Double acting: ports X, Y)
Weight	kg	0.12 (1 station), 0.23 (2 stations), 0.34 (3 stations), 0.45 (4 stations), 0.56 (5 stations)

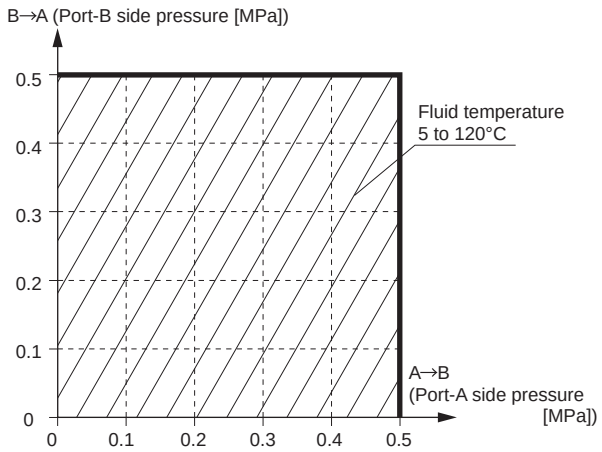
*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*2: For hydrofluoric acid or chemical liquids containing hydrofluoric acid, use within the range of 5 to 80°C.
*3: If the connection is F-LOCK60 Series fittings, the temperature range is 5 to 100°C.

Structure diagram and parts list



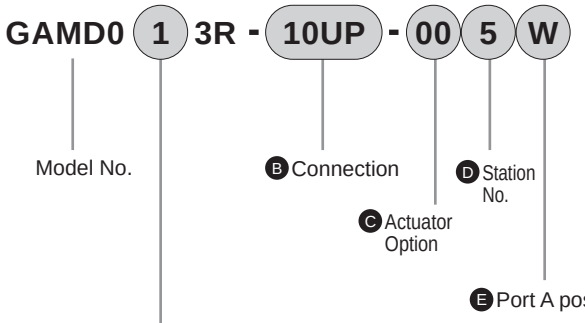
Part name	Material
Actuator	PVDF and others
Diaphragm	PTFE
Body	PTFE
Mounting plate	PVDF

Working pressure



Always read the precautions on Intro Pages 9 to 18 before use.

How to order



A Actuation	
1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting

B Connection	6UP	8BUP	8UP	10UP	10BUP	6UR	8BUR	8UR	10UR	10BUR
	Super 300 Pillar fitting P series integrated					F-LOCK 60 Series Integrated fitting				
	ø6xø4Tube connection	1/4"x5/32"Tube connection	ø8xø6Tube connection	ø10xø8Tube connection	3/8"x1/4"Tube connection	ø6xø4Tube connection	1/4"x5/32"Tube connection	ø8xø6Tube connection	ø10xø8Tube connection	3/8"x1/4"Tube connection
Code / Description: Orifice size	ø4		ø6	ø8		ø3.5		ø6	ø7	ø6
Body material	PTFE									
C Actuator option										
00 ON/OFF only (with indicator)	●	●	●	●	●	●	●	●	●	●
10 With flow rate adjustment	●	●	●	●	●	●	●	●	●	●
D Station No. (*1)										
1 1 stations / **to** to / **5** 5 stations	●	●	●	●	●	●	●	●	●	●
E Port A position(*1)										
L Left	●	●	●	●	●	●	●	●	●	●
R Right	●	●	●	●	●	●	●	●	●	●
W Both sides	●	●	●	●	●	●	●	●	●	●

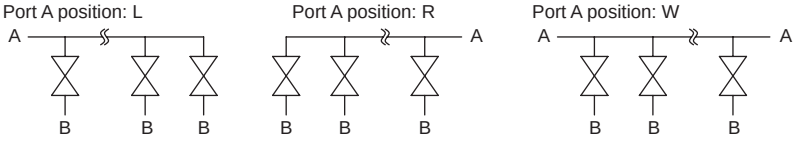
Precautions for model No. selection

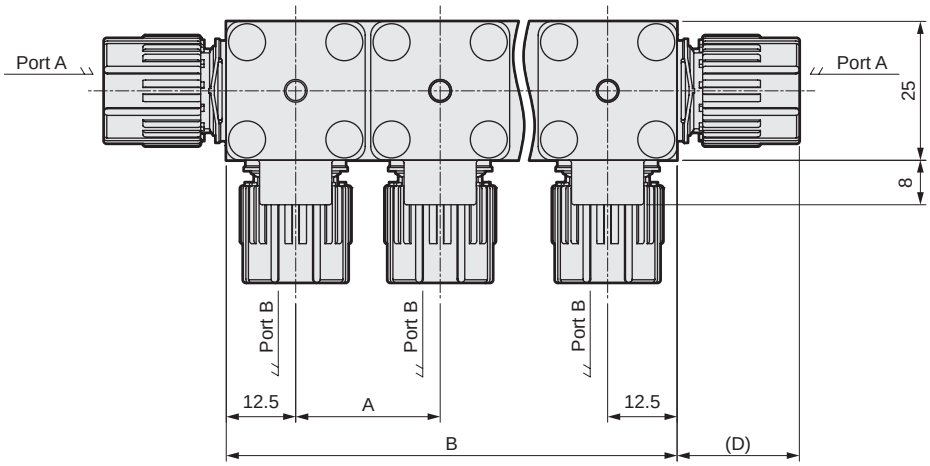
*1: Refer to dimensions for station No. and port A position.

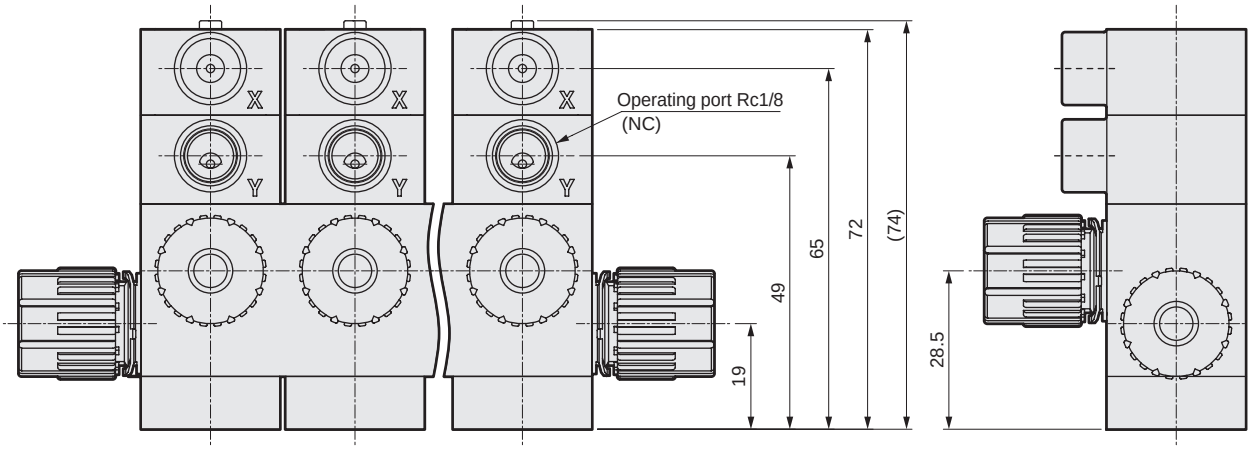
Dimensions

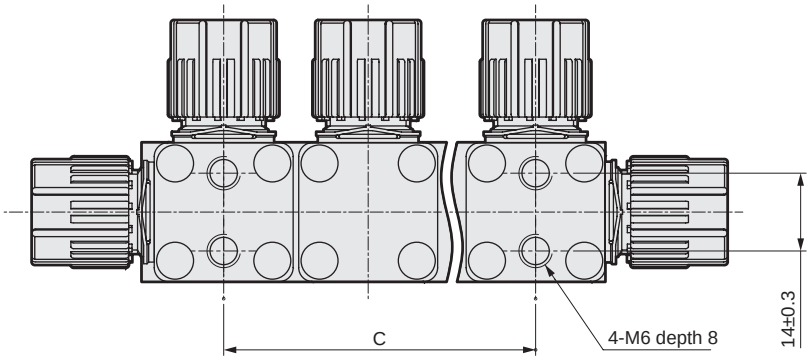
● 00 ON/OFF only (with indicator)

• GAMD0*3R- *1









Dimensions

GAMD0*3R

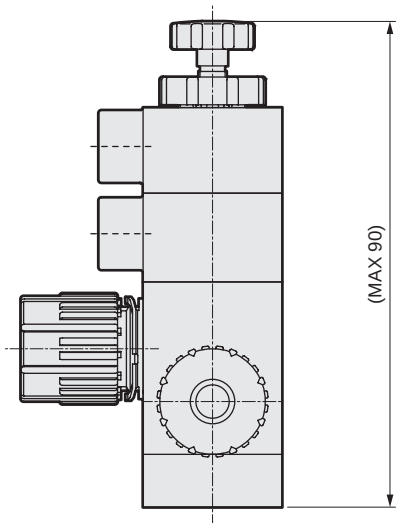
*1 (connection method)	D
6UP	19
8BUP	19
8UP	22
10UP	25
10BUP	25
6UR	30
8BUR	31
8UR	31
10UR	37
10BUR	39

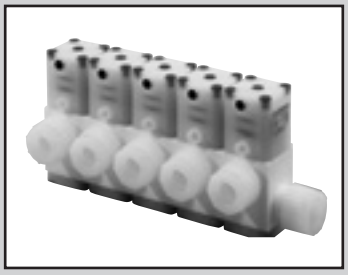
GAMD0*3R

*1 (connection method)	Station No.	A	B	C
6UP 8BUP 8UP 6UR 8BUR 8UR	1	-	26	-
	2	26	51	26±0.3
	3	26	77	52±0.4
	4	26	103	78±0.4
	5	26	129	104±0.5
10UP 10BUP 10UR 10BUR	1	-	31	-
	2	31	56	31±0.3
	3	31	87	62±0.4
	4	31	118	93±0.5
	5	31	149	124±0.5

● 10 With flow rate adjustment

• GAMD**3R-*-10**





Air operated valve for chemical liquids (manifold/branch valve)

GAMD$^{3}_{4}_{5}$*3R Series

Made-to-order product

Export controlled items

* Applicable: GAMD4*3R, 5*3R

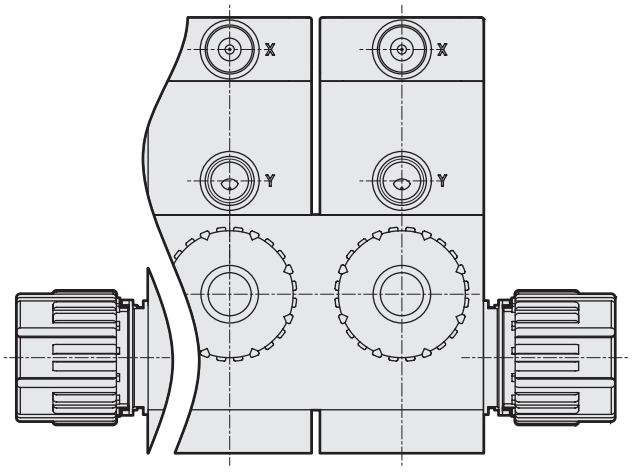
● Connection tube size:
ø10, ø12, ø25, 3/8",
1/2", 3/4", 1"

Specifications

Item			GAMD3*3R	GAMD4*3R	GAMD5*3R
Working fluid			Chemical liquids, pure water, air, N_2Gas (*1)		
Fluid temperature		°C	5 to 120 (*2, *3)		
Proof pressure		MPa	1.0		
Working pressure (A→B)		MPa	0 to 0.5		
Working pressure (B→A)		MPa	0 to 0.5		
Valve seat leakage		cm^3/min	0 (water pressure)		
Back pressure		MPa	0 to 0.5		
Ambient temperature		°C	0 to 60 (0 to 50 when sensor attached)		
Frequency			30 cycles/min. or less	20 cycle/min. or less	
Mounting orientation			Unrestricted		
Connection			O.D. ø10/ø12 tube connection (Integrated fitting) O.D. 3/8" / 1/2" tube connection (integrated fitting)	O.D. 3/4" tube connection (Integrated fitting)	O.D. ø25 tube connection (Integrated fitting) O.D. 1" tube connection (Integrated fitting)
Orifice size			ø6 to ø10	ø15 to ø16	ø20
Operating section	Operating pressure MPa		NC/NO: 0.35 to 0.5 Double acting: 0.3 to 0.4		
	Operating port		Rc1/8 (operation ports used NC: port Y NO: port X Double acting: ports X, Y)		
Sensor			Refer to pages 46 and 47.		
Weight	kg	1 stations	0.26	0.54	1.2
		2 stations	0.52	1.1	2.5
		3 stations	0.78	1.6	3.9
		4 stations	1.0	2.1	5.2
		5 stations	1.3	2.6	-

*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*2: For hydrofluoric acid or chemical liquids containing hydrofluoric acid, use within the range of 5 to 80°C.
*3: If the connection is F-LOCK60 Series fittings, the temperature range is 5 to 100°C.

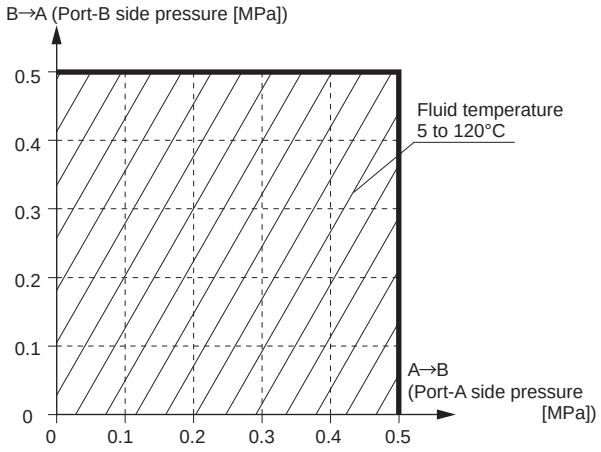
Structure diagram and parts list



Part name	Material
Actuator	PVDF and others
Diaphragm	PTFE
Body	PTFE
Mounting plate	PVDF

Working pressure

●GAMD3*3R, GAMD4*3R, GAMD5*3R



⚠ Always read the precautions on Intro Pages 9 to 18 before use.

How to order

GAMD3 (1) 3R - (10UP) - (00) (5) (W)

- 1 — Model No.
- Ⓐ Actuation
- Ⓑ Connection
- Ⓒ Actuator Option
- Ⓓ Station No.
- Ⓔ Port A position

Ⓐ Actuation	
1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting

Ⓑ Connection	10UP	10BUP	12UP	15BUP	10UR	10BUR	12UR	15BUR
	Super 300 Pillar fitting P series integrated				F-LOCK 60 Series Integrated fitting			
	ø10xø8Tube connection	3/8"x1/4"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection	ø10xø8Tube connection	3/8"x1/4"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection
Orifice size	ø8		ø10		ø7	ø6	ø9	
Body material	PTFE							

Ⓑ Actuator option										
00	ON/OFF only (with indicator)			●	●	●	●	●	●	●	●
10	With flow rate adjustment			●	●	●	●	●	●	●	●
With sensor	Transistor	Cable direction (Note)	Cable length								
A1	NPN	Operating port side	1m	●	●	●	●	●	●	●	●
A3			3m	●	●	●	●	●	●	●	●
B1		Opposite side to operating port	1m	●	●	●	●	●	●	●	●
B3			3m	●	●	●	●	●	●	●	●
C1	PNP	Operating port side	1m	●	●	●	●	●	●	●	●
D1		Opposite side to operating port	1m	●	●	●	●	●	●	●	●

Ⓓ Station No. (Note)									
1	1 stations	●	●	●	●	●	●	●	●
to	to								
5	5 stations								

Ⓔ Port A position(Note)									
L	Left	●	●	●	●	●	●	●	●
R	Right	●	●	●	●	●	●	●	●
W	Both sides	●	●	●	●	●	●	●	●

Precautions for model No. selection

Note: Refer to Dimensions for sensor cable direction, station No. and port A position.

How to order

GAMD4 (A) 3R - (B) - (C) (D) (E)

- (A) Actuation
- (B) Connection
- (C) Actuator Option
- (D) Station No.
- (E) Port A position

(A) Actuation	
1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting

(B) Connection	**20BUP**	**20BUR**
	Super 300 Pillar fitting P series integrated	F-LOCK 60 Series Integrated fitting
	3/4"x5/8"Tube connection	3/4"x5/8"Tube connection
Code / Description \ Orifice size	ø16	ø15
Body material	PTFE	

(C) Actuator option					
00	ON/OFF only (with indicator)			●	●
10	With flow rate adjustment			●	●
With sensor	Transistor	Cable direction (Note)	Cable length		
A1	NPN	Operating port side	1m	●	●
A3			3m	●	●
B1		Opposite side to operating port	1m	●	●
B3			3m	●	●
C1	PNP	Operating port side	1m	●	●
D1		Opposite side to operating port	1m	●	●

(D) Station No. (Note)			
1	1 stations	●	●
to	to		
5	5 stations		

(E) Port A position(Note)			
L	Left	●	●
R	Right	●	●
W	Both sides	●	●

Precautions for model No. selection

Note: Refer to Dimensions for sensor cable direction, station No. and port A position.

How to order

GAMD5 (1) 3R - (25UP) - (00) (4) (W)

- 1 — Model No.
- Ⓐ Actuation
- Ⓑ Connection
- Ⓒ Actuator Option
- Ⓓ Station No.
- Ⓔ Port A position

Ⓐ Actuation	
1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting

Ⓑ Connection			
25UP	25BUP	25UR	25BUR
Super 300 Pillar fitting P series integrated		F-LOCK 60 Series Integrated fitting	
ø25xø22 Tube connection	1"x7/8" Tube connection	ø25xø22 Tube connection	1"x7/8" Tube connection

Code / Description	Orifice size			ø20			
Body material				PTFE			
Ⓒ Actuator option							
00	ON/OFF only (with indicator)			●	●	●	●
10	With flow rate adjustment			●	●	●	●
With sensor	Transistor	Cable direction (Note)	Cable length				
A1	NPN	Operating port side	1m	●	●	●	●
A3			3m	●	●	●	●
B1		Opposite side to operating port	1m	●	●	●	●
B3			3m	●	●	●	●
C1	PNP	Operating port side	1m	●	●	●	●
D1		Opposite side to operating port	1m	●	●	●	●
Ⓓ Station No.(Note)							
1	1 stations			●	●	●	●
to	to						
4	4 stations						
Ⓔ Port A position(Note)							
L	Left			●	●	●	●
R	Right			●	●	●	●
W	Both sides			●	●	●	●

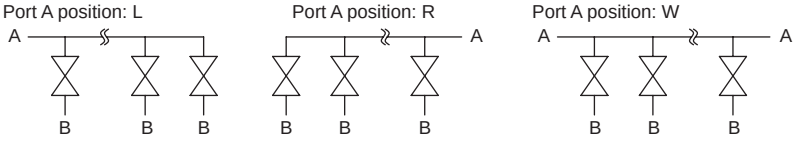
Precautions for model No. selection

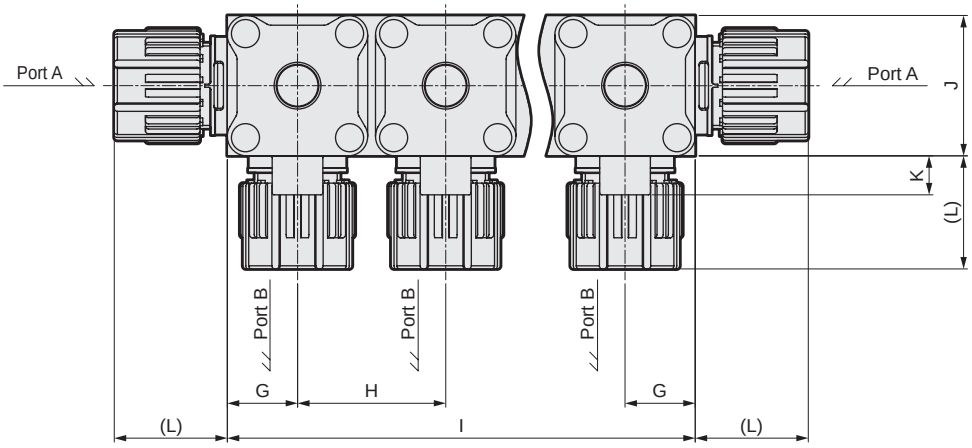
Note: Refer to Dimensions for sensor cable direction, station No. and port A position.

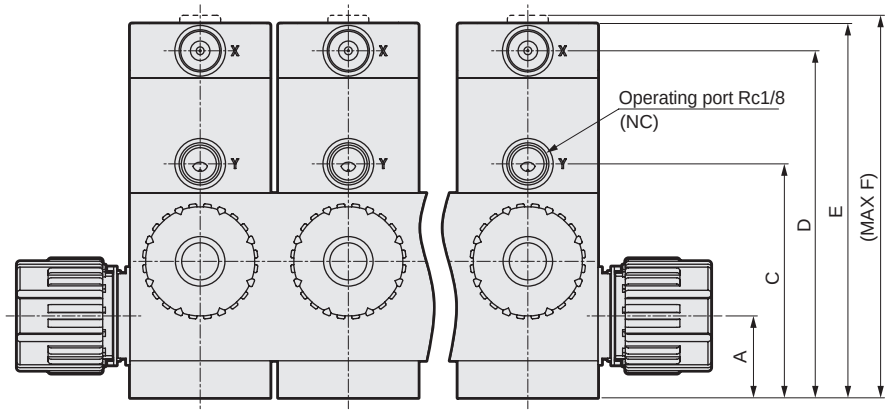
Dimensions

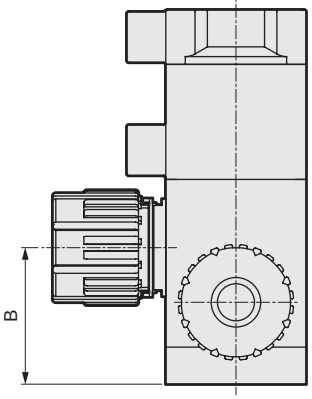
● 00 ON/OFF only (with indicator)

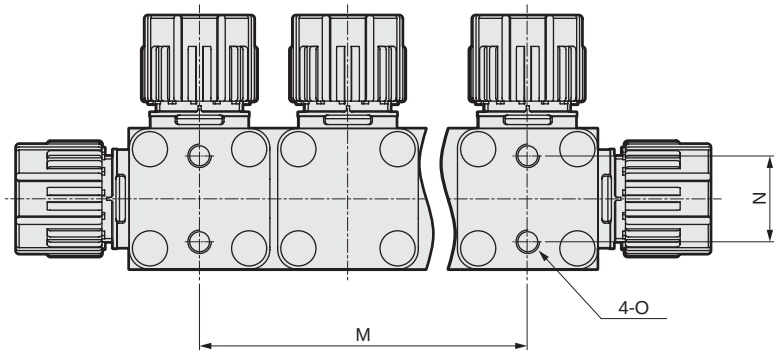
- GAMD3*3R- *1
- GAMD4*3R- *1
- GAMD5*3R- *1











Dimensions

Model No.	A	B	C	D	E	F	G	H	J	K	Q	R
GAMD3*3R	21	35	60	89	96	98	18	38	36	10	119	103
GAMD4*3R	27	46	78	118	125	128	23	48	46	8	148	132
GAMD5*3R	35	60	99	142	149	154	30	62	60	8	181	156

Station No.	Model No.	I	M	N	O
1	GAMD3*3R	36	-	22±0.3	M6 depth 9
	GAMD4*3R	46	-	28±0.3	M8 depth 10
	GAMD5*3R	60	-	40±0.3	M8 depth 13
2	GAMD3*3R	74	38±0.3	22±0.3	M6 depth 9
	GAMD4*3R	94	48±0.4	28±0.3	M8 depth 10
	GAMD5*3R	122	62±0.4	40±0.3	M8 depth 13
3	GAMD3*3R	112	76±0.4	22±0.3	M6 depth 9
	GAMD4*3R	142	96±0.5	28±0.3	M8 depth 10
	GAMD5*3R	184	124±0.5	40±0.3	M8 depth 13
4	GAMD3*3R	150	114±0.5	22±0.3	M6 depth 9
	GAMD4*3R	190	144±0.5	28±0.3	M8 depth 10
	GAMD5*3R	246	186±0.7	40±0.3	M8 depth 13
5	GAMD3*3R	188	152±0.7	22±0.3	M6 depth 9
	GAMD4*3R	238	192±0.7	28±0.3	M8 depth 10

GAMD3*3R (10 mm, 3/8")

*1 (connection method)	L
10UP	25
10BUP	25
10UR	37
10BUR	39

GAMD3*3R(12mm / 1/2")

*1 (connection method)	L
12UP	29
15BUP	29
12UR	37
15BUR	39

GAMD4*3R

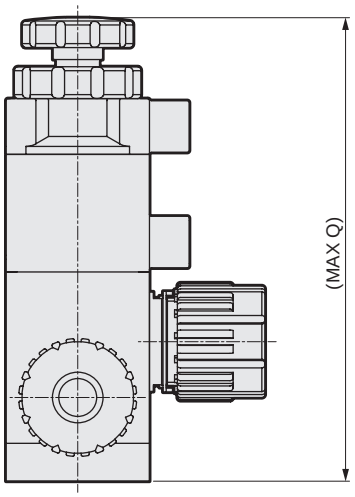
*1 (connection method)	L
20BUP	36
20BUR	44

GAMD5*3R

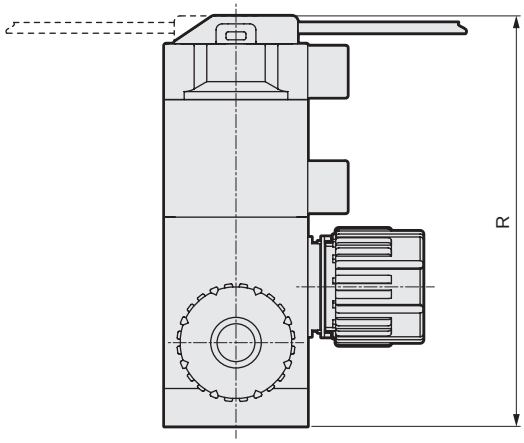
*1 (connection method)	L
25UP	43
25BUP	43
25UR	49.5
25BUR	51

● 10 With flow rate adjustment
• GAMD**3R-*-10**

● A* B* C* D* With sensor
• GAMD**3R-*-A/B/C/D** *



B* D* Cable direction: Opposite side to operating port
A* C* Cable direction: Operating port side

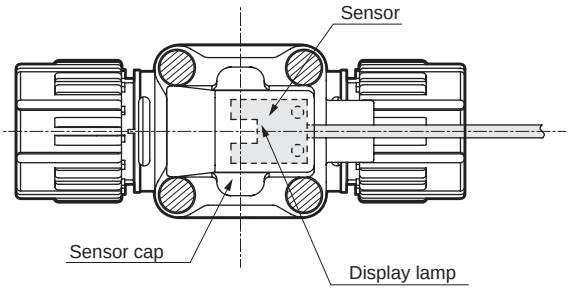


[Sensor specifications]

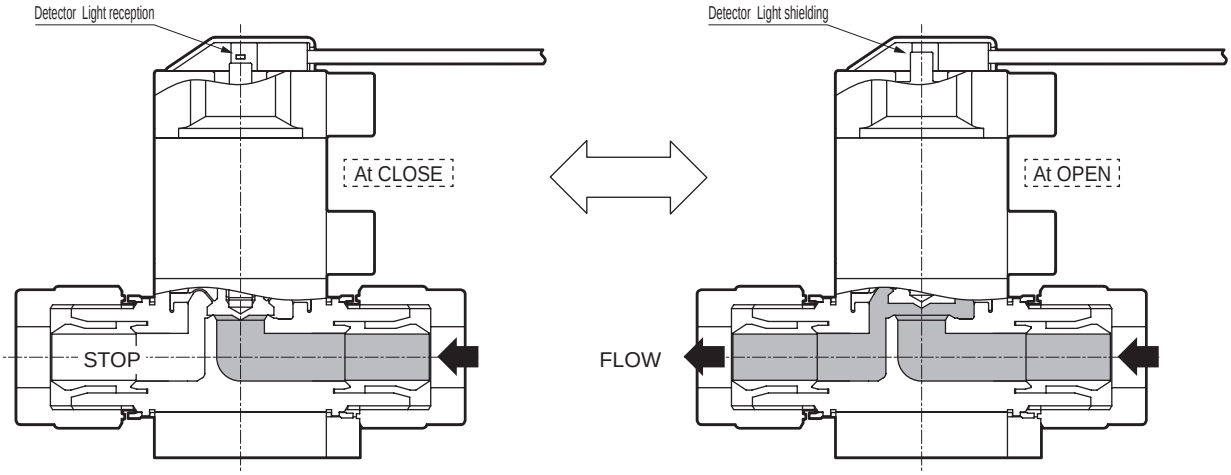
Actuator Option code	A1, B1	A3, B3	C1, D1
Sensor	Micro photo sensor PM-25 Series (Panasonic Devices SUNX Co., Ltd.)		
Switch output	NPN transistor/open collector • Max. inrush current 50 mA • Applied voltage 30 VDC or less (between output and 0 V) • Residual voltage: 2V or less		PNP transistor/open collector • Max. outflow current 50 mA • Applied voltage 30 VDC or less (between output and +V) • Residual voltage: 2V or less
Display lamp	Orange LED		
Power supply voltage	5 to 24 VDC ±10% ripple P-P 10% or less		
Current consumption	15 mA or less		
Operating ambient temperature	0 to 50°C (no condensation or freezing)		
Operating ambient humidity	5 to 85%RH, in storage: 5 to 95%RH		
Operating ambient illumination	Fluorescent light: light-receiving surface luminance 1000 Lx or less		
Withstand voltage	1000 VAC for 1 minute applied to all charged sections/between cases		
Insulation resistance	250 MΩ and over with 20 VDC megger all charged sections/between cases		
Material	Case: PBT, display: polycarbonate		
Cable type	0.09 mm^2 4-conductor cabtyre cable (*3, *4)		
Cable length (*12)	1m	3m	1m

*1: Since the output is not equipped with a short-circuit protection circuit, perform connections carefully. Do not directly connect power or capacity loads. Incorrect wiring could result in damage.
*2: Be sure to insulate unused output lines.
*3: It cannot be used in movable parts.
*4: Cable extension is possible, but extending the cable will cause voltage drop. Ensure that the supply voltage of the supplied sensor cable end is within the specified rating.
*5: Never use this product in an explosive gas atmosphere. The sensor does not have an explosive-proof structure.
Never use in an explosive gas atmosphere as explosions or fires could result.
*6: This product cannot be used in high steam and dusty environments or in direct contact with water, chemicals, etc., or in atmospheres of corrosive gases.
*7: No special ambient light countermeasures have been taken. Take care that light does not contact the sensor light-receiving unit.
*8: Avoid using in a transient state (50 ms) after power is turned ON.
*9: Contact CKD if the sensor needs to be replaced.
*10: Do not apply tensile strength to the cable. Failure to observe this could result in disconnection, damage, or malfunction.
*11: Do not remove the sensor or sensor cap.
*12: Contact CKD for cables longer than 1 m or 3 m.
*13: Refer to the most recent manufacturer's catalog upon use.

Valve operation and sensor operation



Valve operation			At CLOSE	At OPEN
Sensor	Detector		Light reception	Light shielding
	Display lamp		ON	OFF
	Output 1	Lead wire color: Black	Output ON	Output OFF
	Output 2	Lead wire color: White	Output OFF	Output ON



Air operated valve for chemical liquids

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

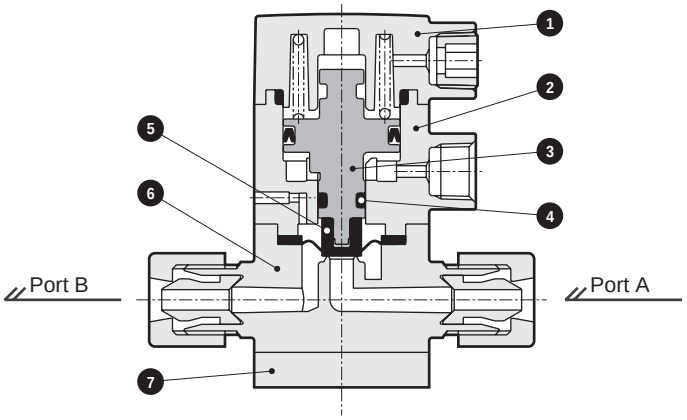
● Connection tube size: ø6, ø6.35, 1/4", (Rc1/8)

Specifications

Item		AMD0$^{1}_{2}$2-*-4	
Working fluid		Pure water, chemical liquids, air, N_2Gas (*1)	
Fluid temperature	°C	5 to 100 (*2)	
Proof pressure	MPa	1.0	
Working pressure (A→B)	MPa	0 to 0.5	
Working pressure (B→A)	MPa	0 to 0.3	
Valve seat leakage	cm^3/min	0 (water pressure)	
Back pressure	MPa	0 to 0.3	
Ambient temperature	°C	0 to 60	
Frequency		30 cycles/min. or less	
Mounting orientation		Unrestricted	
Connection		Rc1/8, O.D. ø6 tube connection (integrated fitting), OD1/4" tube connection (integrated fitting)	
Orifice size		ø3.5	ø4
Cv		0.28	0.32
Operating section	Operating pressure MPa	NC/NO 0.35 to 0.5, double acting 0.3 to 0.4 (0.2 to 0.3 for fluid code "P")	
	Operating port	Rc1/8	
Weight	kg	0.09	

*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*2: For use with hydrofluoric acid, or when the fluid temperature exceeds 40°C, consult with CKD.
*3: Refer to page 117 for flow characteristics.

Internal structure and parts list



Part number	Part name	Material (by fluid code)		
		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 vary depending on the model number. Contact CKD for details.

⚠ Always read the precautions on Intro Pages 9 to 18 before use.

How to order

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

- Model No.
- (A) Actuation
- (B) Connection
- Orifice: Indication of diameter
- (C) Option
- (D) Operating port direction
- (E) Fluid

(A) Actuation

1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting

(B) Connection

6	6US	8BUS	6UP	8BUP	6UF	8BUF	6UR	8BUR	6UK	8BUK	8BUW
Rc 1/8	Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20 Series Integrated fitting		F-LOCK 60 Series Integrated fitting		Final Lock Fitting Integrated		Flaretek Fitting Integrated
	ø6xø4Tube connection	1/4"x5/32"Tube connection	ø6xø4Tube connection	1/4"x5/32"Tube connection	ø6xø4Tube connection	ø20, 6.35xø20, 4.3Tube connection	ø6xø4Tube connection	1/4"x5/32"Tube connection	ø6xø4Tube connection	1/4"x5/32"Tube connection	1/4"x5/32"Tube connection
Orifice size	ø4						ø3.5		ø4		ø3

(C) Option

		Body material (PFA: PFA molded body, PTFE: PTFE machined body)											
0	ON/OFF only	PFA	PFA		PFA		PFA		PFA		PFA		PTFE
1	With flow rate adjustment												
6	ON/OFF / with indicator												

(D) Operating port direction

4	With valve viewed from above, ← indicates fluid flow in the direction of ⇐ indicates the operating port direction	●	●	●	●	●	●	●	●	●	●	●	●
1		●	●	●	●	●	●	●	●	●	●	●	●
2		●	●	●	●	●	●	●	●	●	●	●	●
3		●	●	●	●	●	●	●	●	●	●	●	●

(E) Fluid code

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

* Machined PTFE products are on a per-order basis.

●Model No. for bottom mounting (Orifice size indication and hyphen between (C) and (D) is not required)

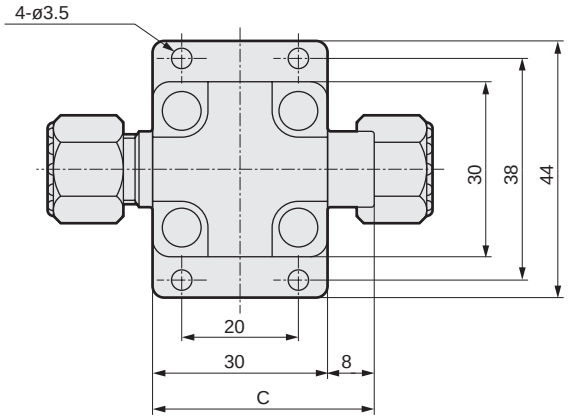
AMD0 (A) 2 - (B) - (C) (D) (E) X

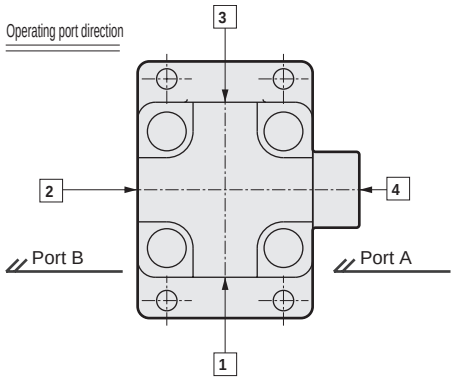
- Bottom mounting

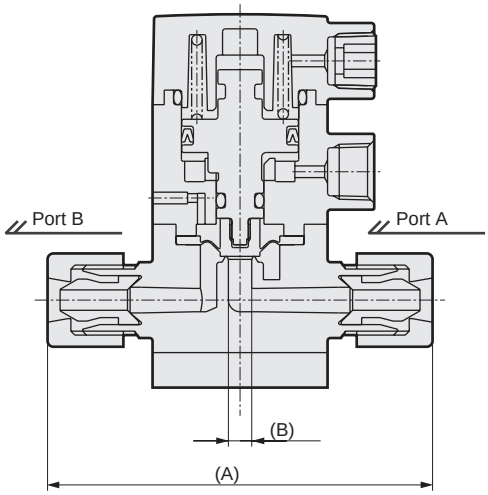
Dimensions

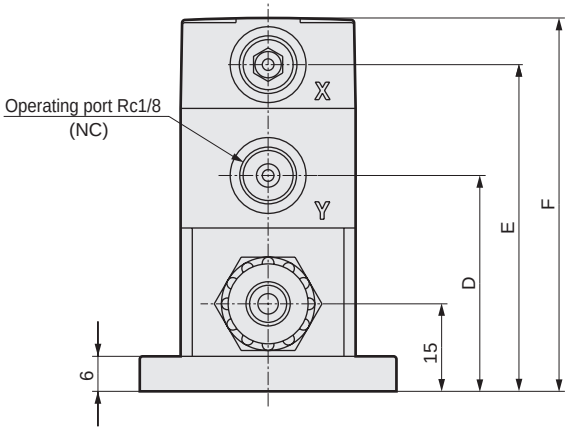
●ON/OFF only

・AMD0[1/2/3]2 2 - *1 -4-0-□









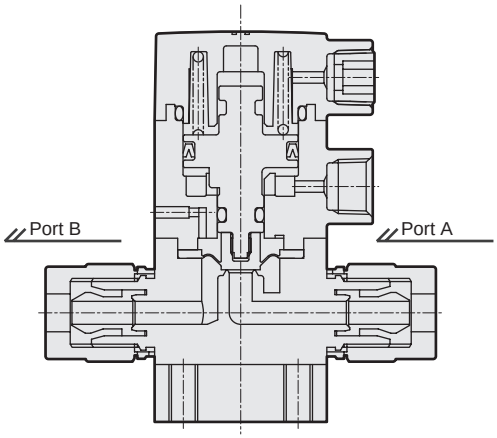
*1 Connector No.	A	B
6	36	4
6US	66	4
8BUS	66	4
6UP	68	4
8BUP	68	4

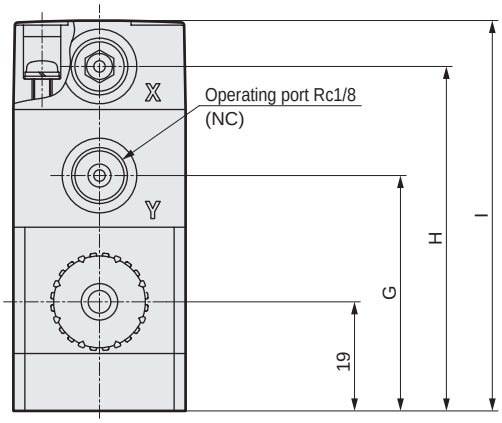
*1 Connector No.	A	B
6UF	64	4
8BUF	64	4
6UR	90	3.5
8BUR	92	3.5
6UK	71	4
8BUK	71	4
8BUW	86	3

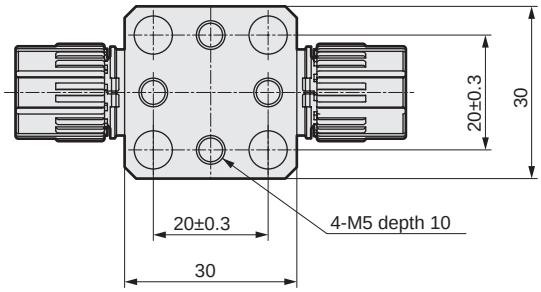
Fluid code	C	D	E	F
Blank/M	38	37	56	64
P	35	36	57	65

Dimensions

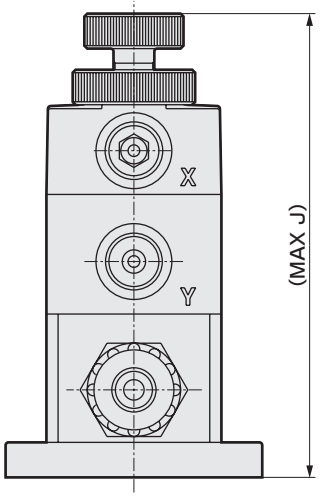
●Bottom mounting



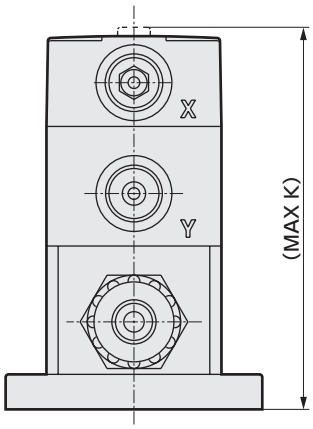




●With flow rate adjustment

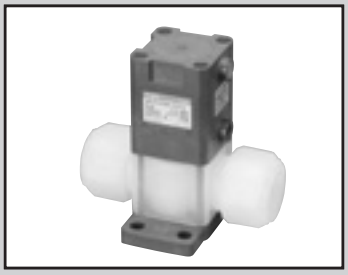


●With indicator



Fluid code	G	H	I	J	K
Blank/M	41	60	68	81	66
P	40	61	69	87	67

When bottom mounting is selected, dimensions J and K will be 4 mm higher.



Air operated valve for chemical liquids

AMD3$\frac{1}{2}\frac{2}{3}$2/AMD4$\frac{1}{2}\frac{2}{3}$2/AMD5$\frac{1}{2}\frac{2}{3}$2 Series

- Connection tube size: ø10, ø12, ø25, 3/8", 1/2", 3/4", 1"

RoHS CAD

Export controlled items

*Applicable: AMD4*2, 5*2

Specifications

Item		AMD3$\frac{1}{2}\frac{2}{3}$2-*-8	AMD3$\frac{1}{2}\frac{2}{3}$2-*-10
Working fluid		Chemical liquids, pure water, air, N_2Gas (*1)	
Fluid temperature	°C	5 to 90 (For high temperature: 5 to 160) (*5)	
Proof pressure	MPa	1.0	
Working pressure (A→B)	MPa	0 to 0.3 (*3)	
Working pressure (B→A)	MPa	0 to 0.1 (*3)	
Valve seat leakage	cm^3/min	0 (water pressure)	
Back pressure	MPa	0 to 0.1 (*3)	
Ambient temperature	°C	0 to 60	
Frequency		30 cycles/min. or less	
Mounting orientation		Unrestricted	
Connection		O.D. ø10 tube connection (integrated fitting) O.D. 3/8" tube connection (integrated fitting)	O.D. ø12 tube connection (integrated fitting) O.D. 1/2" tube connection (integrated fitting)
Orifice size		ø20, 6.3 / ø6.4 / ø7.5 / ø8	ø20, 9.4 / ø9.5 / ø10
Cv		0.8 / 1.25	1.8
Bypass orifice size (with bypass)		ø2.3	
Operating section	Operating pressure MPa	NC 0.3 to 0.5, NO 0.3 to 0.5 (0.3 to 0.35 for high temperature), double acting 0.3 to 0.4 (0.2 to 0.25 for high temperature)	
	Operating port	Rc1/8 (*2)	
Weight	kg	0.21	

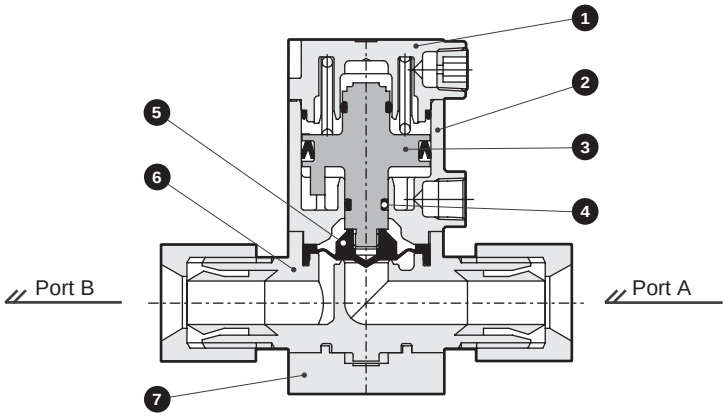
Item		AMD4$\frac{1}{2}\frac{2}{3}$2-*-16	AMD5$\frac{1}{2}\frac{2}{3}$2-*-20
Working fluid		Chemical liquids, pure water, air, N_2Gas (*1)	Chemical liquids, pure water, air, N_2Gas (*1)
Fluid temperature	°C	5 to 90 (For high temperature: 5 to 160) (*5)	5 to 90 (*6)
Proof pressure	MPa	1	1
Working pressure (A→B)	MPa	0 to 0.3 (*3)	0 to 0.3 (*3)
Working pressure (B→A)	MPa	0 to 0.1 (*3)	0 to 0.1 (*3)
Valve seat leakage	cm^3/min	0 (water pressure)	0 (water pressure)
Back pressure	MPa	0 to 0.1 (*3)	0 to 0.1 (*3)
Ambient temperature	°C	0 to 60	0 to 60
Frequency		20 cycle/min. or less	20 cycle/min. or less
Mounting orientation		Unrestricted	Unrestricted
Connection		O.D. 3/4" tube connection (integrated fitting)	O.D. ø25 tube connection (integrated fitting)/ O.D. 1" tube connection (integrated fitting) Nominal 16/20 (PVC union integrated fitting)
Orifice size		ø16	ø20
Cv		5	8
Bypass orifice size (with bypass)		ø6	ø6
Operating section	Operating pressure MPa	NC: 0.3 to 0.5, NO: 0.3 to 0.5 (0.3 to 0.35 for high temperature), Double acting: 0.3 to 0.4 (0.2 to 0.25 for high temperature)	NC/NO: 0.3 to 0.5, double acting: 0.3 to 0.4
	Operating port	Rc1/8 (*2)	Rc1/8 (*7)
Weight	kg	0.42	0.84

*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*2: Use a resin fitting for connection to the operating port. (When using a metal fitting, select one with reinforcing ring. However, a reinforcing ring cannot be selected for those with fluid code P for nitric acid and hydrofluoric acid.)
*3: Refer to page 98 for high-pressure specifications.
*4: Refer to page 117 for flow characteristics.
*5: For use with hydrofluoric acid, or when the fluid temperature exceeds 40°C, consult with CKD.
*6: If the connection is an integrated PVC union joint, the temperature range is 5 to 50°C. For use with hydrofluoric acid, or when the fluid temperature exceeds 40°C, consult with CKD.
*7: Use a resin fitting for connection to the operating port.
(When using a metal fitting, select one with reinforcing ring. However, a reinforcing ring cannot be selected for those with fluid code P for nitric acid and hydrofluoric acid.) However, since the integrated PVC unit fitting comes with a reinforcing ring, a metal fitting can also be used.

Always read the precautions on Intro Pages 9 to 18 before use.

Internal structure and parts list

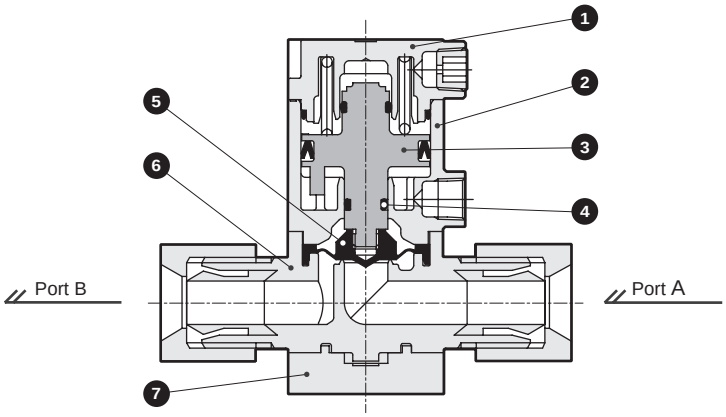
●AMD3*2 Series



Part number	Part name	Material (by fluid code)		
		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 vary depending on the model number. Contact CKD for details.

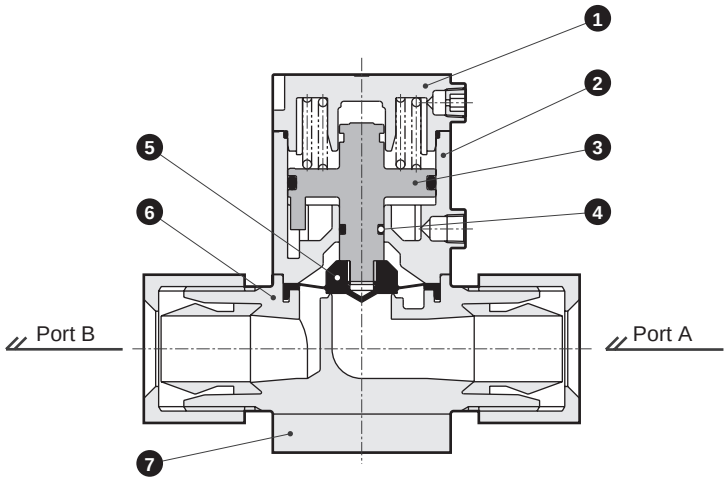
●AMD4*2 Series



Part number	Part name	Material (by fluid code)		
		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 vary depending on the model number. Contact CKD for details.

●AMD5*2 Series



Part number	Part name	Material (by fluid code)		
		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 vary depending on the model number. Contact CKD for details.

How to order

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

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

- (A) Model No.
- (B) Connection
- Orifice Indication of diameter
- (C) Option
- (D) Operating port direction
- (E) Fluid

(A) Actuation

1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting

(B) Connection

10US	10BUS	10UP	10BUP	10UA	10BUA	10UR	10BUR	10UK	10BUK	10BUW
Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20A Series Integrated fitting		F-LOCK 60 Series Integrated fitting		Final Lock Fitting Integrated		Flaretek Fitting Integrated
ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	3/8"x1/4" Tube connection
ø8						ø7.5	ø6.4	ø7.5		ø20, 6.3

(C) Option — Body material: PFA: PFA molded body, PTFE: PTFE machined body

0	ON/OFF only	PFA	PFA	PFA	PFA	PFA	PTFE				
1	With flow rate adjustment										
2	With bypass	PTFE	PTFE	PTFE	PTFE	PTFE					
3	With flow rate adjustment/bypass										
6	ON/OFF / with indicator	PFA	PFA	PFA	PFA	PFA					
7	With bypass/with indicator	PTFE	PTFE	PTFE	PTFE	PTFE					

(D) Operating port direction

With valve viewed from above, ← indicates fluid flow in the direction of ⇦ indicates the operating port direction.

4	●	●	●	●	●	●	●	●	● (*1)	● (*1)	●
1	●	●	●	●	●	●	●	●	●	●	●
2	●	●	●	●	●	●	●	●	● (*1)	● (*1)	●
3	●	●	●	●	●	●	●	●	●	●	●

(E) Fluid code

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

* Machined PTFE products are on a per-order basis.

●Model No. of operating port with reinforcing ring (hyphen between (C) and (D) is not required)

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

- 8: Instruction on orifice size
- R: With reinforcing ring

●Model No. for bottom mounting (Orifice size indication and hyphen between Items (C) and (D) is not required)

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

- X: Bottom mounting

●Operating port with reinforcing ring + bottom mounting model No.(Orifice size indication and hyphen between Items (C) and (D) is not required)

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

- R: With reinforcing ring
- X: Bottom mounting

Precautions for model No. selection

*1: Since the Final Lock fitting nut and operating air piping may interfere, be sure to check the dimensions before making the selection.

*2: It is not available if the option in (C) is 2 (with bypass), 3 (with flow rate adjustment/bypass) or 7 (with bypass/with indicator). It cannot be used for nitric acid or hydrofluoric acid.

*3: If P is selected in Item (E), R with reinforcing ring cannot be selected. It is not available if the option in (C) is 2 (with bypass), 3 (with flow rate adjustment/bypass) or 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.
- (A) Actuation
- (B) Connection
- Instruction on orifice size
- (C) Option
- (D) Operating port direction
- (E) Fluid

(A) Actuation	
1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting

(B) Connection	12US	15BUS	12UP	15BUP	12UA	15BUA	12UR	15BUR	12UK	15BUK	15BUW
	Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20A Series Integrated fitting		F-LOCK 60 Series Integrated fitting		Final Lock Fitting Integrated		Flaretek Fitting Integrated
	ø12xø10 Tube connection	1/2"x3/8" Tube connection	ø12xø10 Tube connection	1/2"x3/8" Tube connection	ø12xø10 Tube connection	1/2"x3/8" Tube connection	ø12xø10 Tube connection	1/2"x3/8" Tube connection	ø12xø10 Tube connection	1/2"x3/8" Tube connection	1/2"x3/8" Tube connection
Orifice size	ø10						ø9.5		ø10		ø20, 9.4

Code	(C) Option (*1) / Description	Body material (PFA: PFA molded body, PTFE: PTFE machined body)										
0	ON/OFF only	PFA	PFA	PFA	PFA	PFA	PFA	PFA	PFA	PFA	PFA	PFA
1	With flow rate adjustment											
2	With bypass	PTFE	PFA	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE
3	With flow rate adjustment/bypass											
6	ON/OFF / with indicator	PFA	PFA	PFA	PFA	PFA	PFA	PFA	PFA	PFA	PFA	PFA
7	With bypass/with indicator	PTFE	PFA	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE

(D) Operating port direction												
4	With valve viewed from above, ← indicates fluid flow in the direction of ⇐ indicates the operating port direction.	●	●	●	●	●	●	●	●	●	● (*1)	●
1		●	●	●	●	●	●	●	●	●	●	●
2		●	●	●	●	●	●	●	●	●	● (*1)	●
3		●	●	●	●	●	●	●	●	●	●	●

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

* Machined PTFE products are on a per-order basis.

●Model No. of operating port with reinforcing ring (hyphen between (C) and (D) is not required)

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

- Instruction on orifice size
- With reinforcing ring

●Model No. for bottom mounting (Orifice size indication and hyphen between Items (C) and (D) is not required)

AMD3 (A) 2 – (B) – (C)(D)(E) **X**

- Bottom mounting

●Operating port with reinforcing ring + bottom mounting model No.(Orifice size indication and hyphen between Items (C) and (D) is not required)

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

- With reinforcing ring
- Bottom mounting

Precautions for model No. selection

*1: Since the Final Lock fitting nut and operating air piping may interfere, be sure to check the dimensions before making the selection.

*2: It is not available if the option in (C) is 2 (with bypass), 3 (with flow rate adjustment/bypass) or 7 (with bypass/with indicator). It cannot be used for nitric acid or hydrofluoric acid.

*3: If P is selected in Item (E), R with reinforcing ring cannot be selected. It is not available if the option in (C) is 2 (with bypass), 3 (with flow rate adjustment/bypass) or 7 (with bypass/with indicator).

How to order

AMD4 (1) 2 – (20BUS) – 16 – (1) – (4) (Y)

- Model No.
- (B) Connection
- (C) Option
- Instruction on orifice size
- (D) Operating port direction
- (E) Fluid

(A) Actuation

1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting

(B) Connection

20BUS	20BUP	20BUA	20BUR	20BUK	20BUW
Super type pillar integrated fitting	Super 300 Pillar fitting P Series integrated	F-LOCK 20A Series Integrated fitting	F-LOCK 60 Series Integrated fitting	Final Lock Integrated fitting	Flaretek Integrated fitting
3/4"x5/8" Tube connection					
ø16			ø20, 15.9	ø16	ø14.7

(C) Option / Body material

PFA: PFA molded body, PTFE: PTFE machined body

		20BUS	20BUP	20BUA	20BUR	20BUK	20BUW
0	ON/OFF only	PFA	PFA	PTFE	PFA	PTFE	PFA
1	With flow rate adjustment						
2	With bypass	PFA	PFA	PTFE	PTFE	PTFE	PTFE
3	With flow rate adjustment/bypass						
6	ON/OFF / with indicator	PFA	PFA	PTFE	PFA	PTFE	PFA
7	With bypass/with indicator	PFA	PFA	PTFE	PTFE	PTFE	PTFE

(D) Operating port direction

4	With valve viewed from above, ← indicates fluid flow in the direction of ⇦ indicates the operating port direction. (3, 4, 2, 1)	●	●	●	●	●	●
1		●	●	●	●	●	●
2		●	●	●	●	●	●
3		●	●	●	●	●	●

(E) Fluid

Blank	Standard	●	●	●	●	●	●
M	For ammonia	●	●	●	●	●	●
P	For nitric acid, for hydrofluoric acid (*2)	●	●	●	●	●	●
Y	For high temperature (5 to 160°C) (*1)	●	●				
E	For high temperature (5 to 160°C), PTFE cut body (*1)	●	●	●		●	

* Machined PTFE products are on a per-order basis.

●Model No. of operating port with reinforcing ring (hyphen between (C) and (D) is not required)

AMD4 (A) 2 – (B) – 16 – (C)(D)(E) R

- Instruction on orifice size
- With reinforcing ring

●Model No. for bottom mounting (Orifice size indication and hyphen between Items (C) and (D) is not required)

AMD4 (A) 2 – (B) – (C)(D)(E) X

- Bottom mounting

●Operating port with reinforcing ring + bottom mounting model No.(Orifice size indication and hyphen between Items (C) and (D) is not required)

AMD4 (A) 2 – (B) – (C)(D)(E) R X

- With reinforcing ring
- Bottom mounting

Precautions for model No. selection

*1: It is not available if the option in (C) is 2 (with bypass), 3 (with flow rate adjustment/bypass) or 7 (with bypass/with indicator). It cannot be used for nitric acid or hydrofluoric acid.

*2: If P is selected in Item (E), R with reinforcing ring cannot be selected. It is not available if the option in (C) is 2 (with bypass), 3 (with flow rate adjustment/bypass) or 7 (with bypass/with indicator).

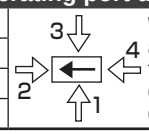
How to order

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

- Model No.
- Ⓐ Actuation
- Ⓑ Connection
- Instruction on orifice size
- Ⓒ Option
- Ⓓ Operating 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		Super 300 Pillar fitting P series integrated		F-LOCK 20A Series Fitting Integrated	F-LOCK 60 Series Integrated fitting		Final Lock Fitting Integrated		Flaretek Fitting Integrated	Polyvinyl chloride union Fitting Integrated	
	ø25xø22Tube connection	1"x7/8"Tube connection	ø25xø22Tube connection	1"x7/8"Tube connection	1"x7/8"Tube connection(*1)	ø25xø22Tube connection	1"x7/8"Tube connection	ø25xø22Tube connection	1"x7/8"Tube connection	1"x7/8"Tube connection	Nominal16	Nominal20

Code / Description \ Orifice size	ø20											
Ⓒ Option	**Body material**											
	PFA: PFA molded body, PTFE: PTFE machined body											
0 ON/OFF only	PFA	PFA	PFA	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PFA	
1 With flow rate adjustment												
2 With bypass	PTFE	PFA	PFA	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	(*3)	
3 With flow rate adjustment/bypass												
6 ON/OFF / with indicator	PFA	PFA	PFA	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PFA	
7 With bypass/with indicator	PTFE	PFA	PFA	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	(*3)	
Ⓓ Operating port direction												
4	 With valve viewed from above, ← indicates fluid flow in the direction of ⇐ indicates the operating port direction.	●	●	●	●	●	●	●	●	●	●	●
1		●	●	●	●	●	●	●	●	●	●	●
2		●	●	●	●	●	●	●	●	●	●	●
3		●	●	●	●	●	●	●	●	●	●	●
Ⓔ Fluid												
Blank Standard		●	●	●	●	●	●	●	●	●	●	●
M For ammonia		●	●	●	●	●	●	●	●	●	●	●
P For nitric acid, for hydrofluoric acid (*2)		●	●	●	●	●	●	●	●	●		

* Machined PTFE products are on a per-order basis.

●Model No. of operating port with reinforcing ring (hyphen between Ⓒ and Ⓓ is not required)

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

- Instruction on orifice size
- With reinforcing ring

●Model No. for bottom mounting (Orifice size indication and hyphen between Items Ⓒ and Ⓓ is not required)

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

- Bottom mounting

●Operating port with reinforcing ring + bottom mounting model No.(Orifice size indication and hyphen between Items Ⓒ and Ⓓ is not required)

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

- With reinforcing ring
- Bottom Mounting

Precautions for model No. selection

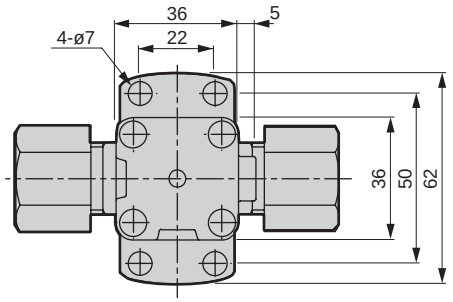
*1: Can be used for ø25×ø22 tube connection.
*2: Ⓑ 15AU or 20AU, or Ⓔ If P is selected in , R with reinforcing ring cannot be selected. Ⓒ It is not available if the option in is 2 (with bypass), 3 (with flow rate adjustment/bypass) or 7 (with bypass/with indicator).
*3: Select from the AMD41L Series (page 122).

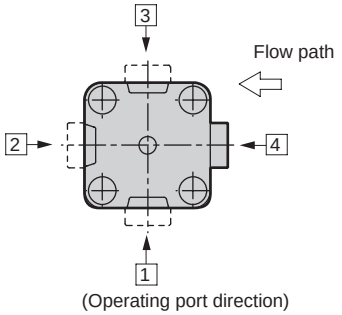
Dimensions

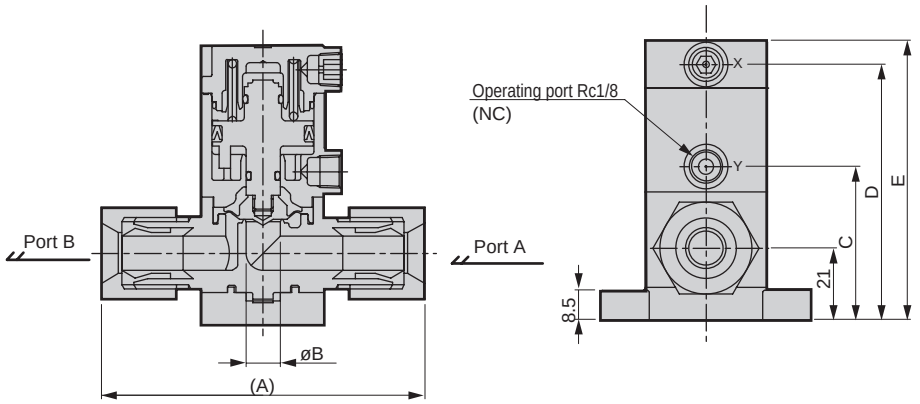
●ON/OFF only

・AMD3$^{1}_{2}$2 - *1 -8

・AMD3$^{1}_{2}$2 - *1 -10





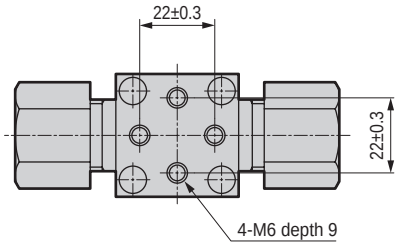


*1 (Connector No.)	A	B
10US	86	8
10BUS	86	8
10UP	86	8
10BUP	86	8
10UA	78	8
10BUA	78	8
10UR	110	7.5
10BUR	114	6.4
10UK	96	7.5
10BUK	96	7.5
10BUW	101	6.3

*1 (Connector 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 code	C	D	E
Blank/M/P/Y	45	75	82
E	49	79	86

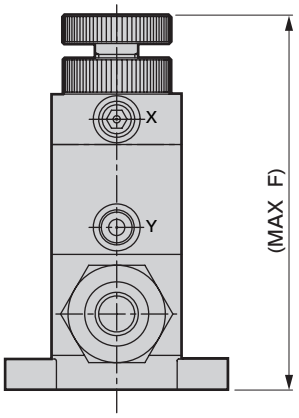
●Bottom mounting



Dimensions

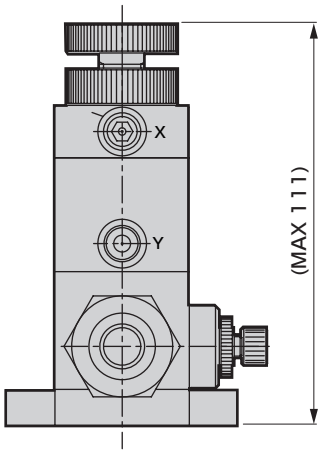
●With flow rate adjustment

・AMD3$^{1}_{2}$ 2-*-*-1



●With flow rate adjustment bypass

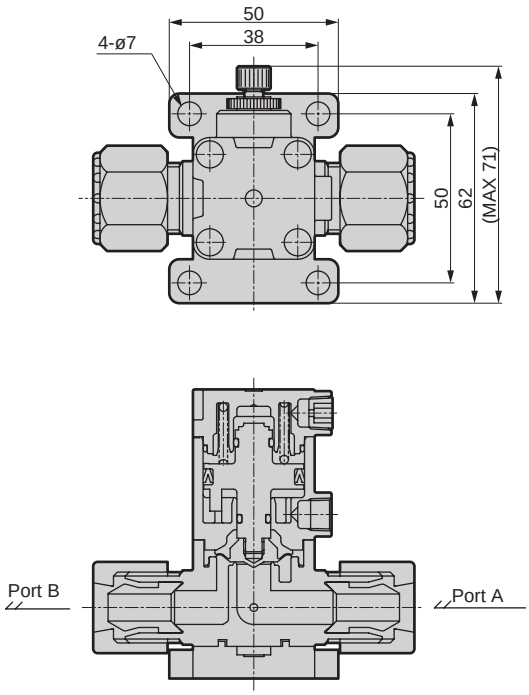
・AMD3$^{1}_{2}$ 2-*-*-3



(For other dimensions, refer to the dimensions with bypass.)

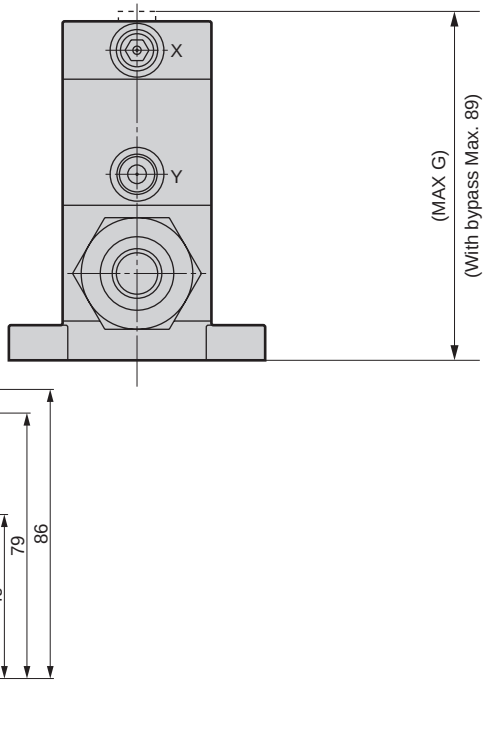
●With bypass

・AMD3$^{1}_{2}$ 2-*-*-2/7



●With indicator

・AMD3$^{1}_{2}$ 2-*-*-6/7

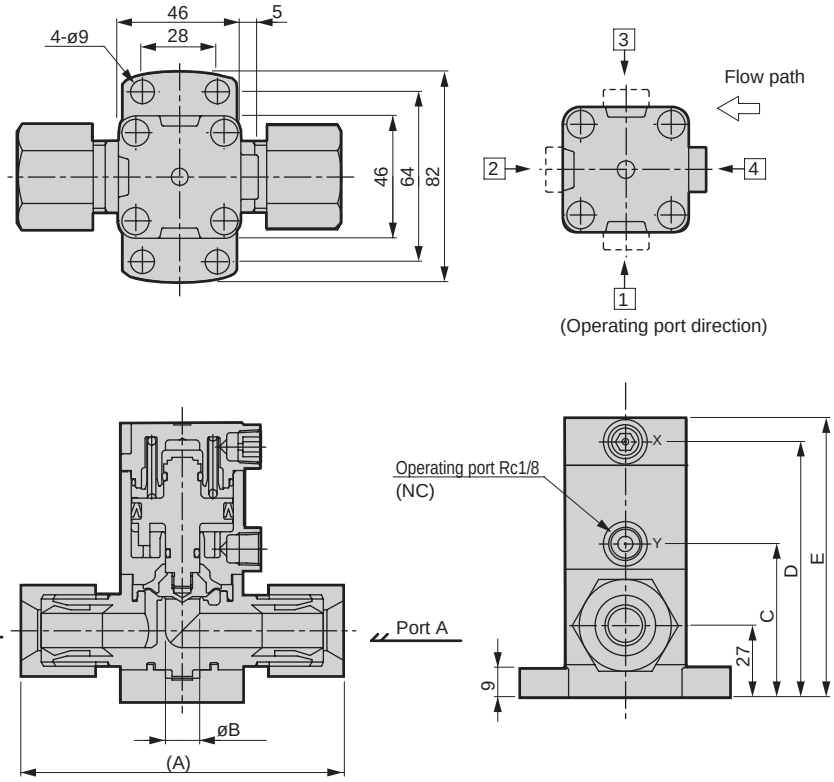


Fluid code	F	G
Blank/M/P/Y	107	85
E	111	89

Dimensions

●ON/OFF only

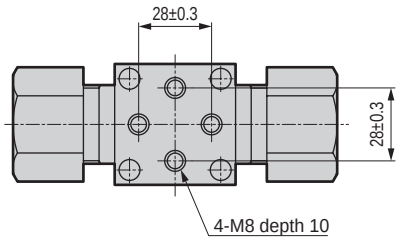
・AMD4$^{1}_{2}$2 - *1 -16



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

Fluid code	C	D	E
Blank/M/Y	60	97	106
P	60	97	107
E	64	101	110

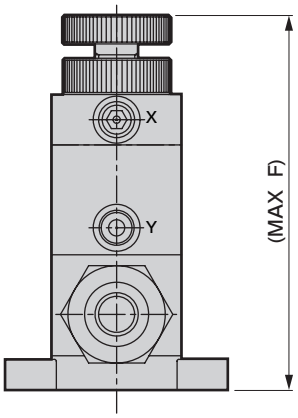
●Bottom mounting



Dimensions

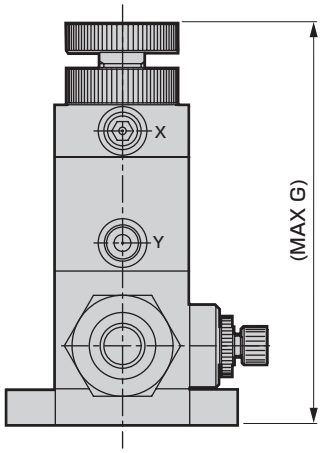
●With flow rate adjustment

・AMD4$^{1}_{2}$2-*-16-1



●With flow rate adjustment bypass

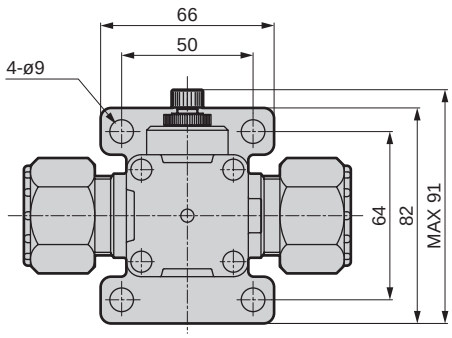
・AMD4$^{1}_{2}$2-*-16-3



(For other dimensions, refer to the dimensions with bypass.)

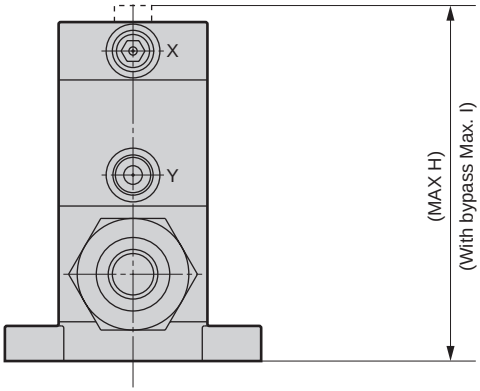
●With bypass

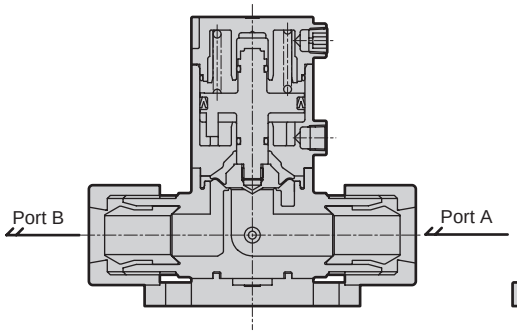
・AMD4$^{1}_{2}$2-*-16-2/7

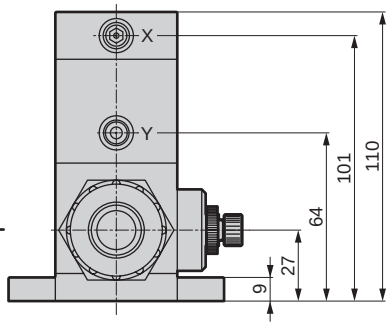


●With indicator

・AMD4$^{1}_{2}$2-*-16-6/7





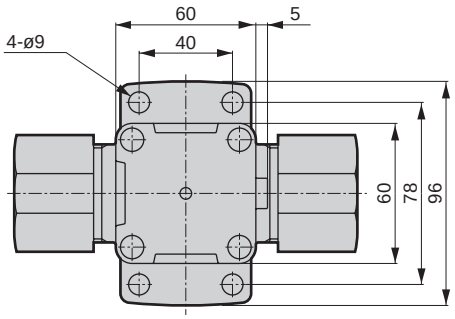


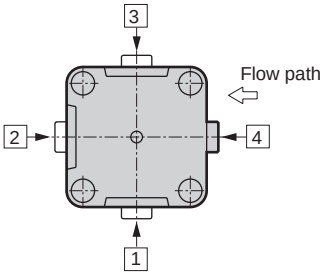
Fluid code	F	G	H	I
Blank/M	130	134	110	114
P	133	137	111	115
Y	130		110	
E	134		114	

Dimensions

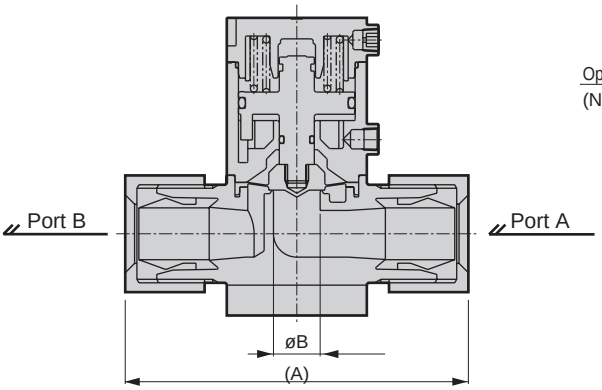
●ON/OFF only

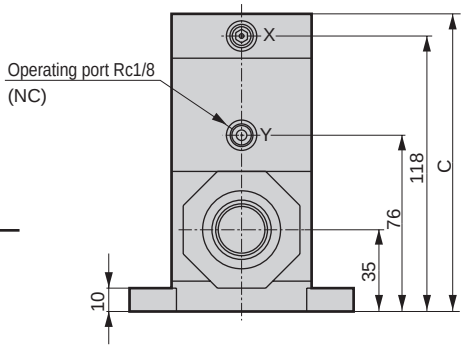
・AMD5$^{1}_{2}$2 - *1 -20





(Operating port direction)

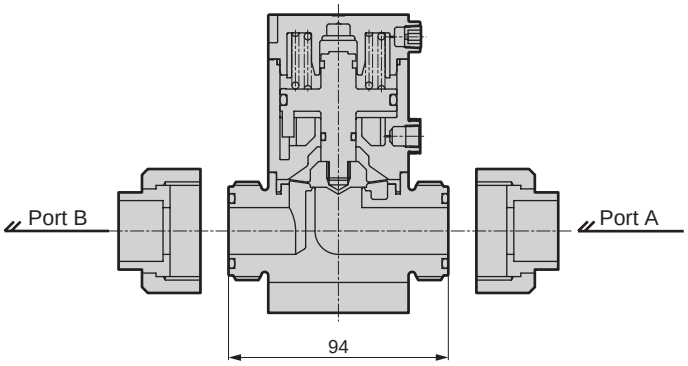




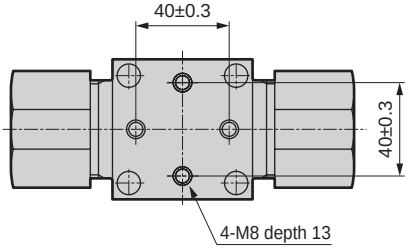
*1 (Connector No.)	A	B
25US	147	20
25BUS	147	20
25UP	146	20
25BUP	146	20
25BUA	140	20
25UR	159	20
25BUR	162	20
25UK	141	20
25BUK	141	20
25BUW	156	20

Fluid code	C
Blank/M	128
P	132

●PVC union integrated fitting



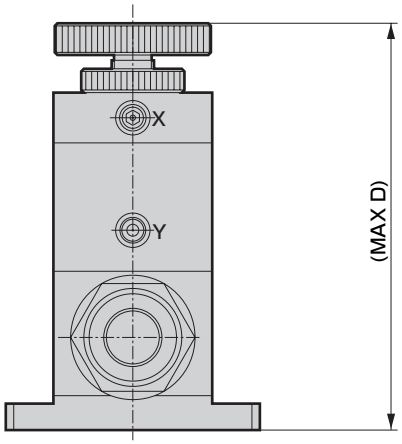
●Bottom mounting



Dimensions

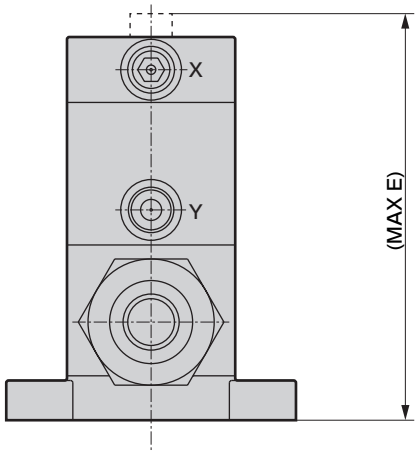
●With flow rate adjustment

・AMD5$^{1}_{2}$ 2-*-20-1



●With indicator

・AMD5$^{1}_{2}$ 2-*-20-6/7

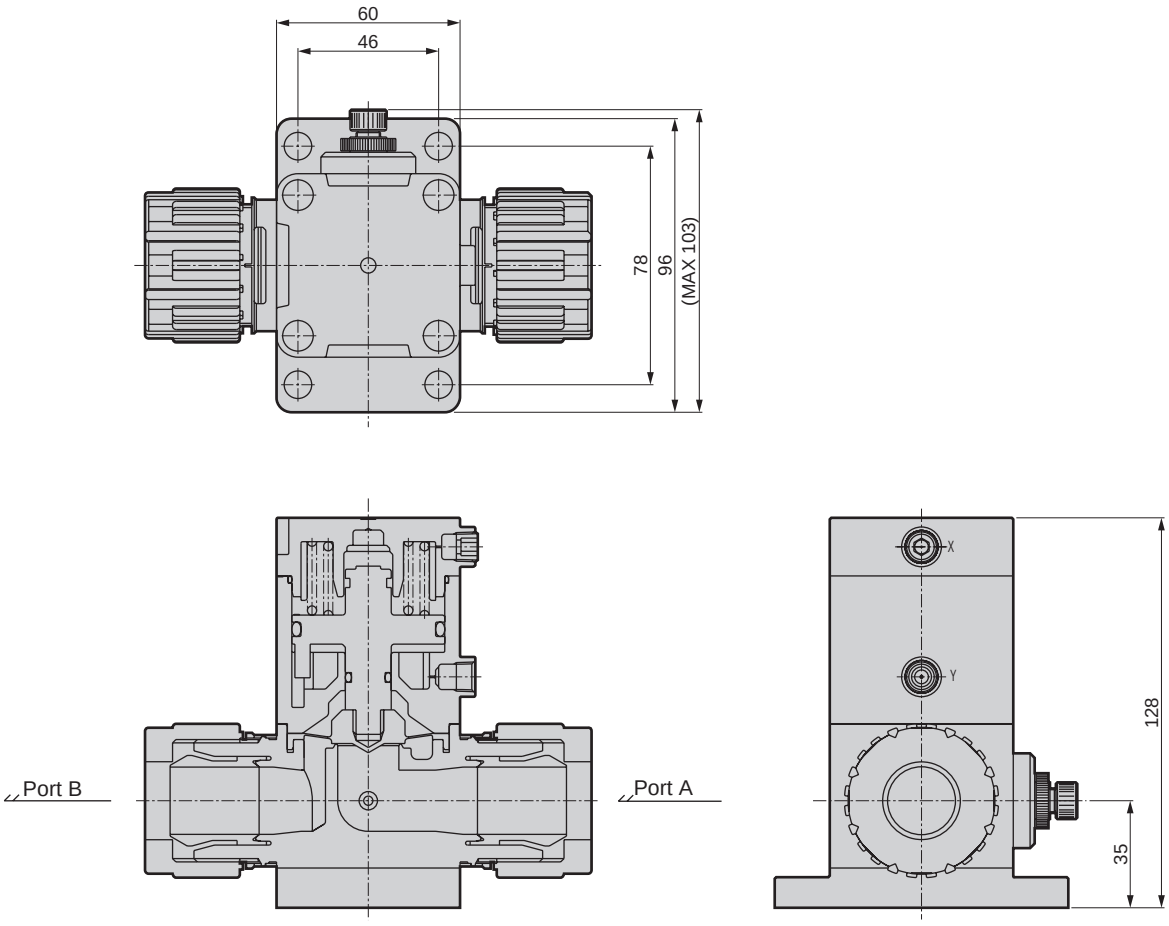


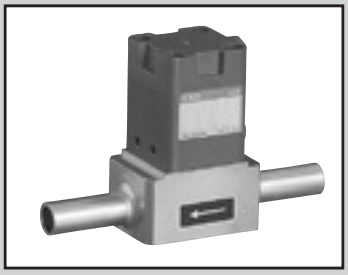
Fluid code	D	E
Blank/M	159	133
P	166	137

The dimensions are the same with bypass.

●With bypass

・AMD5$^{1}_{2}$ 2-*-20-2/7





Stainless steel body air operated valve for chemical liquids

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

RoHS CAD

Specifications

Item		AMD3$^{1}_{2}$2-8/3BT/6S	AMD3$^{1}_{2}$2-10/4BT/8S
Working fluid		Chemical liquids, pure water, air, N_2Gas (*1)	
Fluid temperature	°C	5 to 120	
Proof pressure	MPa	1.0	
Working pressure (A→B)	MPa	0 to 0.3 (*2)	
Working pressure (B→A)	MPa	0 to 0.1 (*2)	
Valve seat leakage	cm^3/min	0 (water pressure)	
Back pressure	MPa	0 to 0.1 (*2)	
Ambient temperature	°C	0 to 60	
Frequency		30 cycles/min. or less	
Mounting orientation		Unrestricted	
Connection		Rc1/4 3/8" SUS tube Double barbed fitting for 3/8" (*3)	Rc3/8 1/2" SUS tube Double barbed fitting for 1/2" (*3)
Orifice size		ø8	ø10
Operating section	Operating pressure MPa	NC/NO 0.3 to 0.5, double acting 0.3 to 0.4	
	Operating port	Rc1/8	
Weight	kg	0.45	

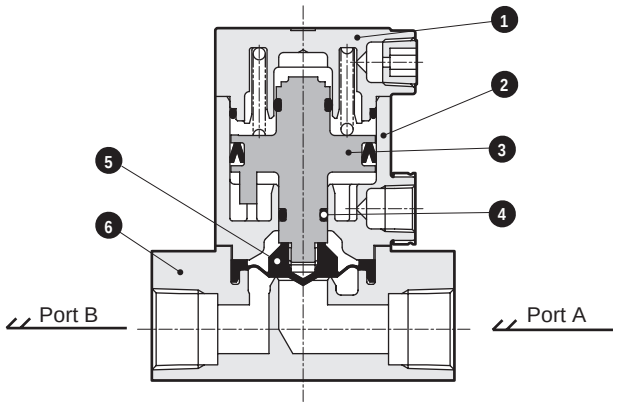
Item		AMD4$^{1}_{2}$2-15/6BT/12S	AMD5$^{1}_{2}$2-8BT/16S
Working fluid		Chemical liquids, pure water, air, N_2Gas (*1)	Chemical liquids, pure water, air, N_2Gas (*1)
Fluid temperature	°C	5 to 120	5 to 120
Proof pressure	MPa	1.0	1.0
Working pressure (A→B)	MPa	0 to 0.3 (*2)	0 to 0.3 (*2)
Working pressure (B→A)	MPa	0 to 0.1 (*2)	0 to 0.1 (*2)
Valve seat leakage	cm^3/min	0 (water pressure)	0 (water pressure)
Back pressure	MPa	0 to 0.1 (*2)	0 to 0.1 (*2)
Ambient temperature	°C	0 to 60	0 to 60
Frequency		20 cycle/min. or less	20 cycle/min. or less
Mounting orientation		Unrestricted	Unrestricted
Connection		Rc 1/2 / 3/4" SUS tube / Double barbed fitting for 3/4" (*3)	1" SUS tubing Double barbed fitting for 1" (*3)
Orifice size		ø16	ø20
Operating section	Operating pressure MPa	NC/NO 0.3 to 0.5, double acting 0.3 to 0.4	NC/NO 0.3 to 0.5, double acting 0.3 to 0.4
	Operating port	Rc1/8	Rc1/8
Weight	kg	0.89	1.3

*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*2: Refer to page 98 for high-pressure specifications.
*3: For double barbed fitting, fluorine lubricant is applied to the sliding surface between the front ferrule and fitting body.

Always read the precautions on Intro Pages 9 to 18 before use.

Internal structure and parts list

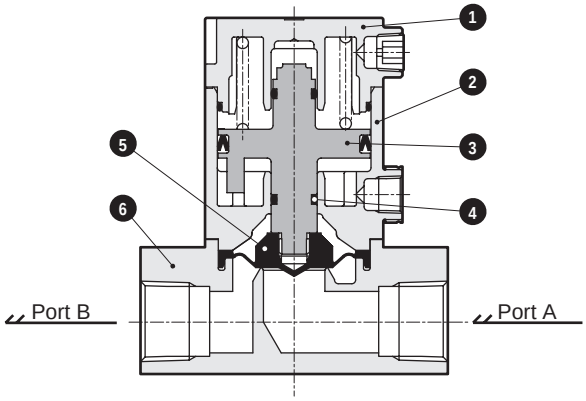
●AMD3*2 Series



Part number	Part name	Material (by actuator material)	
		Standard	A
1	Cover	PPS	A + 5056
2	Cylinder	PPS	A + 5056
3	Piston rod	PPS	A + 5056
4	O-ring	EPDM	
5	Diaphragm	PTFE	
6	Body	SUS316L	

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

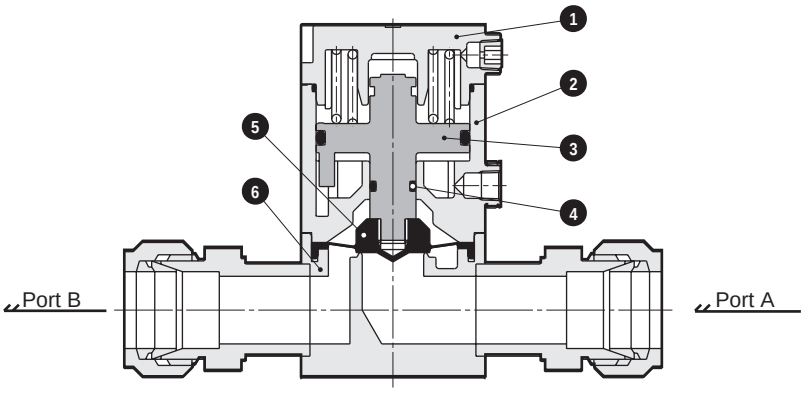
●AMD4*2 Series



Part number	Part name	Material (by actuator material)	
		Standard	A
1	Cover	PPS	A + 5056
2	Cylinder	PPS	A + 5056
3	Piston rod	PPS	A + 5056
4	O-ring	EPDM	
5	Diaphragm	PTFE	
6	Body	SUS316L	

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

●AMD5*2 Series



Part number	Part name	Material (by actuator material)	
		Standard	A
1	Cover	PPS	A + 5056
2	Cylinder	PPS	A + 5056
3	Piston rod	PPS	A + 5056
4	O-ring	EPDM	
5	Diaphragm	PTFE	
6	Body	SUS316L	

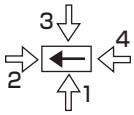
The material and structure may vary depending on the model number. Contact CKD for details.

How to order

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

- Model No.
- Ⓑ Connection
- Ⓒ Option
- Ⓐ Actuation
- Ⓓ Actuator material
- Ⓔ Body treatment
- Ⓕ Operating port direction

Ⓑ Connection	8	3BT	6S	10	4BT	8S
	Rc1/4	3/8"x1.0SUS tube	3/8"Tube connection Double barbed fitting	Rc3/8	1/2"x1.24SUS tube	1/2"Tube connection Double barbed fitting
Code \ Description / Orifice size	ø8			ø10		
Ⓐ Actuation						
1 NC (Normally Closed)	●	●	●	●	●	●
2 NO (Normally Open)	●	●	●	●	●	●
3 Double acting	●	●	●	●	●	●
Ⓒ Option						
0 ON/OFF only	●	●	●	●	●	●
1 With flow rate adjustment	●	●	●	●	●	●
6 With indicator	●	●	●	●	●	●
Ⓓ Actuator material						
Blank PPS	●	●	●	●	●	●
A A + 5056	●	●	●	●	●	●
Ⓔ Body treatment						
Blank No	●	●	●	●	●	●
E With electrolytic polishing		●	●		●	●
Ⓕ Operating port direction						
4	●	●	●	●	●	●
1	●	●	●	●	●	●
2	●	●	●	●	●	●
3	●	●	●	●	●	●



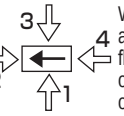
With valve viewed from above, ← indicates fluid flow in the direction of ⇦ indicates the operating port direction.

* Body electro-polished products are on a case-by-case basis.

AMD4 1 2 - 15 - 0 - A E - 4

- Model No.
- Ⓑ Connection
- Ⓐ Actuation
- Ⓒ Option
- Ⓓ Actuator material
- Ⓔ Body treatment
- Ⓕ Operating port direction

Ⓑ Connection	15	6BT	12S
	Rc 1/2	3/4"x1.24SUS tube	3/4"Tube connection Double barbed fitting
Code \ Description / Orifice size	ø16		
Ⓐ Actuation			
1 NC (Normally Closed)	●	●	●
2 NO (Normally Open)	●	●	●
3 Double acting	●	●	●
Ⓒ Option			
0 ON/OFF only	●	●	●
1 With flow rate adjustment	●	●	●
6 With indicator	●	●	●
Ⓓ Actuator material			
Blank PPS	●	●	●
A A + 5056	●	●	●
Ⓔ Body treatment			
Blank No	●	●	●
E With electrolytic polishing		●	●
Ⓕ Operating port direction			
4	●	●	●
1	●	●	●
2	●	●	●
3	●	●	●



With valve viewed from above, ← indicates fluid flow in the direction of ⇦ indicates the operating port direction.

* Body electro-polished products are on a case-by-case basis.

Precautions for model No. selection

* Consult with CKD for connection methods other than the ones listed.
* Connection Rc is not compatible with electrolytic polishing specifications.

How to order

AMD5 1 2 – 16S – 1 – A E – 4

Model No.

A Actuation

B Connection

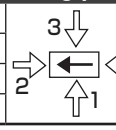
C Option

D Actuator material

E Body treatment

F Operating port direction

B Connection	8BT	16S
	1"x1.65SUS tube	1"Tube connection Double barbed fitting

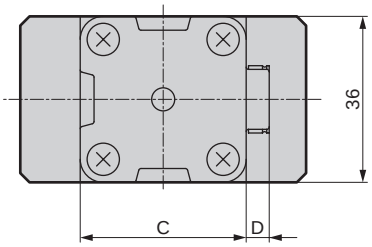
Code	Description \ Orifice size	ø20	
A Actuation			
1	NC (Normally Closed)	●	●
2	NO (Normally Open)	●	●
3	Double acting	●	●
C Option			
0	ON/OFF only	●	●
1	With flow rate adjustment	●	●
6	With indicator	●	●
D Actuator material			
Blank	PPS	●	●
A	A + 5056	●	●
E Body treatment			
Blank	No	●	●
E	With electrolytic polishing	●	●
F Operating port direction			
4	 With valve viewed from above, ← indicates fluid flow in the direction of ⇦ indicates the operating port direction.	●	●
1		●	●
2		●	●
3		●	●

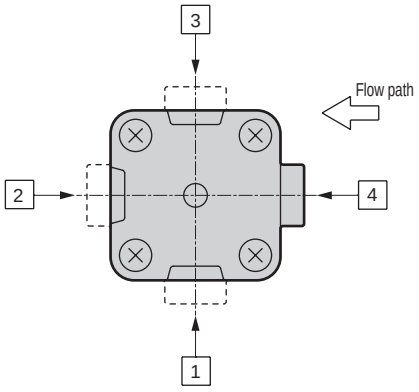
* Body electro-polished products are on a case-by-case basis.

Dimensions

●Rc thread

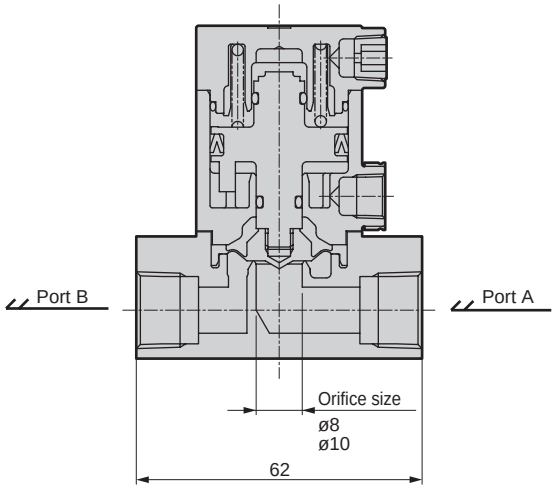
・AMD3$^{1}_{2}$ 2-8, 10

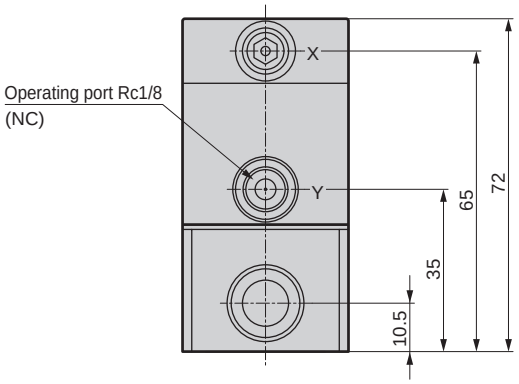


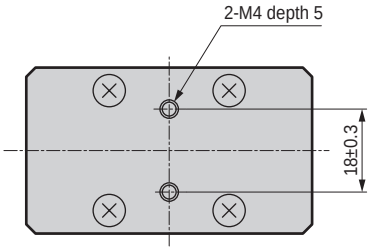


(Operating port direction)

Actuator material	C	D
Blank	36	5
A	44	0



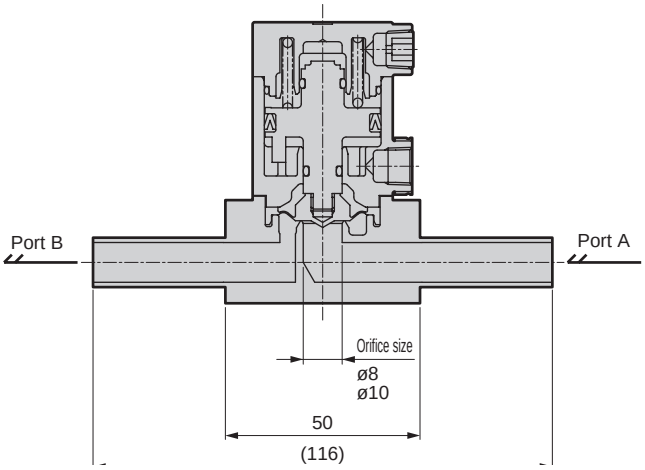




Dimensions

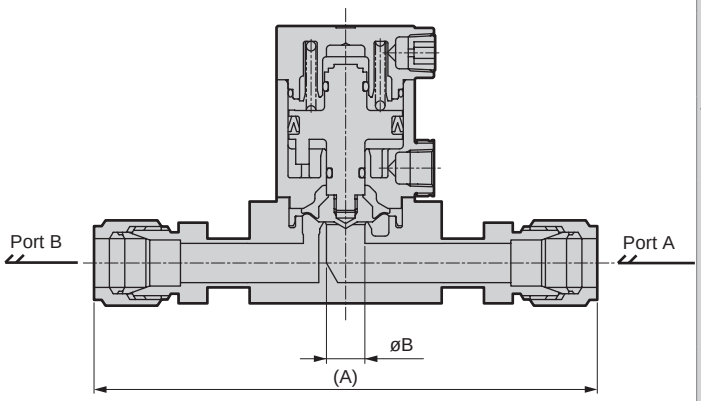
●SUS tube

・AMD3$^{1}_{2}$ 2-3BT, 4BT



●Double barbed fitting

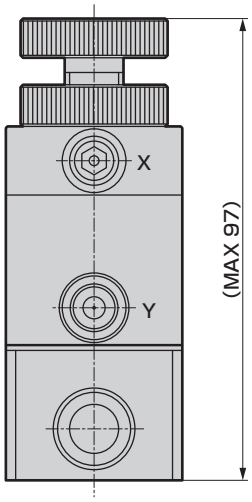
・AMD3$^{1}_{2}$ 2-6S, 8S



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

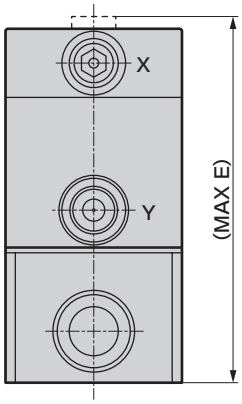
●With flow rate adjustment

・AMD3$^{1}_{2}$ 2-*-1



●With indicator

・AMD3$^{1}_{2}$ 2-*-6

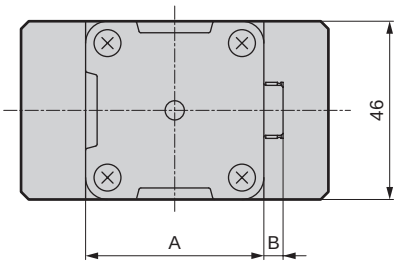


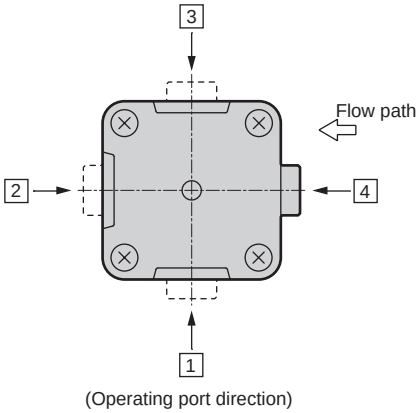
Actuator material	E
Blank	75
A	74

Dimensions

●Rc thread

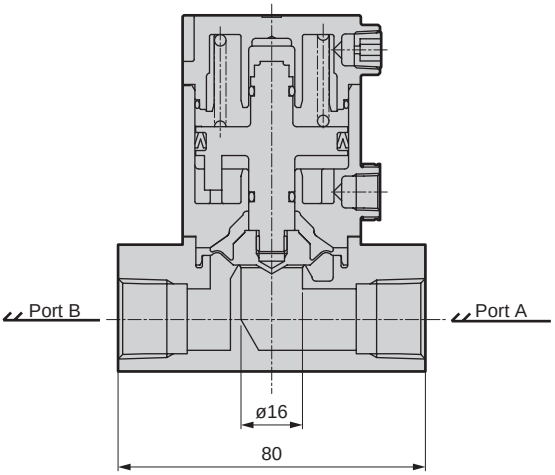
・AMD4$^{1}_{2}$2-15

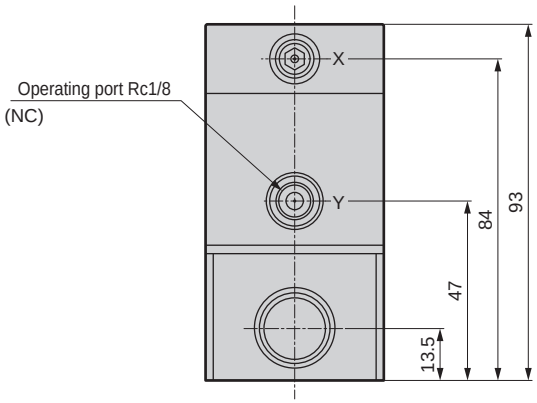


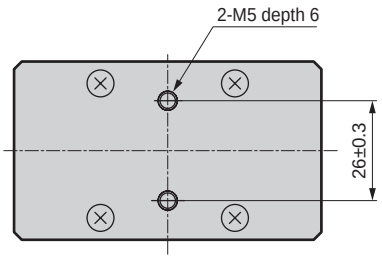


(Operating port direction)

Actuator material	A	B
Blank	46	5
A	56	0



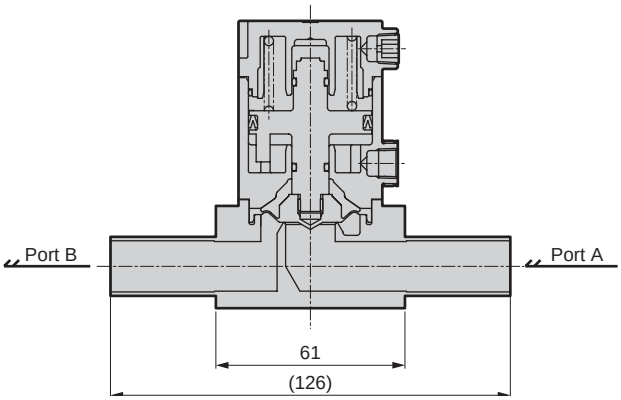




Dimensions

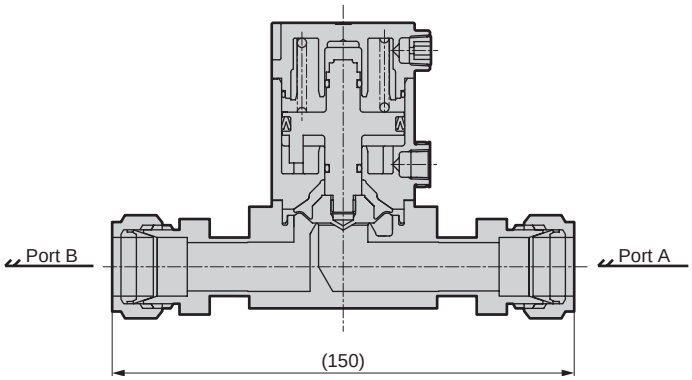
●SUS tube

・AMD4$^{1}_{2}$2-6BT



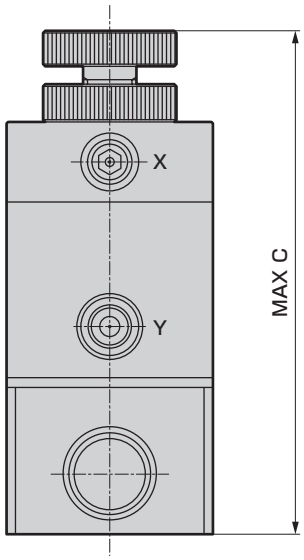
●Double barbed fitting

・AMD4$^{1}_{2}$2-12S



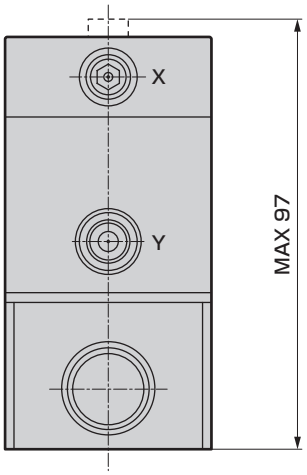
●With flow rate adjustment

・AMD4$^{1}_{2}$2-*-1



●With indicator

・AMD4$^{1}_{2}$2-*-6

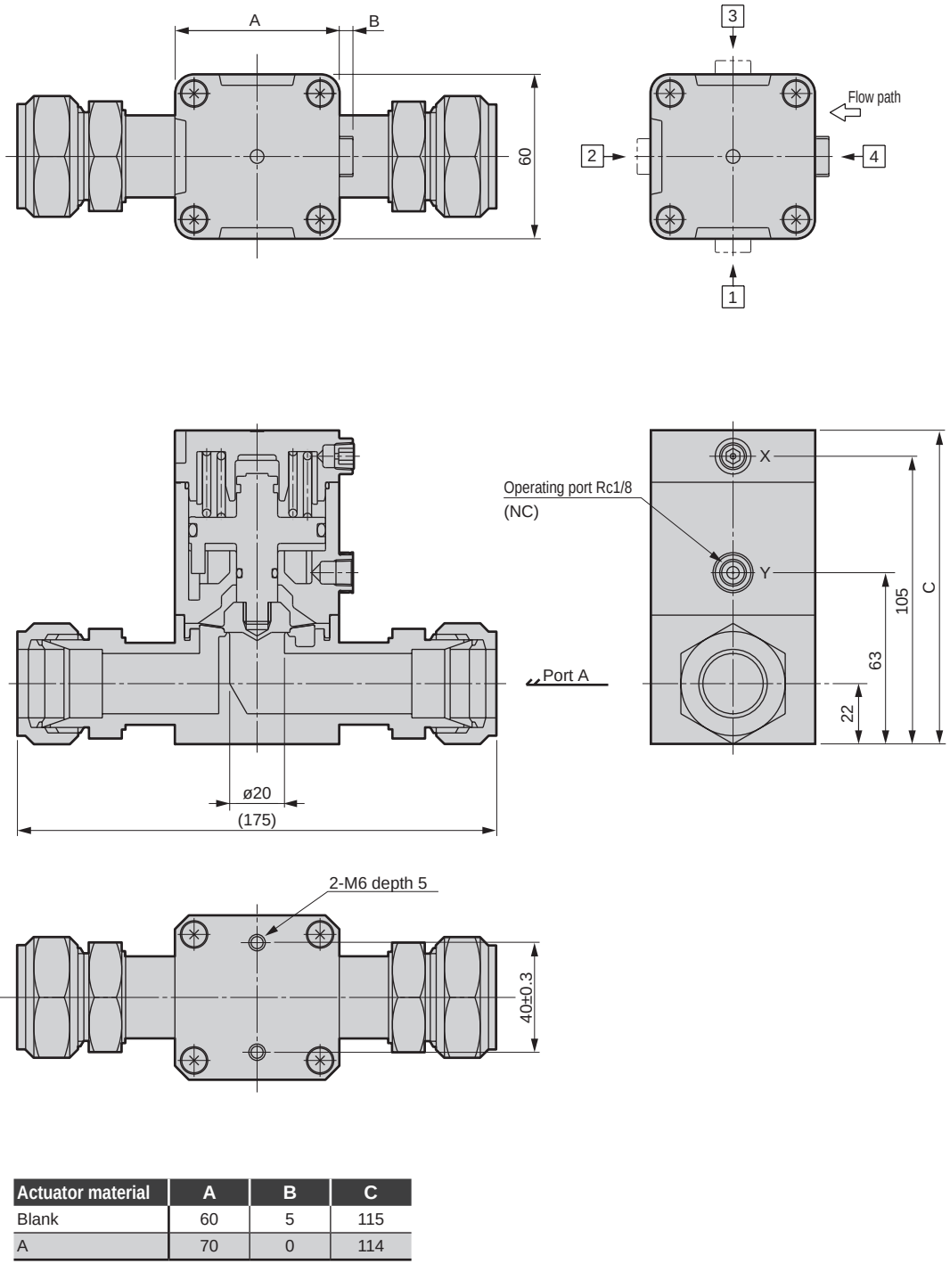


Actuator material	C
Blank	117
A	119

Dimensions

●Double barbed fitting

・AMD5$^{1}_{2}$ 2-16S

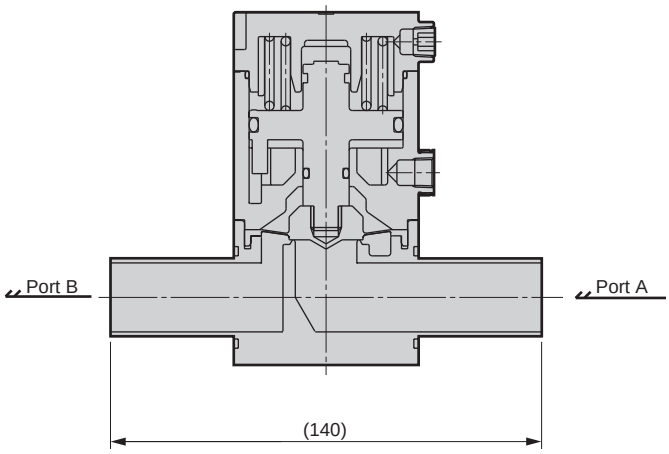


Actuator material	A	B	C
Blank	60	5	115
A	70	0	114

Dimensions

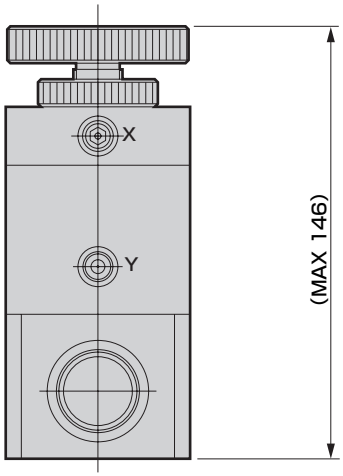
●SUS tube

・AMD5$^{1}_{2}$ 2-8BT



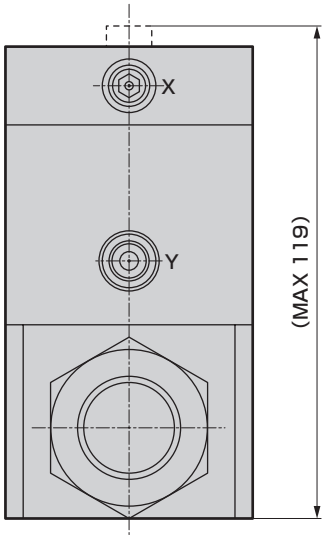
●With flow rate adjustment

・AMD5$^{1}_{2}$ 2-*-1



●With indicator

・AMD5$^{1}_{2}$ 2-*-6



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

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

●Connection tube size: ø10, ø12, ø25, 3/8″, 1/2″, 3/4″, 1"

RoHS Export controlled items

*Applicable: AMG402/502 only

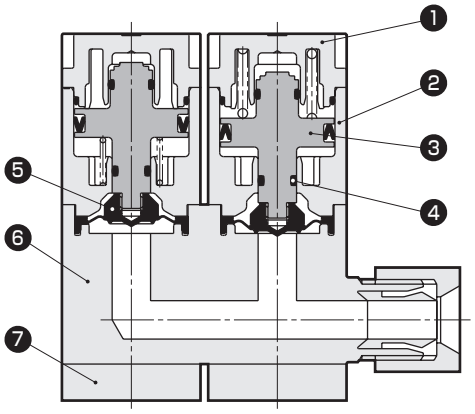
Specifications

Item		AMG302	AMG402	AMG502
Working fluid		Chemical liquids, pure water, air, N_2Gas (*1)		
Fluid temperature	°C	5 to 90 (For high temperature: 5 to 160) (*5)		5 to 90 (*5)
Proof pressure	MPa	1.0		
Working pressure (A→B)	MPa	0 to 0.3 (*4)		
Working pressure (B→A)	MPa	0 to 0.1 (*4)		
Valve seat leakage	cm^3/min	0 (water pressure)		
Back pressure	MPa	0 to 0.1		
Ambient temperature	°C	0 to 60		
Frequency		30 cycles/min. or less	20 cycles/min. or less	
Mounting orientation		Unrestricted		
Connection		O.D. ø10/ø12 tube connection (integrated fitting) O.D. 3/8" / 1/2" tube connection (integrated fitting)	O.D. 3/4" tube connection (integrated fitting)	O.D. ø25 tube connection (integrated fitting) O.D. 1" tube connection (integrated fitting)
Orifice size		ø6 to ø10 (*3)	ø14.7 to ø16 (*3)	ø20
Operating section	Operating pressure MPa	0.3 to 0.5 (0.3 to 0.35 for high temperature)		
	Operating port	Rc1/8 (*2)		
Weight	kg	0.44	1.0	2.1

*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*2: Use a resin fitting for connection to the operating port. (When using a metal fitting, select one with reinforcing ring. However, a reinforcing ring cannot be selected for those with fluid code P for nitric acid and hydrofluoric acid.)
*3: Check the orifice of each connection in How to order.
*4: Refer to page 98 for high-pressure specifications.
*5: For use with hydrofluoric acid, or when the fluid temperature exceeds 40°C, consult with CKD.

⚠ Always read the precautions on Intro Pages 9 to 18 before use.

Internal structure and parts list



Part number	Part name	Material (by fluid code)		
		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 vary depending on the model number. Contact CKD for details.

How to order

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

AMG302 – 10BUS – 0 – M L

- AMG302: Model No.
- 10BUS: Ⓐ Connection
- 0: Ⓑ Option
- M: Ⓒ Fluid
- L: Ⓓ Port A position

Ⓐ Connection	10US	10BUS	10UP	10BUP	10UA	10BUA	10UR	10BUR	10UK	10BUK	10BUW
	Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20A Series Integrated fitting		F-LOCK 60 Series Integrated fitting		Final Lock Fitting Integrated		Flaretek Fitting Integrated
	ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	3/8"x1/4" Tube connection
Code / Description: Orifice size	ø8						ø7	ø6	ø8		ø20, 6.3
Body material	PTFE machined body										
Ⓑ Option											
0 ON/OFF only	●	●	●	●	●	●	●	●	●	●	●
1 With flow rate adjustment	●	●	●	●	●	●	●	●	●	●	●
6 With indicator	●	●	●	●	●	●	●	●	●	●	●
Ⓒ Fluid											
Blank Standard	●	●	●	●	●	●	●	●	● (*1)	● (*1)	●
M For ammonia	●	●	●	●	●	●	●	●	● (*1)	● (*1)	●
P For nitric acid, for hydrofluoric acid (*3)	●	●	●	●	●	●	●	●	● (*1)	● (*1)	●
Y For high temperature (5 to 160°C) (*2)	●	●	●	●	●	●			● (*1)	● (*1)	
Ⓓ Port A position											
Blank Right	●	●	●	●	●	●	●	●	●	●	●
L Left	●	●	●	●	●	●	●	●	●	●	●

* Machined PTFE products are on a per-order basis.

●Model No. of operating port with reinforcing ring

AMG302 – A – B – C D R

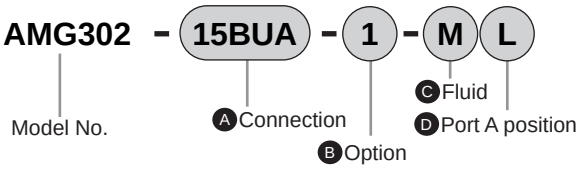
- R: With reinforcing ring

Precautions for model No. selection

*1: Since the Final Lock fitting nut and operating air piping may interfere, be sure to check the dimensions before making the selection.
*2: It cannot be used for nitric acid or hydrofluoric acid.
*3: If P is selected in Ⓒ, R with reinforcing ring cannot be selected.

How to order

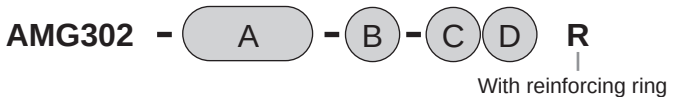
●AMG302 Series (connection: ø12, 1/2" tube connection)



		Ⓐ Connection										
		12US	15BUS	12UP	15BUP	12UA	15BUA	12UR	15BUR	12UK	15BUK	15BUW
		Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20A Series Integrated fitting		F-LOCK 60 Series Integrated fitting		Final Lock Fitting Integrated		Flaretek Fitting Integrated
		ø12xø10Tube connection	1/2"x3/8"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection	1/2"x3/8"Tube connection
Code	Orifice size / Description	ø10						ø9		ø10		ø20, 9.4
Body material		PTFE machined body										
Ⓑ Option												
0	ON/OFF only	●	●	●	●	●	●	●	●	●	●	●
1	With flow rate adjustment	●	●	●	●	●	●	●	●	●	●	●
6	With indicator	●	●	●	●	●	●	●	●	●	●	●
Ⓒ Fluid												
Blank	Standard	●	●	●	●	●	●	●	●	● (*1)	● (*1)	●
M	For ammonia	●	●	●	●	●	●	●	●	● (*1)	● (*1)	●
P	For nitric acid, for hydrofluoric acid (*3)	●	●	●	●	●	●	●	●	● (*1)	● (*1)	●
Y	For high temperature (5 to 160°C) (*2)	●	●	●	●	●	●			● (*1)	● (*1)	
Ⓓ Port A position												
Blank	Right	●	●	●	●	●	●	●	●	●	●	●
L	Left	●	●	●	●	●	●	●	●	●	●	●

* Machined PTFE products are on a per-order basis.

●Model No. of operating port with reinforcing ring



Precautions for model No. selection

*1: Since the Final Lock fitting nut and operating air piping may interfere, be sure to check the dimensions before making the selection.
*2: It cannot be used for nitric acid or hydrofluoric acid.
*3: If P is selected in Ⓒ, R with reinforcing ring cannot be selected.

How to order

●AMG402 Series

AMG402 – 20BUP – 0 – M L

- AMG402: Model No.
- 20BUP: Ⓐ Connection
- 0: Ⓑ Option
- M: Ⓒ Fluid
- L: Ⓓ Port A position

Code	Description \ Orifice size	Ⓐ Connection					
		20BUS	**20BUP**	**20BUA**	**20BUR**	**20BUK**	**20BUW**
		Super type pillar integrated fitting	Super 300 Pillar fitting P Series integrated	F-LOCK 20A Series Integrated fitting	F-LOCK 60 Series integrated fitting	Final Lock Integrated fitting	Flaretek Fitting Integrated
		3/4"x5/8"Tube connection					
		ø16			ø15	ø16	ø14.7
	Body material	PTFE machined body					
Ⓑ Option							
0	ON/OFF only	●	●	●	●	●	●
1	With flow rate adjustment	●	●	●	●	●	●
6	With indicator	●	●	●	●	●	●
Ⓒ Fluid							
Blank	Standard	●	●	●	●	●	●
M	For ammonia	●	●	●	●	●	●
P	For nitric acid, for hydrofluoric acid (*2)	●	●	●	●	●	●
Y	For high temperature (5 to 160°C) (*1)	●	●	●		●	
Ⓓ Port A position							
Blank	Right	●	●	●	●	●	●
L	Left	●	●	●	●	●	●

* Machined PTFE products are on a per-order basis.

●Model No. of operating port with reinforcing ring

AMG402 – A – B – C D R

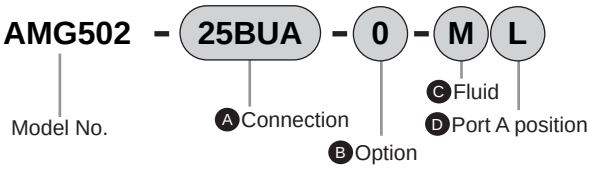
- R: With reinforcing ring

Precautions for model No. selection

*1: It cannot be used for nitric acid or hydrofluoric acid.
*2: If P is selected in Ⓒ, R with reinforcing ring cannot be selected.

How to order

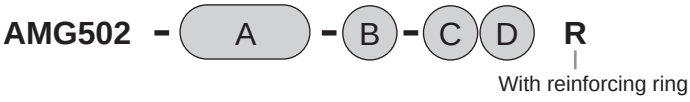
●AMG502 Series



		Ⓐ Connection									
		25US	25BUS	25UP	25BUP	25BUA	25UR	25BUR	25UK	25BUK	25BUW
		Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20A Series Integrated fitting	F-LOCK 60 Series Integrated fitting		Final Lock Fitting Integrated		Flaretek Fitting Integrated
		ø25xø22Tube connection	1"x7/8"Tube connection	ø25xø22Tube connection	1"x7/8"Tube connection	1"x7/8"Tube connection(*1)	ø25xø22Tube connection	1"x7/8"Tube connection	ø25xø22Tube connection	1"x7/8"Tube connection	1"x7/8"Tube connection
Code	Orifice size / Description	ø20									
Body material		PTFE machined body									
Ⓑ Option											
0	ON/OFF only	●	●	●	●	●	●	●	●	●	●
1	With flow rate adjustment	●	●	●	●	●	●	●	●	●	●
6	With indicator	●	●	●	●	●	●	●	●	●	●
Ⓒ Fluid											
Blank	Standard	●	●	●	●	●	●	●	●	●	●
M	For ammonia	●	●	●	●	●	●	●	●	●	●
P	For nitric acid, for hydrofluoric acid (*2)	●	●	●	●	●	●	●	●	●	●
Ⓓ Port A position											
Blank	Right	●	●	●	●	●	●	●	●	●	●
L	Left	●	●	●	●	●	●	●	●	●	●

* Machined PTFE products are on a per-order basis.

●Model No. of operating port with reinforcing ring



Precautions for model No. selection

*1: Can also be used for ø25 x ø22 tube connection.
*2: If P is selected in Ⓒ, R with reinforcing ring cannot be selected.

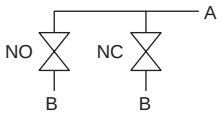
Dimensions

●ON/OFF only

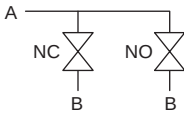
- AMG302- *1
- AMG402- *1
- AMG502- *1

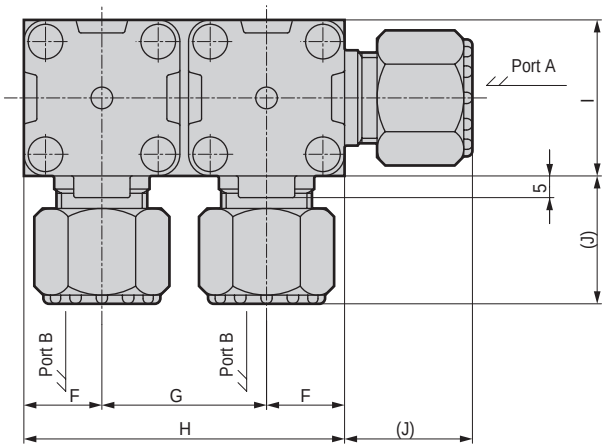
Note: NC and NO arrangements differ by port A position.
The valve close to the port A side is NC, while the other is NO.

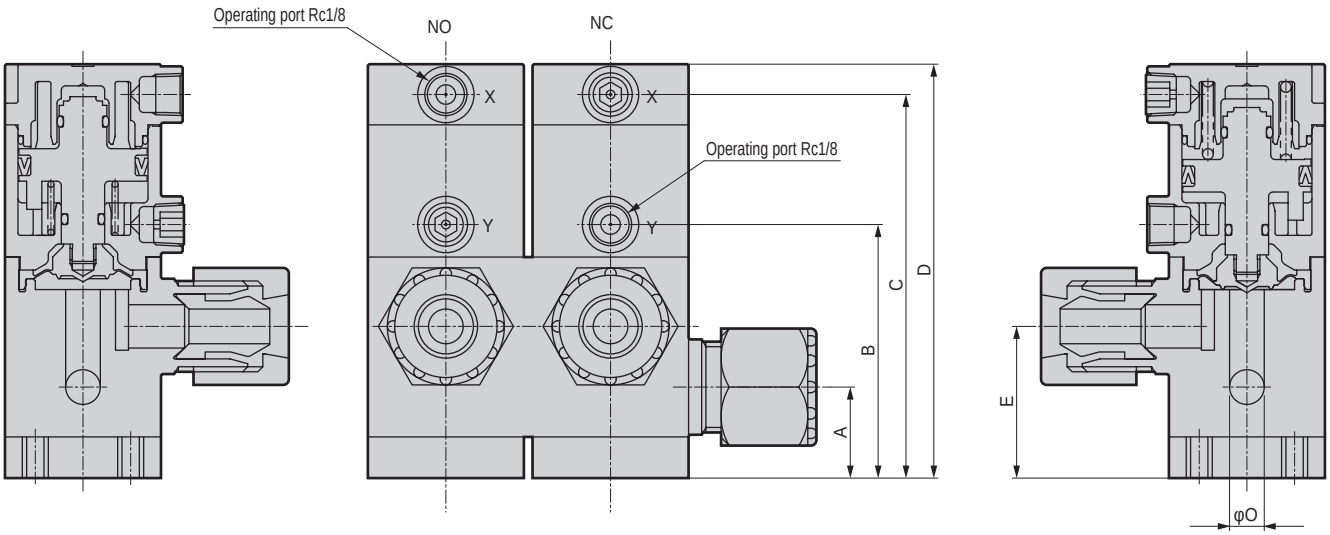
Port A position: Blank

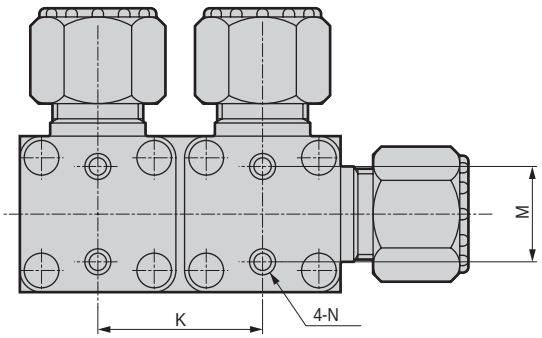


Port A position: L









Dimensions

Model No.	A	B	C	D (by fluid code)		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 (Connector 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(12mm / 1/2")

*1 (Connector 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

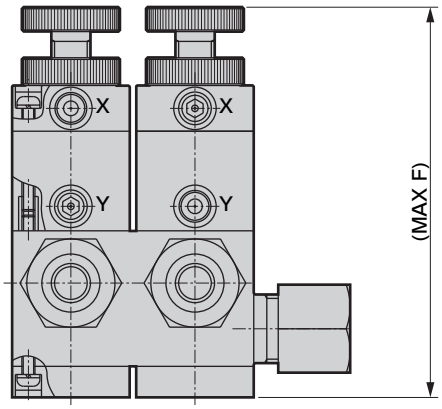
*1 (Connector No.)	J	O
20BUS	39	16
20BUP	36	16
20BUA	31	16
20BUR	44	15
20BUK	36.5	16
20BUW	38	14.7

AMG5

*1 (Connector 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

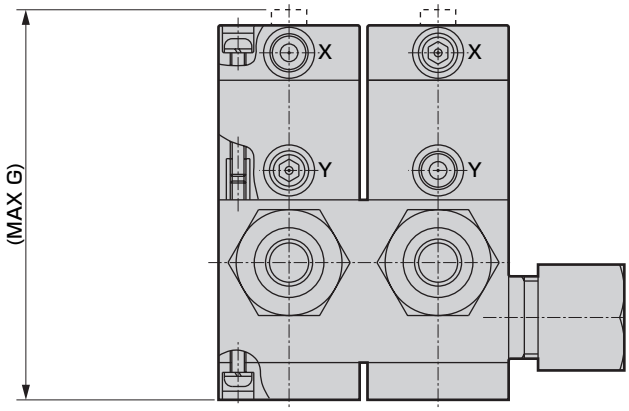
●With flow rate adjustment

・AMG*02-*-1



●With indicator

・AMG*02-*-6



Model No.	F (by fluid code)		G (by fluid code)	
	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 liquids (manifold/branch valve)

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

- Station No.: 1 to 5 stations
- Connection tube size: ø10, ø12, ø25, 3/8″, 1/2″, 3/4″, 1"

RoHS

Export controlled items

*Applicable: GAMD4*2, 5*2 (*6)

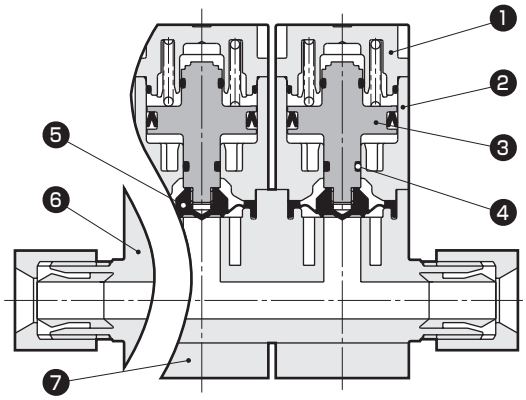
Specifications

Item		GAMD3*2	GAMD4*2	GAMD5*2
Working fluid		Chemical liquids, pure water, air, N_2Gas (*1)		
Fluid temperature	°C	5 to 90 (For high temperature: 5 to 160) (*5)		5 to 90 (*5)
Proof pressure	MPa	1.0		
Working pressure (A→B)	MPa	0 to 0.3 (*4)		
Working pressure (B→A)	MPa	0 to 0.1 (*4)		
Valve seat leakage	cm^3/min	0 (water pressure)		
Back pressure	MPa	0 to 0.1 (*4)		
Ambient temperature	°C	0 to 60		
Frequency		30 cycles/min. or less	20 cycle/min. or less	
Mounting orientation		Unrestricted		
Connection		O.D. ø10/ø12 tube connection (integrated fitting) O.D. 3/8" / 1/2" tube connection (integrated fitting)	O.D. 3/4" tube connection (integrated fitting)	O.D. ø25 tube connection (integrated fitting) O.D. 1" tube connection (integrated fitting)
Orifice size		ø6 to ø10 (*3)	ø14.7 to ø16 (*3)	ø20
Operating section	Operating pressure MPa	NC: 0.3 to 0.5, NO: 0.3 to 0.5 (0.3 to 0.35 for high temperature), double acting: 0.3 to 0.4 (0.2 to 0.25 for high temperature)		
	Operating port	Rc1/8 (*2)		
Weight kg	1 stations	0.25	0.51	1.0
	2 stations	0.50	1.0	2.0
	3 stations	0.75	1.5	3.0
	4 stations	1.0	2.0	4.0
	5 stations	1.3	2.5	-

*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*2: Use a resin fitting for connection to the operating port. (When using a metal fitting, select one with reinforcing ring. However, a reinforcing ring cannot be selected for those with fluid code P for nitric acid and hydrofluoric acid.)
*3: Check the orifice of each connection in How to order.
*4: Refer to page 98 for high-pressure specifications.
*5: For use with hydrofluoric acid, or when the fluid temperature exceeds 40°C, consult with CKD.
*6: GAMD3*2 is not applicable. (for individual piping of secondary side port)

Always read the precautions on Intro Pages 9 to 18 before use.

Internal structure and parts list



Part number	Part name	Material (by fluid code)		
		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 vary depending on the model number. Contact CKD for details.

How to order

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

GAMD3 (1) 2 - (10BUP) - (1) - (3) (M) (L)

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

		(B) Connection										
		10US	10BUS	10UP	10BUP	10UA	10BUA	10UR	10BUR	10UK	10BUK	10BUW
		Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20A Series Integrated fitting		F-LOCK 60 Series Integrated fitting		Final Lock Fitting Integrated		Flaretek Fitting Integrated
		ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	3/8"x1/4" Tube connection
Code / Description	Orifice size	ø8						ø7	ø6	ø8		ø20, 6.3
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 rate adjustment	●	●	●	●	●	●	●	●	●	●	●
6	With indicator	●	●	●	●	●	●	●	●	●	●	●
(D) Station No.												
1	1 stations	●	●	●	●	●	●	●	●	●	●	●
to	to											
5	5 stations											
(E) Fluid												
Blank	Standard	●	●	●	●	●	●	●	●	● (*1)	● (*1)	●
M	For ammonia	●	●	●	●	●	●	●	●	● (*1)	● (*1)	●
P	For nitric acid, for hydrofluoric acid (*3)	●	●	●	●	●	●	●	●	● (*1)	● (*1)	●
Y	For high temperature (5 to 160°C) (*2)	●	●	●	●	●	●			● (*1)	● (*1)	
(F) Port A position												
Blank	Right	●	●	●	●	●	●	●	●	●	●	●
L	Left	●	●	●	●	●	●	●	●	●	●	●
W	Both sides	●	●	●	●	●	●	●	●	●	●	●

* Machined PTFE products are on a per-order basis.

●Model No. of operating port with reinforcing ring (indicate R at the end of the model No.)

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

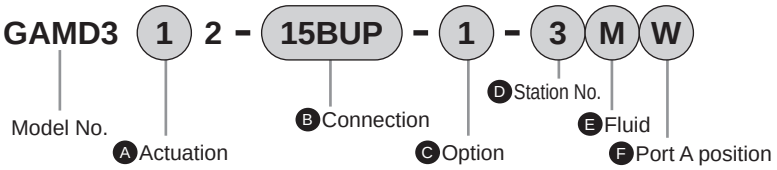
With reinforcing ring

Precautions for model No. selection

*1: Since the Final Lock fitting nut and operating air piping may interfere, be sure to check the dimensions before making the selection.
*2: It cannot be used for nitric acid, hydrofluoric acid or hydrochloric acid.
*3: If P is selected in (E), R with reinforcing ring cannot be selected.

How to order

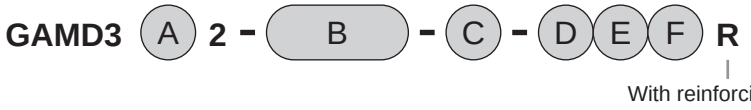
●GAMD3*2 Series (connection: ø12, 1/2" tube connection)



Code	Description \ Orifice size	B Connection										
		12US	15BUS	12UP	15BUP	12UA	15BUA	12UR	15BUR	12UK	15BUK	15BUW
		Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20A Series Integrated fitting		F-LOCK 60 Series Integrated fitting		Final Lock Fitting Integrated		Flaretek Fitting Integrated
		ø12xø10Tube connection	1/2"x3/8"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection	1/2"x3/8"Tube connection
		ø10						ø9		ø10		ø20, 9.4
	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 rate adjustment	●	●	●	●	●	●	●	●	●	●	●
6	With indicator	●	●	●	●	●	●	●	●	●	●	●
D Station No.												
1	1 stations	●	●	●	●	●	●	●	●	●	●	●
to	to											
5	5 stations											
E Fluid												
Blank	Standard	●	●	●	●	●	●	●	●	● (*1)	● (*1)	●
M	For ammonia	●	●	●	●	●	●	●	●	● (*1)	● (*1)	●
P	For nitric acid, for hydrofluoric acid (*3)	●	●	●	●	●	●	●	●	● (*1)	● (*1)	●
Y	For high temperature (5 to 160°C) (*2)	●	●	●	●	●	●			● (*1)	● (*1)	
F Port A position												
Blank	Right	●	●	●	●	●	●	●	●	●	●	●
L	Left	●	●	●	●	●	●	●	●	●	●	●
W	Both sides	●	●	●	●	●	●	●	●	●	●	●

* Machined PTFE products are on a per-order basis.

●Model No. of operating port with reinforcing ring (indicate R at the end of the model No.)



Precautions for model No. selection

*1: Since the Final Lock fitting nut and operating air piping may interfere, be sure to check the dimensions before making the selection.
*2: It cannot be used for nitric acid, hydrofluoric acid or hydrochloric acid.
*3: If P is selected in E, R with reinforcing ring cannot be selected.

How to order

●GAMD4*2 Series

GAMD4 (1) 2 - (20BUP) - (6) - (2) (M) (L)

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

		(B) Connection					
		20BUS	20BUP	20BUA	20BUR	20BUK	20BUW
		Super type pillar integrated fitting	Super 300 Pillar fitting P Series integrated	F-LOCK 20A Series Integrated fitting	F-LOCK 60 Series Integrated fitting	Final Lock Integrated fitting	Flaretek Integrated fitting
		3/4"x5/8"Tube connection					
Code	Orifice size / Description	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 rate adjustment	●	●	●	●	●	●
6	With indicator	●	●	●	●	●	●
(D) Station No.							
1	1 stations	●	●	●	●	●	●
to	to						
5	5 stations						
(E) Fluid							
Blank	Standard	●	●	●	●	●	●
M	For ammonia	●	●	●	●	●	●
P	For nitric acid, for hydrofluoric acid (*2)	●	●	●	●	●	●
Y	For high temperature (5 to 160°C) (*1)	●	●	●		●	
(F) Port A position							
Blank	Right	●	●	●	●	●	●
L	Left	●	●	●	●	●	●
W	Both sides	●	●	●	●	●	●

* Machined PTFE products are on a per-order basis.

●Model No. of operating port with reinforcing ring (indicate R at the end of the model No.)

GAMD4 (A) 2 - (B) - (C) - (D) (E) (F) **R**

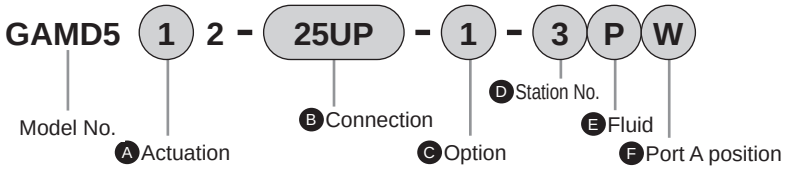
- With reinforcing ring

Precautions for model No. selection

*1: It cannot be used for nitric acid, hydrofluoric acid or hydrochloric acid.
*2: If P is selected in (E), R with reinforcing ring cannot be selected.

How to order

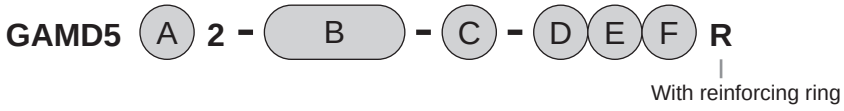
●GAMD5*2 Series



		B Connection									
		25US	25BUS	25UP	25BUP	25BUA	25UR	25BUR	25UK	25BUK	25BUW
		Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20A Series Integrated fitting	F-LOCK 60 Series Integrated fitting		Final Lock Fitting Integrated		Flaretek Fitting Integrated
		ø25xø22Tube connection	1"x7/8"Tube connection	ø25xø22Tube connection	1"x7/8"Tube connection	1"x7/8"Tube connection(*1)	ø25xø22Tube connection	1"x7/8"Tube connection	ø25xø22Tube connection	1"x7/8"Tube connection	1"x7/8"Tube connection
Code	Orifice size / Description	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 rate adjustment	●	●	●	●	●	●	●	●	●	●
6	With indicator	●	●	●	●	●	●	●	●	●	●
D Station No.											
1	1 stations	●	●	●	●	●	●	●	●	●	●
to	to										
4	4 stations										
E Fluid											
Blank	Standard	●	●	●	●	●	●	●	●	●	●
M	For ammonia	●	●	●	●	●	●	●	●	●	●
P	For nitric acid, for hydrofluoric acid (*2)	●	●	●	●	●	●	●	●	●	●
F Port A position											
Blank	Right	●	●	●	●	●	●	●	●	●	●
L	Left	●	●	●	●	●	●	●	●	●	●
W	Both sides	●	●	●	●	●	●	●	●	●	●

* Machined PTFE products are on a per-order basis.

●Model No. of operating port with reinforcing ring (indicate R at the end of the model No.)



Precautions for model No. selection

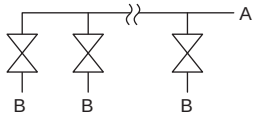
*1: Can also be used for ø25 x ø22 tube connection.
*2: If P is selected in E, R with reinforcing ring cannot be selected.

Dimensions

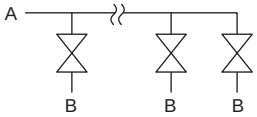
●ON/OFF only

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

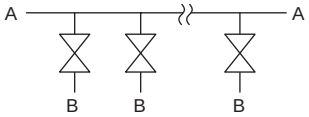
Port A position: Blank

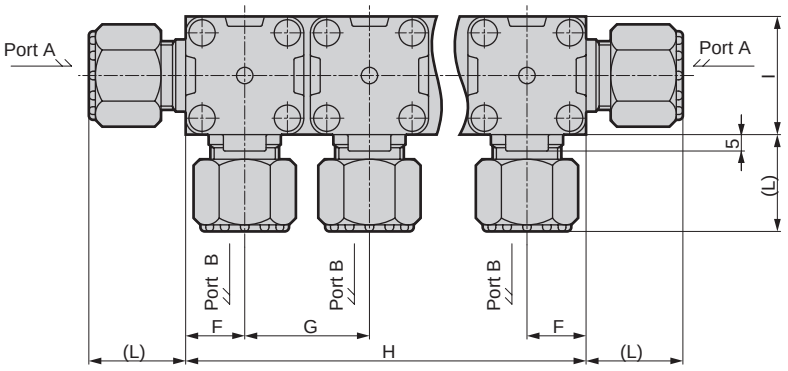


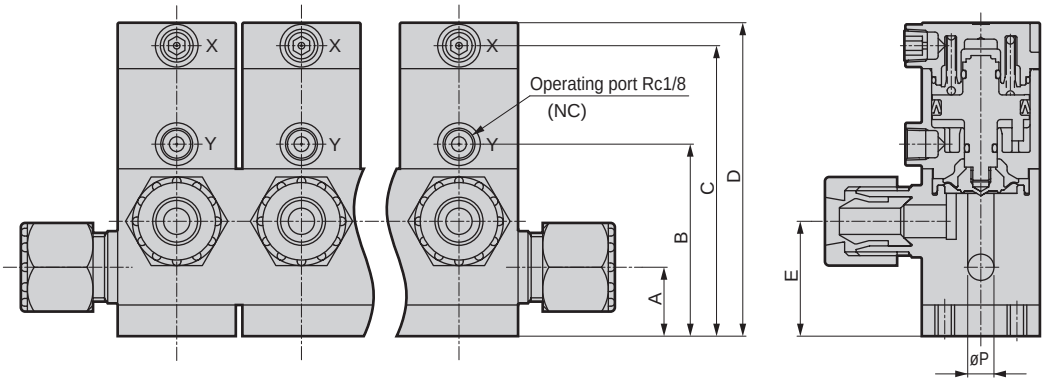
Port A position: L

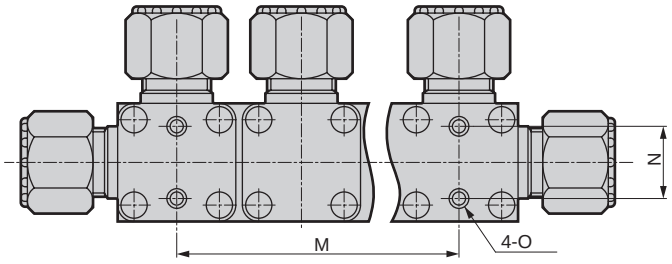


Port A position: W









Dimensions

Station No.	Model No.	A	B	C	D (by fluid code)		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 (Connector 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(12mm / 1/2")

*1 (Connector 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

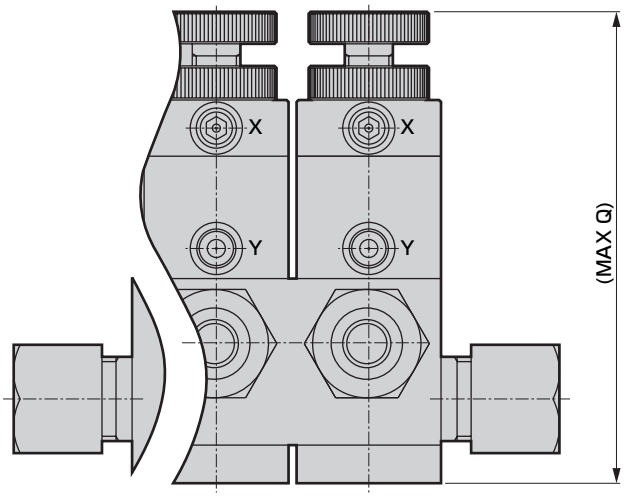
*1 (Connector No.)	L	P
20BUS	39	16
20BUP	36	16
20BUA	31	16
20BUR	44	15
20BUK	36.5	16
20BUW	38	14.7

GAMD5*2

*1 (Connector 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

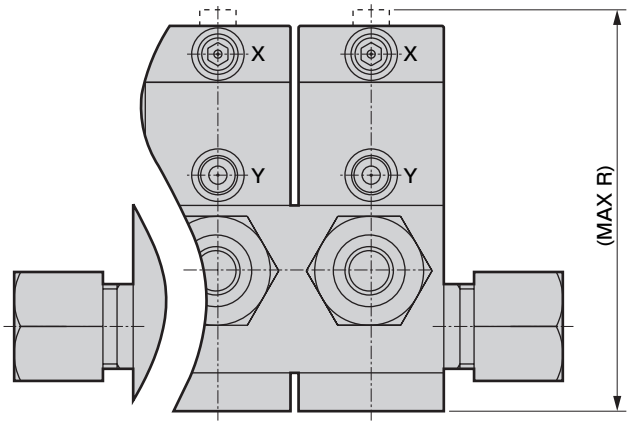
●With flow rate adjustment

・GAMD**2-*-1

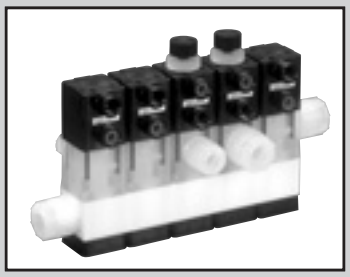


●With indicator

・GAMD**2-*-6



Model No.	Q (by fluid code)		R (by fluid code)	
	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 manifold valve for chemical liquids

GAMD0*2 A Series

- A manifold valve that can be combined in various ways by blocking the body.
- Station No.: 2 to 5 stations
- Connection tube size: ø6, ø8, ø10, ø12, 1/4", 3/8", 1/2"

RoHS Export Trade Control Ordinance not applicable (for individual piping of secondary port)

Specifications

Item		GAMD0*2A			
Working fluid		Chemical liquids, pure water, air, N_2Gas (*1)			
Fluid temperature	°C	5 to 110 (*2)			
Proof pressure	MPa	1.0			
Working pressure (A→B)	MPa	Refer to Fig. 1 below			
Working pressure (B→A)	MPa	Refer to Fig. 1 below			
Valve seat leakage	cm^3/min	0 (water pressure)			
Back pressure	MPa	Refer to Fig. 1 below			
Ambient temperature	°C	0 to 60			
Frequency		30 cycles/min. or less			
Mounting orientation		Unrestricted			
Orifice size		ø6			
Connection		O.D. ø6 tube connection O.D. 1/4" tube connection	O.D. ø8 tube connection	O.D. ø10 tube connection O.D. 3/8" tube connection	O.D. ø12 tube connection (*4) O.D. 1/2" tube connection (*4)
Cv		0.40 (*3)	0.6	0.6	0.6
Operating section	Operating pressure MPa	NC/NO: 0.4 to 0.5, double acting: 0.3 to 0.4			
	Operating port	Rc1/8			
Weight	kg	0.35 (2 stations), 0.52 (3 stations), 0.70 (4 stations), 0.87 (5 stations)			

*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*2: 5 to 40°C for hydrofluoric acid.
*3: Cv when port A is connected with a tube with O.D. of ø10 or more.
*4: O.D. ø12, O.D. 1/2" tube connections are only available for port A.

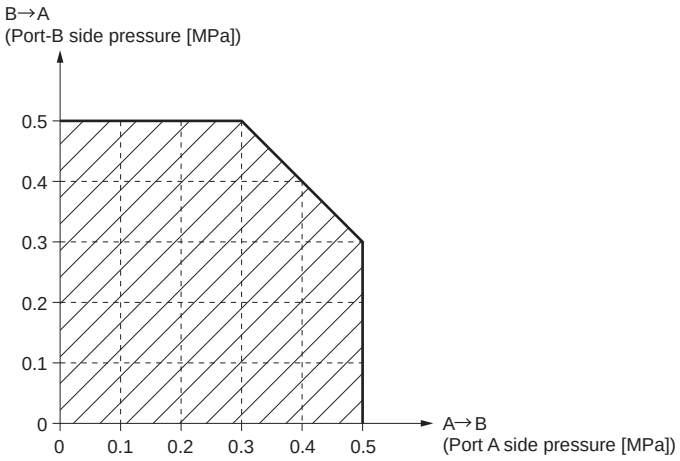
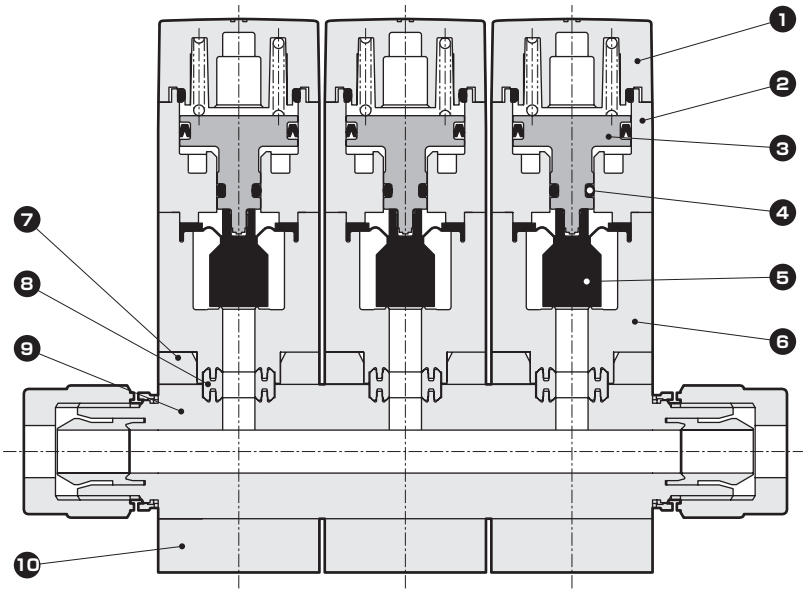


Fig 1. Usable fluid pressure range

(Example) When the pressure on port A side is 0.45 MPa, port B side can be used at 0.35 MPa pressure (back pressure).

Always read the precautions on Intro Pages 9 to 18 before use.

Internal structure and parts list



Part number	Part name	Material (by fluid code)	
		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 vary depending on the model number. 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.
- (blank): Ⓕ Fluid
- R: Ⓖ Port A fitting direction

Code	Description	
Ⓐ Actuation		
1	NC (Normally Closed)	
2	NO (Normally Open)	
3	Double acting	
Ⓑ Connector (port A fitting)		
6UP	Super 300 Pillar fitting P series integrated	ø6 x ø4 tube connection
8UP		ø8 x ø6 tube connection
10UP		ø10 x ø8 tube connection
12UP		ø12 x ø10 tube connection
8BUP		1/4" x 5/32" tube connection
10BUP		3/8" × 1/4" tube connection
15BUP		1/2" × 3/8" tube connection
Ⓒ Connector (port B fitting)		
6UP	Super 300 Pillar fitting P series integrated	ø6 x ø4 tube connection
8UP		ø8 x ø6 tube connection
10UP		ø10 x ø8 tube connection
8BUP		1/4" x 5/32" tube connection
10BUP		3/8" × 1/4" tube connection
Ⓓ Option		
0	ON/OFF only	
1	With flow rate adjustment	
Ⓔ Station No.		
2	2 stations	
to	to	
5	5 stations	
Ⓕ Fluid		
Blank	Standard	
M	For ammonia	
Ⓖ Port A fitting direction (*1)		
L	Left	
R	Right	
W	Both sides	

Precautions for model No. selection

*1: The direction viewed with the operating port in front.

How to order

●Mix manifold

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

- X: Mix Manifold (Model No.)
- (3)( ): Ⓐ Station No.
- X: Ⓑ Fluid
- A0077 (*1)

Code	Description
Ⓐ Station No.	
2	2 stations
to	to
5	5 stations
Ⓑ Fluid	
Blank	Standard
M	For ammonia

Precautions for model No. selection

Be sure to fill in the "Manifold specifications sheet" (pages 96 and 97).
*1: Leave blank (serial number). After receiving the specifications, CKD will contact you regarding the model No.

●Discrete valve model No. * The valve cannot be ordered as a single unit.

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

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

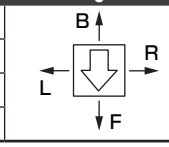
Ⓐ Actuation	
1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting

Ⓑ Connector (port B fitting)		
6UP	Super 300 Pillar fitting P series integrated	ø6 x ø4 tube connection
8UP		ø8 x ø6 tube connection
10UP		ø10 x ø8 tube connection
8BUP		1/4" x 5/32" tube connection
10BUP		3/8" × 1/4" tube connection

Ⓒ Option	
0	ON/OFF only
1	With flow rate adjustment

Ⓓ Fluid	
Blank	Standard
M	For ammonia

* The code is the same as Item Ⓑ of mix manifold model No.

Ⓔ Port B fitting direction	
F	
B	
L	
R	

With the valve viewed from above, the ⇩ direction indicates the position of the operating port, and the ← indicates the direction of the B port.
* Except for the valves at both ends, port B direction "F" or "B" can be selected.

●Base body model No. * The base body cannot be ordered as a single unit.

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

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

Ⓐ Connector (port A fitting)		
6UP	Super 300 Pillar fitting P series integrated	ø6 x ø4 tube connection
8UP		ø8 x ø6 tube connection
10UP		ø10 x ø8 tube connection
12UP		ø12 x ø10 tube connection
8BUP		1/4" x 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

* The code is the same as Item Ⓐ of mix manifold model No.

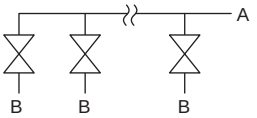
Ⓒ Port A fitting direction	
L	Left
R	Right
W	Both sides

Dimensions

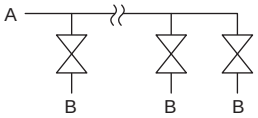
●Standard manifold ON/OFF only

• GAMD0$^{1}_{2}_{3}$ 2 A- *1 - *2 0

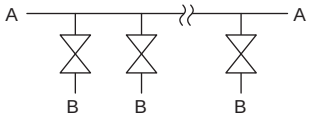
Port A position: R

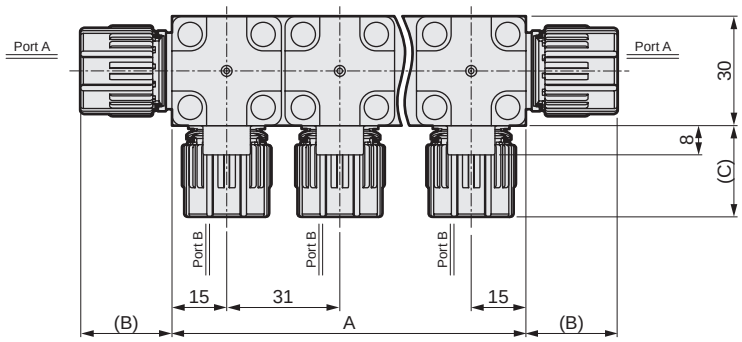


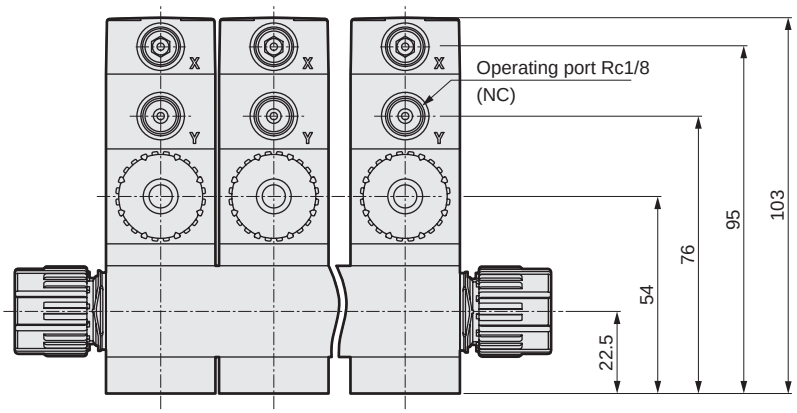
Port A position: L

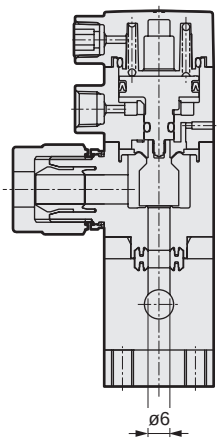


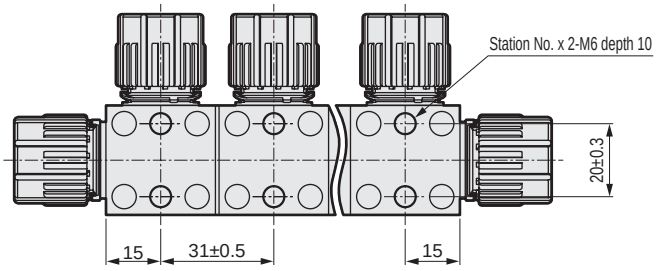
Port A position: W











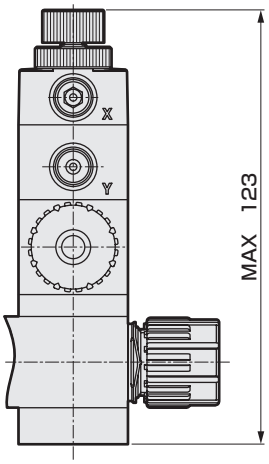
Station No.	A
2	61
3	92
4	123
5	154

*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 rate adjustment

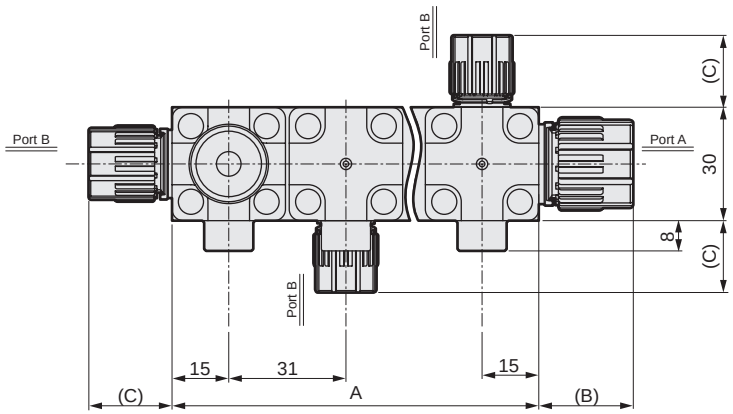
• GAMD0$^{1}_{2}_{3}$ 2 A- *1 - *2 1



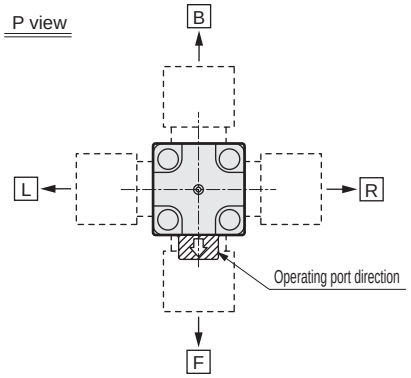
Dimensions

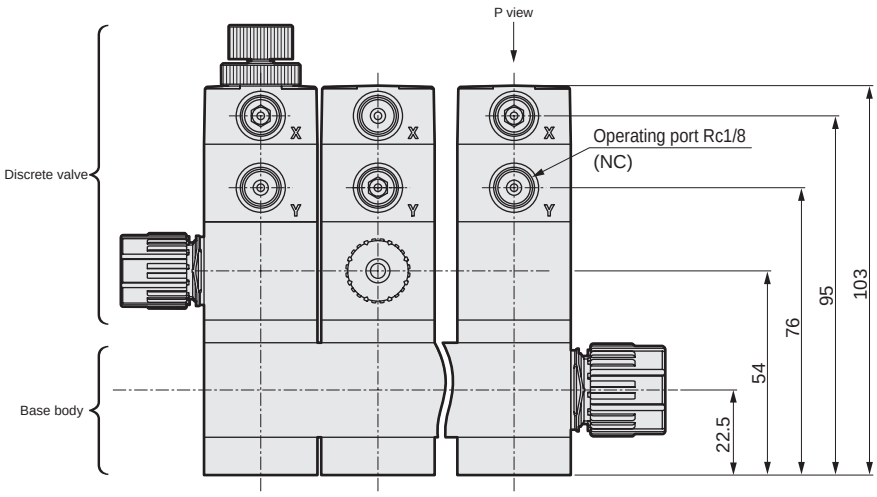
●Mix manifold

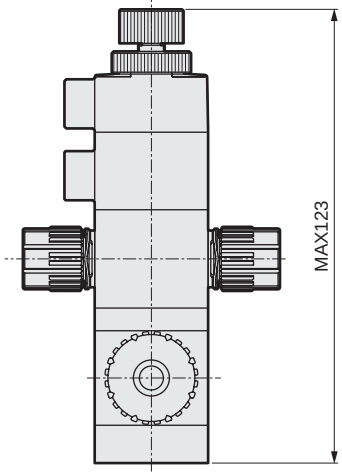
・GAMD0X2A

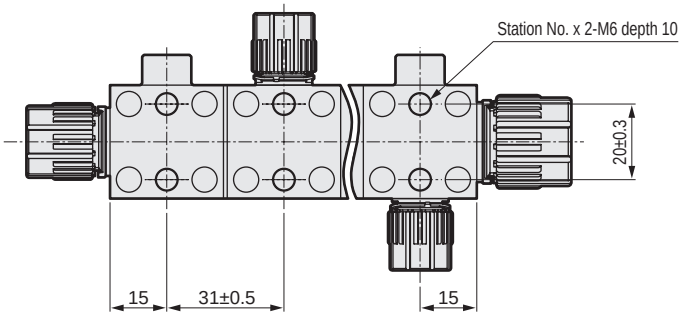


●Mix manifold Port B direction









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 sheet

● Manifold model No. (example)

GAMD0X2A - 5 [ ] - X [ ]

Model No. Ⓐ Station No. Ⓑ Fluid (Leave blank (serial number))

Part name	Model No.	Layout position					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 manifold specifications sheet

- With the operation port in front of you, from the left end, it will be the first series, the second series, and so on.
- Enter the single unit valve model No., base body model No. and arrangement selected from the mix manifold (page 93).
- Write the total number of valves specified in the Quantity in the table far right.

GAMDOX2A Mix manifold specifications sheet

●Contact ●Quantity/set(s) ●Delivery date /

Slip No.	Order No.

Date issued / /
Company
Contact
Order No.

●Manifold model No.

GAMD0X2A - [ ][ ] - X [ ]

Ⓐ Station No. Ⓑ Fluid (*1)

Refer to "Mix manifold" (page 93) to select the model No.

Part name	Model No.	Layout position					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 - [ ] - [ ] [ ]						

*With the operation port in front of you, from the left end, it will be the first series, the second series, and so on.

Precautions for model No. selection

*1: Leave blank (serial number). After receiving the specifications, CKD will contact you regarding the model No.

High pressure specification

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

RoHS

Item \ Pressure specification		B	Q
Fluid temperature	°C	5 to 90	
Working pressure	MPa	Refer to Fig. 1 below	Refer to Fig. 2 below
Back pressure	MPa	Refer to Fig. 1 below	Refer to Fig. 2 below
Operating pressure	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 0.45 (*2)

*1: Other specifications and Dimensions are the same as standard. However, the fluid temperature is 5 to 90°C.
For use with hydrofluoric acid, or when the fluid temperature exceeds 40°C, consult with CKD.
*2: NC:0.5 to 0.6, NO:0.45 to 0.5, double acting: 0.35 to 0.4 for AMD5*2, AMG5*2, and GAMD5*2.

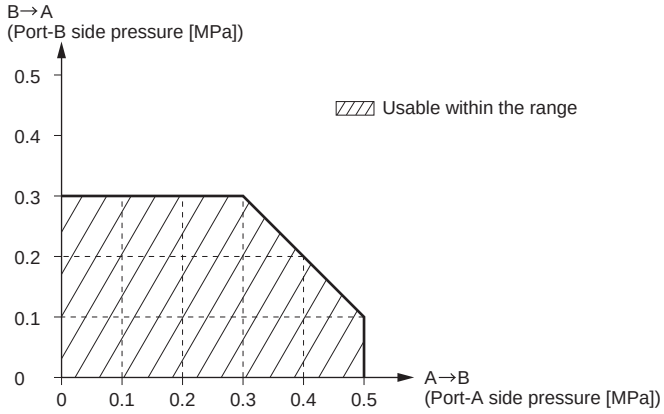


Fig 1: Usable fluid pressure range (B specification)

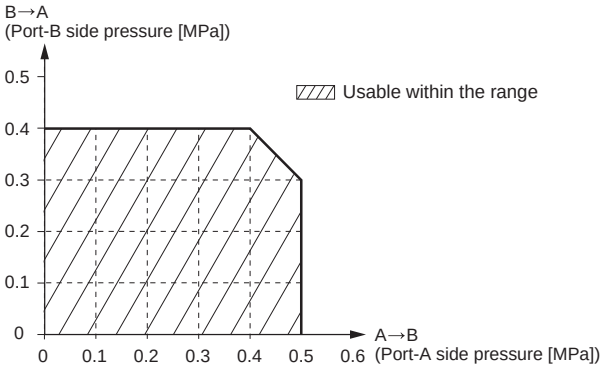


Fig 2: Usable fluid pressure range (Q specification)

How to order

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

AMD 3/4/5 1 2 - 15BUS - 0 4 P B

- Ⓐ Actuation
- Ⓑ Connection
- Ⓒ Option
- Ⓓ Operating port direction
- Ⓔ Fluid
- Ⓕ High pressure specification

Ⓕ High pressure specification	
B	0.3 MPa specification for both ports
Q	0.4 MPa specification for both ports

Precautions for model No. selection

*1: Ⓐ to Ⓔ is the same as standard. Select from the page for each model.
(AMD3*2/4*2/5*2:52 page)
*2: When combining with the operation port with reinforcement ring (R) or bottom mounting type (X), enter the model number in the order of ⓒ ⓓ ⓔ R Ⓕ X.
*3: Ⓕ If Item is Q, bypass cannot be specified.

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

AMD 3/4/5 1 2 - 8 - 0 - A - 4 B

- Ⓐ Actuation
- Ⓑ Connection
- Ⓒ Option
- Ⓓ Actuator material
- Ⓔ Operating port direction
- Ⓕ High pressure specification

Ⓕ High pressure specification	
B	0.3 MPa specification for both ports
Q	0.4 MPa specification for both ports

Precautions for model No. selection

*1: Ⓐ to Ⓔ is the same as standard stainless steel body. Select from the page for each model.
However, if Ⓓ is blank, omit the previous hyphen when filling out the model No.
(AMD3*2/4*2/5*2: page 64)

Always read the precautions on Intro Pages 9 to 18 before use.

How to order

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

AMG$^{3}_{4}$02 – 15BUS – 1 – M L B

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

E High pressure specification	
B	0.3 MPa specification for both ports
Q	0.4 MPa specification for both ports

Precautions for model No. selection

*1: A to D is the same as standard. Select from pages 74 to 81.
*2: When combining with operating port with reinforcing ring (R), fill in the model No. in the order of Ⓒ Ⓓ R Ⓔ.

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

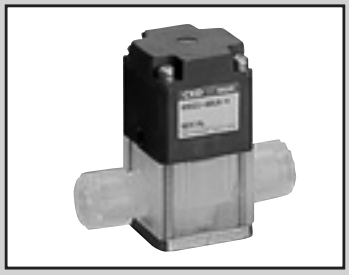
GAMD$^{3}_{4}$ 1 2 – 15BUS – 1 – 2 M L B

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

G High pressure specification	
B	0.3 MPa specification for both ports
Q	0.4 MPa specification for both ports

Precautions for model No. selection

*1: A to F is the same as standard. Select from pages 82 to 89.
*2: When combining with operating port with reinforcing ring (R),- Ⓓ Ⓔ Ⓕ R Ⓖ in the order listed below.



Air operated valve for chemical liquids

AMDZ$^{1}_{2}_{3}$/AMD0$^{1}_{2}_{3}$ Series

●Connection tube size: ø3, ø6, ø6.35, 1/8″, 1/4", (Rc1/8)

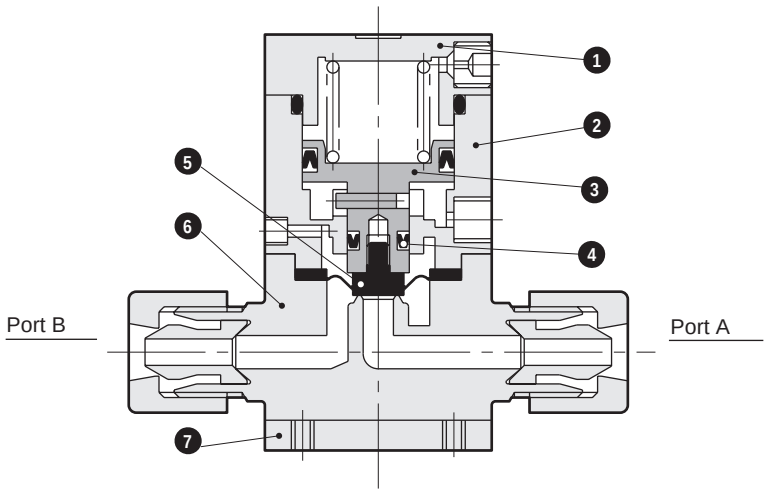
RoHS CAD

Specifications

Item		AMDZ*-*-2	AMDZ*-*-4	AMD0*-*-4
Working fluid		Chemical liquids/pure water/N_2Gas/air (*3)		
Fluid temperature	°C	5 to 80		
Proof pressure	MPa	1.0		
Working pressure (A→B)	MPa	0 to 0.5	0 to 0.3	0 to 0.5
Working pressure (B→A)	MPa	0 to 0.3		
Valve seat leakage	cm^3/min	0 (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 cycles/min. or less		
Mounting orientation		Unrestricted		
Connection		Rc1/8 O.D. ø3 tube connection O.D. 1/8" tube connection	O.D. ø6 tube connection O.D. 1/4" tube connection	Rc1/8 O.D. ø6 tube connection O.D. 1/4" tube connection
Orifice size		ø2	ø3.5	ø4
Cv		0.08 (*1, 2)	0.25	0.32 (*2)
Operating section	Operating pressure MPa	NC/NO: 0.3 to 0.5, double acting: 0.2 to 0.3	NC/NO: 0.35 to 0.5, double acting: 0.2 to 0.3	NC/NO: 0.3 to 0.5, double acting: 0.2 to 0.3
	Operating port	M5		
Weight	kg	0.06	0.06	0.11

*1: The PFA body with Rc1/8 connection will have Cv = 0.12.
*2: The SUS body Cv will be about 80% of that of the PFA body with Rc1/8 connection.
*3: Cannot be used with acidic fluids. For use with acidic fluids, refer to pages 2 and 48.
Check the compatibility of product structural materials, working fluids and atmosphere.(Refer to the compatibility check list on Intro Page 17.)
*4: Refer to page 119 for flow characteristics.

Internal structure and parts list



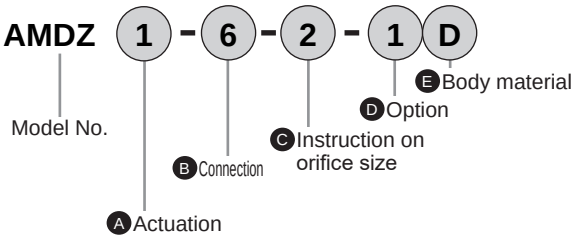
Part number	Part name	Material (by body material)	
		Standard	D
1	Cover	PPS	
2	Cylinder	PPS	
3	Piston rod	SUS303	
4	Y packing	NBR	
5	Diaphragm	PTFE	
6	Body	PFA, PTFE	SUS316
7	Mounting plate	SUS304	-

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

⚠ Always read the precautions on Intro Pages 9 to 18 before use.

How to order

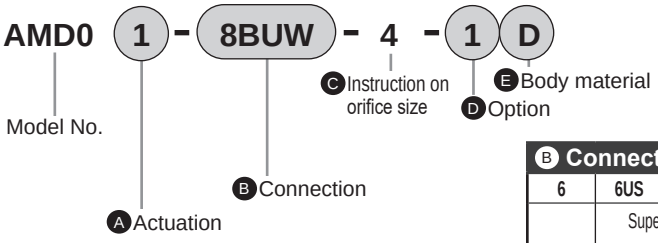
●AMDZ Series



Code	Description	B Connection: 6	3US	6BUS	3UP	6BUP	3UF	3UR	6BUR	6UR	8BUR
		Rc 1/8	Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20 Series Integrated fitting	F-LOCK 60 Series Integrated fitting			
			ø3xø2 Tube connection	1/8"x0.086" Tube connection	ø3xø2 Tube connection	1/8"x0.086" Tube connection	ø3xø2 Tube connection	ø3xø2 Tube connection	1/8"x1/16" Tube connection	ø6xø4 Tube connection	1/4"x5/32" Tube connection
A Actuation											
1	NC (Normally Closed)	●	●	●	●	●	●	●	●	●	●
2	NO (Normally Open)	●	●	●	●	●	●	●	●	●	●
3	Double acting	●	●	●	●	●	●	●	●	●	●
C Orifice size											
2	Refer to text at right	ø2						ø1.6			
4	Refer to text at right									ø3.5	
D Option											
Blank	ON/OFF only	●	●	●	●	●	●	●	●	●	●
1	With flow rate adjustment (NC only)	●	●	●	●	●	●	●	●	●	●
E Body material											
Blank	PFA molded body or PTFE machined body	PFA	PFA		PFA		PTFE	PTFE		PFA	
D	Stainless steel body	●									

* Machined PTFE products are on a per-order basis.

●AMD0 Series



Code	Description	B Connection: 6	6US	8BUS	6UP	8BUP	6UF	8BUF	6UR	8BUR	6UK	8BUK	8BUW
		Rc 1/8	Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20 Series Integrated fitting		F-LOCK 60 Series Integrated fitting		Final Lock Fitting Integrated		Flaretek Fitting Integrated
			ø6xø4 Tube connection	1/4"x5/32" Tube connection	ø6xø4 Tube connection	1/4"x5/32" Tube connection	ø6xø4 Tube connection	ø20, 6.35xø20, 4.3 Tube connection	ø6xø4 Tube connection	1/4"x5/32" Tube connection	ø6xø4 Tube connection	1/4"x5/32" Tube connection	1/4"x5/32" Tube connection
A Actuation													
1	NC (Normally Closed)	●	●	●	●	●	●	●	●	●	●	●	●
2	NO (Normally Open)	●	●	●	●	●	●	●	●	●	●	●	●
3	Double acting	●	●	●	●	●	●	●	●	●	●	●	●
C Orifice size													
4	Refer to text at right	ø4							ø3.5		ø4		ø3
D Option													
Blank	ON/OFF only	●	●	●	●	●	●	●	●	●	●	●	●
1	With flow rate adjustment	●	●	●	●	●	●	●	●	●	●	●	●
E Body material													
Blank	PFA molded body or PTFE machined body	PFA	PFA		PFA		PFA		PFA		PFA		PTFE
D	Stainless steel body	●											

* Machined PTFE products are on a per-order basis.

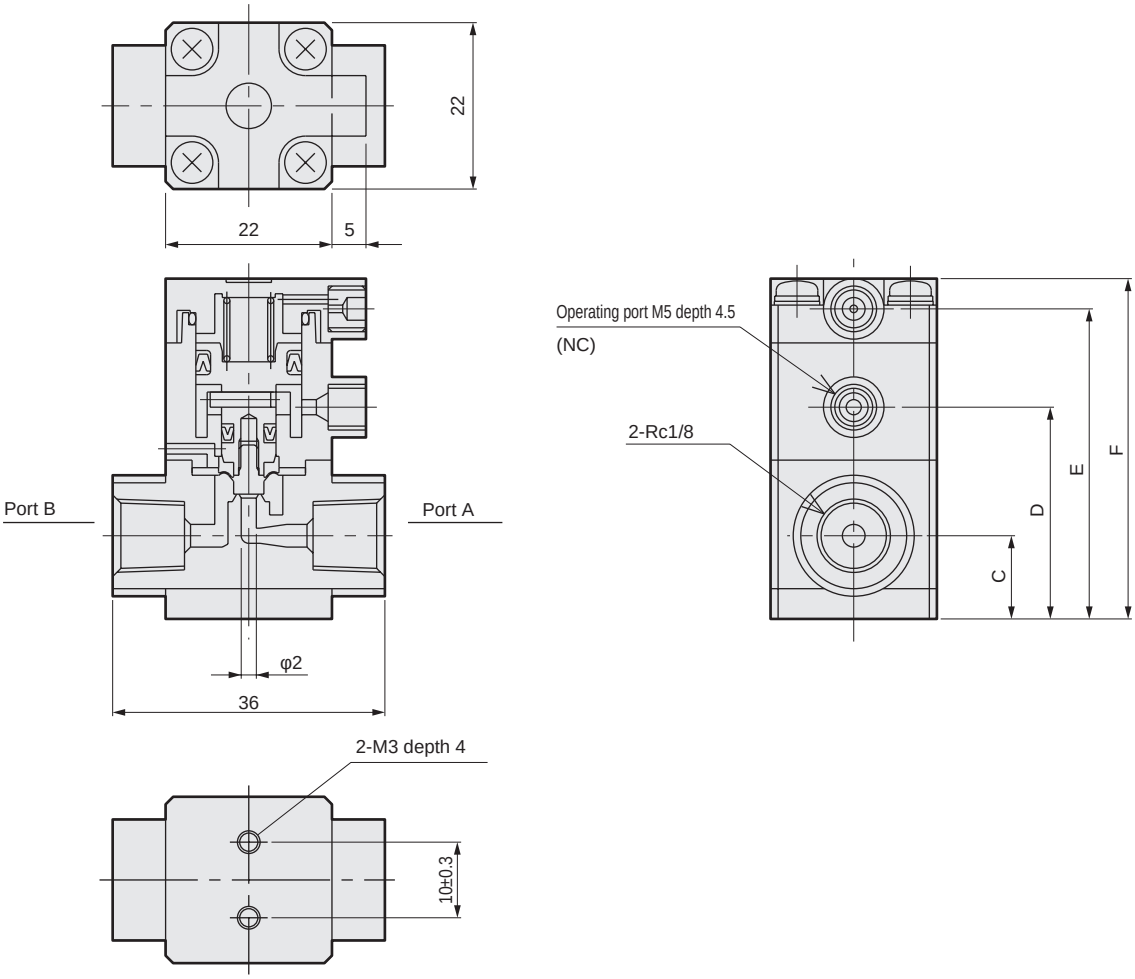
Precautions for model No. selection

*1: Refer to pages 2 and 48 if selecting all-resin for an actuator that can be used for acidic fluids.
*2: The low-sliding (diaphragm) actuator is also supported to reduce foaming and improve liquid drainage performance. Contact CKD for details.

Dimensions

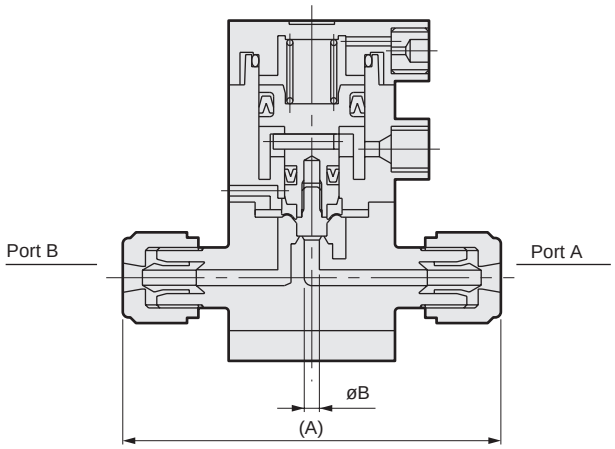
●Rc thread

・AMDZ*-6-2

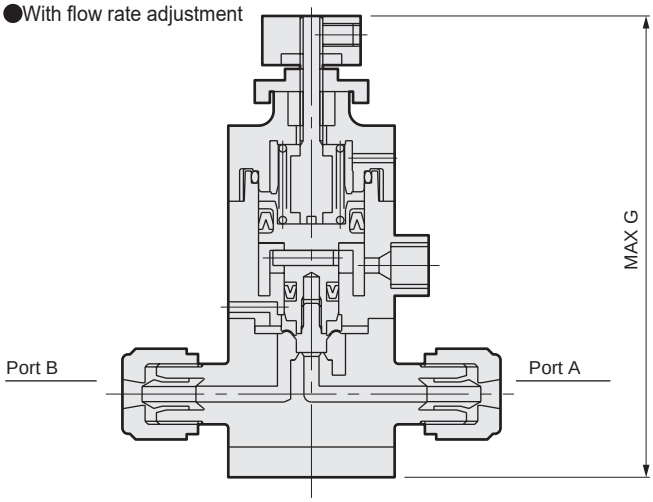


●Integrated fitting

・AMDZ*- *1 -2



●With flow rate adjustment

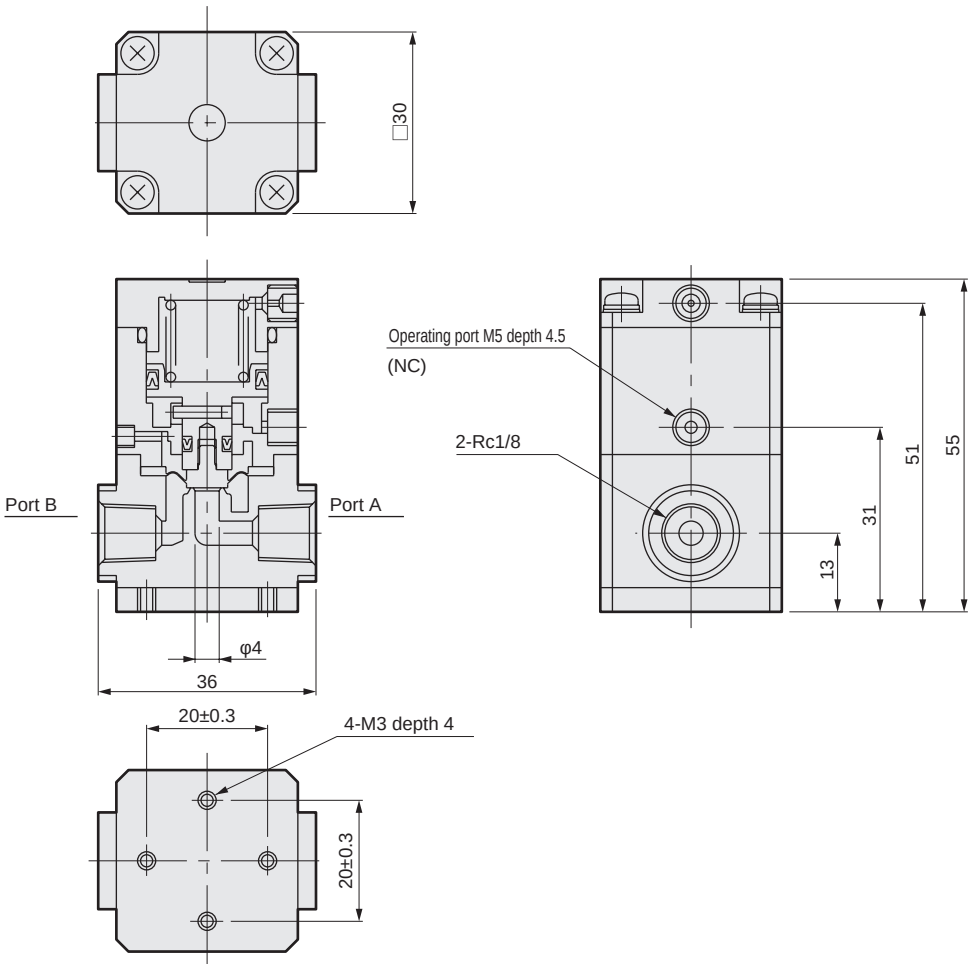


Dimensions *1 (Connector No.)	A	B	C	D	E	F	MAX G
6	-	2	11	28	41	45	63
3US, 3UP	50	2	11	28	41	45	63
6BUS, 6BUP	50	2	11	28	41	45	63
3UF	40	2	11	28	41	45	63
3UR	57	1.6	11	28	41	45	63
6BUR	57	1.6	11	28	41	45	63
6UR	82	3.5	12	31	44	48	66
8BUR	84	3.5	12	31	44	48	66

Dimensions

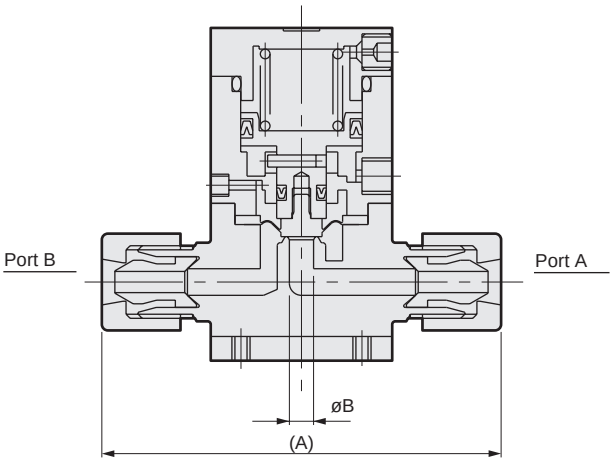
●Rc thread

・AMD0*-6-4

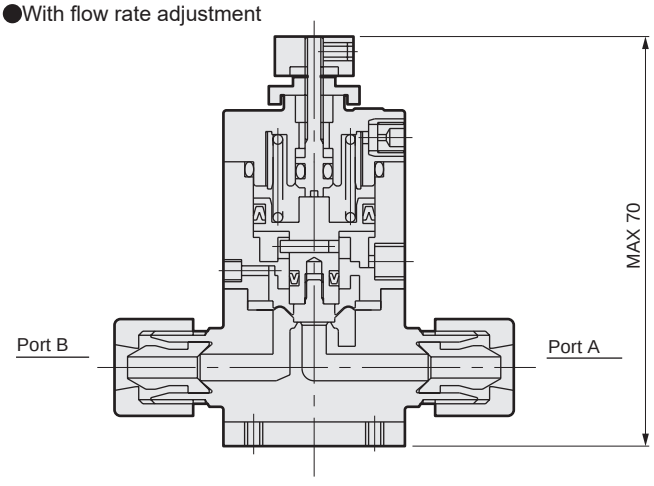


●Integrated fitting

・AMD0*- *1 -4



●With flow rate adjustment



Dimensions *1 (Connector No.)	A	B
6US	66	4
8BUS	66	4
6UP	68	4
8BUP	68	4

Dimensions *1 (Connector 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 liquids (3-port valve)

AMGZ0/AMG00 Series

●Connection tube size: ø3, ø6, ø6.35, 1/8″, 1/4"

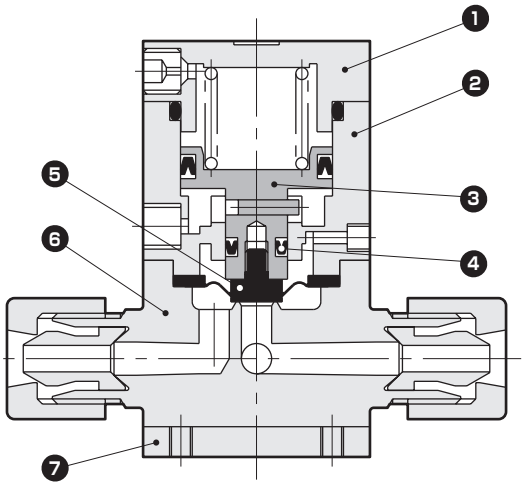
RoHS

Specifications

Item		AMGZ0-*-2	AMG00-*-4
Working fluid		Chemical liquids/pure water/N_2Gas/air (*1)	
Fluid temperature	°C	5 to 80	
Proof pressure	MPa	1.0	
Working pressure (A→B)	MPa	0 to 0.5	
Working pressure (B→A)	MPa	0 to 0.3	
Valve seat leakage	cm^3/min	0 (water pressure)	
Back pressure	MPa	0 to 0.3	
Ambient temperature	°C	0 to 60	
Frequency		30 cycles/min. or less	
Mounting orientation		Unrestricted	
Connection		O.D. ø3 tube connection O.D. 1/8" tube connection	O.D. ø6 tube connection O.D. ø6.35 tube connection O.D. 1/4" tube connection
Orifice size		ø2	ø4
Cv		0.08	0.32
Operating section	Operating pressure MPa	0.3 to 0.5	
	Operating port	M5	
Weight	kg	0.12	0.21

*1: Cannot be used with acidic fluids. Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)

Internal structure and parts list



Part number	Part name	Material
1	Cover	PPS
2	Cylinder	PPS
3	Piston rod	SUS303
4	Y packing	NBR
5	Diaphragm	PTFE
6	Body	PFA, PTFE
7	Mounting plate	SUS304

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

⚠ Always read the precautions on Intro Pages 9 to 18 before use.

How to order

●AMGZ0 Series

AMGZ0 – 3UF – 2

- AMGZ0: Model No.
- 3UF: Ⓐ Connection
- 2: Instruction on orifice size

Description	Ⓐ Connection						
	3US	6BUS	3UP	6BUP	3UF	3UR	6BUR
	Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20 Series Integrated fitting	F-LOCK 60 Series Integrated fitting	
	ø3xø2 Tube connection	1/8"x0.086" Tube connection	ø3xø2 Tube connection	1/8"x0.086" Tube connection	ø3xø2 Tube connection	ø3xø2 Tube connection	1/8"x1/16" Tube connection
Orifice size							
Refer to text at right	ø2					ø1.6	
Body material							
PFA molded body or PTFE machined body	PFA		PFA		PTFE	PTFE	

* Machined PTFE products are on a per-order basis.

●AMG00 Series

AMG00 – 8BUF – 4

- AMG00: Model No.
- 8BUF: Ⓐ Connection
- 4: Instruction on orifice size

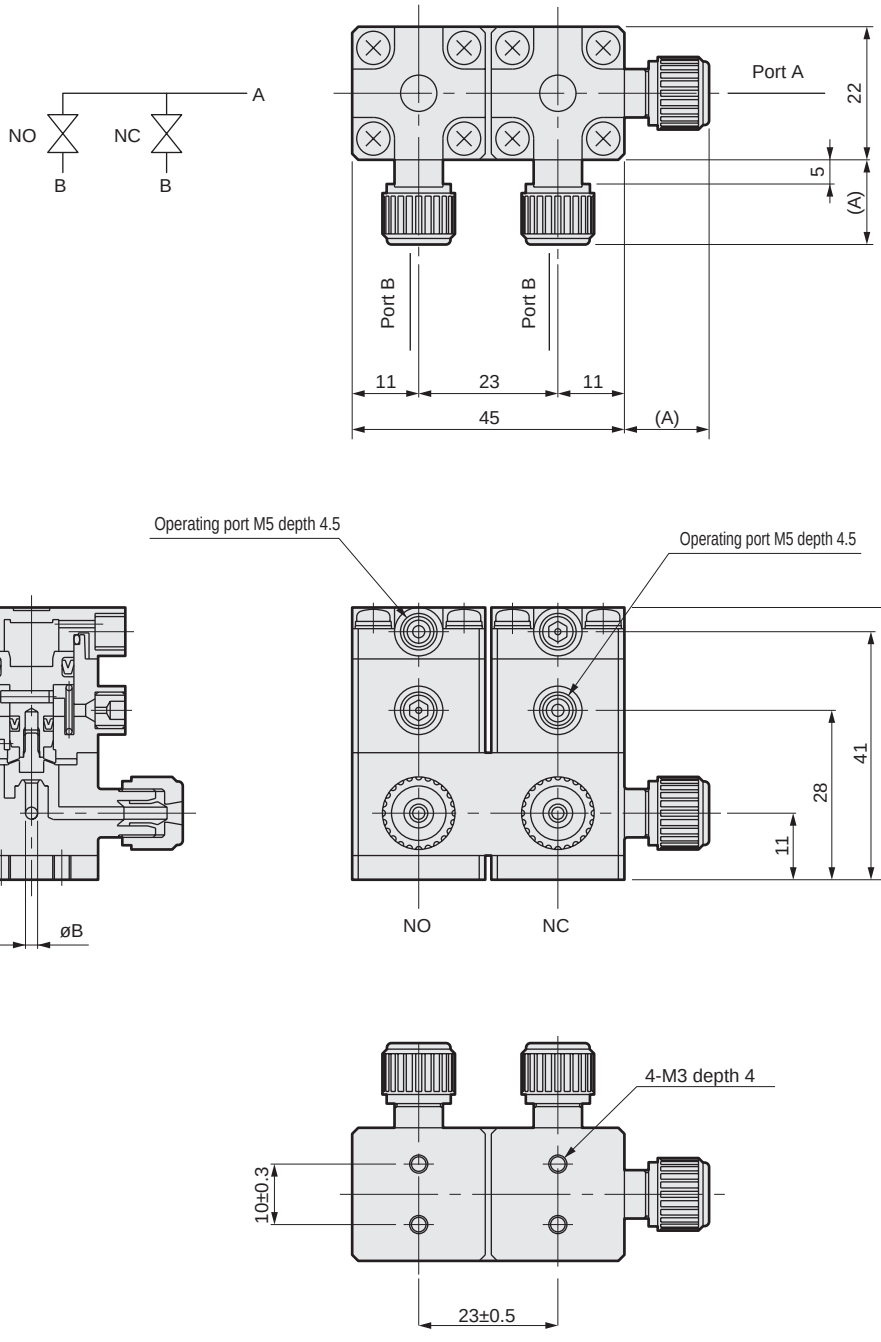
Description	Ⓐ Connection										
	6US	8BUS	6UP	8BUP	6UF	8BUF	6UR	8BUR	6UK	8BUK	8BUW
	Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20 Series Integrated fitting		F-LOCK 60 Series Integrated fitting		Final Lock Fitting Integrated		Flaretek Fitting Integrated
	ø6xø4 Tube connection	1/4"x5/32" Tube connection	ø6xø4 Tube connection	1/4"x5/32" Tube connection	ø6xø4 Tube connection	ø20, 6.35xø20, 4.3 Tube connection	ø6xø4 Tube connection	1/4"x5/32" Tube connection	ø6xø4 Tube connection	1/4"x5/32" Tube connection	1/4"x5/32" Tube connection
Orifice size											
Refer to text at right	ø4						ø3.5		ø4		ø3
Body material											
PFA molded body or PTFE machined body	PFA		PTFE		PTFE		PTFE		PTFE		PTFE

* Machined PTFE products are on a per-order basis.

Dimensions

●Integrated fitting

・AMGZ0- [*1] -2

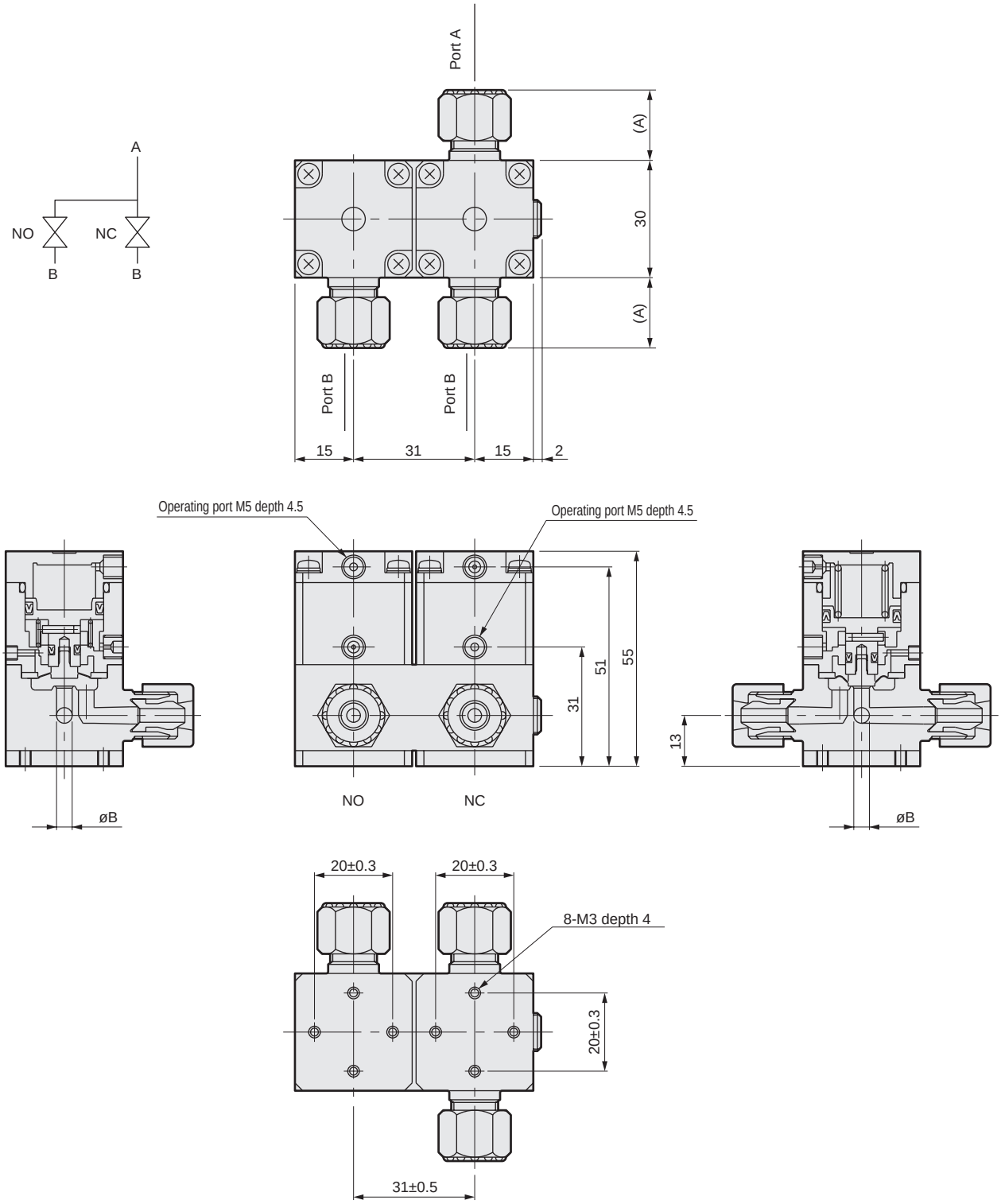


Dimensions *1 (Connector No.)	A	B
3US, 3UP	14	2
6BUS, 6BUP	14	2
3UF	9	2
3UR	17.5	1.6
6BUR	17.5	1.6

Dimensions

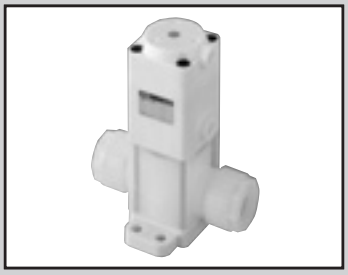
●Integrated fitting

・AMG00- *1 -4



Dimensions *1 (Connector No.)	A	B
6US	18	4
8BUS	18	4
6UP	19	4
8BUP	19	4

Dimensions *1 (Connector No.)	A	B
6UF	17	4
8BUF	17	4
6UR	30	3.5
8BUR	31	3.5
6UK	20.5	4
8BUK	20.5	4
8BUW	28	3



Air operated valve for chemical liquid supply

AMD*1H Series

A valve designed to support high pressure and high back pressure of chemical liquid lines in semiconductor manufacturing.

- Connection tube size: 1/2", 3/4", 1", 1.25"
  PFA pipe for welding:
  Nominal 1/4", 1/2", 3/4", 1"

RoHS CAD

Export controlled items

*Applicable: AMD41H, 51H, 61H (*5)

Variation contents

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

Model No.		Working pressure (MPa)	Operating pressure (MPa)	Water hammer Reduced
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

Item		AMD41H	AMD51H	AMD61H
Actuation		NC (Normally Closed)		
Working fluid		Chemical liquid/pure water/Air/N_2Gas(*1)		
Fluid temperature	°C	5 to 40		
Proof pressure	MPa	1.4		
Working pressure (A→B)	MPa	0 to 0.7		
Valve seat leakage	cm^3/min	0 (water pressure)		
Back pressure	MPa	0 to 0.7		
Ambient temperature	°C	0 to 40		
Frequency		15 cycle/min. or less		
Mounting orientation		Unrestricted		
Connection		O.D. 1/2" tube connection Nominal 1/4" PFA pipe for welding	0D3/4" tube connection Nominal 1/2" PFA pipe for welding	O.D. 1" tube connection Nominal 3/4" PFA pipe for welding	0D1.25" tube connection Nominal 1" PFA pipe for welding
Orifice size		ø10	ø16	ø22	ø25
Cv		2	5 (*2)	9.5	14
Operating section	Operating pressure MPa	0.5 to 0.7			
	Operating port	Rc1/8			
Weight	kg	0.56		1.1	1.3

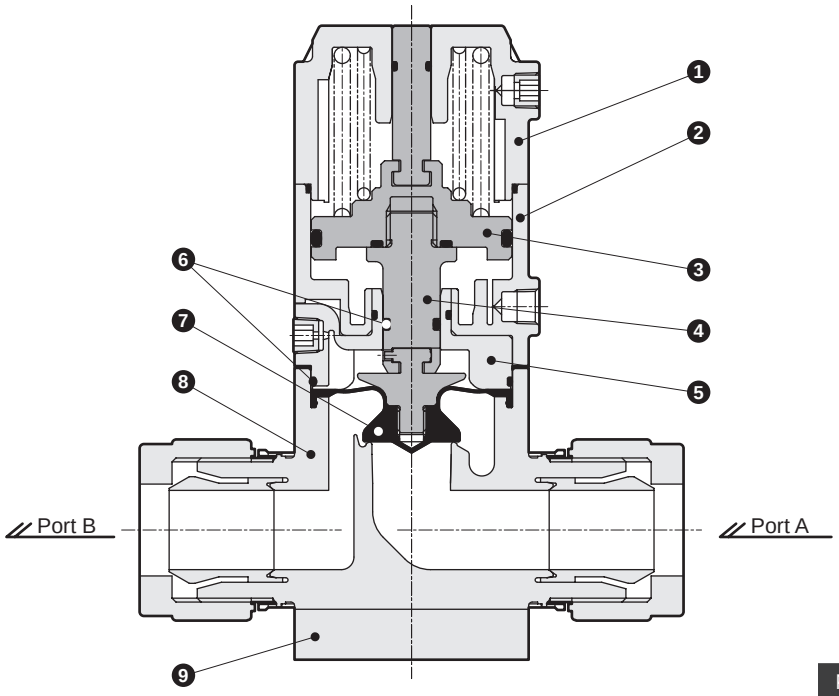
Optional specifications(: Additional specifications)

Item		AMD*1H-*-L	AMD*1H-*-V	AMD*1H-*-VL
Actuation		NC (Normally Closed)		
Working fluid		Chemical liquid/pure water/Air/N_2Gas(*1)		
Fluid temperature	°C	5 to 40		
Proof pressure	MPa	1.4		
Working pressure (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 cycle/min. or less	15 cycle/min. or less	5 cycle/min. or less
Mounting orientation		Unrestricted		
Operating section	Operating pressure MPa	0.5 to 0.7	0.4 to 0.6	0.4 to 0.6
	Operating port	Rc1/8		
Water hammer reduction		● (*4)	-	● (*4)

*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*2: The Flaretek fitting has Cv of 4.5.
*3: Refer to page 117 for flow characteristics.
*4: The water hammer reduction type has a longer response time than standard. Contact CKD for details.
*5: O.D. 1/2" tube connection, excluding nominal 1/4" PFA pipe for welding.

⚠ Always read the precautions on Intro Pages 9 to 18 before use.

Internal structure and parts list



Part number	Part name	Material (by fluid code)	
		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 vary depending on the model number. Contact CKD for details.

How to order

●AMD*1H Series

AMD41H / **AMD51H** / **AMD61H** - **4BJ** - **V** **L** **M**

Model No.

Ⓐ Connection

Ⓑ Operating pressure

Ⓒ Option

Ⓓ Fluid

		AMD41H						AMD51H			AMD61H	
Ⓐ Connection		4BJ	6BJ	4BW	6BW	2W	4W	8BJ	8BW	6W	10BJ	8W
		Super 300 Pillar fitting P series integrated		Flaretek Fitting Integrated		Welding PFA pipe		Super 300 Pillar fitting P series integrated	Flaretek Fitting Integrated	Welding PFA pipe	Super 300 Pillar fitting P series integrated	Welding PFA pipe
		1/2"x3/8"Tube connection	3/4"x5/8"Tube connection	1/2"x3/8"Tube connection	3/4"x5/8"Tube connection	Nominal1/4"PFA pipe for welding	Nominal1/2"PFA pipe for welding	1"x7/8"Tube connection	1"x7/8"Tube connection	Nominal3/4"PFA pipe for welding	$1\frac{1}{10}$"x $1\frac{1}{4}$" Tube connection	Nominal1"PFA pipe for welding
Code / Description / Orifice size		ø10	ø16	ø10	ø16	ø10	ø16	ø22			ø25	
Cv		2	5	2	4.5	2	5	9.5			14	
Body material		PFA molded body										
Ⓑ Operating pressure												
Blank	Standard (0.5 to 0.7 MPa)	●	●	●	●	●	●	●	●	●	●	●
V	0.4 to 0.6 MPa	●	●	●	●	●	●	●	●	●	●	●
Ⓒ Option												
Blank	Standard	●	●	●	●	●	●	●	●	●	●	●
L	Water hammer reduction	●	●	●	●	●	●	●	●	●	●	●
Ⓓ Fluid												
Blank	Standard	●	●	●	●	●	●	●	●	●	●	●
M	For ammonia (*1)	●	●	●	●	●	●	●	●	●	●	●

*1: Available as made to order.

⚠ CAUTION

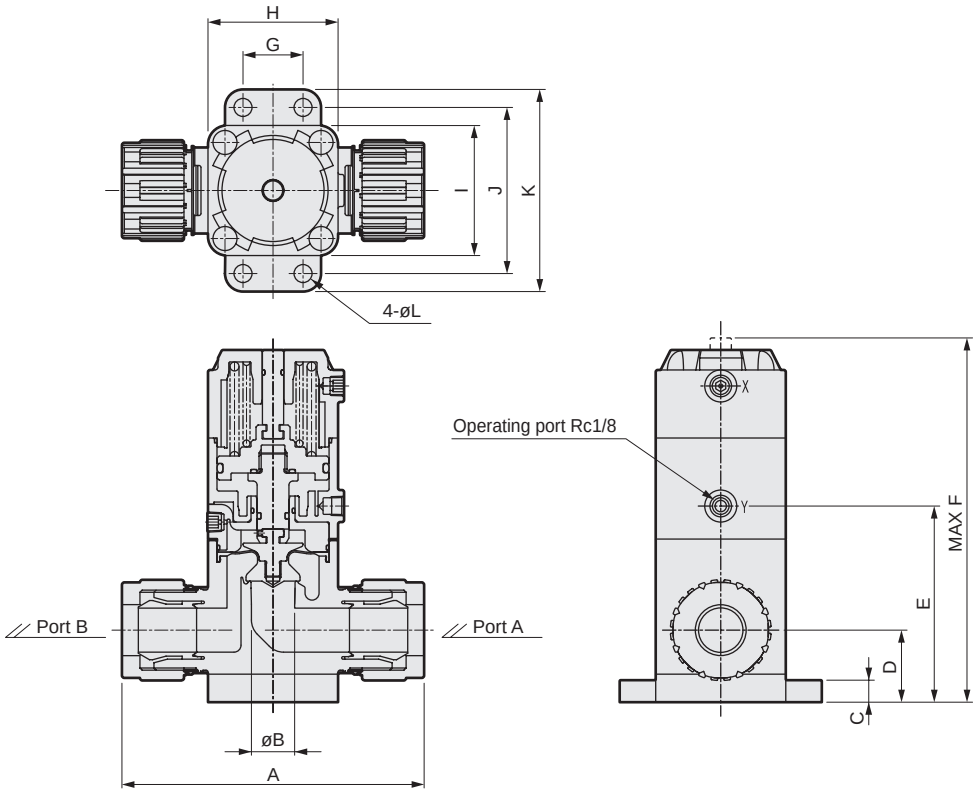
Water hammer

The option "L" water hammer reduction structure reduces water hammer, but sufficient reduction may not be obtained depending on the piping conditions. Be sure to check with a trial run whether water hammer reduction is obtained after construction. If the reduction is not obtained, review the piping conditions. In general, the shorter and straighter the valve secondary side piping, the greater the reduction performance.

Dimensions

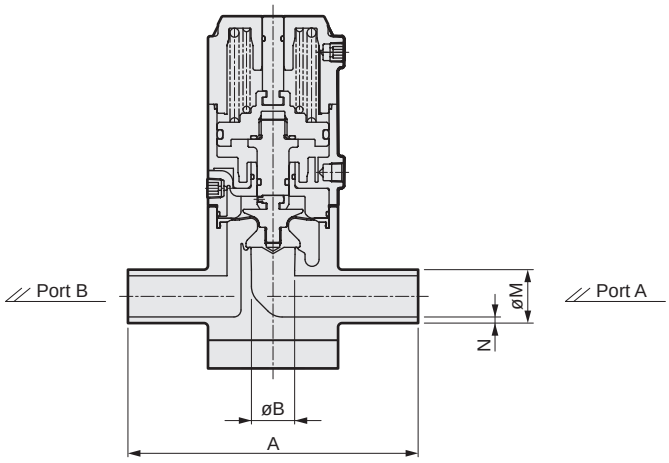
●Integrated fitting

・AMD$^{4}_{5}_{6}$1H-*BJ *BW



●Pipe for welding

・AMD$^{4}_{5}_{6}$1H-*W



Model No.	Connector 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 liquids, metal-free

AMD*1M Series

A valve designed to support strong acid (hydrochloric acid, hydrofluoric acid) lines in semiconductor manufacturing lines.

●Connection tube size: ø10, ø12, ø25, 3/8", 1/2", 3/4", 1"

RoHS CAD

Export controlled items

*Applicable: AMD51M

Specifications

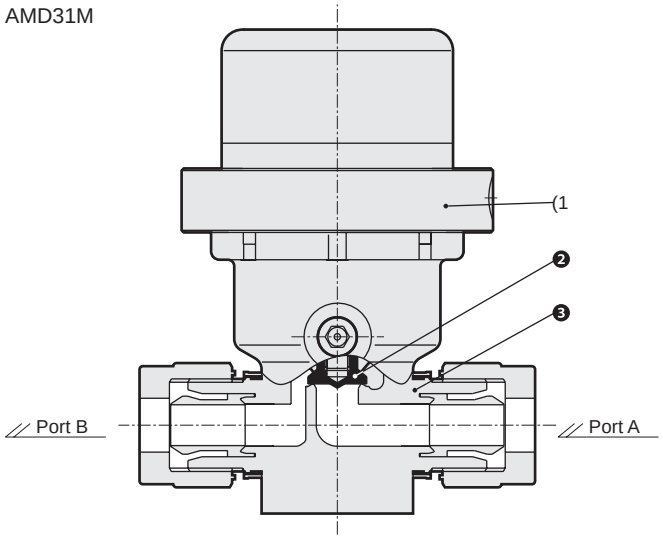
Item		AMD31M		AMD51M	
Actuation		NC (Normally Closed)			
Working fluid		Chemical liquid/pure water/Air/N_2Gas(*1)			
Fluid temperature	°C	5 to 40			
Proof pressure	MPa	1.0			
Working pressure (A→B)	MPa	0 to 0.5			
Valve seat leakage	cm^3/min	0 (water pressure)			
Back pressure	MPa	0 to 0.5			
Ambient temperature	°C	0 to 40			
Frequency		20 cycle/min. or less		15 cycle/min. or less	
Mounting orientation		Unrestricted			
Connection		O.D. ø3/8" tube connection O.D. ø10 tube connection	O.D. ø1/2" tube connection O.D. ø12 tube connection	O.D. ø3/4" tube connection	O.D. 1" tube connection O.D. ø25 tube connection
Orifice size		ø8	ø10	ø16	ø22
Cv		1.25	1.8	5.5	9.5
Operating section	Operating pressure MPa	0.4 to 0.6			
	Operating port	Rc1/8			
Weight	kg	0.33		1.0	

*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)

Always read the precautions on Intro Pages 9 to 18 before use.

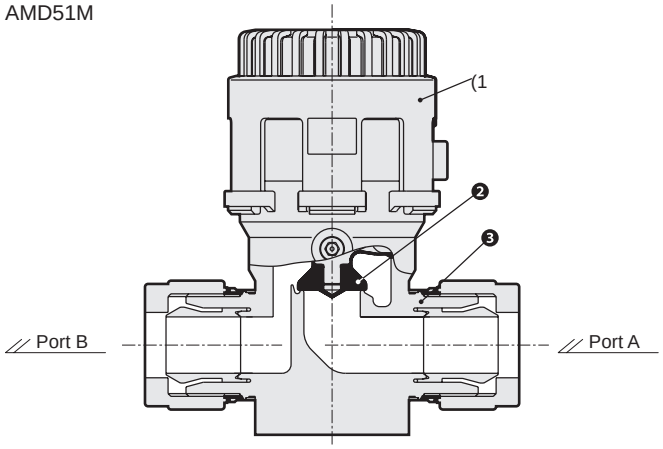
Internal structure and parts list

AMD31M



Part number	Part name	Material
1	Actuator	PP, etc.
2	Diaphragm	PTFE
3	Body	PFA

AMD51M



Part number	Part name	Material
1	Actuator	PVDF and others
2	Diaphragm	PTFE
3	Body	PFA

How to order

●AMD*1M Series

AMD31M - **3BJ**

AMD51M

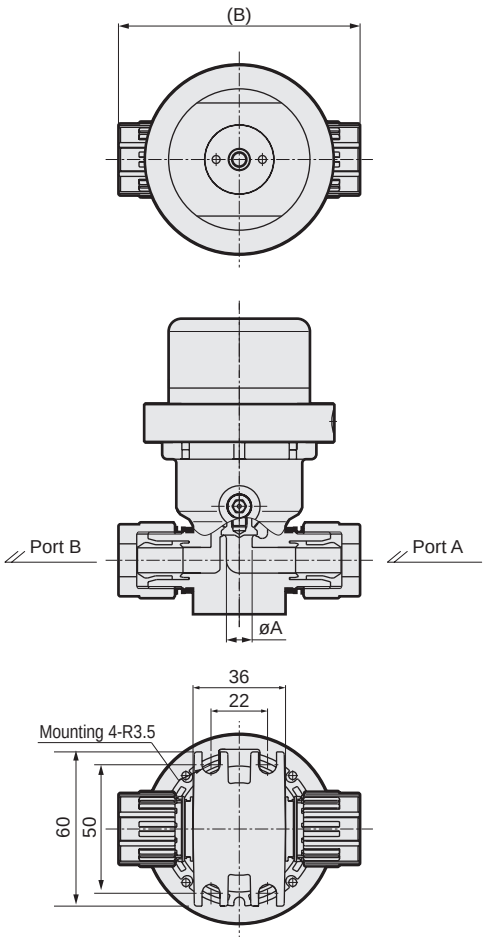
Model No.

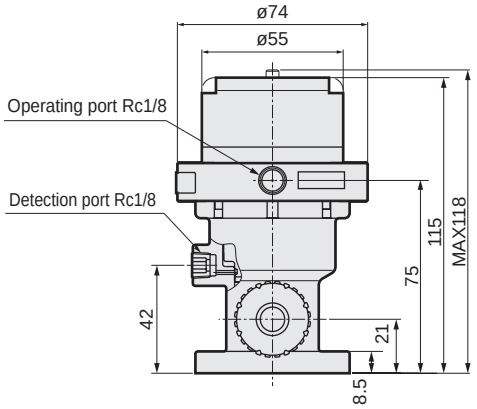
Ⓐ Connection

	AMD31M				AMD51M		
Ⓐ Connection							
	3BJ	10J	4BJ	12J	6BJ	8BJ	25J
	Super 300 Pillar fitting P series integrated						
	3/8"x1/4"Tube connection	ø10xø8Tube connection	1/2"x3/8"Tube connection	ø12xø10Tube connection	3/4"x5/8"Tube connection	1"x7/8"Tube connection	ø25xø22Tube connection
Orifice size / Description	ø8		ø10		ø16	ø22	
Cv	1.25		1.8		5.5	9.5	

Dimensions

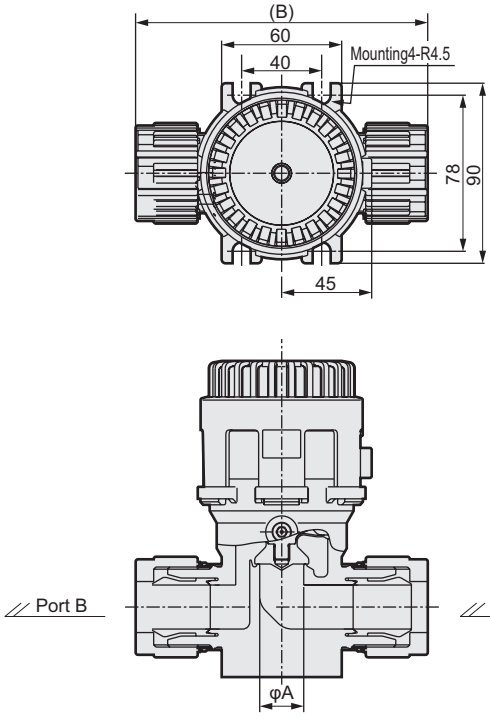
●AMD31M - *1

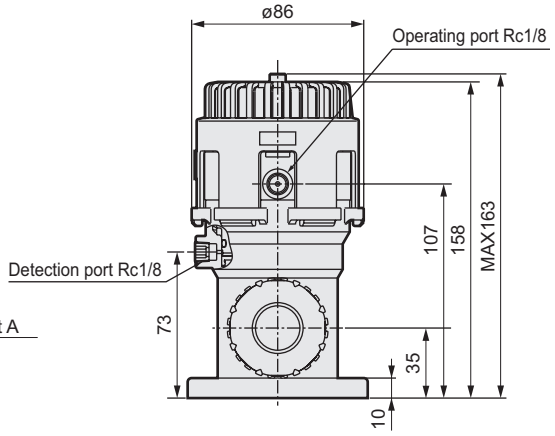




*1 (connector No.)	øA	B
3BJ	8	86
4BJ	10	94

●AMD51M - *1



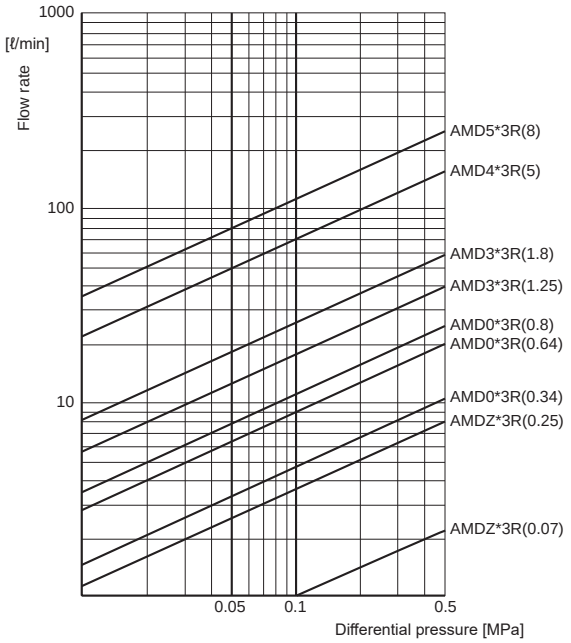


*1 (connector No.)	øA	B
6BJ	16	132
8BJ	22	146

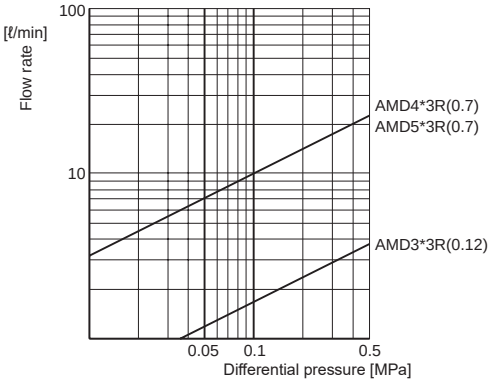
Flow characteristics

AMDZ*3R to **AMD5*3R**

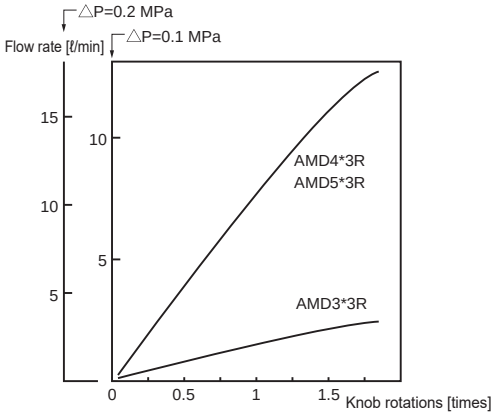
● Flow characteristics (water)
Differential pressure - flow rate ( ) ext: Cv value



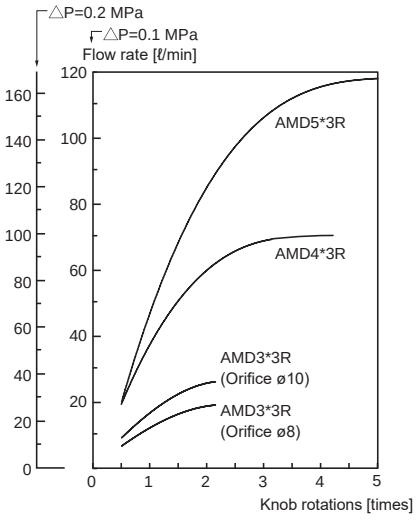
● Bypass Flow characteristics (water)
Differential pressure - flow rate ( ) ext: Cv value

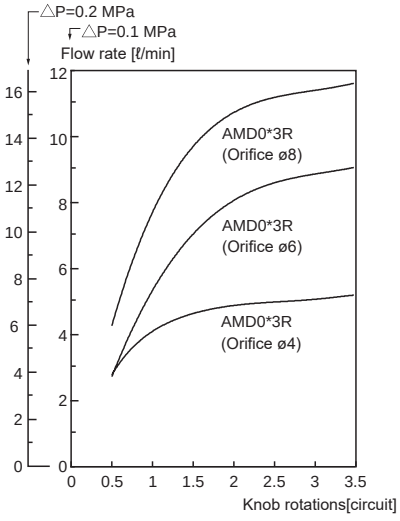


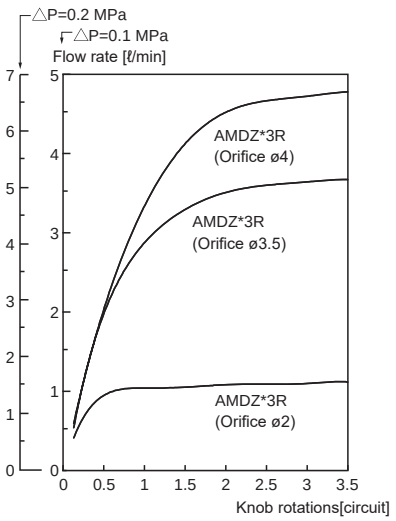
● With bypass (water) Rotations - flow rate



● With flow rate adjustment (water) Rotations - flow rate





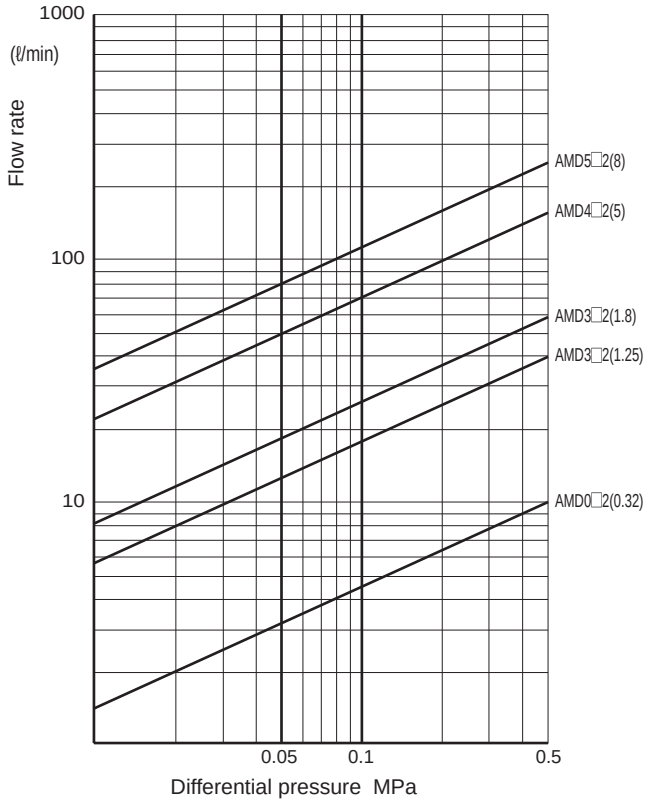


*1: Make sure to turn the adjusting knob more than 1/2 from the closed state (1/4 rotation or more for AMDZ) to ensure appropriate setting. If used below this level, vibration or flow rate fluctuation may occur depending on the working conditions.

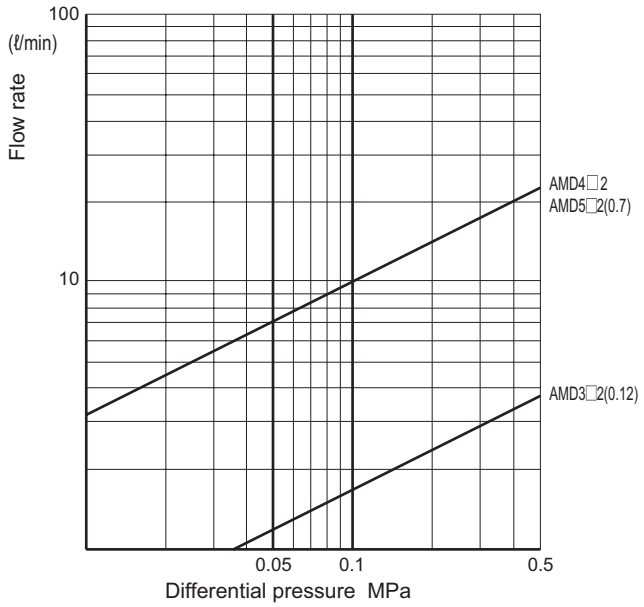
Flow characteristics

AMD0□2 to AMD5□2

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

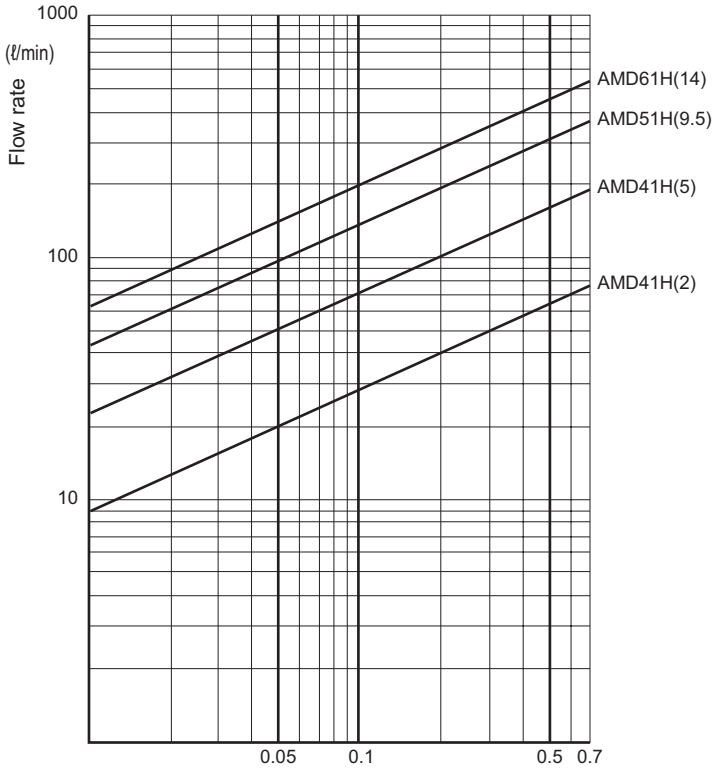


● Bypass Flow characteristics (water)
Differential pressure - flow rate ( ) ext: Cv value



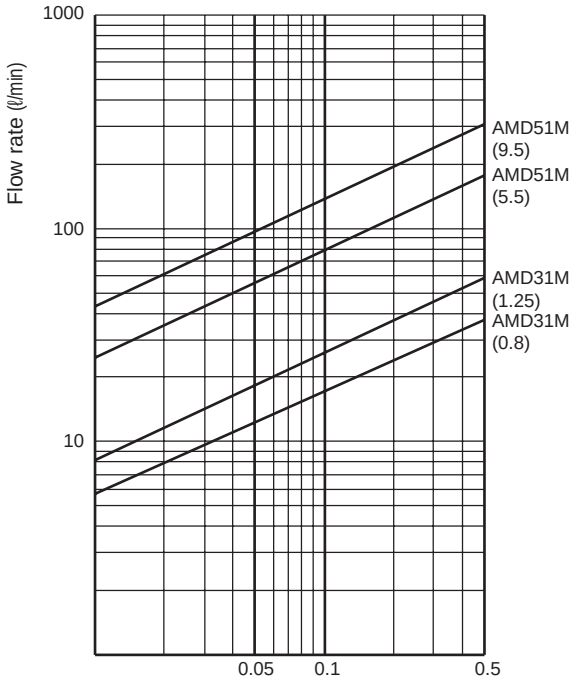
For liquid supplyAMD41H to AMD61H

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



AMD31M/AMD51M

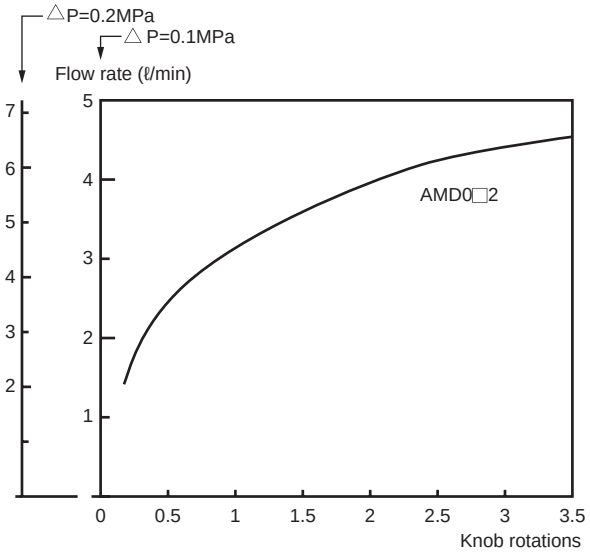
● Flow characteristics (water)
Differential pressure - flow rate ( ) ext: Cv value

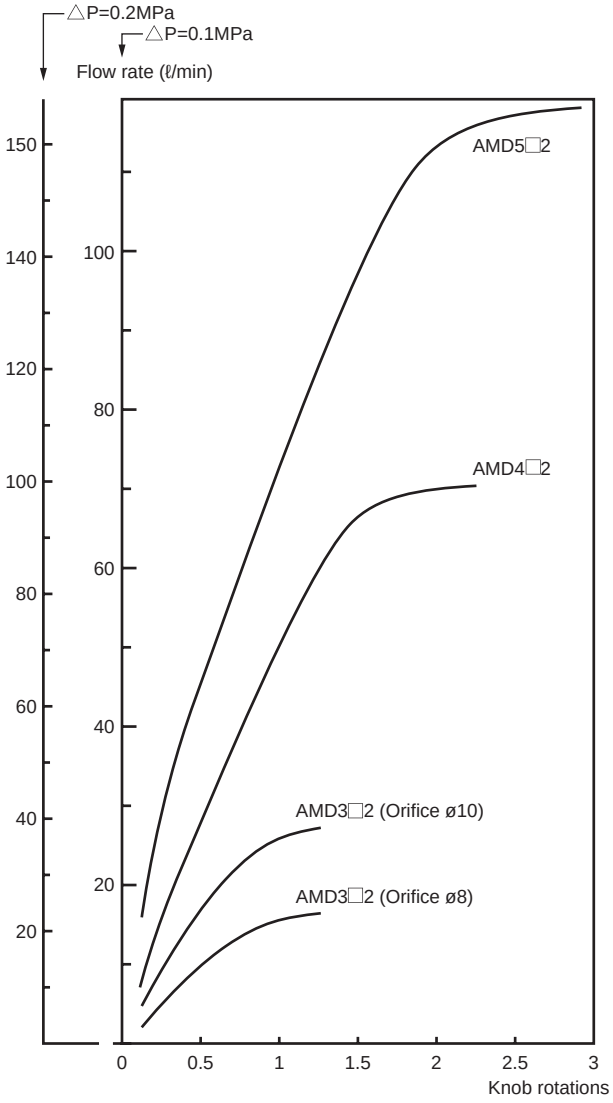


Flow characteristics

AMD0 □ 2 to AMD5□2

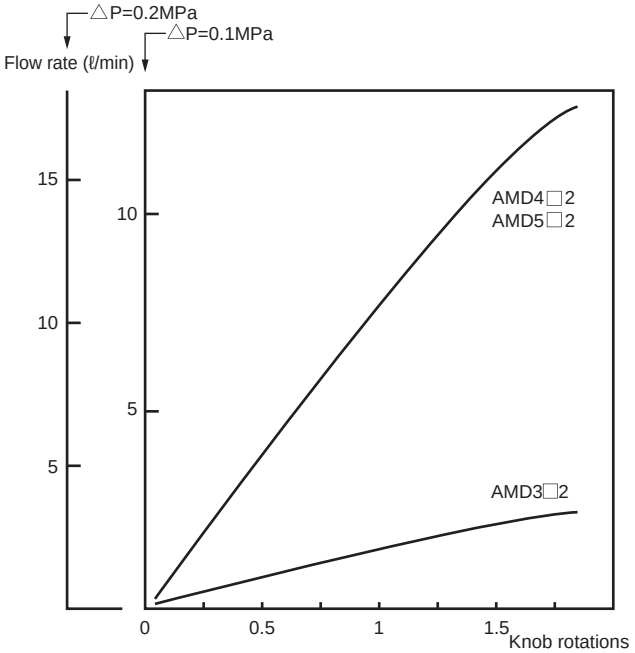
● With flow rate adjustment (water)
Rotations - flow rate





*1: Make sure to turn the adjusting knob more than 1/4 from the closed state to ensure appropriate setting. If used below this level, vibration or flow rate fluctuation may occur depending on the working conditions.

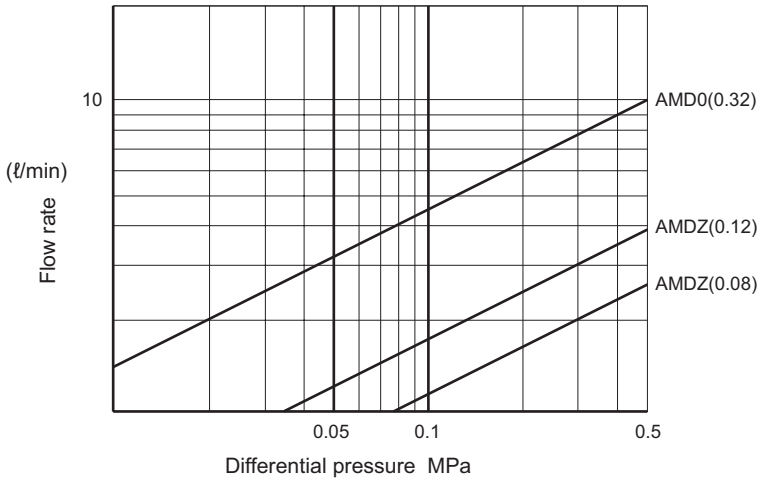
● With bypass (water)
Rotations - flow rate



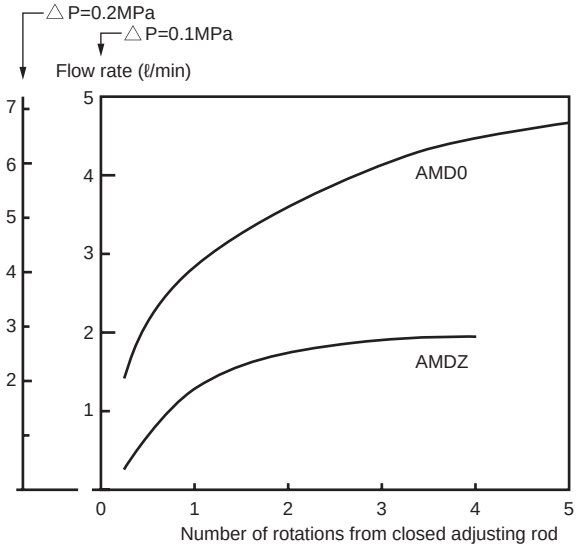
Flow characteristics

AMDZ to AMD0

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



● With flow rate adjustment (water)
Rotations - flow rate

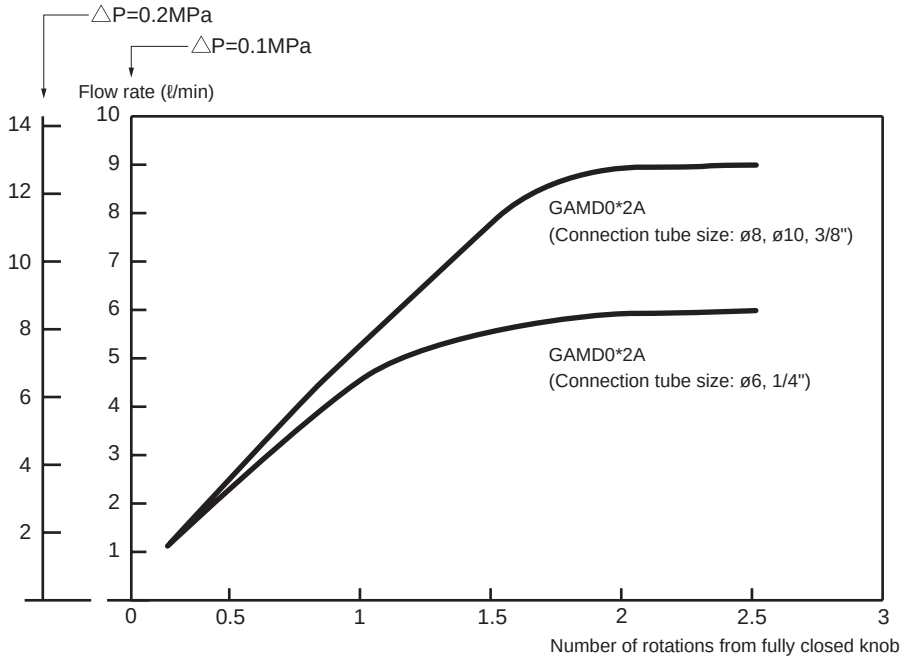


*1: Make sure to turn the adjusting knob more than 1/4 from the closed state to ensure appropriate setting. If used below this level, vibration or flow rate fluctuation may occur depending on the working conditions.

Flow characteristics

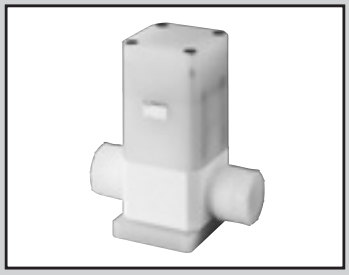
GAMD0□2 A

● Flow rate adjustment (water)
Rotations - flow rate



*1: Flow characteristics when port A fitting size is ø10.
*2: Flow characteristics when flowing from port A to port B.
*3: Make sure to turn the adjusting knob more than 1/4 from the closed state to ensure appropriate setting. If used below this level, vibration or flow rate fluctuation may occur depending on the working conditions.

MEMO



Large bore size air operated valve for chemical liquids

LYX Series

Large bore size PFA tube 1.5" compatible

RoHS

Export controlled items

Specifications

Item		LYX-1380
Working fluid		Chemical liquid/pure water/Air*/N_2Gas (*1)
Fluid temperature	°C	10 to 35
Proof pressure	MPa	0.8
Working pressure (A→B)	MPa	0 to 0.4
Working pressure (B→A)	MPa	0 to 0.4
Valve seat leakage	cm^3/min	0 (water pressure)
Back pressure	MPa	0 to 0.4
Ambient temperature	°C	5 to 35
Frequency		4 cycle/min. or less
Mounting orientation		Unrestricted
Connection		0D1, 1/2" Super 300 Pillar fitting P Series $1\frac{1}{2}$"x $1\frac{21}{64}$"Tube connection
Orifice size		ø40
Cv		24
Operating section	Operating pressure MPa	0.5 to 0.6
	Operating port	Rc1/8
Weight	kg	6.1

*1: Check the compatibility of product structural materials, working fluids and atmosphere.

How to order

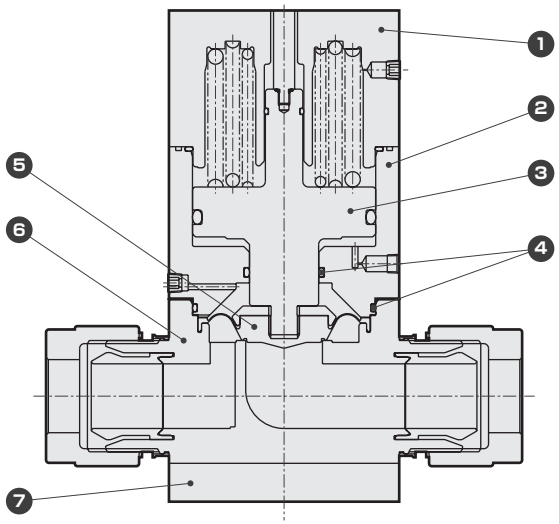
LYX - 1380 - 12BJ - M

- 1380: Model No.
- M: Ⓐ Fluid

Code	Description
Ⓐ Fluid	
Blank	Standard
M	For ammonia

Internal structure and parts list

●LYX-1380



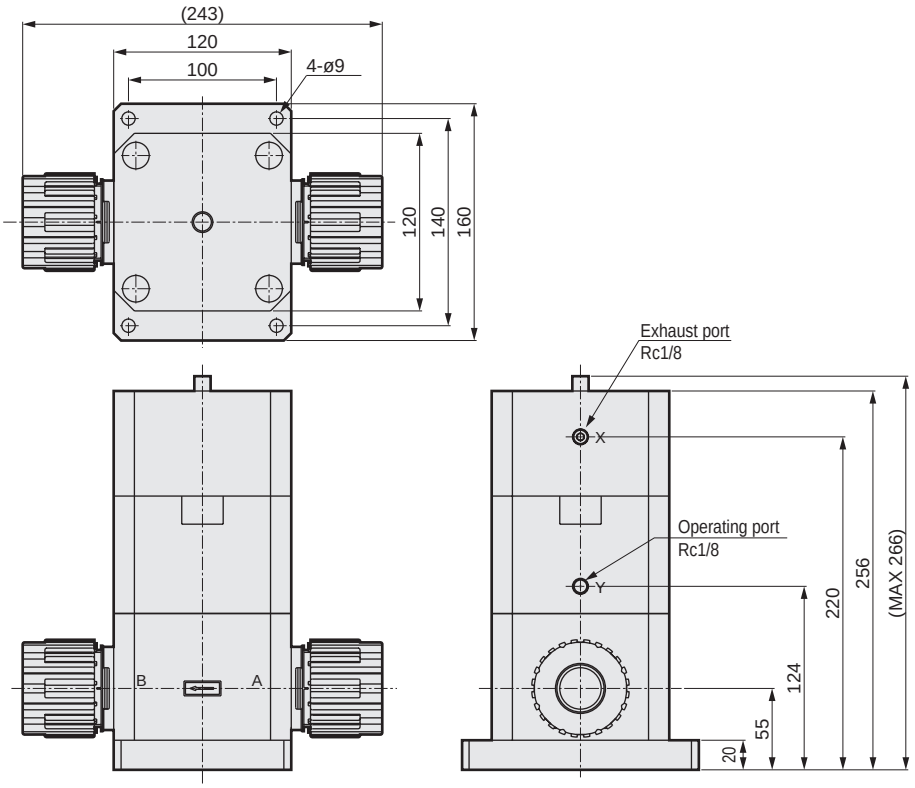
Part number	Part name	Material (by fluid code)	
		Standard	M
1	Cover	PP	
2	Cylinder	PP	
3	Piston rod	PP	
4	O-ring	FKM	EPDM
5	Diaphragm	PTFE	
6	Body	PTFE	
7	Mounting plate	PP	

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

⚠ Always read the precautions on Intro Pages 9 to 18 before use.

Dimensions

● Air operated valve



Air operated valve for pure water (PVC)

AMD*1L Series

- NC (Normally Closed)
- Connection PVC union fitting, Nominal 16 to 50

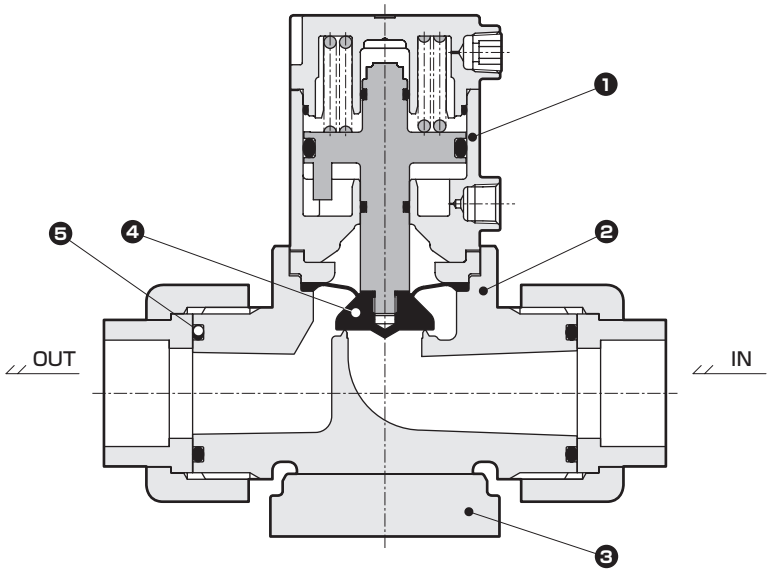
RoHS

Specifications

Item		AMD41L-15AU	AMD41L-20AU	AMD51L-25AU	AMD61L-32AU	AMD71L-40AU	AMD81L-50AU
Actuation category		NC (Normally Closed) (*1)					
Working fluid		Pure water/Air/N_2Gas(*2)					
Fluid temperature	°C	5 to 40					5 to 45
Proof pressure	MPa	0.8					
Working pressure range (IN→OUT)	MPa	0 to 0.4					
Valve seat leakage	cm^3/min	0 (water pressure)					
Back pressure	MPa	0 to 0.2					
Ambient temperature	°C	0 to 40					
Frequency		10 cycle/min. or less			6 cycle/min. or less		
Mounting orientation		Unrestricted					
Connection		PVC union integrated fitting					
Orifice		ø18	ø18	ø23	ø30	ø36	ø50
Bypass orifice (with bypass)		ø6					
Cv (*3)		7 (6.4)	7 (6.4)	10 (10)	17 (17)	24 (24)	50
Operating section	Operating pressure range MPa	NC 0.4 to 0.5 (*1)					
	Operating pressure connection port	Rc1/8					
Weight	kg	0.56	0.56	0.89	1.7	2.8	5.4

*1: Also compatible with NO. Contact CKD for details. (excluding AMD81L)
*2: Refer to the precautions at the end for details.
*3: Values in ( ) are with flow rate adjustment.

Internal structure and parts list



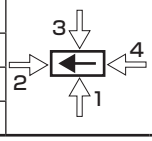
Part number	Part name	Material	Quantity
1	Actuator assembly	PPS, etc.	1
2	Body	PVC	1
3	Mounting plate	PPS	1
4	Diaphragm	PTFE	1
5	O-ring	FKM(EPDM)	2

⚠ Always read the precautions on Intro Pages 9 to 18 before use.

How to order

AMD41L - 15AU - 0 I - 4 R

- AMD41L: Model No.
- 15AU: A Connection
- 0: B Option
- I: C O-ring material
- 4: D Operating port direction
- R: E Reinforcing ring

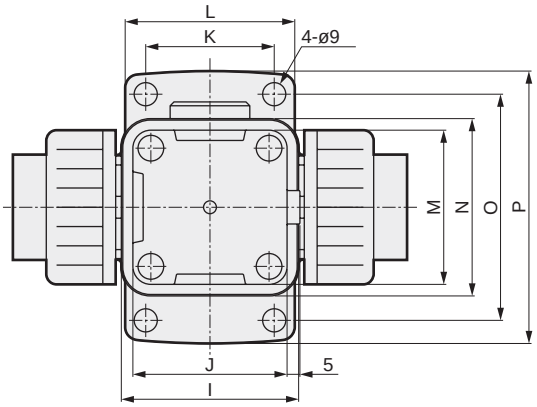
Code	Description \ Orifice size	AMD41L		AMD51L	AMD61L	AMD71L	AMD81L
A Connection		**15AU**	**20AU**	**25AU**	**32AU**	**40AU**	**50AU**
		PVC union integrated fitting					
		Nominal16	Nominal20	Nominal25	Nominal30	Nominal40	Nominal50
		ø18		ø23	ø30	ø36	ø50
B Option							
0	ON/OFF only	●	●	●	●	●	●
1	With flow rate adjustment	●	●	●	●	●	●
2	With bypass	●	●	●	●	●	●
3	With flow rate adjustment/bypass	●	●	●	●	●	●
C O-ring material							
I	FKM	●	●	●	●	●	●
A	EPDM	●	●	●	●	●	●
D Operating port direction							
4	 With valve viewed from above, ← indicates fluid flow in the direction of ⇦ indicates the operating port direction.	●	●	●	●	●	●
1		●	●	●	●	●	●
2		●	●	●	●	●	●
3		●	●	●	●	●	●
E Reinforcing ring							
Blank	No	●	●	●	●	●	
R	Yes	●	●	●	●	●	

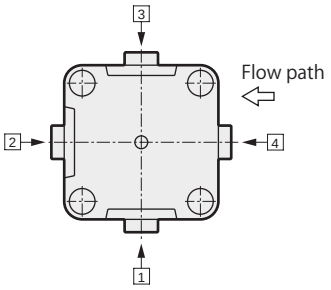
⚠ Precautions for model No. selection

*1: With indicator is available. Contact CKD for details. (excluding AMD81L)
*2: For AMD81L series, R with reinforcement ring is not available.

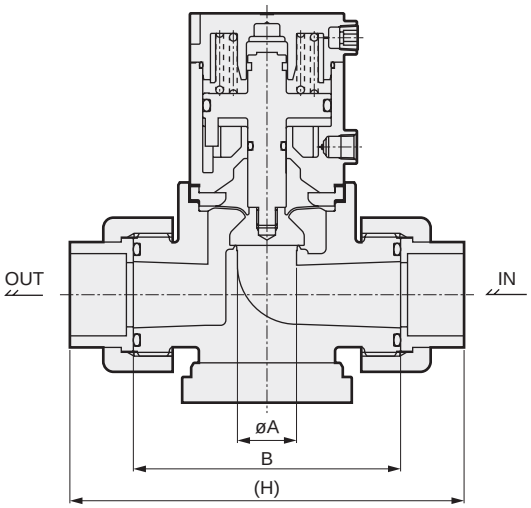
Dimensions (AMD41L to AMD71L)

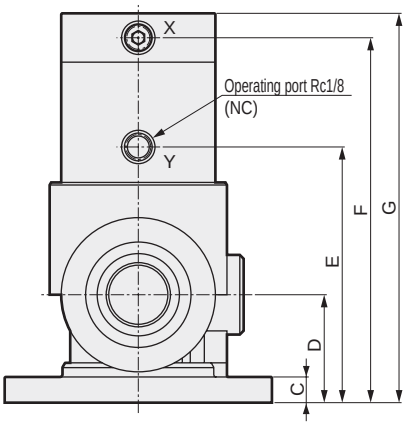
●PVC union integrated fitting





(Operating port direction)

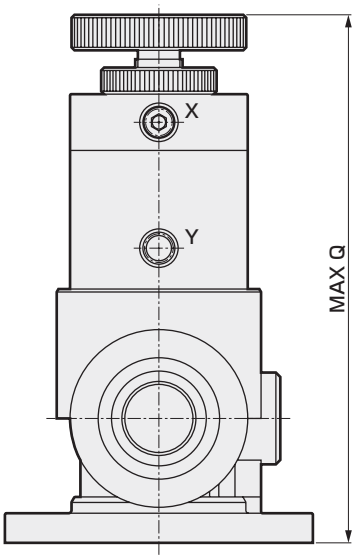




Model No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
AMD41L-15AU AMD41L-20AU	18	94	10	35	81	118	127	138	55	46	40	56	46	55	78	96
AMD51L-25AU	23	104	10	42	99.5	142	152	154	69	60	50	66	60	69	88	106
AMD61L-32AU	30	148	20	55	129	186	199	206	79	70	80	100	70	79	120	140
AMD71L-40AU	36	148	20	55	126	208	248	216	92	88	80	100	88	92	120	140

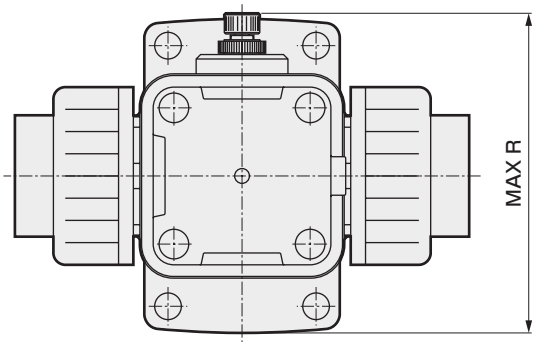
Dimensions (AMD41L to AMD71L)

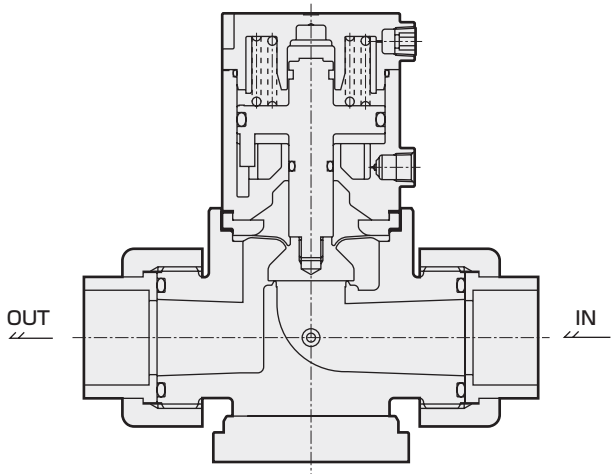
●With flow rate adjustment
● AMD*1L-*- 1, 3

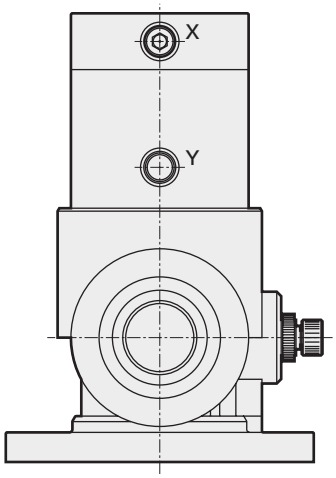


Model No.	Q
AMD41L-15AU AMD41L-20AU	151
AMD51L-25AU	183
AMD61L-32AU	231
AMD71L-40AU	294

●With bypass
● AMD*1L-*- 2, 3



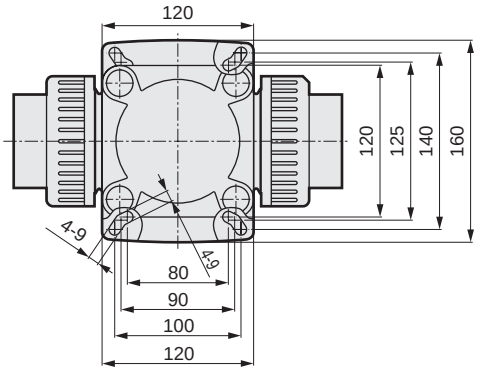


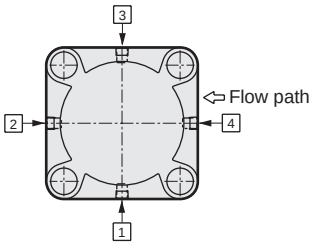


Model No.	R
AMD41L-15AU AMD41L-20AU	101
AMD51L-25AU	110
AMD61L-32AU	133.5
AMD71L-40AU	136

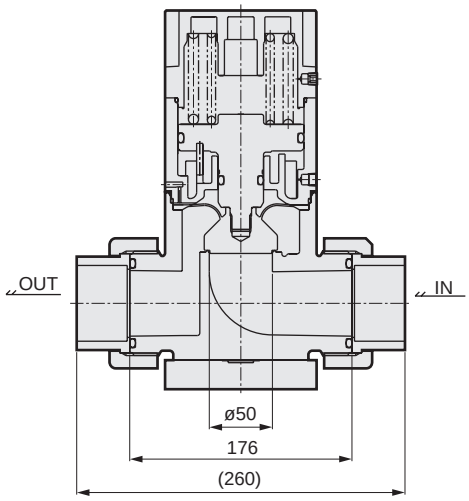
Dimensions (AMD81L)

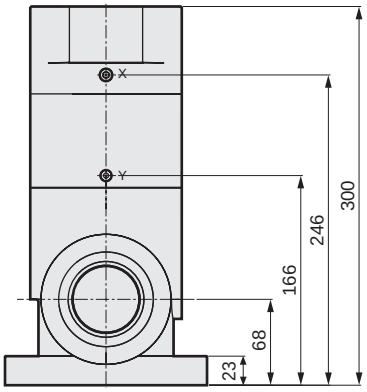
●PVC union integrated fitting





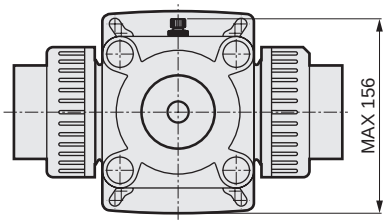
(Operating port direction)

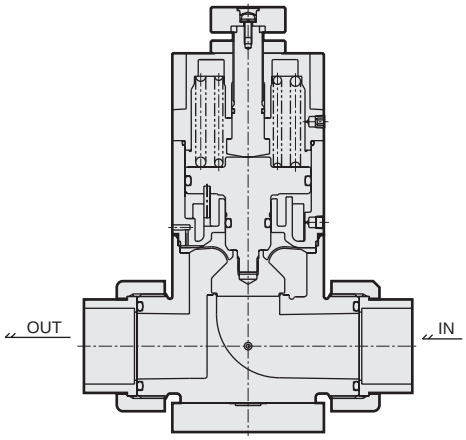


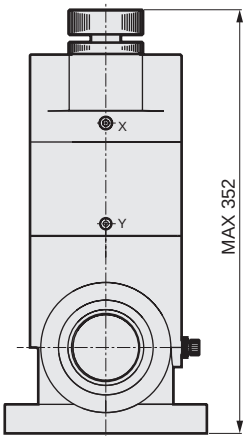


●With flow rate adjustment, bypass

● AMD81L-50AU- 1, 2, 3

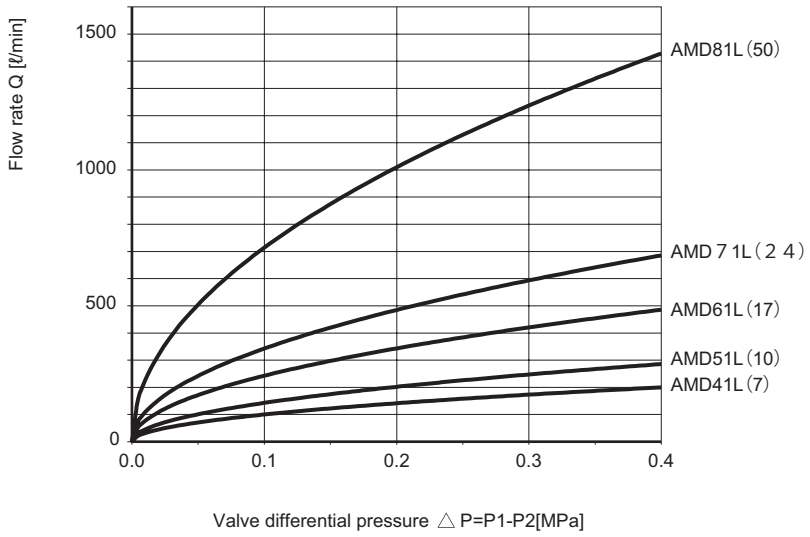




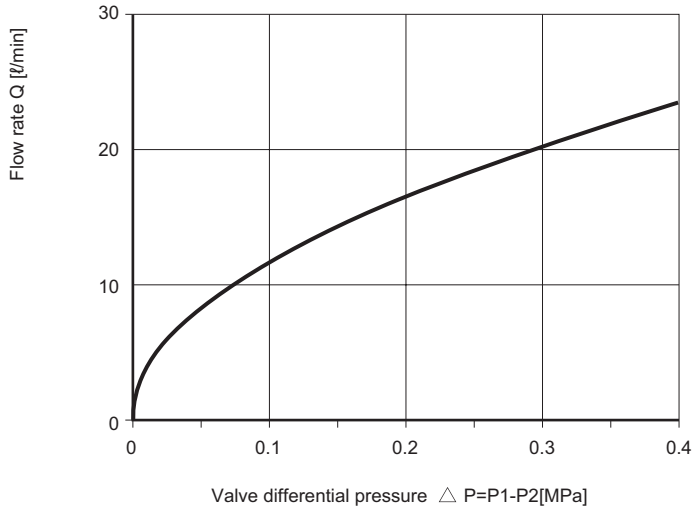


Flow characteristics

●Flow characteristics (water)
Valve differential pressure - flow rate
( ) ext: Cv [Without flow rate adjustment]



●Bypass Flow characteristics (water)
Valve differential pressure - flow rate (common for AMD41L to 81L) [Knob is fully open]



●Flow rate calculation method (water)

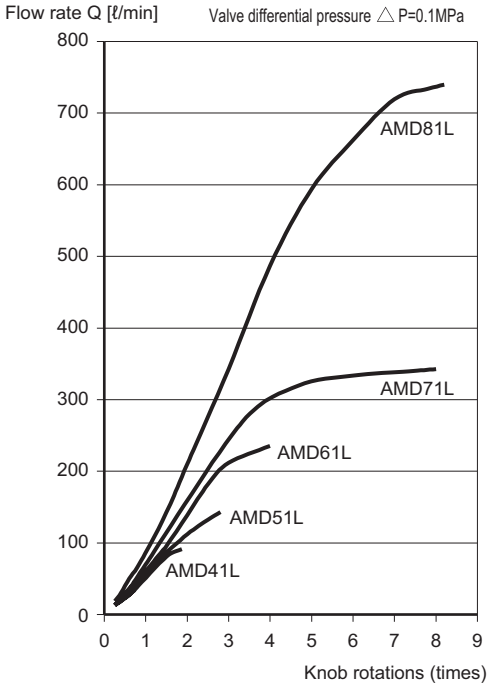
$$Q = 45.6 \times Cv \times \frac{\sqrt{(P_1-P_2)}}{\sqrt{G}}$$

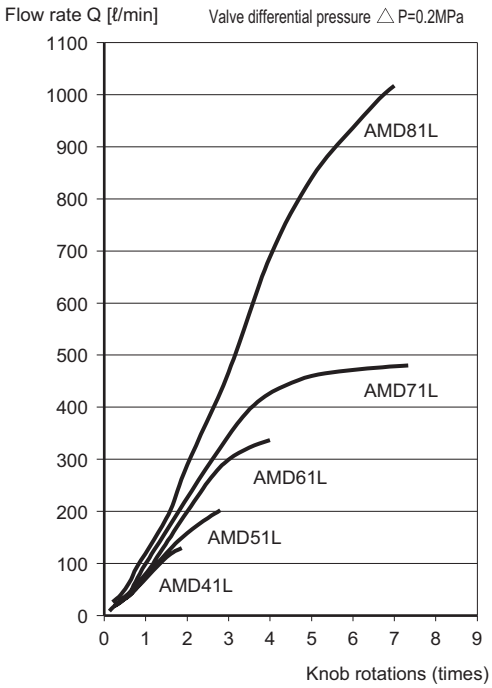
Q	:	Flow rate ℓ/min
P_1	:	Primary pressure MPa
P_2	:	Secondary pressure MPa
G	:	Specific gravity (water = 1)
△ $P=P_1-P_2$	:	Valve differential pressure (pressure loss) MPa

*1: The flow rate is a calculated value and may differ in actual use.
Also, the value depends on the operating conditions (fluid, piping, etc.), so use it as a reference only.

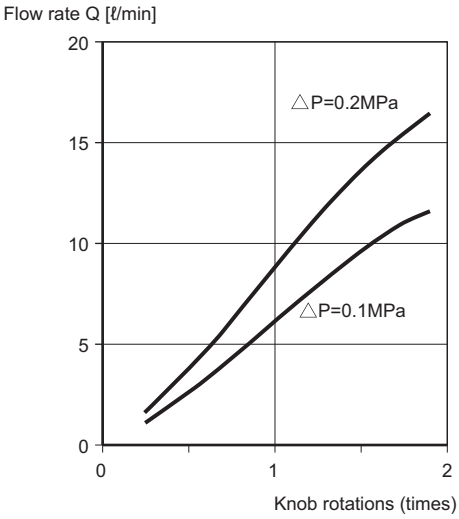
Flow characteristics

●Flow characteristics (water)
Knob rotations - flow rate calculation method (water)





●Bypass Flow characteristics (water)
Knob rotations - flow rate (common to AMD41L to 81L)



*1: Make sure to turn the adjusting knob more than 1/4 from the closed state to ensure appropriate setting.If used below this level, vibration or flow rate fluctuation may occur depending on the working conditions.
*2: The flow rate is a calculated value and may differ in actual use.Also, the value depends on the operating conditions (fluid, piping, etc.), so use it as a reference only.

MEMO

Air operated valve for chemical liquids

Liquid discharge valve(2-port valve) LYX Series

● Connection: PVC union fitting, nominal 25 to 75, JIS 5K flange, nominal 80, 100

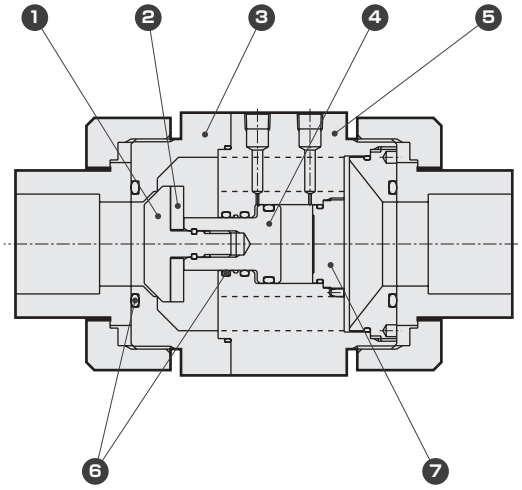
Specifications

Item		LYX-0877	LYX-0878	LYX-0879	LYX-0880	LYX-1451	LYX-1452	LYX-1453	LYX-1454
Working fluid		Chemical liquids, pure water (*1)							
Fluid temperature	°C	5 to 90°C				5 to 50°C		5 to 80°C	
Proof pressure	MPa	0.1							
Working pressure	MPa	0.02							
Valve seat leakage	cm^3/min	0 (water pressure)							
Ambient temperature	°C	0 to 40							
Frequency		6 cycle/min. or less							
Mounting orientation		Unrestricted							
Connection		PVC union integrated fitting						JIS 5K flange	
Port size		25	30	40	50	65	75	80	100
Orifice size		ø25	ø32	ø40	ø50	ø20, 65	ø78	ø78	ø100
Operating section	Operating pressure MPa	0.4 to 0.5							
	Operating port	Rc1/8							
Weight	kg	0.4	0.85	0.85	1.4	3.3	3.7	5.6	4.8

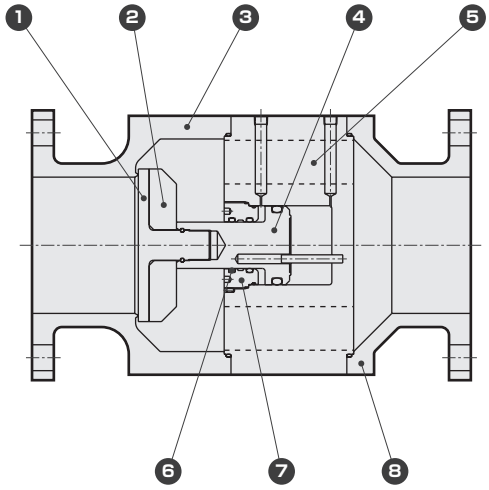
*1: Check the compatibility of product structural materials, working fluids and atmosphere.

Internal structure and parts list

●LYX-0878



●LYX-1454



Part number	Part name	Material (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 vary depending on the model number. Contact CKD for details.

⚠ Always read the precautions on Intro Pages 9 to 18 before use.

How to order

●PVC union integrated fitting

LYX - 0877-25AU - 2P A

Ⓐ Connection　Ⓑ O-ring material

Code	Description \ Orifice size	Ⓐ 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	ø20, 65	ø75
Ⓑ O-ring material							
A	EPDM	●	●	●	●	●	●
I	FKM	●	●	●	●	●	●

●Flange connection

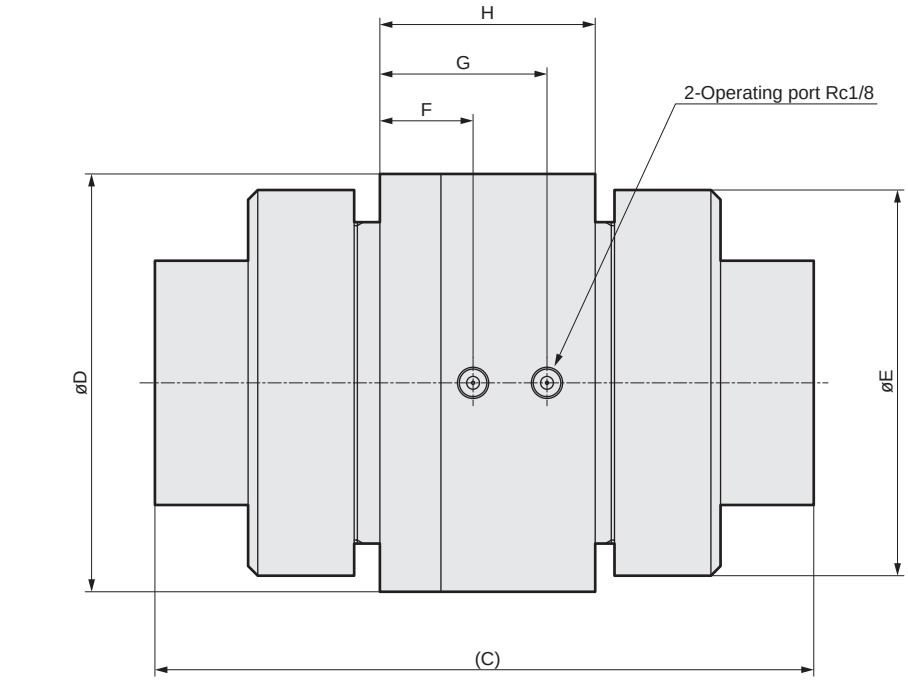
LYX - 1453-80F - 2P A

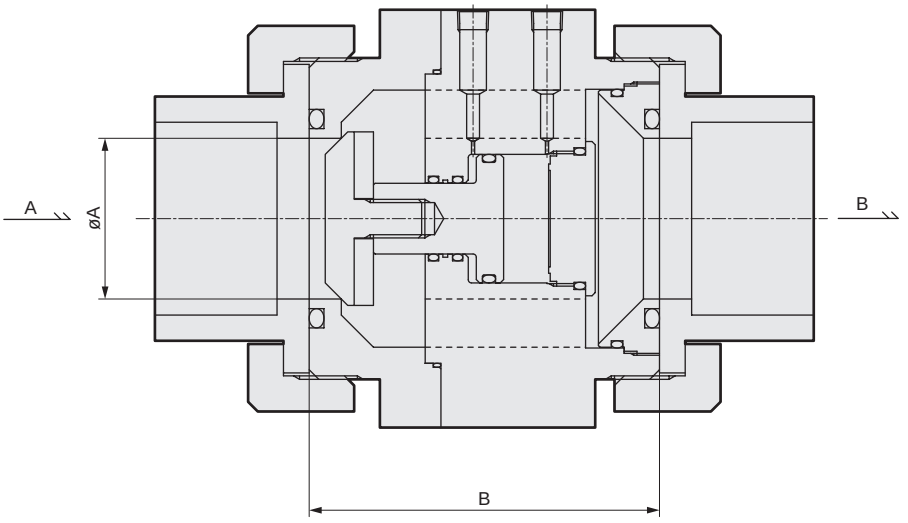
Ⓐ Connection　Ⓑ O-ring material

Code	Description \ Orifice size	Ⓐ Connection	
		1453-80F	1454-100F
		JIS 5K flange	
		Nominal 80	Nominal 100
		ø75	ø100
Ⓑ O-ring material			
A	EPDM	●	●
I	FKM	●	●

Dimensions

●PVC union integrated fitting

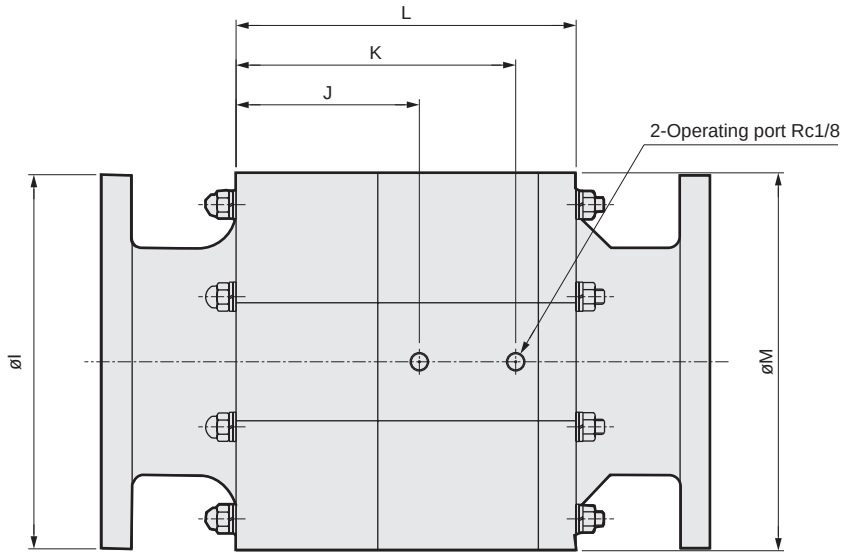


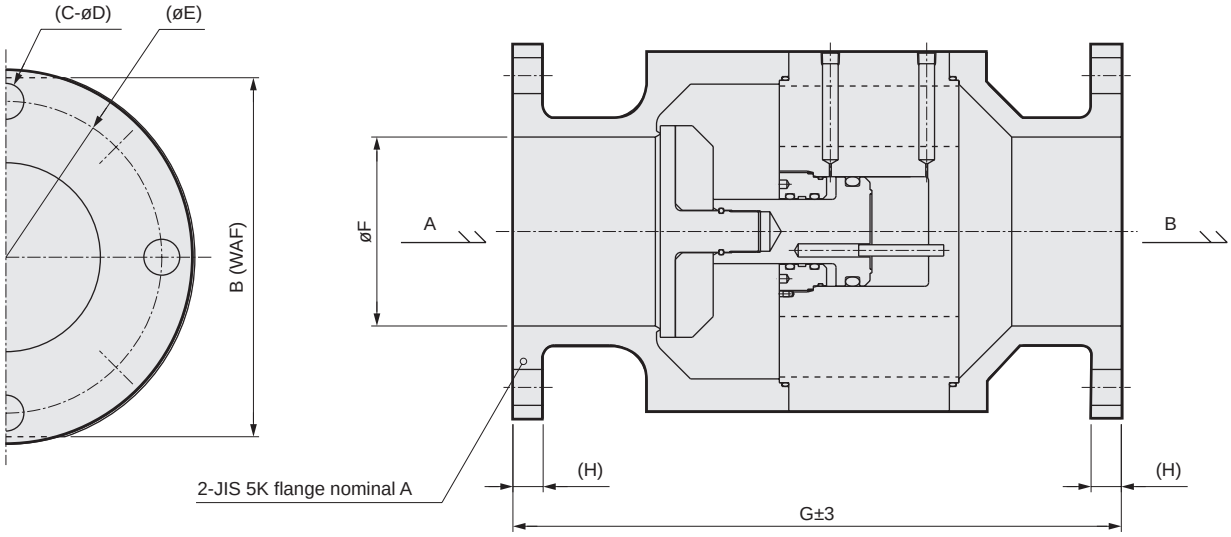


Dimensions / Model No.	A	B	C	D	E	F	G	H
LYX-0877-25AU	25	75	147	76	70	18	32	45
LYX-0878-32AU	32	101	189	100	96	29	49	63
LYX-0879-40AU	40	101	183	100	96	29	49	63
LYX-0880-50AU	50	109	205	130	120	29	52	67
LYX-1451-65AU	65	170	310	160	154	61.5	95	110
LYX-1452-75AU	78	175	320	170	164	61	99	115

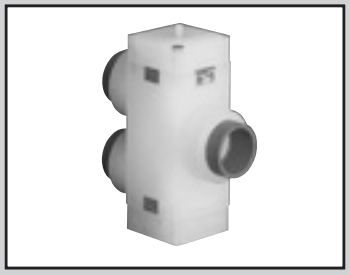
Dimensions

● Flange connection





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 liquids

Liquid discharge valve(3-port valve) Series

● Connection PVC union fitting, Nominal 30, 40, 50

Specifications

Item		LYX-0882	LYX-0883	LYX-0884
Working fluid		Chemical liquids, pure water (*1)		
Fluid temperature	°C	5 to 90		
Proof pressure	MPa	0.1		
Working pressure	MPa	0.02		
Valve seat leakage	cm^3/min	0 (water pressure)		
Ambient temperature	°C	0 to 40		
Frequency		6 cycle/min. or less		
Mounting orientation		Unrestricted		
Port size (PVC union integrated fitting)		Nominal 30	Nominal 40	Nominal 50
Orifice size		ø32	ø40	ø50
Operating section	Operating pressure MPa	0.4 to 0.5		
	Operating port	Rc1/8		
Weight	kg	1.9	1.9	2.6

*1: Check the compatibility of product structural materials, working fluids and atmosphere.

How to order

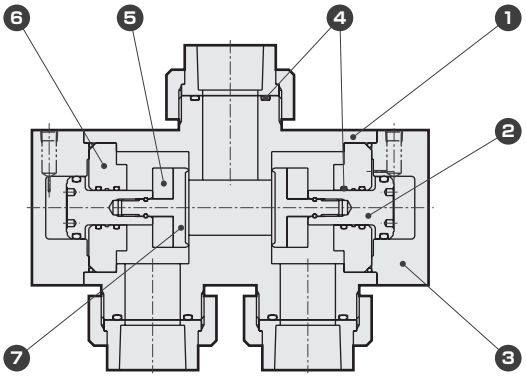
LYX - 0882-32AU - 3P A

Ⓐ Connection　Ⓑ O-ring material

Code	Description \ Orifice size	Ⓐ 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

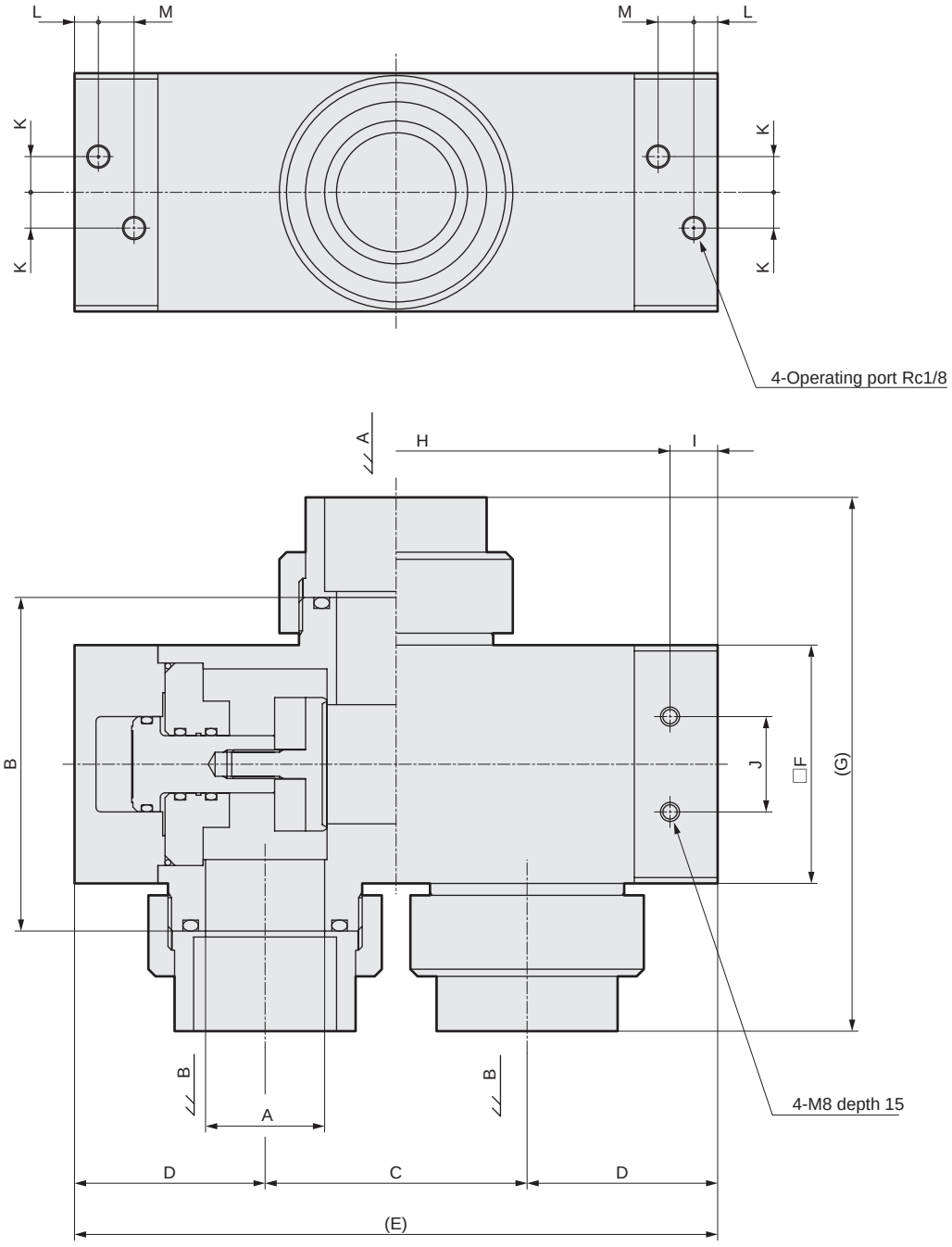


Part number	Part name	Material (O-ring material) A	I
1	Body	PP	
2	Piston rod	PP	
3	Cylinder	PP	
4	O-ring	EPDM	FKM
5	Spacer	PP	
6	Cylinder adaptor	PP	
7	Main valve	PTFE	

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

⚠ Always read the precautions on Intro Pages 9 to 18 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

MEMO

Manual valve

MMD-Part3RN New

Overview

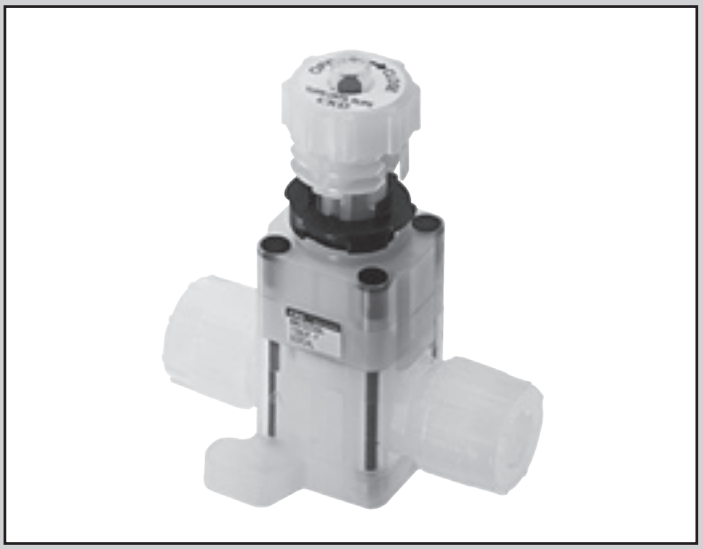
Standard manual valve for chemical liquids. Body structure revised, PVDF adopted in the actuator, all-in-one model that supports various specifications. (Connection: Compatible with up to 1")

Features

- Working pressure range expanded
  A⇔B: 0.5MPa
- Supports a variety of chemical liquids as standard
  Acid/alkali alike widely compatible
- Improved ease of use
  Fluid temperature (120°C)
- 3 types of mounting methods
  2 types of flange Bottom mounting available
- Seal damage prevention
  Handle with overtightening prevention mechanism
- Malfunction prevention
  Lock ring
- Valve open/closed visual indicator
  Indicator
- Prevents misoperation
  Misoperation prevention cover

MMD*OM (metal-free valve)

- A valve designed to support strong acid (hydrochloric acid, hydrofluoric acid) lines in semiconductor manufacturing.



Manual valve for chemical liquids

MMD*03RN Series

● Connection tube size: ø10, ø12, ø25, 3/8″, 1/2″, 3/4″, 1″

RoHS CAD

Export controlled items

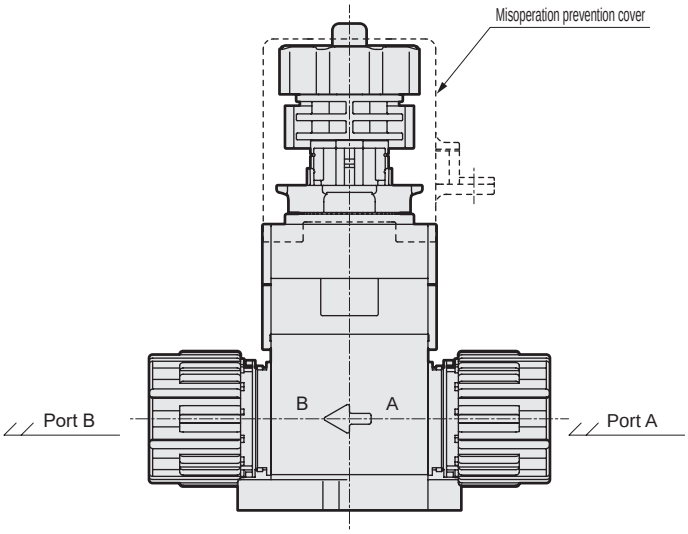
* Applicable: MMD403RN, MMD503RN

Specifications

Item	MMD303RN					MMD403RN		MMD503RN
Working fluid	Chemical liquids, pure water, air, N_2Gas (*1)							
Fluid temperature °C	5 to 120 (*2, *3)							
Proof pressure MPa	1.0							
Working pressure (A→B) MPa	0 to 0.5 Refer to figure below for "Working pressure"							
Working pressure (B→A) MPa	0 to 0.5 Refer to figure below for "Working pressure"							
Valve seat leakage cm^3/min	0 (water pressure)							
Back pressure MPa	0 to 0.5							
Ambient temperature °C	0 to 60							
Mounting orientation	Unrestricted							
Connection	O.D. ø10/ø12 tube connection (integrated fitting) O.D. 3/8" / 1/2" tube connection (integrated fitting)					O.D. 3/4" tube connection (integrated fitting)		O.D. ø25 tube connection (integrated fitting) O.D. 1" tube connection (integrated fitting)
Orifice size	ø6	ø7	ø8	ø9	ø10	ø15	ø16	ø20
Cv	0.7	1	1.25	1.6	1.8	4.5	5	8
Weight kg	0.22					0.44		0.87

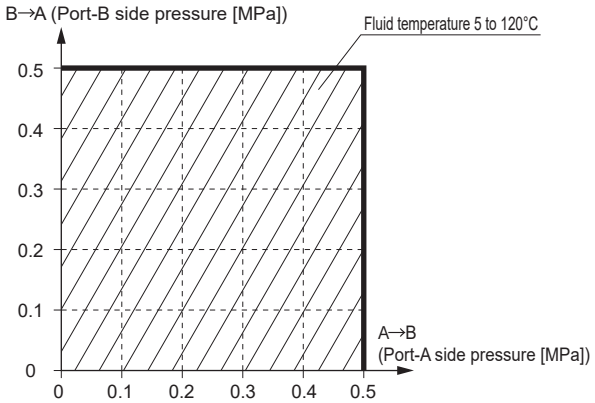
*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*2: For hydrofluoric acid or chemical liquids containing hydrofluoric acid, use within the range of 5 to 80°C.
*3: If the connection method is F-LOCK60 Series fittings, the temperature range is 5 to 100°C.
*4: Refer to page 143 for flow characteristics.

Structure diagram and parts list



Part name	Material
Actuator	PVDF, PP, etc.
Diaphragm	PTFE
Body	PFA, PTFE
Mounting plate	PVDF
Misoperation prevention cover	PP

Working pressure



⚠ Always read the precautions on Intro Pages 9 to 18 before use.

How to order

● Body

MMD303RN - 15BUP - F

Model No. — Ⓐ Connection — Ⓑ Mounting method

		MMD303RN								MMD403RN		MMD503RN			
		Ⓐ Connection (*1)													
		10UP	10BUP	12UP	15BUP	10UR	10BUR	12UR	15BUR	20BUP	20BUR	25UP	25BUP	25UR	25BUR
		Super 300 Pillar fitting P Series integrated				F-LOCK 60 Series integrated fitting				Super 300 pillar fitting P Series Integrated	F-LOCK 60 Series Integrated fitting	Super 300 Pillar fitting P Series integrated		F-LOCK 60 Series Integrated fitting	
		ø10xø8Tube connection	3/8"x1/4"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection	ø10xø8Tube connection	3/8"x1/4"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection	3/4"x5/8"Tube connection	3/4"x5/8"Tube connection	ø25xø22Tube connection	1"x7/8"Tube connection	ø25xø22Tube connection	1"x7/8"Tube connection
Code	Orifice size / Description	ø8		ø10		ø7	ø6	ø9		ø16	ø15	ø20			
	Body material	PFA				PTFE				PFA	PTFE	PFA		PTFE	
Ⓑ Mounting method (*2)															
F	Flange mounting	●		●		●		●		●	●	●	●	●	●
H	4-point flange mounting	●		●		●		●		●	●	●	●	●	●
X	Bottom mounting	●		●		●		●		●	●	●	●	●	●

Precautions for model No. selection

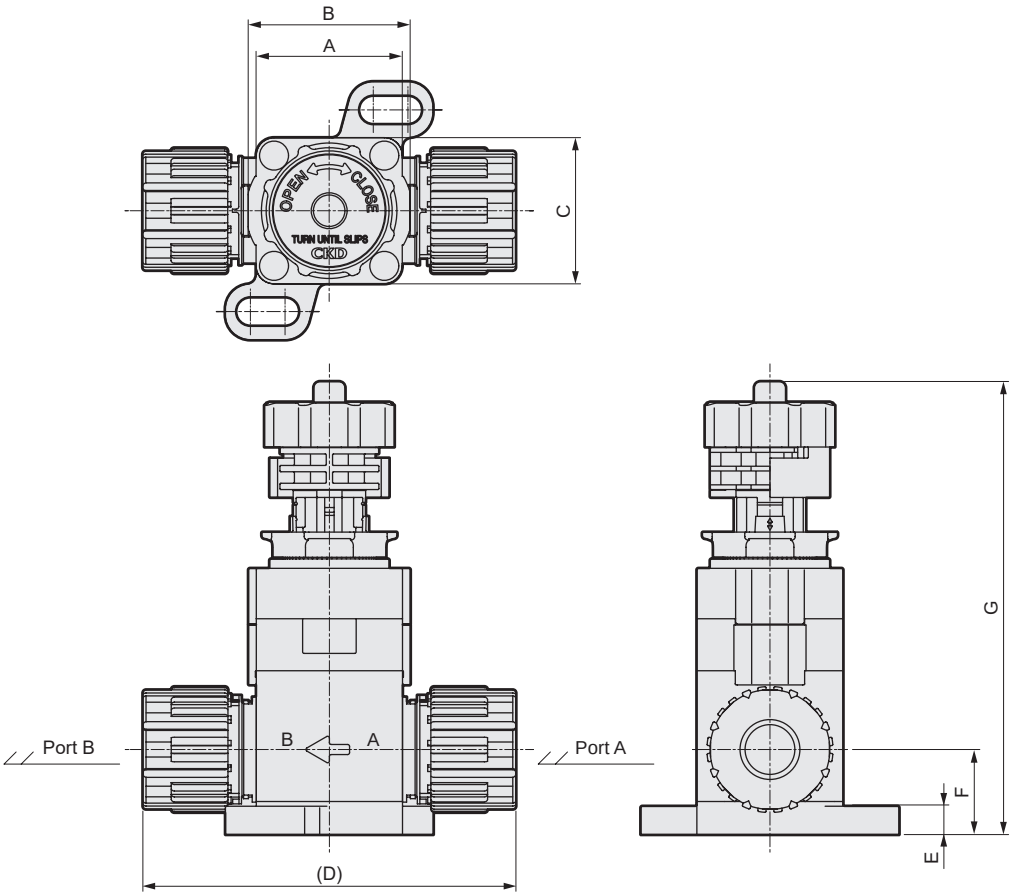
*1: Made-to-order product if the body material is PTFE.
For 1/4", ø6 tube connection, consult with CKD.
*2: Refer to Dimensions for mounting plate.

●Misoperation prevention cover

MMD303RN-C
MMD403RN-C
MMD503RN-C

Dimensions

• MMD*03RN



MMD303RN

*1 (connection method)	D
10UP	86
10BUP	86
12UP	94
15BUP	94
10UR	110
10BUR	114
12UR	110
15BUR	114

MMD403RN

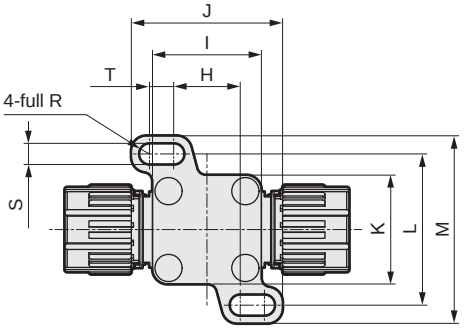
*1 (connection method)	D
20BUP	118
20BUR	134

MMD503RN

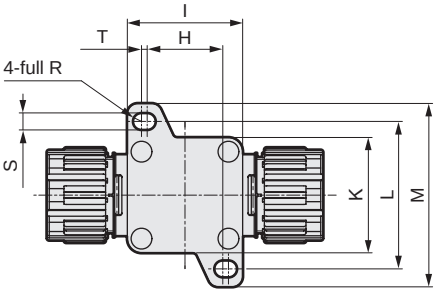
*1 (connection method)	D
25UP	146
25BUP	146
25UR	159
25BUR	162

● F Flange mounting

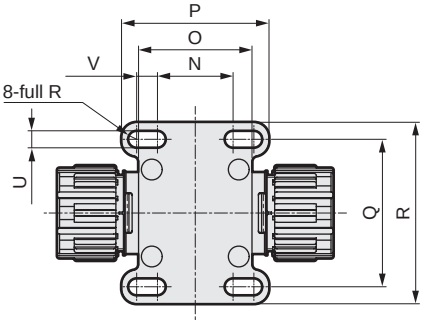
• MMD303RN-*-F
• MMD403RN-*-F



• MMD503RN-*-F

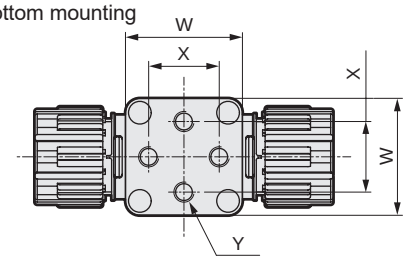


● H 4-point flange mounting



Model No.	A	B	C	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
MMD303RN	36	39	36	8.5	21	116	22	36	50	36	50	62	22	36	50	50	62	2-7	2-8	4-7	4-8
MMD403RN	46	51	46	9	27	144	28	46	66	46	64	82	28	46	66	64	82	2-9	2-11	4-9	4-11
MMD503RN	60	65	60	10	35	184	40	61	61	61	78	97	40	61	78	78	97	2-9	2-3	4-9	4-11

● X Bottom mounting

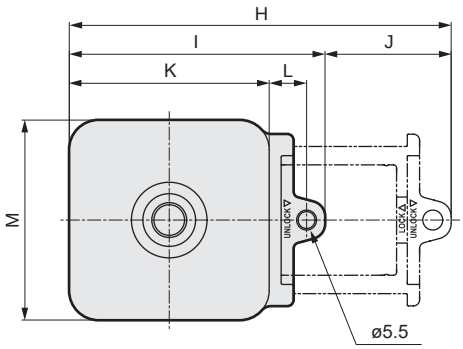


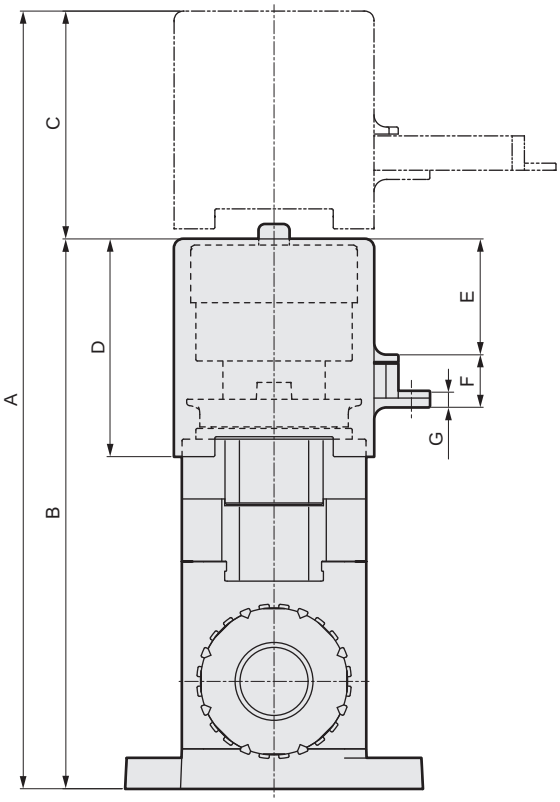
Model No.	W	X	Y
MMD303RN	36	22±0.3	4-M6 depth 9
MMD304RN	46	28±0.3	4-M8 depth 10
MMD503RN	61	40±0.3	4-M8 depth 13

Dimensions

● Misoperation prevention cover

- MMD303RN-C
- MMD403RN-C
- MMD503RN-C



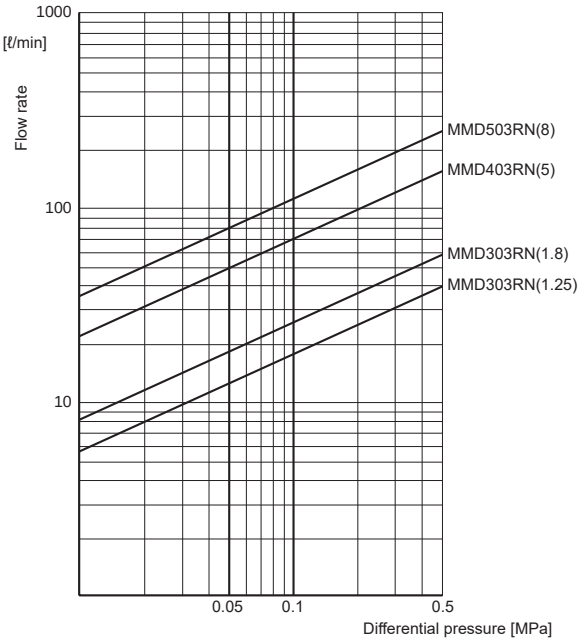


* The misoperation prevention cover can be mounted in any direction (4 directions).

Model No.	A	B	C	D	E	F	G	H	I	J	K	L	M
MMD303RN-C	166	112	54	51	25	13	5	78	55	23	40	10	40
MMD403RN-C	203	139	64	60	31	15	5	99	68	31	51	11	51
MMD503RN-C	254	179	75	71	38	17	5.5	125	83	71	65	12	65

MMD303RN to **MMD503RN** Flow characteristics

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



Manual valve for chemical liquids (manifold/branch valve)

Made-to-order product

GMMD*03RN Series

● Connection tube size: ø10, ø12, ø25, 3/8″, 1/2″, 3/4″, 1″

RoHS CAD

Export controlled items

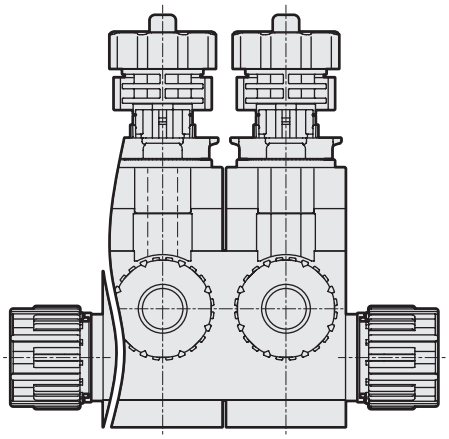
*Applicable: GMMD403RN, GMMD503RN

Specifications

Item		GMMD303RN	GMMD403RN	GMMD503RN
Working fluid		Chemical liquids, pure water, air, N_2Gas (*1)		
Fluid temperature	°C	5 to 120 (*2, *3)		
Proof pressure	MPa	1.0		
Working pressure (A→B)	MPa	0 to 0.5 Refer to figure below for "Working pressure"		
Working pressure (B→A)	MPa	0 to 0.5 Refer to figure below for "Working pressure"		
Valve seat leakage	cm^3/min	0 (water pressure)		
Back pressure	MPa	0 to 0.5		
Ambient temperature	°C	0 to 60		
Mounting orientation		Unrestricted		
Connection		O.D. ø10/ø12 tube connection (integrated fitting) OD3/8", 1/2"" tube connection (integrated fitting)	OD3/4" tube connection (integrated fitting)	O.D. ø25 tube connection (integrated fitting) O.D. 1" tube connection (integrated fitting)
Orifice size		ø6 to ø10	ø15 to ø16	ø20
Weight	kg 1 stations	0.27	0.5	1.2
	2 stations	0.54	1.0	2.4
	3 stations	0.81	1.5	3.8
	4 stations	1.0	1.9	5.0
	5 stations	1.4	2.4	-

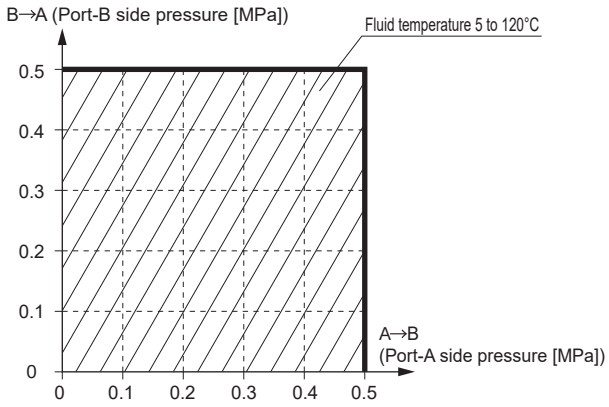
*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*2: For hydrofluoric acid or chemical liquids containing hydrofluoric acid, use within the range of 5 to 80°C.
*3: If the connection method is F-LOCK60 Series fittings, the temperature range is 5 to 100°C.

Structure and parts list



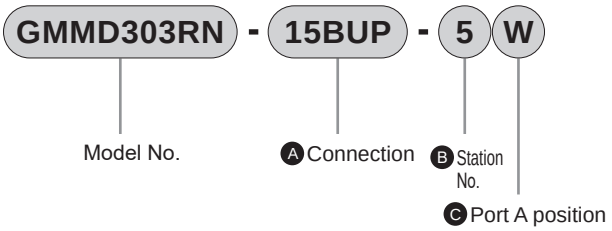
Part name	Material
Actuator	PVDF, PP, etc.
Diaphragm	PTFE
Body	PTFE
Mounting plate	PVDF

Working pressure



⚠ Always read the precautions on Intro Pages 9 to 18 before use.

How to order



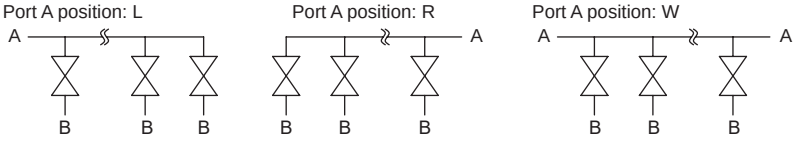
		GMMD303RN								GMMD403RN		GMMD503RN			
		A Connection													
		10UP	10BUP	12UP	15BUP	10UR	10BUR	12UR	15BUR	20BUP	20BUR	25UP	25BUP	25UR	25BUR
		Super 300 Pillar fitting P Series integrated				F-LOCK 60 Series Integrated fitting				Super 300 pillar fitting P Series Integrated	F-LOCK 60 Series Integrated fitting	Super 300 Pillar fitting P Series integrated		F-LOCK 60 Series Integrated fitting	
		ø10xø8Tube connection	3/8"x1/4"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection	ø10xø8Tube connection	3/8"x1/4"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection	3/4"x5/8"Tube connection	3/4"x5/8"Tube connection	ø25xø22Tube connection	1"x7/8"Tube connection	ø25xø22Tube connection	1"x7/8"L.Tube connection
Code	Orifice size / Description	ø8		ø10		ø7	ø6	ø9		ø16	ø15	ø20			
	Body material	PTFE								PTFE		PTFE			
B Station No. (*1)															
1	1 stations	●		●		●		●		●	●	●	●	●	●
2	2 stations	●		●		●		●		●	●	●	●	●	●
3	3 stations	●		●		●		●		●	●	●	●	●	●
4	4 stations	●		●		●		●		●	●	●	●	●	●
5	5 stations	●		●		●		●		●	●				
C Port A position (*1)															
L	Left	●		●		●		●		●	●	●	●	●	●
R	Right	●		●		●		●		●	●	●	●	●	●
W	Both sides	●		●		●		●		●	●	●	●	●	●

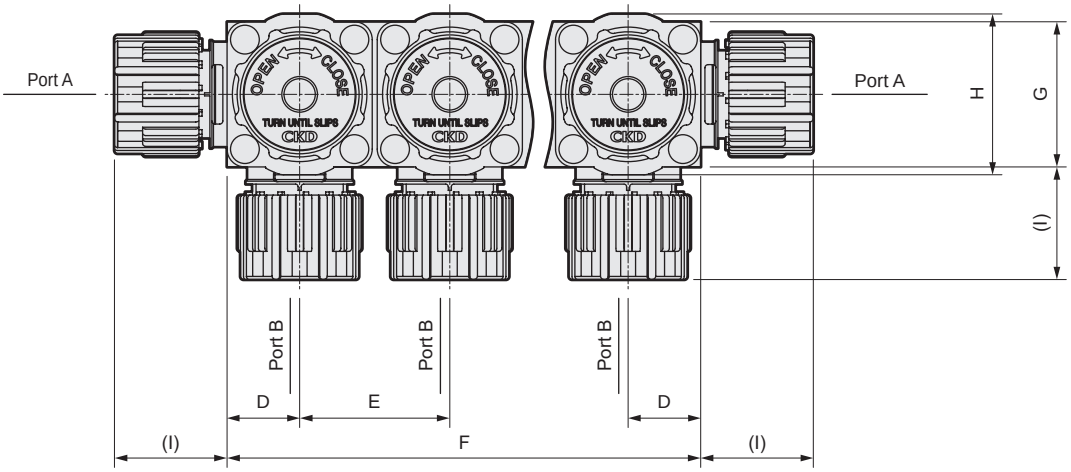
Precautions for model No. selection

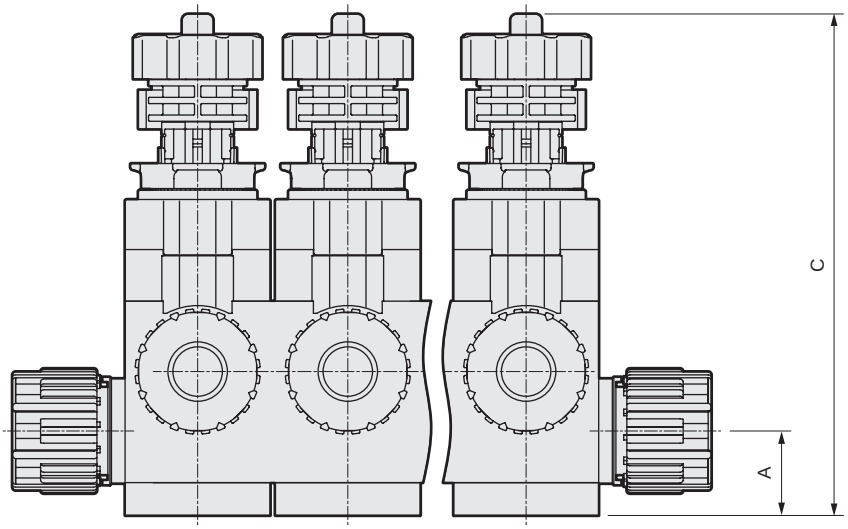
*1: Refer to dimensions for station No. and port A position.
*2: GMMD*03RN Series cannot use the misoperation prevention cover.
*3: For 1/4", ø6 tube connection, consult with CKD.

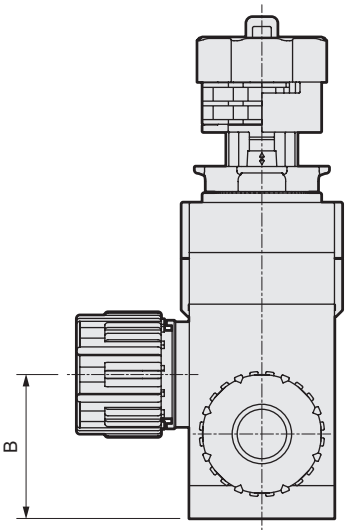
Dimensions

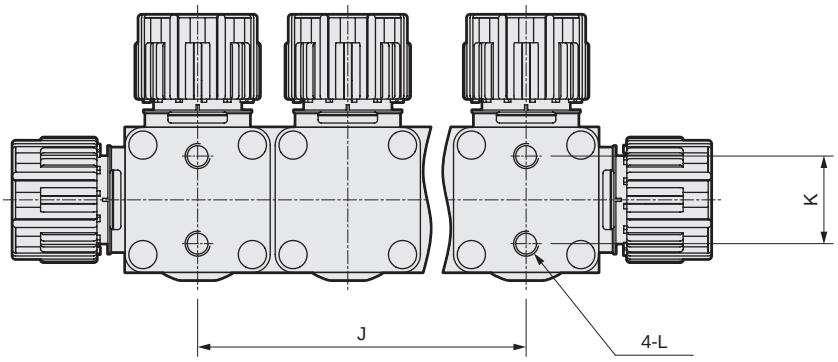
- GMMD303RN- *1
- GMMD403RN- *1
- GMMD503RN- *1











Model No.	A	B	C	D	E	G	H	K	L
GMMD303RN	21	35	128	18	38	36	39	22±0.3	M6 depth 9
GMMD403RN	27	46	160	23	48	46	51	28±0.3	M8 depth 10
GMMD503RN	35	60	199	30	62	60	65	40±0.3	M8 depth 13

Station No.	Model No.	F	J
1	GMMD303RN	36	–
	GMMD403RN	46	–
	GMMD503RN	60	–
2	GMMD303RN	74	38±0.3
	GMMD403RN	94	48±0.4
	GMMD503RN	122	62±0.4
3	GMMD303RN	112	76±0.4
	GMMD403RN	142	96±0.5
	GMMD503RN	184	124±0.5
4	GMMD303RN	150	114±0.5
	GMMD403RN	190	144±0.5
	GMMD503RN	246	186±0.7
5	GMMD303RN	188	152±0.7
	GMMD403RN	238	192±0.7

GMMD303RN(10mm* / 3/8")

*1 (connection method)	I
10UP	25
10BUP	25
10UR	37
10BUR	39

GMMD303RN(12mm / 1/2")

*1 (connection method)	I
12UP	29
15BUP	29
12UR	37
15BUR	39

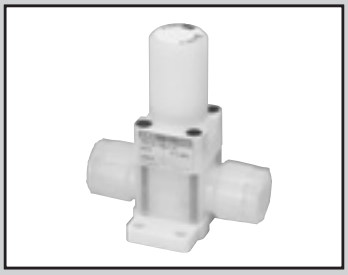
GMMD403RN

*1 (connection method)	I
20BUP	36
20BUR	44

GMMD503RN

*1 (connection method)	I
25UP	43
25BUP	43
25UR	49.5
25BUR	51

Note: The misoperation prevention cover cannot be used with the GMMD*03RN Series.



Manual valve for chemical liquids

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

●Connection tube size: ø10, ø12, ø25, 3/8", 1/2", 3/4", 1"

RoHS CAD

Export controlled items

*Applicable: MMD402, 502

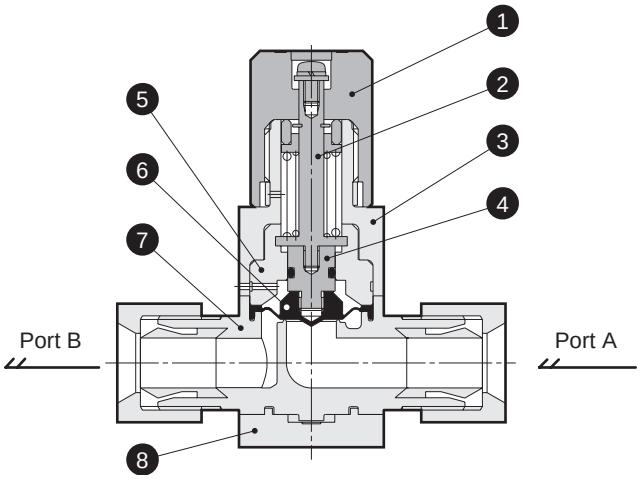
Specifications

Item	MMD302	MMD402	MMD502
Working fluid	Chemical liquid/pure water/Air/N_2Gas (*1)		
Fluid temperature °C	5 to 90 (*2)		
Proof pressure MPa	1.2		
Working pressure (A→B) MPa	0 to 0.4		
Working pressure (B→A) MPa	0 to 0.4		
Valve seat leakage cm^3/min	0 (water pressure)		
Back pressure MPa	0 to 0.4		
Ambient temperature °C	0 to 60		
Mounting orientation	Unrestricted		
Connection	O.D. ø10 tube connection (integrated fitting) O.D. ø12 tube connection (integrated fitting) O.D. 3/8" tube connection (integrated fitting) O.D. 1/2" tube connection (integrated fitting)	O.D. 3/4" tube connection (Integrated fitting)	O.D. ø25 tube connection (integrated fitting) O.D. 1" tube connection (integrated fitting)
Orifice size	ø20, 6.3 / ø6.4 / ø7.5 / ø8 / ø20, 9.4 / ø9.5 / ø10	ø14.7 / ø20, 15.9 / ø16	ø20
Cv	0.8 / 1.25 / 1.8	5	8
Weight kg	0.20	0.40	0.76

*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*2: For use with hydrofluoric acid, or when the fluid temperature exceeds 40°C, consult with CKD.
*3: MMD*02 Series cannot be used for flow rate adjustment. Use it either fully closed or fully opened.

⚠ Always read the precautions on Intro Pages 9 to 18 before use.

Internal structure and parts list



Part number	Part name	Material (by fluid code)	
		U	P
1	Knob	PE	
2	Shaft	SUS304 (with fluoro resin coating)	
3	Cover	PP (*1)	PP (*1)
4	Rod	PP	
5	Diaphragm holder	PP (*1)	PP (*1)
6	Diaphragm	PTFE	
7	Body	PFA, PTFE	
8	Mounting plate	PP (*1)	PP (*1)

*1: The color tone differs between fluid code U and fluid code P. The material and structure may vary depending on the model number. Contact CKD for details.

How to order

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

MMD302 - 10UP - 8 - U

- MMD302 — Model No.
- 10UP — Ⓐ Connection
- 8 — Instruction on orifice size
- U — Ⓑ Fluid

Ⓐ Connection											
10US	10BUS	10UP	10BUP	10UA	10BUA	10UR	10BUR	10UK	10BUK	10BUW
Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20A Series Integrated fitting		F-LOCK 60 Series Integrated fitting		Final Lock Fitting Integrated		Flaretek Fitting Integrated
ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	3/8"x1/4" Tube connection
Code / Description \ Orifice size	ø8					ø7.5	ø6.4	ø7.5		ø20, 6.3
Body material										
PFA: PFA molded body, PTFE: PTFE machined body	PFA		PFA		PFA		PFA		PFA		PTFE
Ⓑ Fluid											
U General chemical liquids	●	●	●	●	●	●	●	●	●	●	●
P For hydrofluoric acid	●	●	●	●	●	●	●	●	●	●	●

* Machined PTFE products are on a per-order basis.

●Model No. for bottom mounting

MMD302 - A - 8 - B X

- MMD302 — Model No.
- A — Ⓐ Connection
- 8 — Instruction on orifice size
- B — Ⓑ Fluid
- X — Bottom mounting

How to order

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

MMD302 - 12UR -10- U

- MMD302 — Model No.
- 12UR — Ⓐ Connection
- 10 — Instruction on orifice size
- U — Ⓑ Fluid

Ⓐ Connection

12US	15BUS	12UP	15BUP	12UA	15BUA	12UR	15BUR	12UK	15BUK	15BUW
Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20A Series Integrated fitting		F-LOCK 60 Series Integrated fitting		Final Lock Fitting Integrated		Flaretek Fitting Integrated
ø12xø10Tube connection	1/2"x3/8"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection	1/2"x3/8"Tube connection

Code	Description \ Orifice size											
		ø10						ø9.5		ø10		ø20, 9.4
Body material		PFA molded body										

Ⓑ Fluid

U	General chemical liquids	●		●		●		●		●		●
P	For hydrofluoric acid	●		●		●		●		●		●

●Model No. for bottom mounting

MMD302 - A -10- B X

- MMD302 — Model No.
- A — Ⓐ Connection
- 10 — Instruction on orifice size
- B — Ⓑ Fluid
- X — Bottom mounting

How to order

●MMD402 Series

MMD402 - 20BUA -16- U

- MMD402 - Model No.
- 20BUA - Ⓐ Connection
- -16- Instruction on orifice size
- U - Ⓑ Fluid

Ⓐ **Connection**

20BUS	20BUP	20BUA	20BUR	20BUK	20BUW
Super type pillar integrated fitting	Super 300 Pillar fitting P Series integrated	F-LOCK 20A Series Integrated fitting	F-LOCK 60 Series Integrated fitting	Final Lock Integrated fitting	Flaretek Integrated fitting
3/4"x5/8"Tube connection					

Code	Description \ Orifice size	ø16			ø20, 15.9	ø16	ø14.7
	Body material	PFA		PTFE	PFA	PTFE	PFA

Ⓑ **Fluid**

U	General chemical liquids	●	●	●	●	●	●
P	For hydrofluoric acid	●	●	●	●	●	●

* Machined PTFE products are on a per-order basis.

●Model No. for bottom mounting

MMD402 - A -16- B X

- MMD402 - Model No.
- A - Ⓐ Connection
- -16- Instruction on orifice size
- B - Ⓑ Fluid
- X - Bottom mounting

How to order

●MMD502 Series

MMD502 - 25BUP -20- U

- MMD502: Model No.
- 25BUP: Ⓐ Connection
- 20: Instruction on orifice size
- U: Ⓑ Fluid

Ⓐ Connection										
25US	25BUS	25UP	25BUP	25BUA	25UR	25BUR	25UK	25BUK	25BUW
Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20A Series Fitting Integrated	F-LOCK 60 Series Integrated fitting		Final Lock Fitting Integrated		Flaretek Fitting Integrated
ø25xø22 Tube connection	1"x7/8" Tube connection	ø25xø22 Tube connection	1"x7/8" Tube connection	1"x7/8" Tube connection(*1)	ø25xø22 Tube connection	1"x7/8" Tube connection	ø25xø22 Tube connection	1"x7/8" Tube connection	1"x7/8" Tube connection
Code \ Description / Orifice size	ø20								
Body material									
PFA: PFA molded body, PTFE: PTFE machined body	PFA		PFA		PTFE	PTFE		PTFE		PTFE
Ⓑ Fluid										
U General chemical liquids	●	●	●	●	●	●	●	●	●	●
P For hydrofluoric acid	●	●	●	●	●	●	●	●	●	●

* Machined PTFE products are on a per-order basis.

●Model No. for bottom mounting

MMD502 - A -20- B X

- A: Model No.
- 20: Instruction on orifice size
- B: Ⓑ Fluid
- X: Bottom mounting

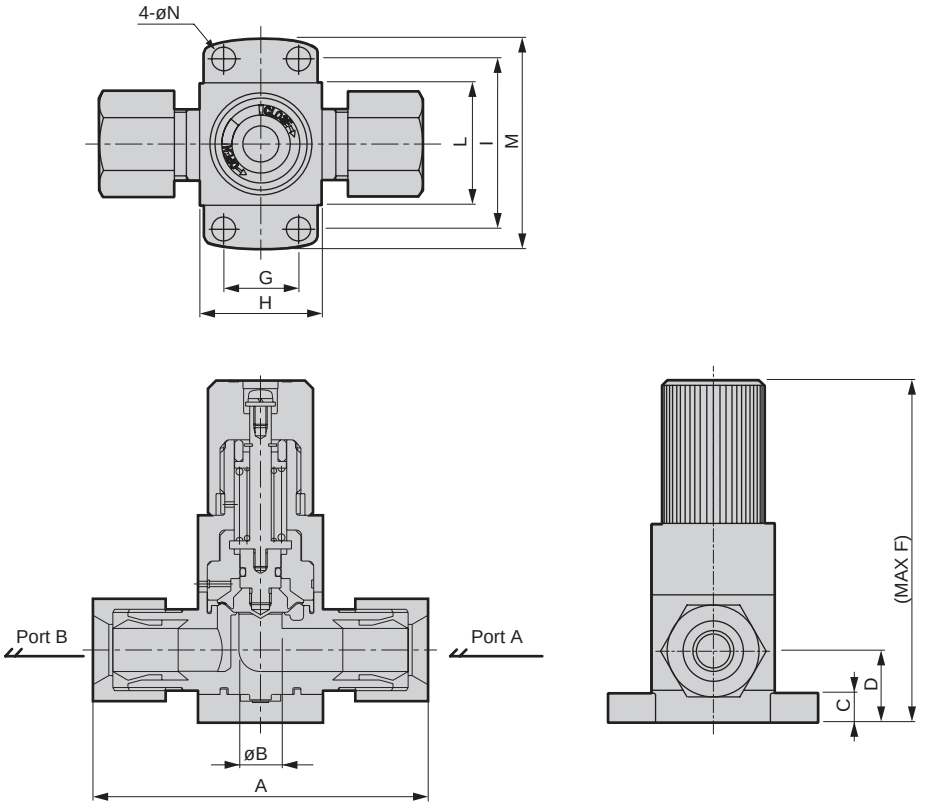
Precautions for model No. selection

*1: Can also be used for ø25×ø22 tube connection.

Dimensions

●Integrated fitting

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



Model No.	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(10mm)

*1 (Connector 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(12mm)

*1 (Connector 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

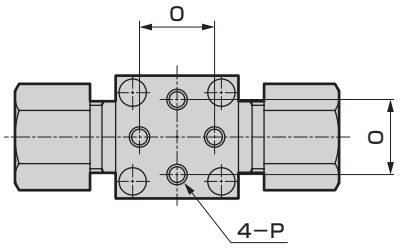
*1 (Connector No.)	A	B
20BUS	124	16
20BUP	118	16
20BUA	108	16
20BUR	134	15.9
20BUK	119	16
20BUW	122	14.7

MMD5

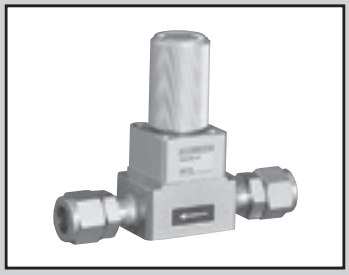
*1 (Connector No.)	A	B
25US	147	20
25BUS	147	20
25UP	146	20
25BUP	146	20
25BUA	140	20
25UR	159	20
25BUR	162	20
25UK	141	20
25BUK	141	20
25BUW	156	20

Dimensions

●Bottom mounting



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 manual valve for chemical liquids

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

Stainless steel body with stable seal structure

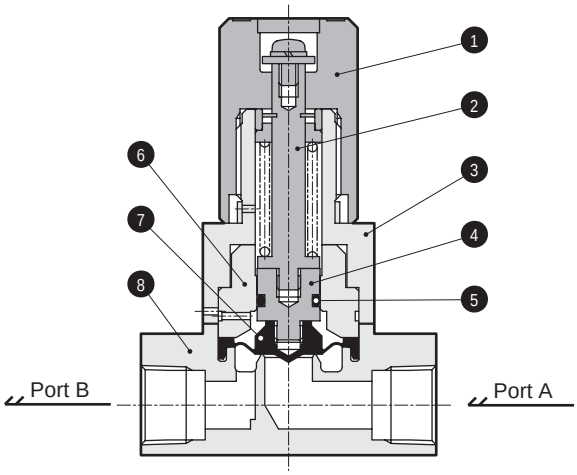
Ideal for explosion-proof environments such as solvents RoHS CAD

Specifications

Item	MMD302	MMD402	MMD502
Working fluid	Chemical liquid/pure water/Air/N_2Gas (*1)		
Fluid temperature °C	5 to 90		
Proof pressure MPa	1.2		
Working pressure (A→B) MPa	0 to 0.4		
Working pressure (B→A) MPa	0 to 0.4		
Valve seat leakage cm^3/min	0 (water pressure)		
Back pressure MPa	0 to 0.4		
Ambient temperature °C	0 to 60		
Mounting orientation	Unrestricted		
Connection	Rc1/4 / Rc3/8 ø3/8" SUS tube Double barbed fitting for ø3/8" (*2) ø1/2" SUS tube Double barbed fitting for ø1/2" (*2)	Rc1/2 ø 3/4"SUS tube Double barbed fitting for ø3/4" (*2)	ø 1"SUS tube Double barbed fitting for ø1" (*2)
Orifice size	ø8/ø10	ø16	ø20
Weight kg	0.45	0.88	1.3

*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*2: For double barbed fitting, fluorine lubricant is applied to the sliding surface between the front ferrule and fitting body.
*3: MMD*02 Series cannot be used for flow rate adjustment. Use it either fully closed or fully opened.

Internal structure and parts list



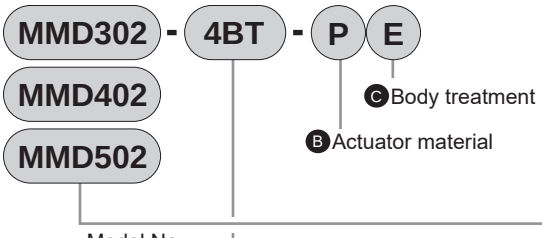
Part number	Part name	Material (by actuator material)	
		P	A
1	Knob	PE	A + 5056
2	Shaft	SUS304	SUS304
3	Cover	PP	A + 5056
4	Rod	PP	
5	O-ring	EPDM	
6	Diaphragm holder	PP	A + 5056
7	Diaphragm	PTFE	
8	Body	SUS316L	

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

Always read the precautions on Intro Pages 9 to 18 before use.

How to order

●MMD*02 Series



Code	Description \ Orifice size	MMD302						MMD402			MMD502	
Ⓐ Connection		**8**	**3BT**	**6S**	**10**	**4BT**	**8S**	**15**	**6BT**	**12S**	**8BT**	**16S**
		Rc 1/4	3/8"x t1.0SUS tube	3/8"Tube connection Double barbed fitting	Rc 3/8	1/2"x t1.24SUS tube	1/2"Tube connection Double barbed fitting	Rc 1/2	3/4"x t1.24SUS tube	3/4"Tube connection Double barbed fitting	1"x t1.65SUS tube	1"Tube connection Double barbed fitting
		ø8			ø10			ø16			ø20	
Ⓑ Actuator material												
P	PP	●	●	●	●	●	●	●	●	●	●	●
A	A + 5056	●	●	●	●	●	●	●	●	●	●	●
Ⓒ Body treatment												
Blank	No	●	●	●	●	●	●	●	●	●	●	●
E	With electrolytic polishing		●	●		●	●		●	●	●	●

* Body electro-polished products are on a case-by-case basis.

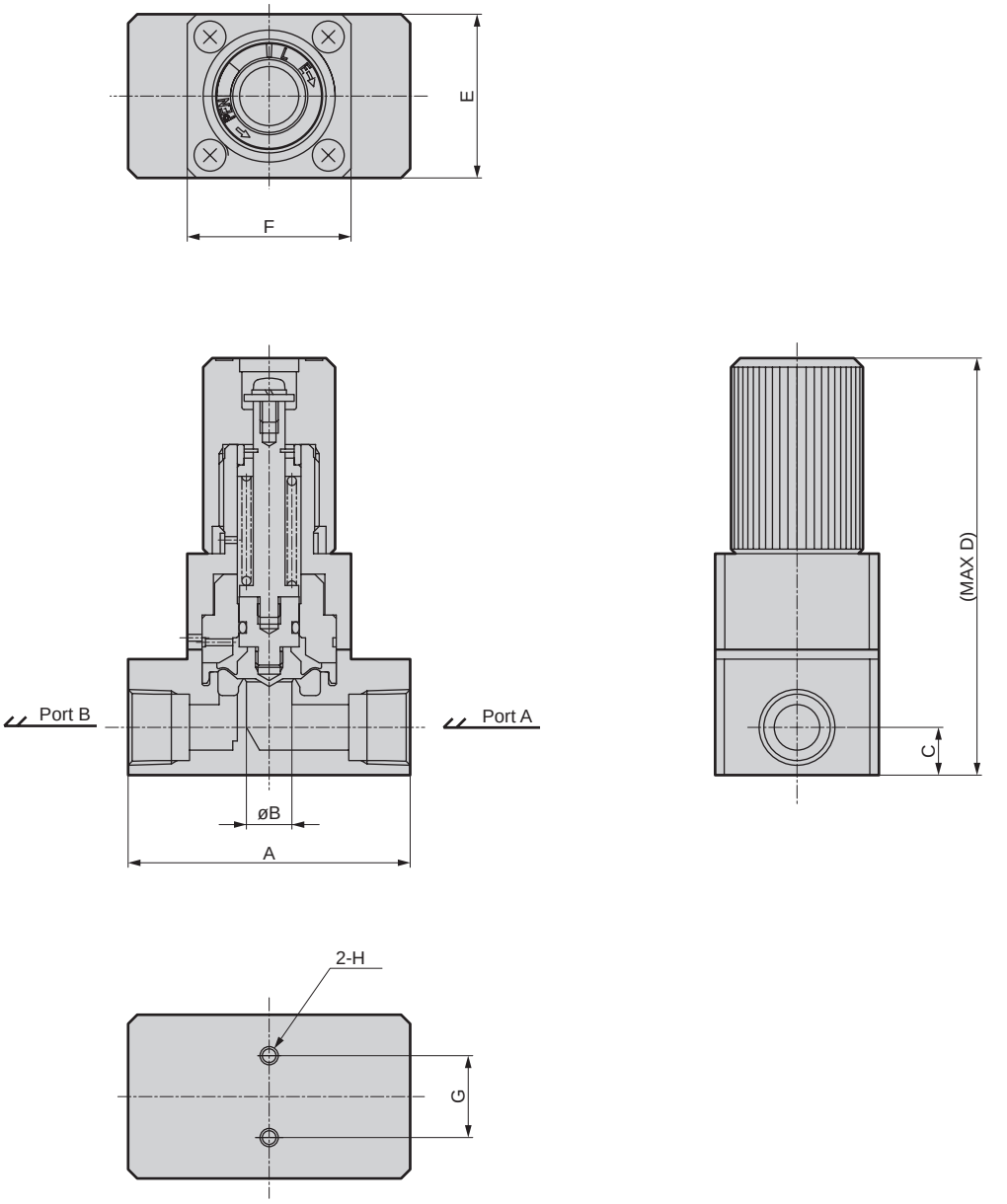
Precautions for model No. selection

* Consult with CKD for connection methods other than the ones listed.
* Connection Rc is not compatible with electrolytic polishing specifications.

Dimensions

●Rc thread

- MMD302-8, 10
- MMD402-15

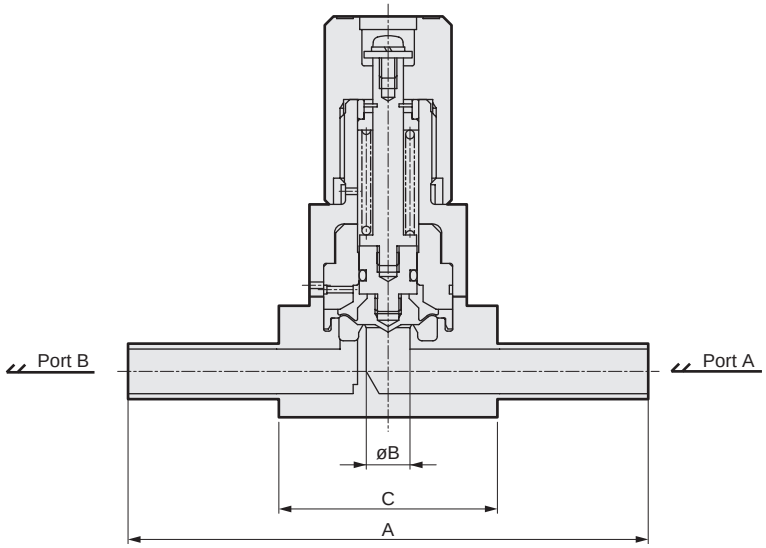


Model No.	A	B	C	D	E	F	G	H
MMD302-8, 10	62	10	10.5	96	36	36	18±0.3	M4 depth 5
MMD402-15	80	16	13.5	121	46	46	26±0.3	M5 depth 6

Dimensions

●SUS tube

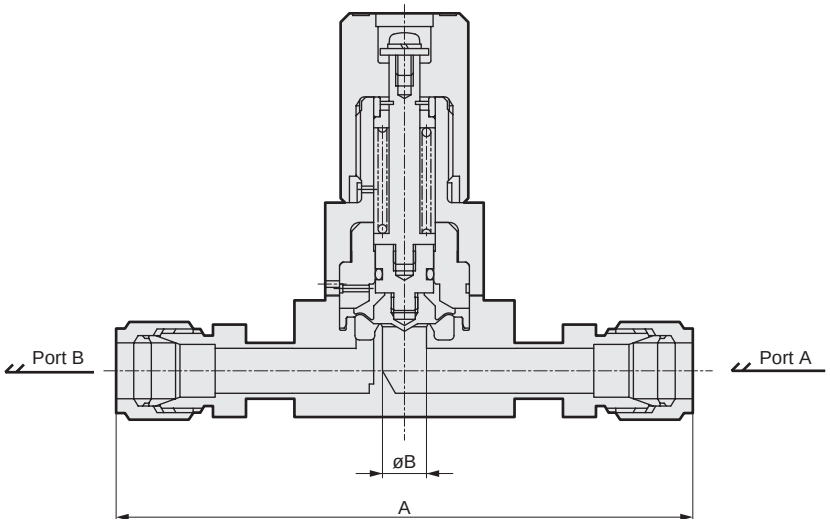
- MMD 302-3BT/4BT
- MMD402-6BT



Model No.	A	B	C
MMD302-3BT/4BT	116	10	50
MMD402-6BT	126	16	61

●Double barbed fitting

- MMD 302-6S/8S
- MMD402-12S

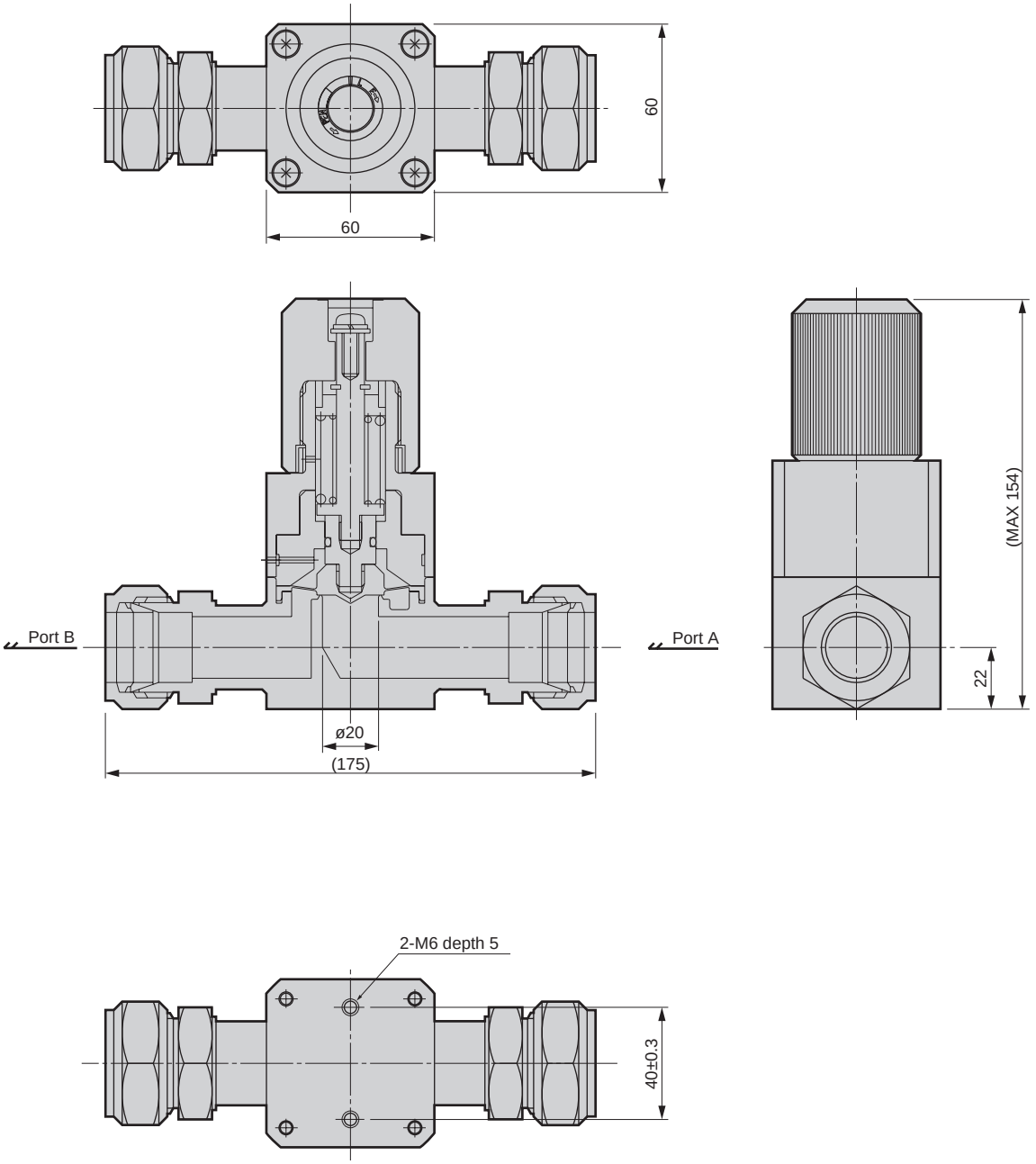


Model No.	A	B
MMD302-6S	116	10
MMD302-8S	130	10
MMD402-12S	150	16

Dimensions

● Double barbed fitting

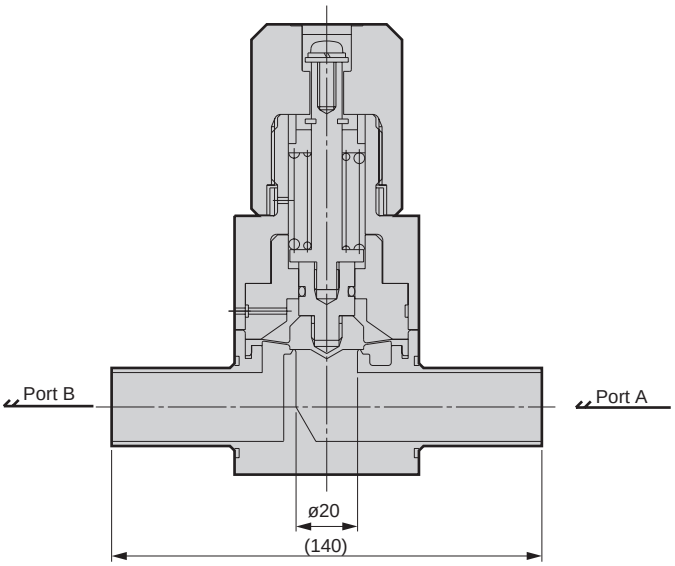
・MMD502-16S

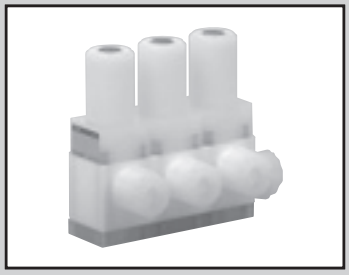


Dimensions

● SUS tube

・MMD502-8BT





Manual valve for chemical liquids (manifold/branch valve)

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

Manifold that uses a stable seal structure. Ideal for saving space in the branch part of chemical liquids

RoHS

- Orifice size: ø6 to ø20
- Station No.: 1 to 5 stations
- Connection tube size: ø10, ø12, ø25, 3/8″, 1/2″, 1"

Export controlled items

*Applicable: GMMD402, 502 (*5)

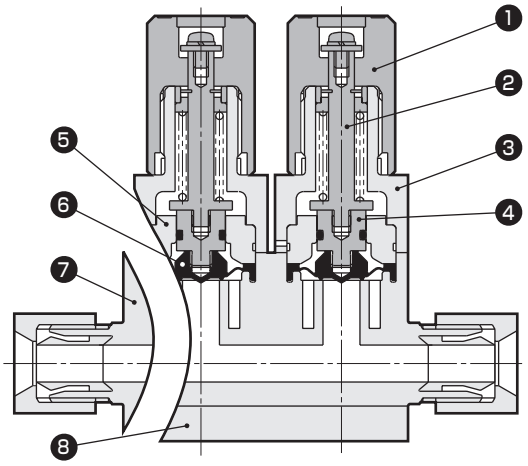
Specifications

Item		GMMD302	GMMD402	GMMD502
Working fluid		Chemical liquid/pure water/Air/N_2Gas (*1)		
Fluid temperature	°C	5 to 90 (*3)		
Proof pressure	MPa	1.2		
Working pressure	MPa	0 to 0.4		
Valve seat leakage	cm^3/min	0 (water pressure)		
Back pressure	MPa	0 to 0.4		
Ambient temperature	°C	0 to 60		
Mounting orientation		Unrestricted		
Connection		O.D. ø10 tube connection (integrated fitting) O.D. ø12 tube connection (integrated fitting) O.D. 3/8" tube connection (integrated fitting) O.D. 1/2" tube connection (integrated fitting)	O.D. 3/4" tube connection (Integrated fitting)	O.D. ø25 tube connection (integrated fitting) O.D. 1" tube connection (integrated fitting)
Orifice size		ø6 to ø10 (*2)	ø14.7 to ø16 (*2)	ø20
Weight	kg 1 stations	0.25	0.50	1.1
	2 stations	0.51	1.0	2.2
	3 stations	0.76	1.5	3.3
	4 stations	1.0	2.0	4.4
	5 stations	1.3	2.5	-

*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*2: Check the orifice size of each connection in How to order.
*3: For use with hydrofluoric acid, or when the fluid temperature exceeds 40°C, consult with CKD.
*4: MMD*02 Series cannot be used for flow rate adjustment. Use it either fully closed or fully opened.
*5: GMMD302 is not applicable. (for individual piping of secondary side port)

Always read the precautions on Intro Pages 9 to 18 before use.

Internal structure and parts list



Part number	Part name	Material (by fluid code)
		U
1	Knob	PE
2	Shaft	SUS304 (with fluoro resin coating)
3	Cover	PP
4	Rod	PP
5	Diaphragm holder	PP
6	Diaphragm	PTFE
7	Body	PTFE
8	Mounting plate	PP

How to order

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

GMMD302 - 10UK - 4 U L

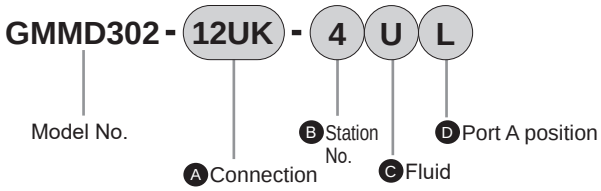
- GMMD302: Model No.
- 10UK: Ⓐ Connection
- 4: Ⓑ Station No.
- U: Ⓒ Fluid
- L: Ⓓ Port A position

		Ⓐ Connection										
		10US	10BUS	10UP	10BUP	10UA	10BUA	10UR	10BUR	10UK	10BUK	10BUW
		Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20A Series Integrated fitting		F-LOCK 60 Series Integrated fitting		Final Lock Fitting Integrated		Flaretek Fitting Integrated
		ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	3/8"x1/4" Tube connection
Code	Description \ Orifice size	ø8						ø7	ø6	ø8		ø20, 6.3
Body material		PTFE machined body										
Ⓑ Station No.												
1 to 5	1 stations to 5 stations	●	●	●	●	●	●	●	●	●	●	●
Ⓒ Fluid												
U	Standard	●	●	●	●	●	●	●	●	●	●	●
Ⓓ Port A position												
Blank	Right	●	●	●	●	●	●	●	●	●	●	●
L	Left	●	●	●	●	●	●	●	●	●	●	●
W	Both sides	●	●	●	●	●	●	●	●	●	●	●

* Machined PTFE products are on a per-order basis.

How to order

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



Code	Description \ Orifice size	A Connection										
		12US	15BUS	12UP	15BUP	12UA	15BUA	12UR	15BUR	12UK	15BUK	15BUW
		Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20A Series Integrated fitting		F-LOCK 60 Series Integrated fitting		Final Lock Fitting Integrated		Flaretek Fitting Integrated
		ø12xø10 Tube connection	1/2"x3/8" Tube connection	ø12xø10 Tube connection	1/2"x3/8" Tube connection	ø12xø10 Tube connection	1/2"x3/8" Tube connection	ø12xø10 Tube connection	1/2"x3/8" Tube connection	ø12xø10 Tube connection	1/2"x3/8" Tube connection	1/2"x3/8" Tube connection
		ø10						ø9.5		ø10		ø20, 9.4
Body material		PTFE machined body										
B Station No.												
1 to 5	1 stations to 5 stations	●	●	●	●	●	●	●	●	●	●	●
C Fluid												
U	Standard	●	●	●	●	●	●	●	●	●	●	●
D Port A position												
Blank	Right	●	●	●	●	●	●	●	●	●	●	●
L	Left	●	●	●	●	●	●	●	●	●	●	●
W	Both sides	●	●	●	●	●	●	●	●	●	●	●

* Machined PTFE products are on a per-order basis.

How to order

●GMMD4 Series

GMMD402 - 20BUA - 4 U L

- Model No.
- Ⓐ Connection
- Ⓑ Station No.
- Ⓒ Fluid
- Ⓓ Port A position

Ⓐ Connection						
		20BUS	20BUP	20BUA	20BUR	20BUK	20BUW
		Super type pillar Integrated fitting	Super 300 Pillar fitting P Series integrated	F-LOCK20A Series Integrated fitting	F-LOCK60 Series Integrated fitting	Final Lock Integrated fitting	Flaretek Integrated fitting
		3/4"x5/8"Tube connection					
Code	Orifice size / Description	ø16			ø20, 15.9	ø16	ø14.7
	Body material	PTFE machined body					

Ⓑ Station No.							
1 to 5	1 stations to 5 stations	●	●	●	●	●	●

Ⓒ Fluid							
U	Standard	●	●	●	●	●	●

Ⓓ Port A position							
Blank	Right	●	●	●	●	●	●
L	Left	●	●	●	●	●	●
W	Both sides	●	●	●	●	●	●

* Machined PTFE products are on a per-order basis.

How to order

●GMMD5 Series

GMMD502 - 25BUK - 4 U W

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

Code	Description \ Orifice size	Ⓐ Connection									
		25US	25BUS	25UP	25BUP	25BUA	25UR	25BUR	25UK	25BUK	25BUW
		Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20A Series Fitting Integrated	F-LOCK 60 Series Integrated fitting		Final Lock Fitting Integrated		Flaretek Fitting Integrated
		ø25xø22 Tube connection	1"x7/8" Tube connection	ø25xø22 Tube connection	1"x7/8" Tube connection	1"x7/8" Tube connection(*1)	ø25xø22 Tube connection	1"x7/8" Tube connection	ø25xø22 Tube connection	1"x7/8" Tube connection	1"x7/8" Tube connection
	Orifice size	ø20									
	Body material	PTFE machined body									
Ⓑ Station No.											
1 to 4	1 stations to 4 stations	●	●	●	●	●	●	●	●	●	●
Ⓒ Fluid											
U	Standard	●	●	●	●	●	●	●	●	●	●
Ⓓ Port A position											
Blank	Right	●	●	●	●	●	●	●	●	●	●
L	Left	●	●	●	●	●	●	●	●	●	●
W	Both sides	●	●	●	●	●	●	●	●	●	●

* Machined PTFE products are on a per-order basis.

Precautions for model No. selection

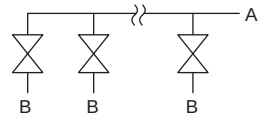
*1: Can also be used for ø25×ø22 tube connection.

Dimensions

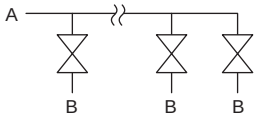
●Integrated fitting

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

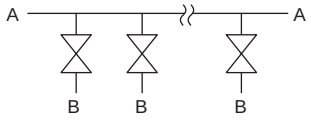
Port A position: Blank

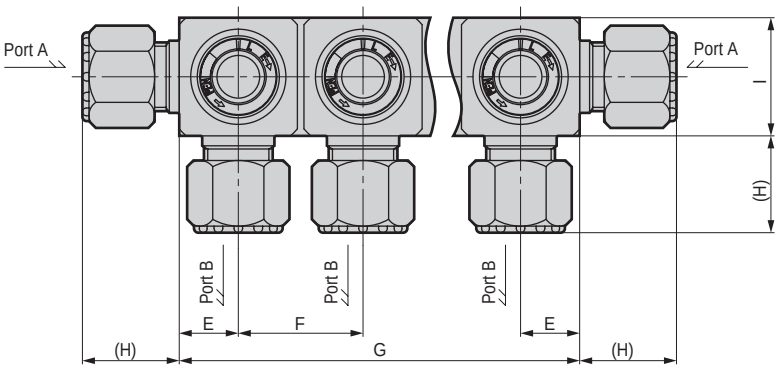


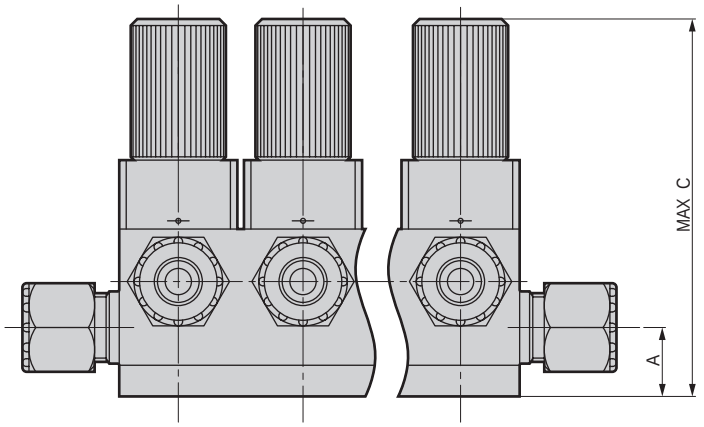
Port A position: L

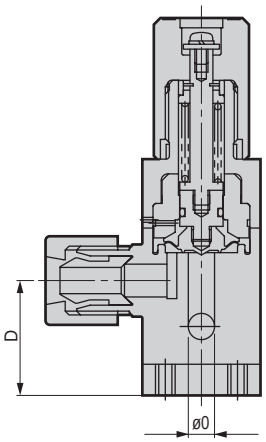


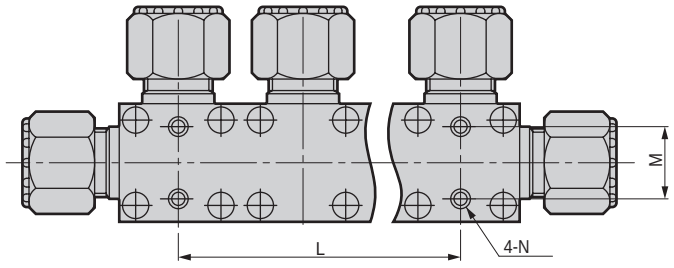
Port A position: W











Dimensions

Station No.	Model No.	A	C	D	E	F	G	I	L	M	N
1	GMMD302	21	120	35	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	35	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	35	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	35	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	35	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(10mm)

*1 (Connector 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(12mm)

*1 (Connector 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 (Connector 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 (Connector 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

Manual valve for chemical liquid feed

MMD*0H Series

A valve designed to support high pressure and high back pressure in chemical liquid lines in semiconductor manufacturing lines.

●Tube connection: 1/2", 3/4", 1", 1.25"
PFA pipe for welding: nominal 1/4", 1/2", 3/4", 1"

RoHS CAD

Export controlled items

*Applicable: MMD40H (*4), MMD50H, 60H

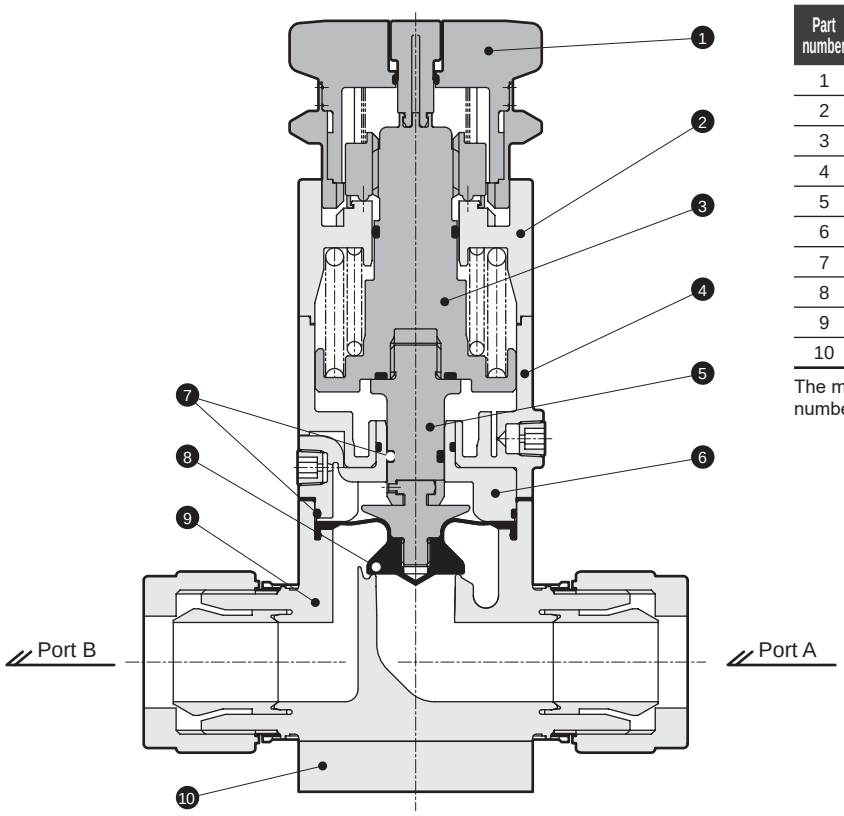
Specifications

Item	MMD40H		MMD50H	MMD60H
Working fluid	Chemical liquid/pure water/Air/N_2Gas (*1)			
Fluid temperature °C	5 to 40			
Proof pressure MPa	1.4			
Working pressure (A→B) MPa	0 to 0.7			
Valve seat leakage cm^3/min	0 (water pressure)			
Back pressure MPa	0 to 0.7			
Ambient temperature °C	0 to 40			
Mounting orientation	Unrestricted			
Connection	O.D. 1/2" tube connection Nominal 1/4" PFA pipe for welding	O.D. 3/4" tube connection Nominal 1/2" PFA pipe for welding	O.D. 1" tube connection Nominal 3/4" PFA pipe for welding	O.D. 1.25" tube connection Nominal 1" PFA pipe for welding
Orifice size	ø10	ø16	ø22	ø25
Cv	2	5 (*2)	9.5	14
Weight kg	0.59		1.1	2.0

*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*2: The Flaretek fitting has Cv of 4.5.
*3: MMD*0H Series cannot be used for flow rate adjustment. Use it either fully closed or fully opened.
*4: O.D. 1/2" tube connection, excluding nominal 1/4" PFA pipe for welding.

⚠ Always read the precautions on Intro Pages 9 to 18 before use.

Internal structure and parts list



Part number	Part name	Material (by fluid code)	
		Standard	M
1	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 structure may vary depending on the model number. Contact CKD for details.

Manual valve operation method

● OPEN

Confirm that the lock ring is slid to the upper limit. (↑ (1))
When turning the knob in the OPEN direction, the first few turns will be idle. When idling, the slide nut moves downward while rotating, comes to the position shown in the figure and stops moving downward. (↓ (2)) If turned further, the motion will be rotation alone, raising the shaft with the screw thrust, and the valve will open. (↑ (3) Indicator rises.)

● CLOSE

Confirm that the lock ring is slid to the upper limit. (↑ (1))
Turning the knob clockwise will close the valve. (Indicator falls.)
When turning the knob further in the CLOSE direction while the valve is closed (indicator lowered position), it will idle. →This prevents overtightening.Even when it is idling, the fluid can be stopped as the valve closing spring is activated.

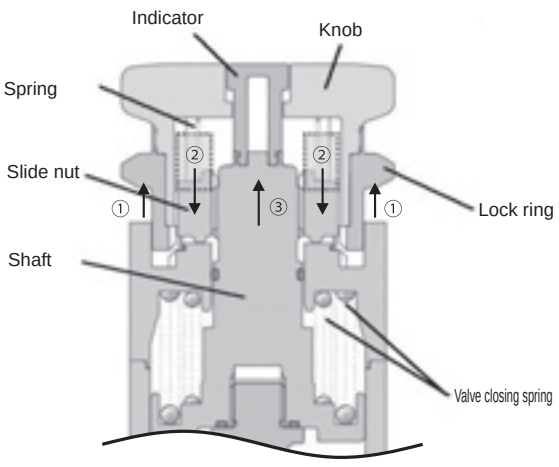
In the idling state, the slide nut and shaft screw will rotate to the point where they are disengaged, but the slide nut is constantly pushed by the spring, so turning the screw in the OPEN direction again will cause the screws to engage again.

● Knob lock

After operating the knob, you can slide the lock ring to the lower limit and lock the lock ring so that the knob does not turn. →This can prevent misoperation.

● Do not operate while applying lateral force to the knob. Do not forcibly turn the knob after the valve OPEN and after the knob is locked.There is a risk of part damage.

Knob top display



How to order

●MMD*0H Series

MMD40H / **MMD50H** / **MMD60H** - **4BJ** - **M**

- MMD40H / MMD50H / MMD60H: Model No.
- 4BJ: Ⓐ Connection
- M: Ⓑ Fluid

		MMD40H						MMD50H			MMD60H	
Ⓐ Connection		4BJ	6BJ	4BW	6BW	2 W	4 W	8BJ	8BW	6 W	10BJ	8 W
		Super 300 Pillar fitting P series integrated		Flaretek Fitting Integrated		Welding PFA pipe		Super 300 Pillar fitting P series integrated	Flaretek Fitting Integrated	Welding PFA pipe	Super 300 Pillar fitting P series integrated	Welding PFA pipe
		1/2"x3/8"Tube connection	3/4"x5/8"Tube connection	1/2"x3/8"Tube connection	3/4"x5/8"Tube connection	Nominal1/4"PFA pipe for welding	Nominal1/2"PFA pipe for welding	1"x7/8"Tube connection	1"x7/8"Tube connection	Nominal3/4"PFA pipe for welding	$1\frac{1}{4}$" x $1\frac{1}{10}$" Tube connection	Nominal1"PFA pipe for welding
Code	Orifice size / Description	ø10	ø16	ø10	ø16	ø10	ø16	ø22			ø25	
Body material		PFA molded body										
Ⓑ Fluid												
Blank	Standard	●	●	●	●	●	●	●	●	●	●	●
M	For ammonia (Note)	●	●	●	●	●	●	●	●	●	●	●

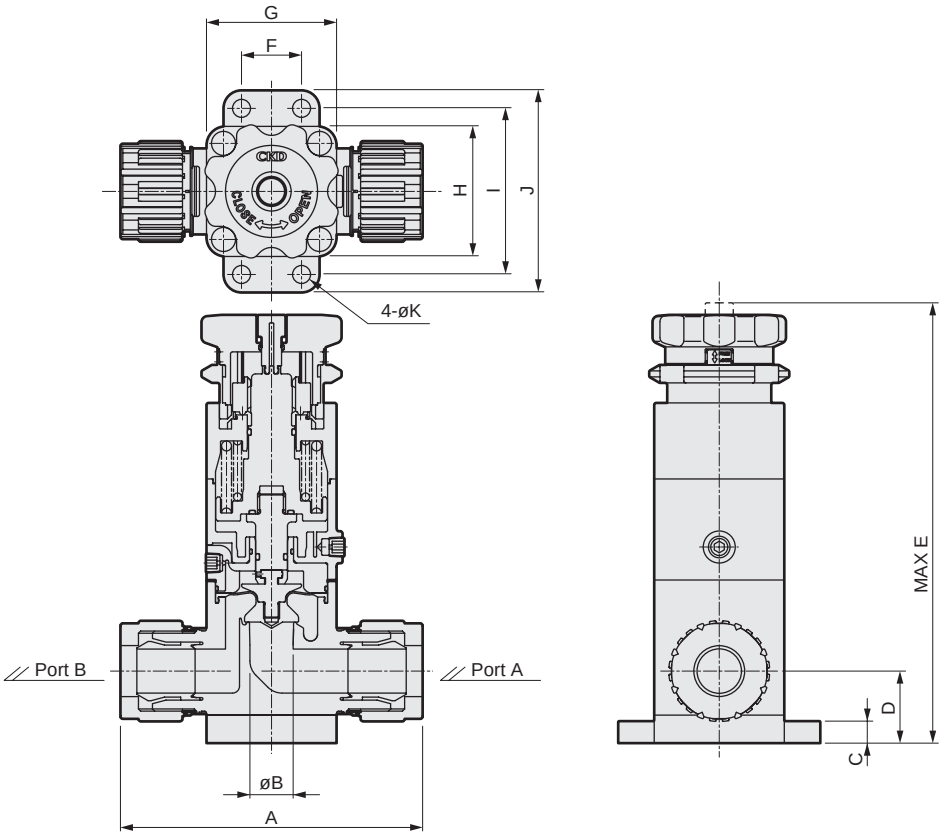
Precautions for model No. selection

* Available as made to order

Dimensions

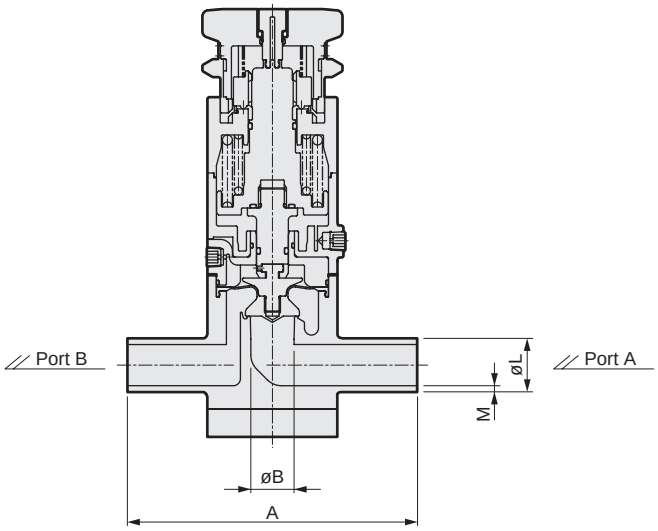
●Integrated fitting

・MMD$^{4}_{5}_{6}$0H-*BJ
*BW

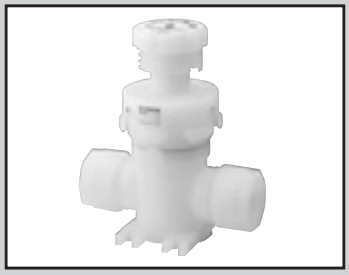


●Pipe for welding

・MMD$^{4}_{5}_{6}$0H-*W



Model No.	Connector 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	–	–
	2 W	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	–	–
	4 W	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	–	–
	6 W	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	–	–
	8 W	155	25	12	42	241	38	75	75	93	111	9	33.4	3.4



Manual valve for chemical liquids, metal-free

MMD*0M Series

A valve designed to support strong acid (hydrochloric acid, hydrofluoric acid) lines in semiconductor manufacturing.

●Connection tube size: ø10, ø12, ø25, 3/8", 1/2", 3/4", 1"

RoHS CAD

Export controlled items

*Applicable: MMD50M

Specifications

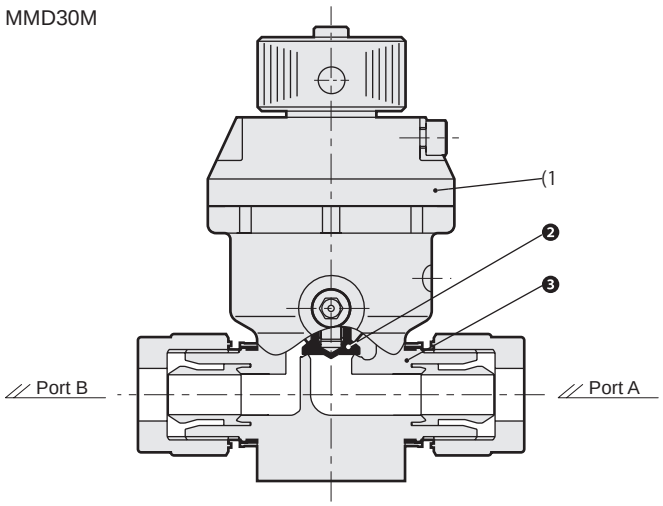
Item		MMD30M		MMD50M	
Working fluid		Chemical liquid/pure water/Air/N_2Gas (*1)			
Fluid temperature	°C	5 to 40			
Proof pressure	MPa	1.0			
Working pressure (A→B)	MPa	0 to 0.5			
Valve seat leakage	cm^3/min	0 (water pressure)			
Back pressure	MPa	0 to 0.5			
Ambient temperature	°C	0 to 40			
Mounting orientation		Unrestricted			
Connection		O.D. ø3/8" tube connection O.D. ø10 tube connection	O.D. ø1/2" tube connection O.D. ø12 tube connection	O.D. ø3/4" tube connection	O.D. ø1" tube connection O.D. ø25 tube connection
Orifice size		ø8	ø10	ø16	ø22
Cv		1.25	1.8	5.5	9.5
Weight	kg	0.28		1.1	

*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)

Always read the precautions on Intro Pages 9 to 18 before use.

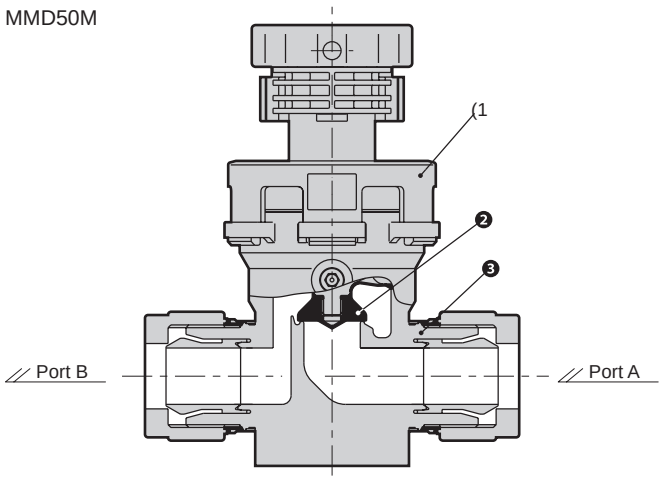
Internal structure and parts list

MMD30M



Part number	Part name	Material
1	Actuator	PP, etc.
2	Diaphragm	PTFE
3	Body	PFA

MMD50M



Part number	Part name	Material
1	Actuator	PVDF and others
2	Diaphragm	PTFE
3	Body	PFA

How to order

●MMD*0M Series

MMD30M - **3BJ**

MMD50M

Model No.

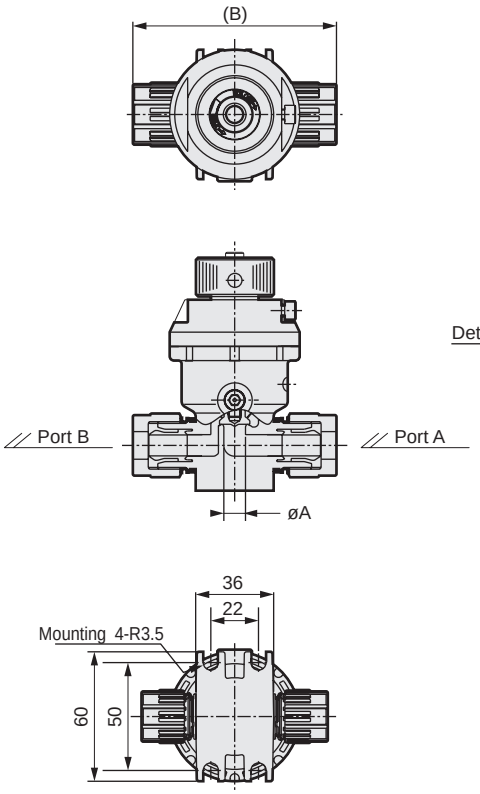
Ⓐ Connection

	MMD30M				MMD50M		
Ⓐ Connection	3BJ	10J	4BJ	12J	6BJ	8BJ	25J
	Super 300 Pillar fitting P series integrated						
	3/8"x1/4"Tube connection	ø10xø8Tube connection	1/2"x3/8"Tube connection	ø12xø10Tube connection	3/4"x5/8"Tube connection	1"x7/8"Tube connection	ø25xø22Tube connection

Description \ Orifice size	ø8	ø10	ø16	ø22
Cv	1.25	1.8	5.5	9.5

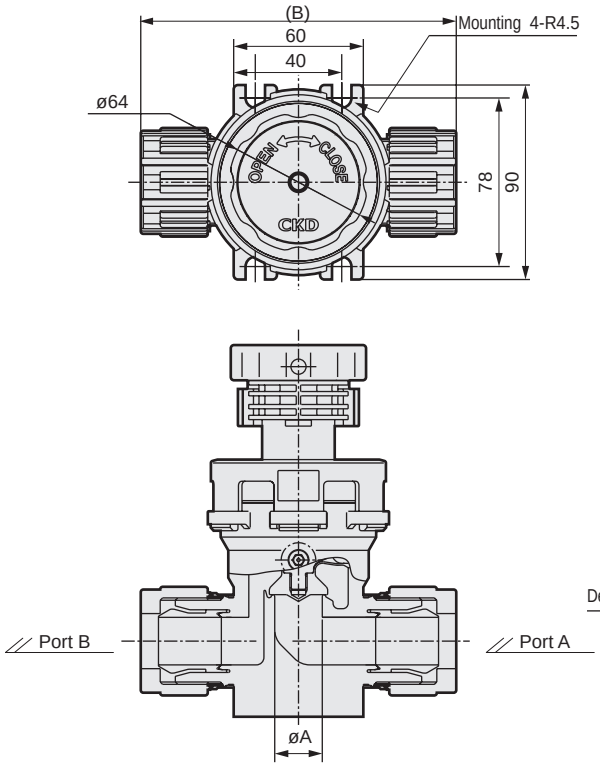
Dimensions

●MMD30M - *1

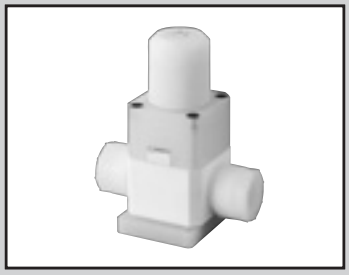


*1 (connector No.)	øA	B
3BJ	8	86
4BJ	10	94

●MMD50M - *1



*1 (connector No.)	øA	B
6BJ	16	132
8BJ	22	146



Large bore size Manual valve for chemical liquids

LYX Series

Large bore size PFA tube 1.5" compatible

RoHS

Export controlled items

Specifications

Item		LYX-1381
Working fluid		Chemical liquid/pure water/Air/N_2Gas (*1)
Fluid temperature	°C	10 to 35
Proof pressure	MPa	0.8
Working pressure (A→B)	MPa	0 to 0.4
Working pressure (B→A)	MPa	0 to 0.4
Valve seat leakage	cm^3/min	0 (water pressure)
Back pressure	MPa	0 to 0.4
Ambient temperature	°C	5 to 35
Frequency		4 cycle/min. or less
Mounting orientation		Unrestricted
Connection		0D1 / 1/2" Super 300 Pillar fitting P Series $1\frac{1}{2}$"x $1\frac{21}{64}$"Tube connection
Orifice size		ø40
Cv		24
Operating section	Operating pressure MPa	0.5 to 0.6
	Operating port	Rc1/8
Weight	kg	5.3

*1: Check the compatibility of product structural materials, working fluids and atmosphere.

How to order

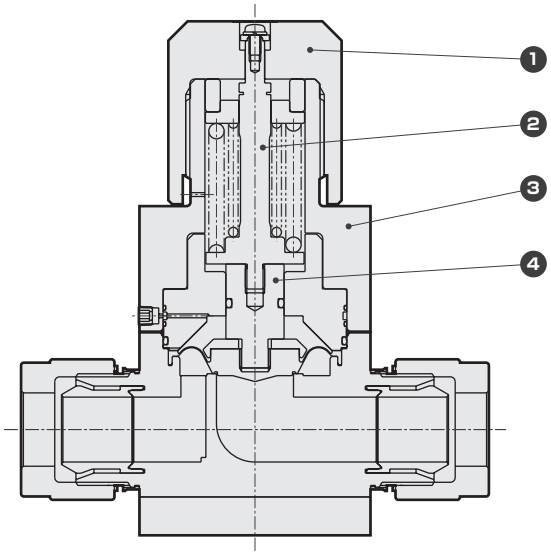
LYX - 1381 - 12BJ - M

- 1381: Model No.
- M: Ⓐ Fluid

Code	Description
Ⓐ Fluid	
Blank	Standard
M	For ammonia

Internal structure and parts list

●LYX-1381



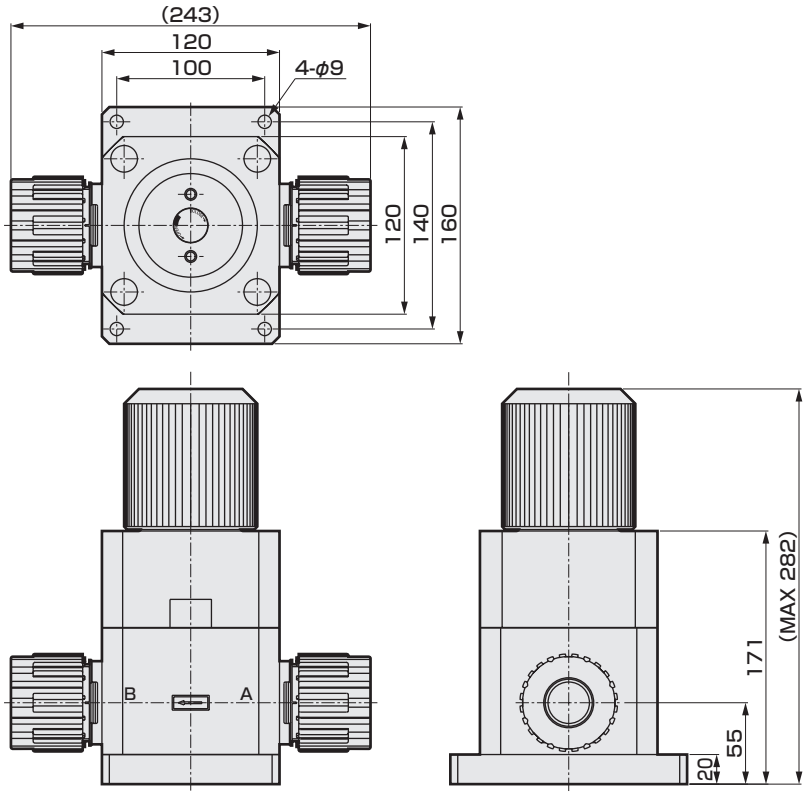
Part number	Part name	Material (by fluid code)	
		Standard	M
1	Knob	PE	
2	Shaft	SUS304 (with fluoro resin coating)	
3	Cover	PP	
4	Rod	PP	

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

⚠ Always read the precautions on Intro Pages 9 to 18 before use.

Dimensions

● Manual valve



MEMO

Drip prevention valve

Overview

A valve that draws the liquid level at the tip of the nozzle into the pipe after closing the flow path in order to prevent the fluid from dripping down from the tip of the nozzle when the flow path is closed. Drip prevention valve single unit and integrated air operated valve for chemical liquids are available.

Features

Drip prevention valve AMS

- Helps achieve compact and lightweight equipment
- PPS is used for actuator material, with almost no discoloration or dissolution due to solvent.
- Integrated fitting (PFA molded body) with particle-free specification

Air operated valve for chemical liquids/ drip prevention valve integrated AMDS

- Air operated valve for chemical liquids andIntegrated
  Further lightweight and compact, with reduced piping steps.
- Improved corrosion resistance
  All wetted surfaces are made of fluorocarbon resin, allowing support for various chemical liquids and pure water.
- Prevents contamination and leakage
  Integrated fitting that eliminates leakage and liquid retention.

Drip prevention valve for chemical liquids

AMSZ2/AMS022 Series

can prevent dripping
Drip prevention valve for nozzle tip control

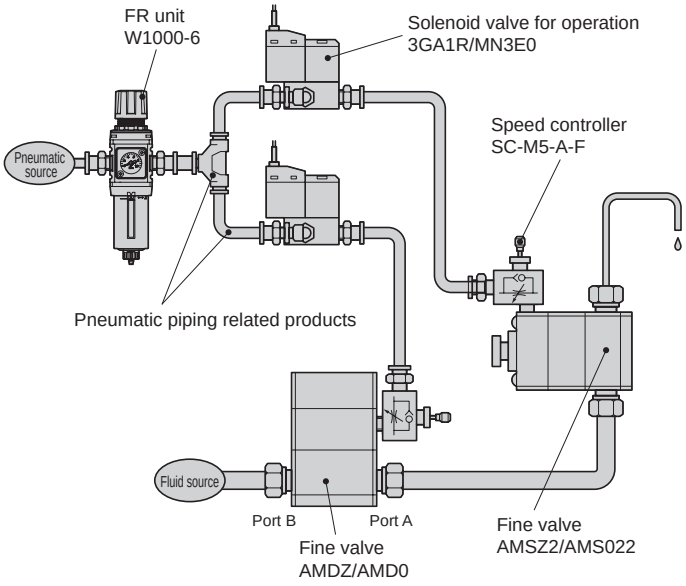
- Maximum drip prevention amount: 0.04cm^3/0.12cm^3
- Connection tube size: ø3, ø6, ø6.35, 1/8″, 1/4", Rc1/8

Specifications

Item			AMSZ2-*	AMS022-*
Working fluid			Chemical liquids, pure water (*1)	
Fluid temperature		°C	5 to 80	
Proof pressure		MPa	0.6	
Working pressure		MPa	0 to 0.2	
Ambient temperature		°C	0 to 60	
Mounting orientation			Horizontally mounted with port positioned vertically (port on OUT side up)	
Connection			Rc1/8 O.D. ø3 tube connection O.D. 1/8" tube connection	Rc1/8 O.D. ø6 tube connection O.D. 1/4" tube connection
Operating section	Operating pressure	MPa	0.3 to 0.5	
	Operating port		M5	
Maximum drip prevention amount		cm^3	0.04	0.12
Weight		kg	0.08	0.13

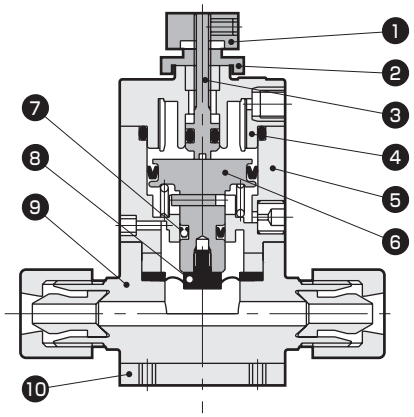
*1: Cannot be used with acidic fluids. Contact CKD regarding acidic fluids and aqueous ammonia.
Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)

Examples of use and related products



For related products, refer to Pneumatic Valves (Catalog No. CB-023S), Pneumatic, Vacuum and Auxiliary Components (Catalog No. CB-024S), Clean Component Systems (Catalog No. CB-033S).

Internal structure and parts list



Part number	Part name	Material (by body material)	
		Standard	D
1	Knob	SUS303	
2	Lock nut	SUS303	
3	Adjusting rod	SUS303	
4	Cover	PPS	
5	Cylinder	PPS	
6	Piston rod	SUS303	
7	Y packing	NBR	
8	Diaphragm	PTFE	
9	Body	PFA, PTFE	SUS316
10	Mounting plate	SUS304	-

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

Always read the precautions on Intro Pages 9 to 18 before use.

How to order

●AMSZ Series

AMSZ2 - 6 - D

- Model No.
- Ⓐ Connection
- Ⓑ Body material

Ⓐ Connection							
6	3US	6BUS	3UP	6BUP	3UF	3UR	6BUR
Rc 1/8	Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20 Series Integrated fitting	F-LOCK 60 Series Integrated fitting	
	ø3xø2 Tube connection	1/8"x0.086" Tube connection	ø3xø2 Tube connection	1/8"x0.086" Tube connection	ø3xø2 Tube connection	ø3xø2 Tube connection	1/8"x1/16" Tube connection
Ⓑ Body material							
Blank PFA molded body or PTFE machined body	PTFE	PFA			PTFE	PTFE	
D Stainless steel body	●						

* Machined PTFE products are on a per-order basis.

●AMS0 Series

AMS022 - 8BUS - D

- Model No.
- Ⓐ Connection
- Ⓑ Body material

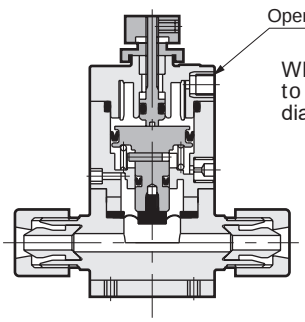
Ⓐ Connection										
6	6US	8BUS	6UP	8BUP	6UF	8BUF	6UR	8BUR	6UK	8BUK	8BUW
Rc 1/8	Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20 Series Integrated fitting		F-LOCK 60 Series Integrated fitting		Final Lock Fitting Integrated		Flaretek Fitting Integrated
	ø6xø4 Tube connection	1/4"x5/32" Tube connection	ø6xø4 Tube connection	1/4"x5/32" Tube connection	ø6xø4 Tube connection	ø20, 6.35xø20, 4.3 Tube connection	ø6xø4 Tube connection	1/4"x5/32" Tube connection	ø6xø4 Tube connection	1/4"x5/32" Tube connection	1/4"x5/32" Tube connection
Ⓑ Body material											
Blank PFA molded body or PTFE machined body	PTFE	PFA	PTFE		PTFE		PTFE		PTFE		PTFE
D Stainless steel body	●										

* Machined PTFE products are on a per-order basis.

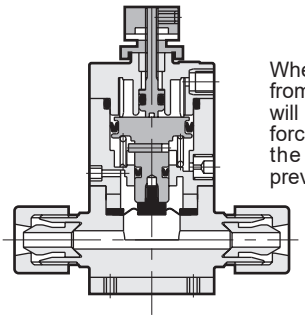
Precautions for model No. selection

*1: Contact CKD if selecting all-resin for an actuator that can be used for acidic fluids.

Operational principle



When using a fluid, apply air pressure to the operation port and lower the diaphragm.



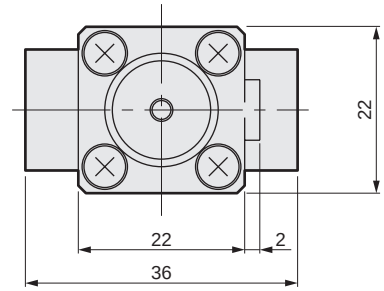
When stopping the fluid, releasing the air from the operation port to the atmosphere will cause the diaphragm to rise due to the force of the spring and the volume inside the drip prevention valve to increase, preventing the fluid from dripping.

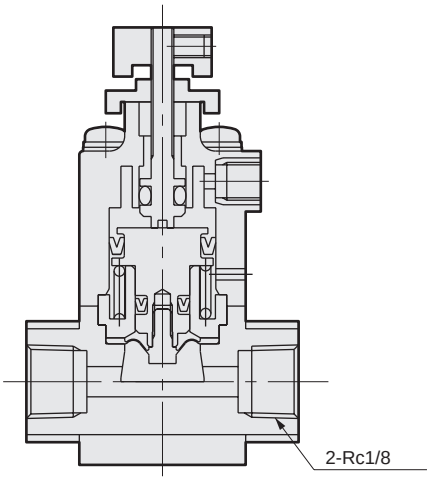
Dimensions

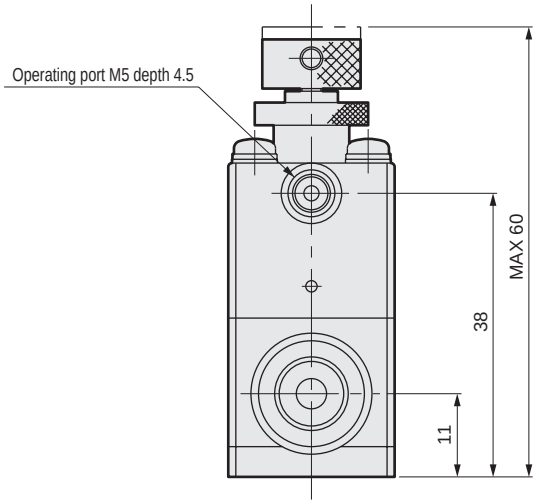
●Rc thread

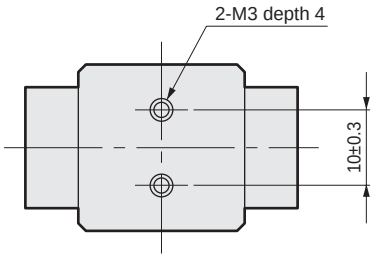
・AMSZ2-6

・AMSZ2-6-D



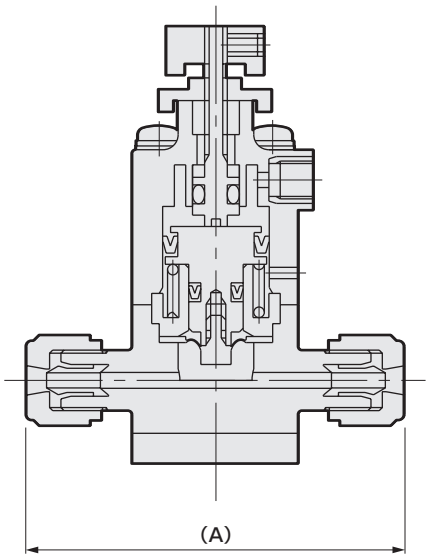






●Integrated fitting

・AMSZ2- *1



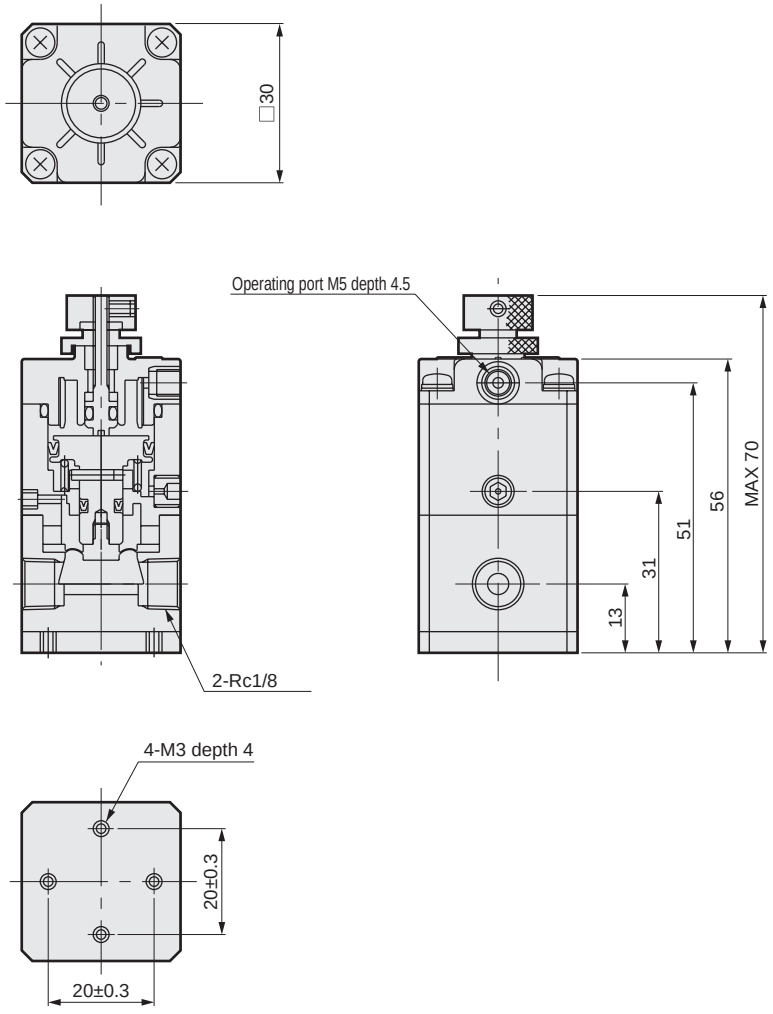
Dimensions *1 (Connector No.)	A
3US, 3UP	50
6BUS, 6BUP	50
3UF	40
3UR	57
6BUR	57

Dimensions

●Rc thread

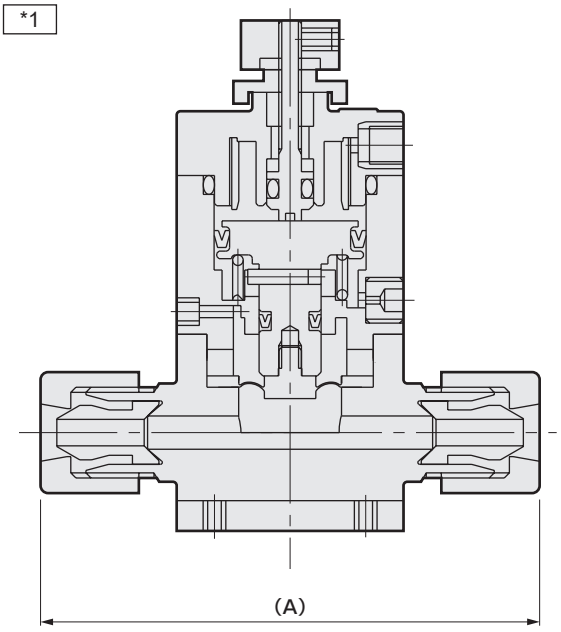
・AMS022-6

・AMS022-6-D



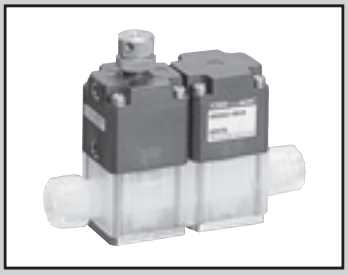
●Integrated fitting

・AMS022- *1



Dimensions *1 (Connector No.)	A
6US	66
8BUS	66
6UP	68
8BUP	68

Dimensions *1 (Connector No.)	A
6UF	64
8BUF	64
6UR	90
8BUR	92
6UK	71
8BUK	71
8BUW	86



Air operated valve for chemical liquids/drip prevention valve integrated

AMDSZ0/AMDS00 Series

Achieves reduced steps in piping and compactness
- Maximum drip prevention amount: 0.04cm^3/0.12cm^3
- Connection tube size: ø3, ø6, ø6.35, 1/8″, 1/4"

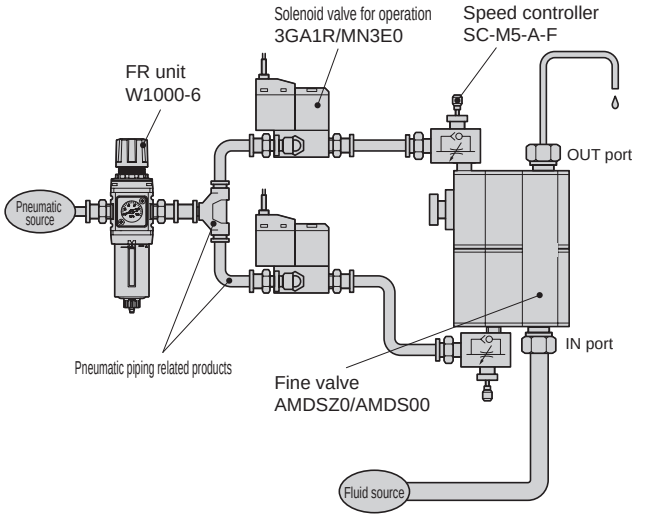
RoHS CAD

Specifications

Item			AMDSZ0-*	AMDS00-*
Working fluid			Chemical liquids, pure water (*1)	
Fluid temperature		°C	5 to 80	
Proof pressure		MPa	0.6	
Working pressure		MPa	0 to 0.2	
Ambient temperature		°C	0 to 60	
Mounting orientation			Horizontally mounted with port positioned vertically (OUT port up)	
Connection			O.D. ø3 tube connection O.D. 1/8" tube connection	O.D. ø6 tube connection O.D. 1/4" tube connection
Operating section	Operating pressure	MPa	0.3 to 0.5	
	Operating port		M5	
Maximum drip prevention amount		cm^3	0.04	0.12
Orifice size			ø2	ø4
Cv			0.08	0.32
Weight		kg	0.12	0.22

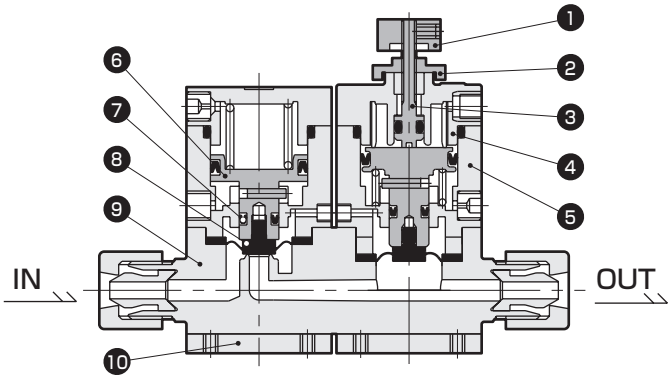
*1: Cannot be used with acidic fluids. Contact CKD regarding acidic fluids and aqueous ammonia. Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)

Examples of use and related products



For related products,
Pneumatic Valves (Catalog No. CB-023SA),
Pneumatic, Vacuum and Auxiliary Components (Catalog No. CB-024SA),
Clean Component Systems (Catalog No. CB-033SA).

Internal structure and parts list



Part number	Part name	Material
1	Knob	SUS303
2	Lock nut	SUS303
3	Adjusting rod	SUS303
4	Cover	PPS
5	Cylinder	PPS
6	Piston rod	SUS303
7	Y packing	NBR
8	Diaphragm	PTFE
9	Body	PFA, PTFE
10	Mounting plate	SUS304

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

Always read the precautions on Intro Pages 9 to 18 before use.

How to order

●AMDSZ Series

AMDSZ0 - 3US

Model No.

Ⓐ Connection

Code	Description	Ⓐ Connection						
		3US	6BUS	3UP	6BUP	3UF	3UR	6BUR
		Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20 Series Integrated fitting	F-LOCK 60 Series Integrated fitting	
		ø3xø2 Tube connection	1/8"x0.086" Tube connection	ø3xø2 Tube connection	1/8"x0.086" Tube connection	ø3xø2 Tube connection	ø3xø2 Tube connection	1/8"x1/16" Tube connection
Body material								
PFA molded body or PTFE machined body		PFA		PFA		PTFE	PTFE	

* Machined PTFE products are on a per-order basis.

●AMDS0 Series

AMDS00 - 6UR

Model No.

Ⓐ Connection

Code	Description	Ⓐ Connection									
		6US	8BUS	6UP	8BUP	6UF	8BUF	6UR	8BUR	6UK	8BUK	8BUW
		Super Type Pillar fitting Integrated		Super 300 Pillar fitting P series integrated		F-LOCK 20 Series Integrated fitting		F-LOCK 60 Series Integrated fitting		Final Lock Fitting Integrated		Flaretek Fitting Integrated
		ø6xø4 Tube connection	1/4"x5/32" Tube connection	ø6xø4 Tube connection	1/4"x5/32" Tube connection	ø6xø4 Tube connection	ø20, 6.35xø20, 4.3 Tube connection	ø6xø4 Tube connection	1/4"x5/32" Tube connection	ø6xø4 Tube connection	1/4"x5/32" Tube connection	1/4"x5/32" Tube connection
Body material												
PFA molded body or PTFE machined body		PFA		PTFE		PTFE		PTFE		PTFE		PTFE

* Machined PTFE products are on a per-order basis.

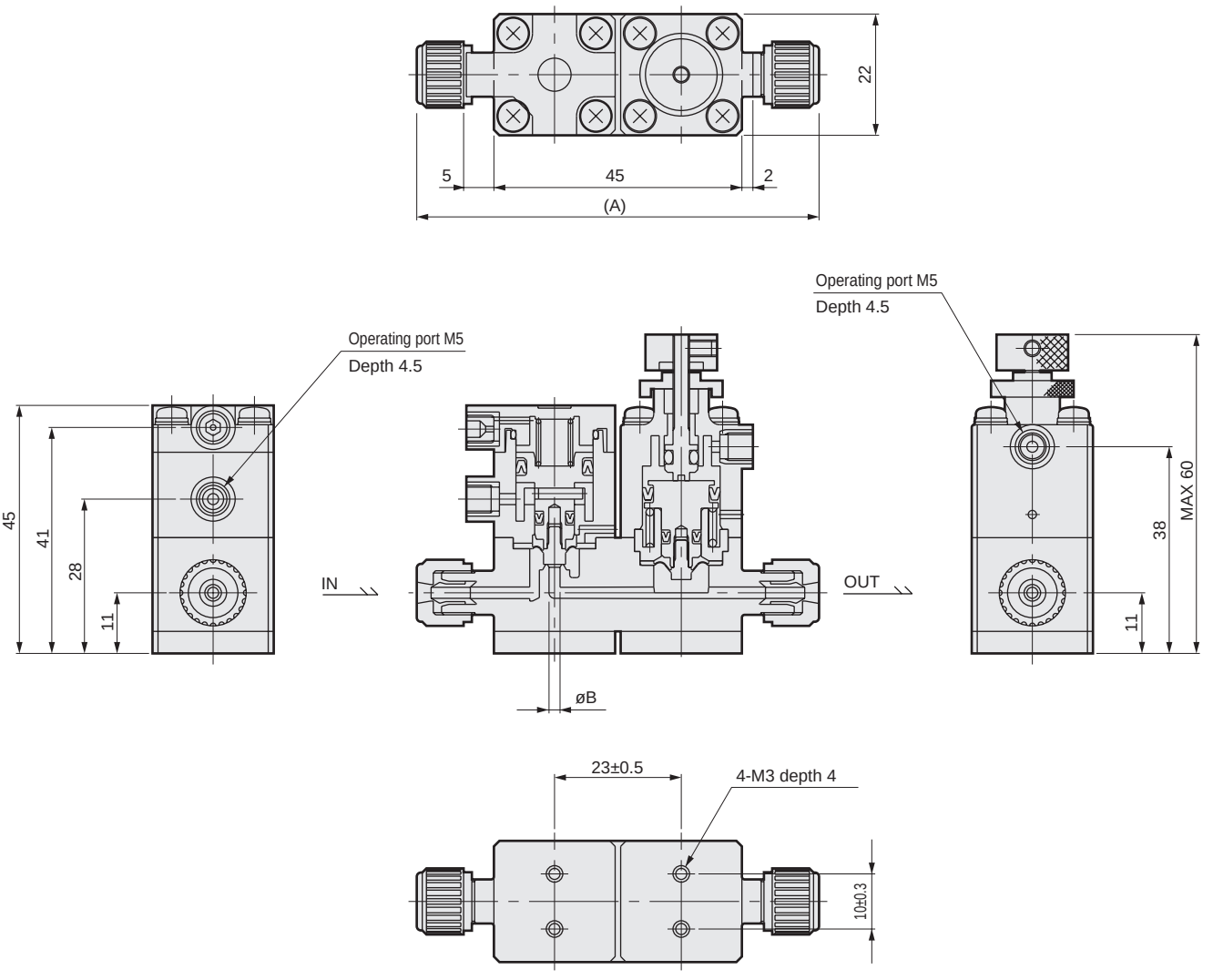
Precautions for model No. selection

*1: Contact CKD if selecting all-resin for an actuator that can be used for acidic fluids.
*2: The low-sliding (diaphragm) actuator is also supported to reduce foaming and improve liquid drainage performance. Contact CKD for details.

Dimensions

●Integrated fitting

・AMDSZ0- *1

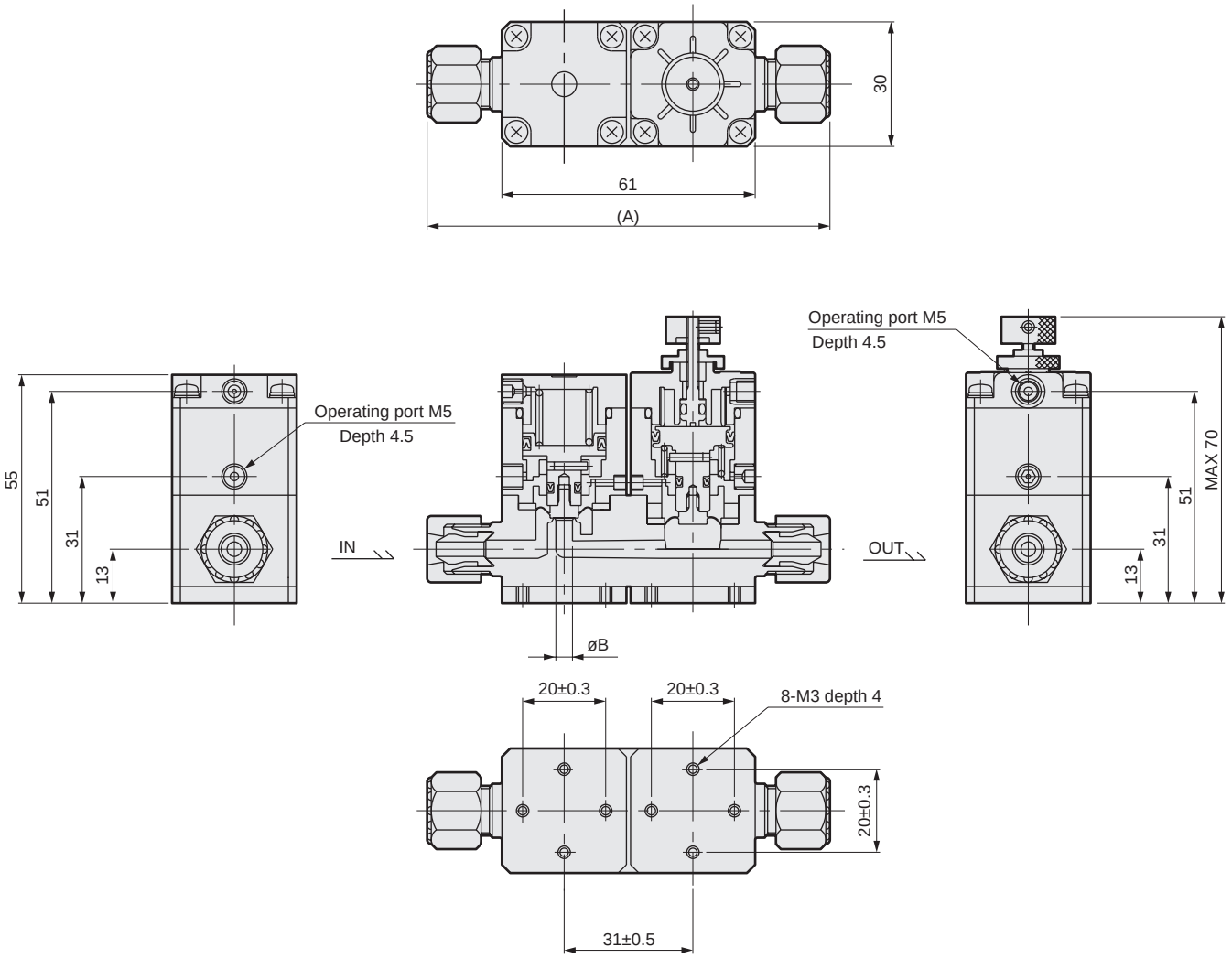


Dimensions *1 (Connector No.)	A	B
3US, 3UP	73	2
6BUS, 6BUP	73	2
3UF	63	2
3UR	80	1.6
6BUR	80	1.6

Dimensions

●Integrated fitting

・AMDS00- *1



Dimensions *1 (Connector 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

Regulator

Overview

Pure water/chemical liquids/air/N_2A pressure reducing valve for gas. Excellent corrosion resistance and easy to install. It can be selected from stainless steel and fluorine resin depending on the application.

Features

PMP

- Excellent pressure stability and high-speed response.
- Flow path structure with less retention area.
- Wetted parts are all made of fluorine resin (PTFE, PFA)

PYM(Air, N_2For gas/pure water)

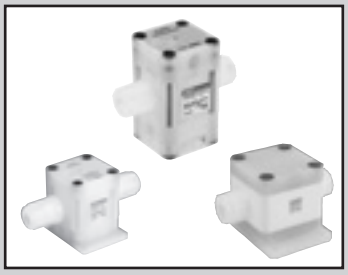
- Uses a stainless steel body, fluororesin wetted parts (PTFE) and SUS316...
- Filter built in
  Provides safety with regard to foreign matter in fluids.

PMM20

- Uses a fluororesin body and all-fluororesin wetted parts (PFA, PTFE).
- Integrated fitting that provides great measures against contamination.

PMM50

- A pressure reducing valve designed to support a large flow rate supply of pure water and warm pure water.



Fine regulator (pilot operated)

PMP$^{0}_{2}$$^{}_{4}$02 Series

A regulator designed to adjust the pressure fluctuation of chemical liquids and pure water supply parts for greater stability, using pilot air control.

RoHS

- Connection tube size: ø6, ø10, ø12, ø25, 1/4″, 3/8″, 1/2″, 3/4″, 1"

Export controlled items

*Applicable: PMP402 (*4)

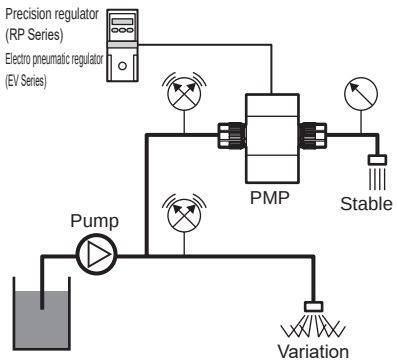
Specifications

Item		PMP002	PMP202	PMP402
Working fluid		Pure water, chemical liquids (*2)		Pure water (*3)
Fluid temperature	°C	10 to 90		10 to 90
Proof pressure	MPa	1.0		1.0
Max. working pressure	MPa	0.5		0.5
Set pressure	MPa	0.02 to 0.3		0.07 to 0.4
Operating pressure	MPa	0 to 0.4		0 to 0.45
Recommended flow rate	ℓ/min	0.2 to 3	0.2 to 5	2 to 20
Operating port		Rc1/8		Rc1/8
Ambient temperature	°C	10 to 60		10 to 60
Mounting orientation		Unrestricted		Unrestricted
Connection		O.D. ø6 tube connection (integrated fitting), OD1/4" tube connection (integrated fitting), O.D. ø10 tube connection (integrated fitting), O.D. 3/8" tube connection (integrated fitting)		O.D. 3/4" tube connection (Integrated fitting) (O.D. 1" and OD1/2" options available)
Weight	kg	0.13	0.28	1.7

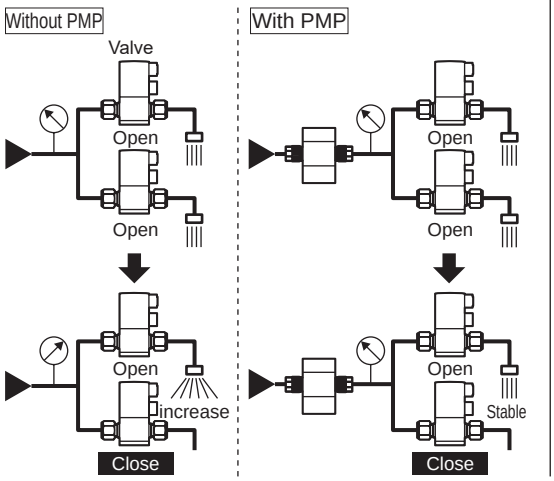
*1: Non-relief
*2: Check the compliant of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)
*3: Contact CKD when using a chemical liquid.
*4: Excludes O.D. ø12 / 1/2" tube connection.

Application

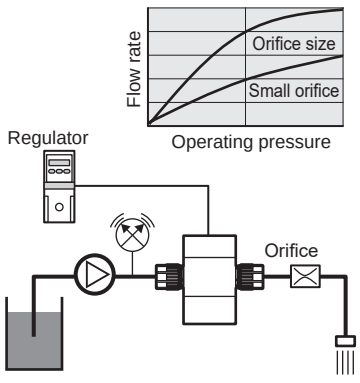
Stable discharge (pressure/flow rate)



Branched flow rate uniformizing

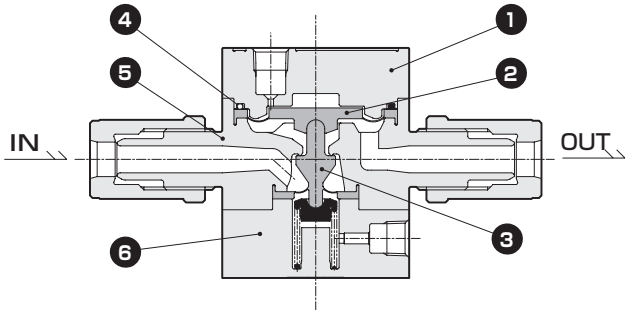


Remote flow rate setting



Always read the precautions on Intro Pages 9 to 18 before use.

Internal structure and parts list



Part number	Part name	Material
1	Cover	PVDF
2	Diaphragm	PTFE
3	Valve diaphragm	PTFE
4	O-ring	FKM
5	Body	PFA, PTFE
6	Bottom plate	PVDF

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

How to order

PMP002 - 10BUP - X

Model No. Ⓐ Connection Ⓑ Mounting method

Code	Description	Ⓐ Connection 6UP	8BUP	10UP	10BUP
		Super 300 Pillar fitting P series integrated			
		ø6xø4 Tube connection	1/4"x5/32" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection
Body material		PFA		PFA	
Ⓑ Mounting method					
F	Flange mounting	●		●	
X	Bottom mounting	●		●	

PMP202 - 10UR - 1

Model No. Ⓐ Connection Ⓑ Bottom plate direction

Code	Description	Ⓐ Connection 6UP	8BUP	6UR	8BUR	10UP	10BUP	10UR	10BUR
		Super 300 Pillar fitting P series integrated		F-LOCK 60 Series Integrated fitting		Super 300 Pillar fitting P series integrated		F-LOCK 60 Series Integrated fitting	
		ø6xø4 Tube connection	1/4"x5/32" Tube connection	ø6xø4 Tube connection	1/4"x5/32" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection
Body material		PFA		PFA		PFA		PFA	
Ⓑ Bottom plate direction									
Blank	Vertical	●		●		●		●	
1	Side	●		●		●		●	

PMP402 - 20BUP - 1 N

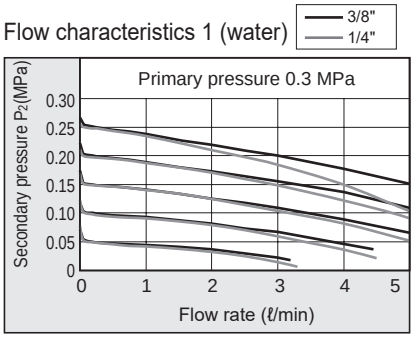
Model No. Ⓐ Connection Ⓑ Bottom plate direction Fluid specification

Code	Description	Ⓐ Connection 12UP	25UP	15BUP	20BUP	25BUP
		Super 300 Pillar fitting P series integrated				
		ø12xø10 Tube connection	ø25xø22 Tube connection	1/2"x3/8" Tube connection	3/4"x5/8" Tube connection	1"x7/8" Tube connection
Body material		PTFE	PTFE	PTFE	PTFE	PTFE
Ⓑ Bottom plate direction						
Blank	Vertical	●	●	●	●	●
1	Side	●	●	●	●	●

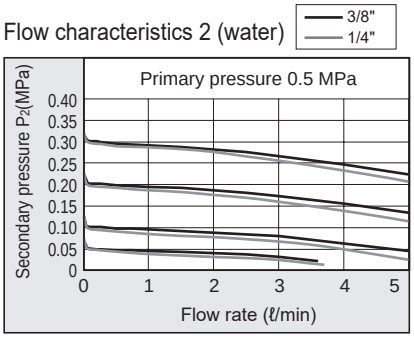
Flow characteristics/pressure characteristics/pressure adjustment characteristics

PMP002

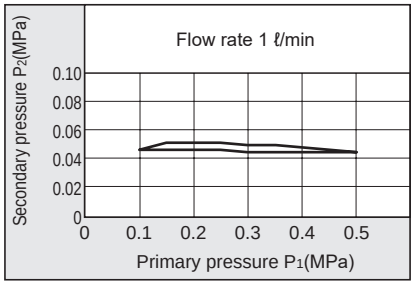
Flow characteristics 1 (water)



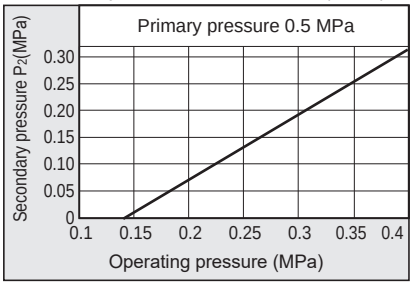
Flow characteristics 2 (water)



Pressure characteristics (water)

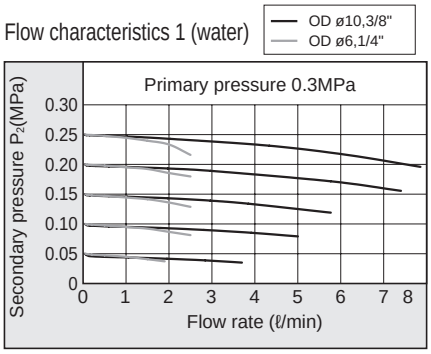


Pressure adjustment characteristics (water)

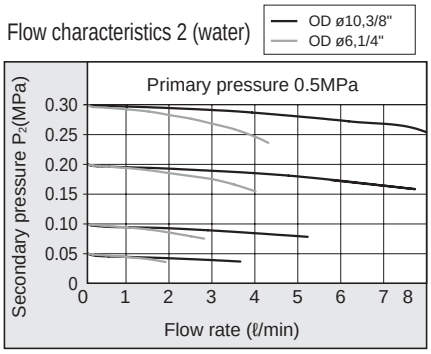


PMP202

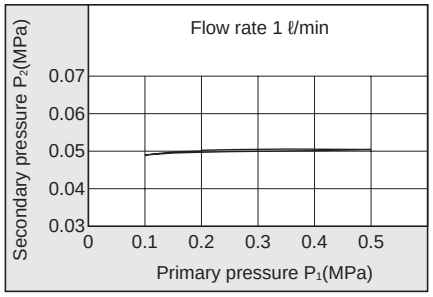
Flow characteristics 1 (water)



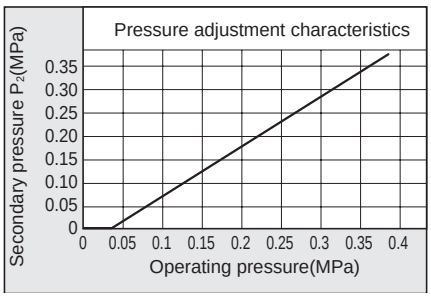
Flow characteristics 2 (water)



Pressure characteristics (water)

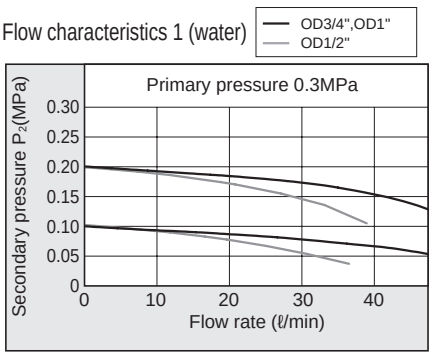


Pressure adjustment characteristics (water)

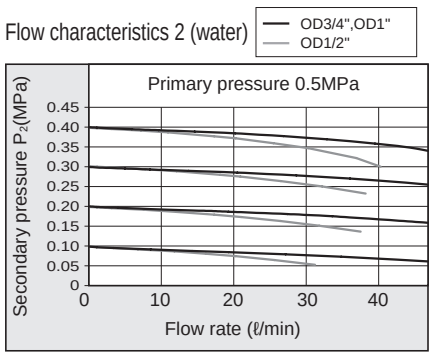


PMP402

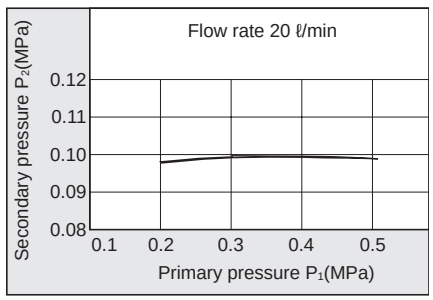
Flow characteristics 1 (water)



Flow characteristics 2 (water)

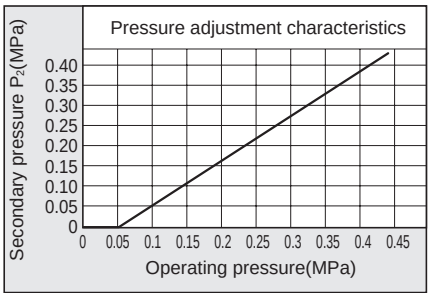


Pressure characteristics (water)



PMP402

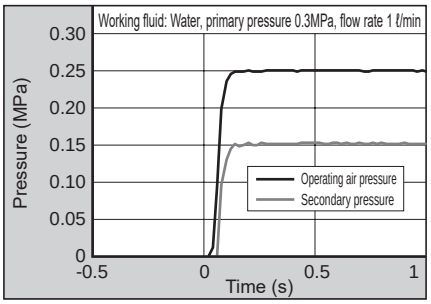
Pressure adjustment characteristics (water)



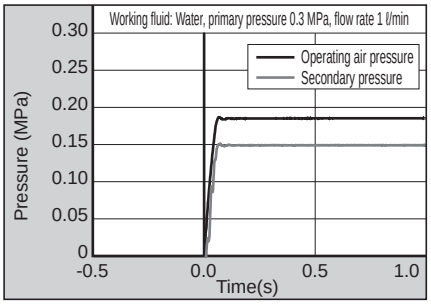
Reference data

Responsivity Secondary pressure for operating air track

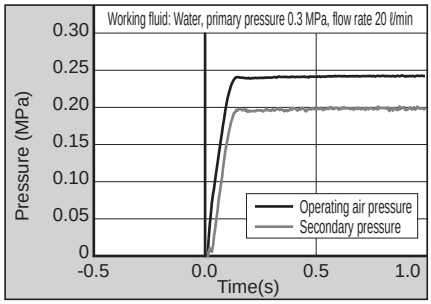
PMP002



PMP202

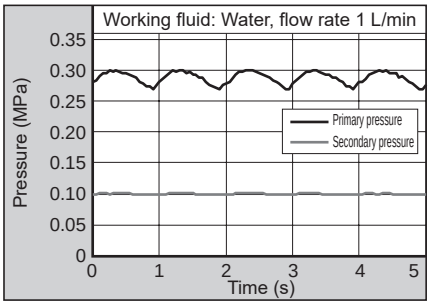


PMP402

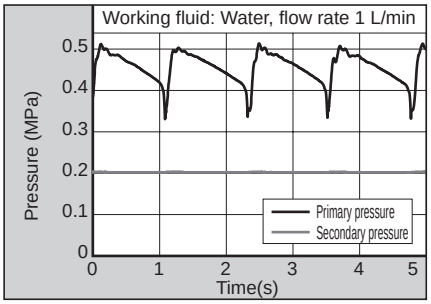


Pulsation absorption Secondary pressure stability against primary pressure pulsation

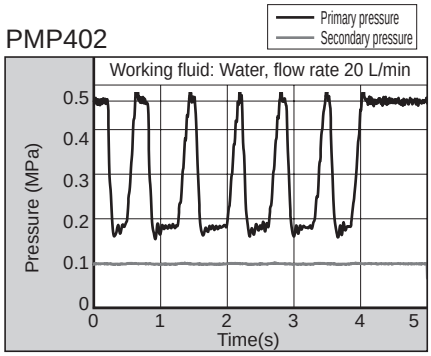
PMP002



PMP202

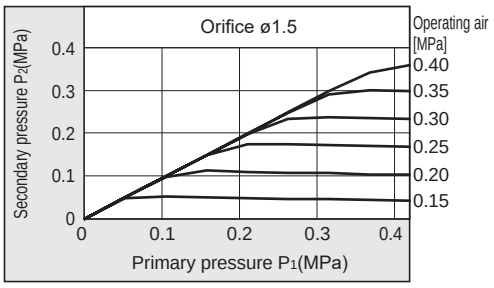


PMP402



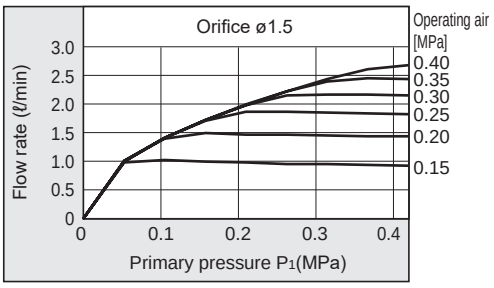
Operating air pressure - secondary pressure characteristics (water)

PMP002



Operating air pressure - flow characteristics (water)

PMP002

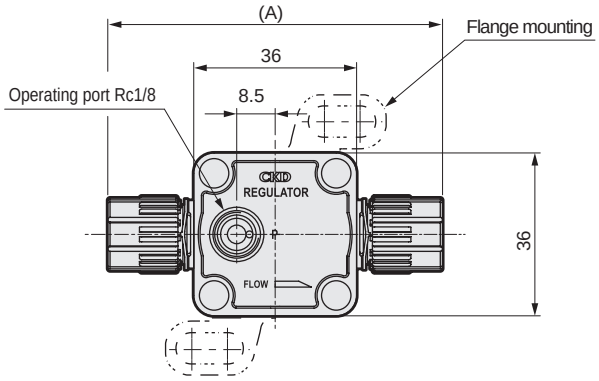


■ How to use

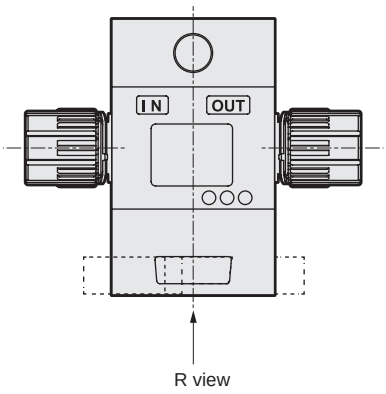
- Set the temperature, pressure, flow rate and other use conditions within the specification range of the product.
- If the product will be out of use for long periods, stop the supply pressure on the primary side.
- This product is a non-relief type, and if used with the secondary side closed, it may retain the high pressure generated by water hammer, etc.
- Do not use as a residual pressure exhaust valve.

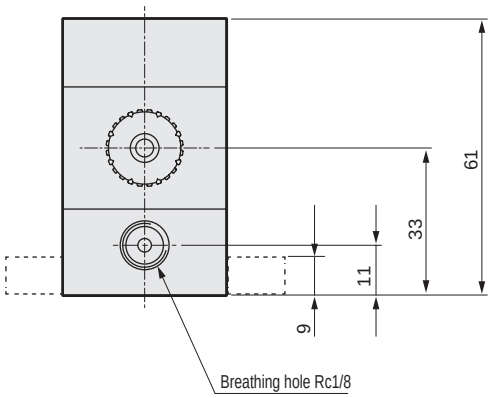
Dimensions

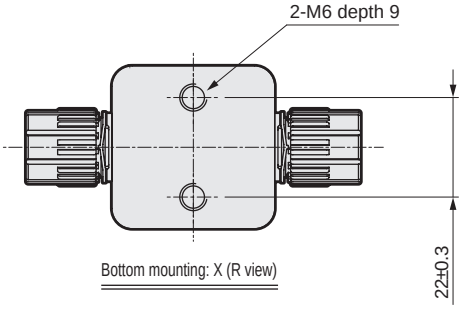
●PMP002- *1 -*

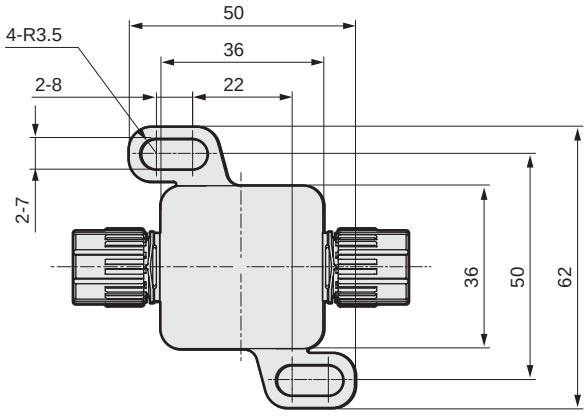


Dimensions *1 Connector No.	A
6UP	74
8BUP	74
10UP	86
10BUP	86

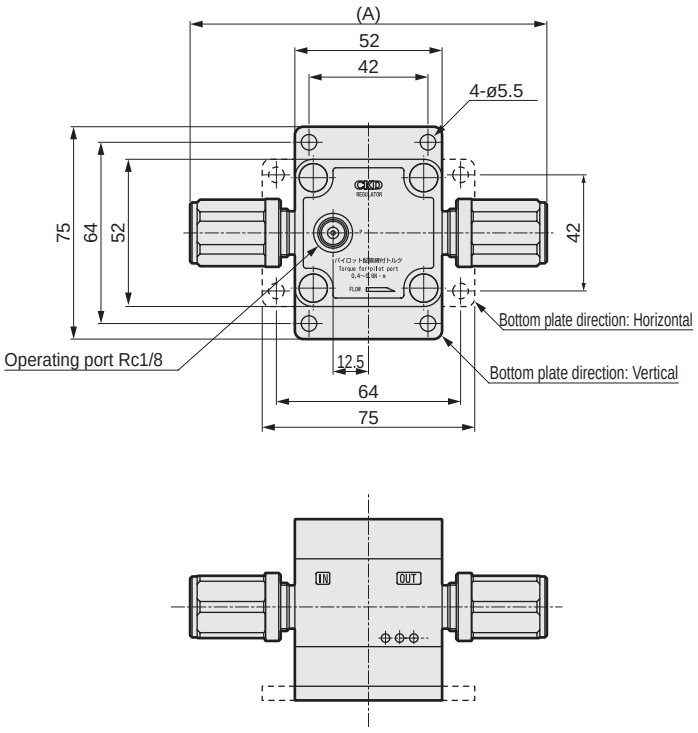






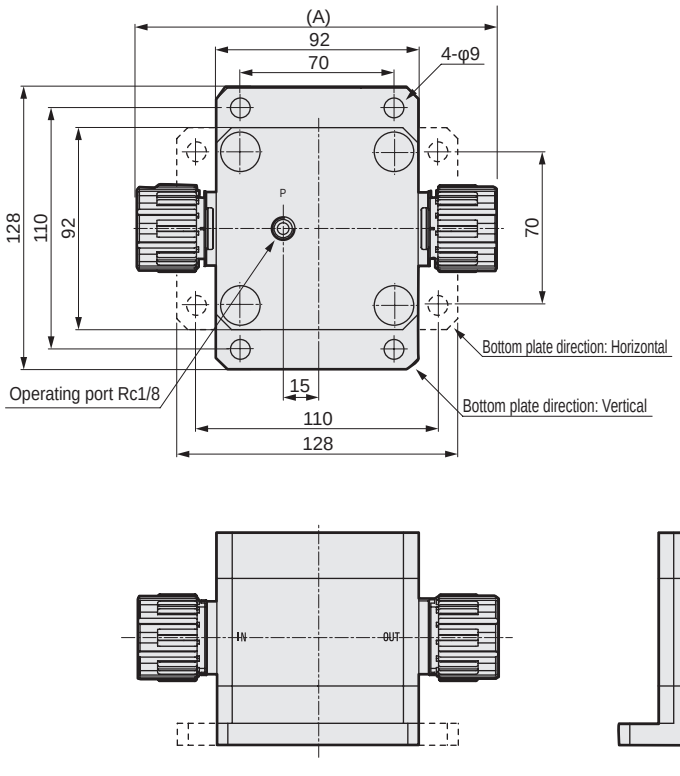


●PMP202- *1 -*



Dimensions *1 (Connector No.)	A
6UP	90
8BUP	90
6UR	112
8BUR	114
10UP	102
10BUP	102
10UR	126
10BUR	130

●PMP402- *1 -*N



Dimensions *1 (Connector No.)	A
12UP/15BUP	150
20BUP	164
25UP/25BUP	178

Fine regulator (manual)

PYM Series

Stainless steel body

Air, N_2Pressure reducing valve for gas/pure water

● Connection: Rc1/8", 1/4"

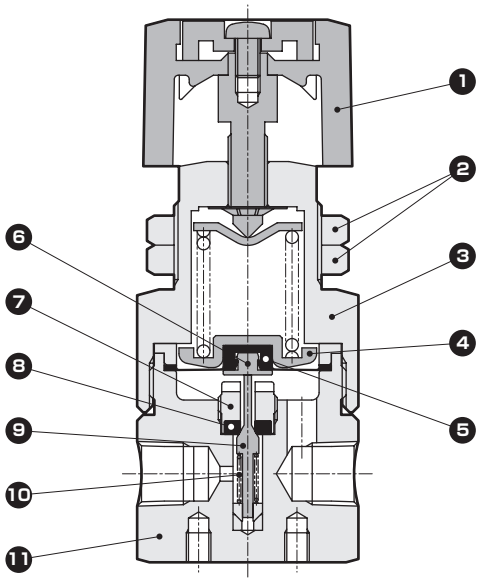
RoHS

Specifications

Item		PYM10-6	PYM10-8
Working fluid		Pure water, N_2Gas/air (*3)	
Fluid temperature	°C	5 to 60	
Proof pressure	MPa	1.5	
Max. working pressure	MPa	0.99	
Set pressure	MPa	0.02 to 0.2 (*2)	
Ambient temperature	°C	0 to 60	
Mounting orientation		Unrestricted	
Port size and gauge port size		Rc1/8	Rc1/4
Weight	kg	0.77	

*1: Wetted parts materialPTFE, SUS316, non-relief
*2: Set pressure range of 0.02 to 0.4 MPa is also available. Contact CKD for details.
*3: Cannot be used with acidic fluids.
*4: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)

Internal structure and parts list



Part number	Part name	Material
1	Pressure adjustment knob	ABS
2	Lock nut	SUS304
3	Cover	C3604 (nickel-phosphorus plating)
4	Spring rest	SUS304
5	Diaphragm	PTFE
6	Diaphragm retainer	SUS316
7	Valve disk holder	SUS316
8	Valve disc	PTFE
9	Valve	SUS316
10	Spring	SUS316
11	Body	SUS316

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

How to order

PYM10 - 6

Model No.

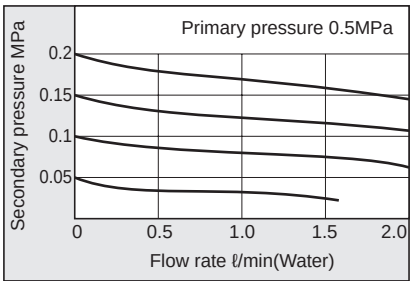
Ⓐ Port size

Ⓐ Port size	
6	Rc1/8
8	Rc1/4

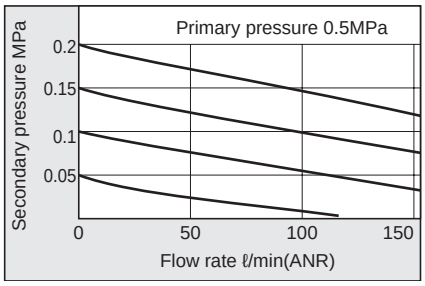
⚠ Always read the precautions on Intro Pages 9 to 18 before use.

Flow characteristics/pressure characteristics

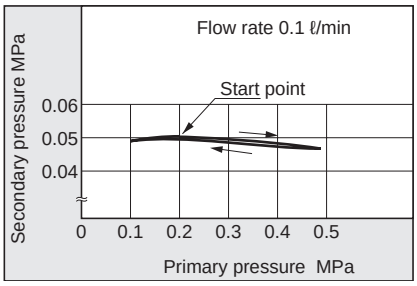
Flow characteristics (water)



Flow characteristics (air)



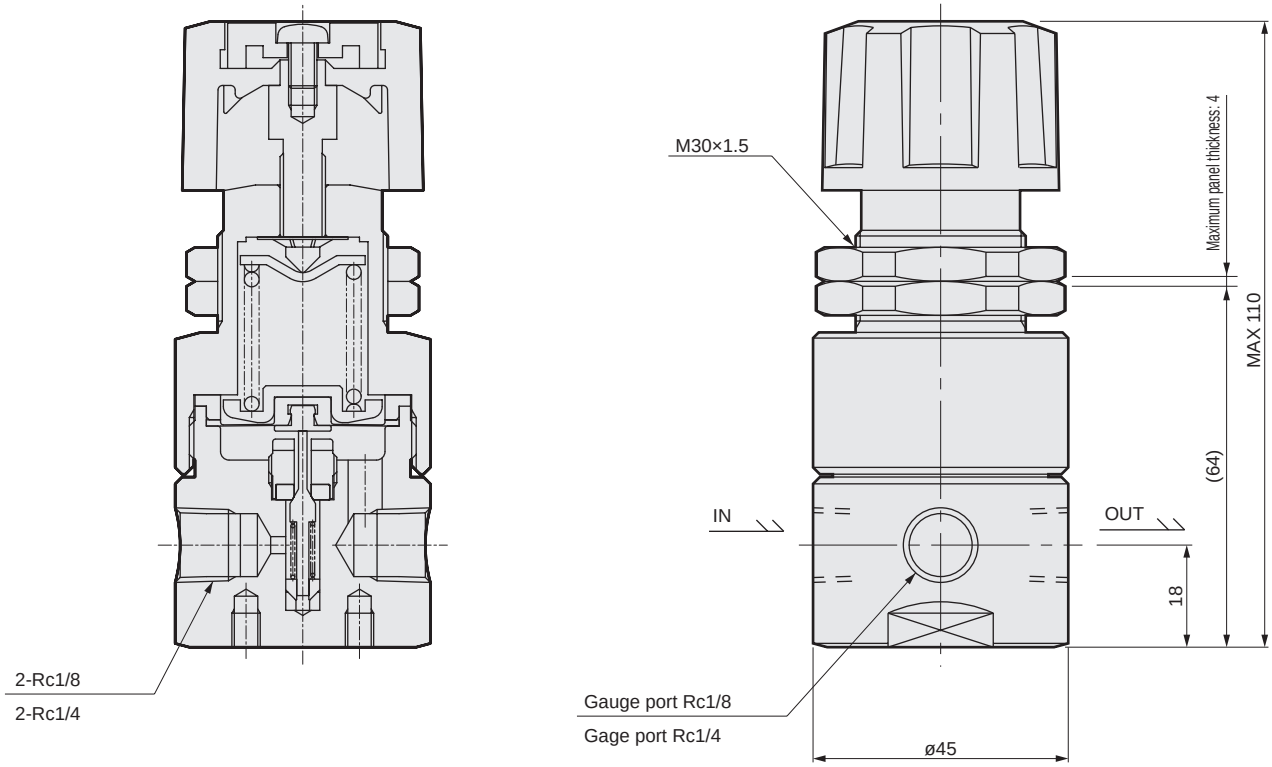
Pressure characteristics (water)

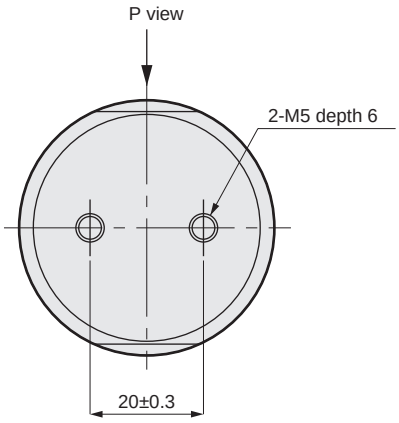


Dimensions

●PYM10-6(Rc1/8)

●PYM10-8(Rc1/4)





P view

■ How to use

- Set the temperature, pressure, flow rate and other use conditions within the specification range of the product.
- If the product will be out of use for long periods, stop the supply pressure on the primary side.
- This product is a non-relief type, and if used with the secondary side closed, it may retain the high pressure generated by water hammer, etc.
- Do not use as a residual pressure exhaust valve.

Fine regulator (manual)

PMM20 Series

Wetted parts are all made of fluorine resin
Regulator for pure water
● Connection tube size: ø8, ø10, 3/8"

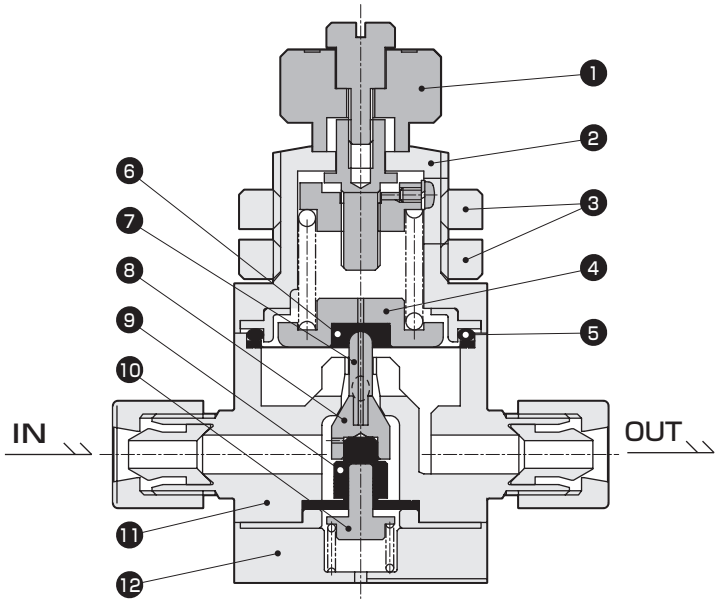
RoHS

Specifications

Item		PMM20
Working fluid		Pure water
Fluid temperature	°C	5 to 80
Proof pressure	MPa	0.75
Max. working pressure	MPa	0.5
Set pressure	MPa	0.02 to 0.2 (*3)
Ambient temperature	°C	0 to 60
Mounting orientation		Unrestricted
Connection		O.D. ø10 tube connection (integrated fitting) O.D. 3/8" tube connection (integrated fitting)
Weight	kg	0.42

*1: Non-relief
*2: Panel mounting is also available.
*3: The set pressure range 0.05 to 0.4 MPa can be handled by adding "-H" at the end of the model number. (The fluid temperature will be 5 to 40°C) Contact CKD for details.

Internal structure and parts list



Part number	Part 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 vary depending on the model number. Contact CKD for details.

How to order

PMM20 - 10BUS
Model No. — Ⓐ Connection

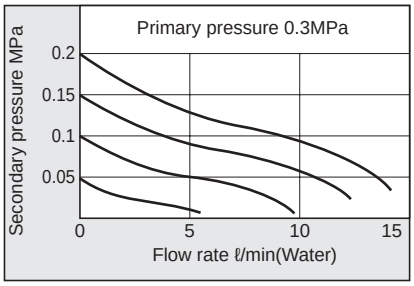
Ⓐ Connection	8US	10US	10BUS	10UP	10BUP	10UA	10BUA	10UR	10BUR	10UK	10BUK	10BUW
	Super Type Pillar fitting Integrated			Super 300 Pillar fitting P series integrated		F-LOCK 20A Series Integrated fitting		F-LOCK 60 Series Integrated fitting		Final Lock Fitting Integrated		Flaretek Fitting Integrated
Description	ø8xø6 Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	ø10xø8 Tube connection	3/8"x1/4" Tube connection	3/8"x1/4" Tube connection
Body material												
PFA molded body or PTFE machined body	PFA			PTFE		PTFE		PTFE		PTFE		PTFE

* Machined PTFE products are on a per-order basis.

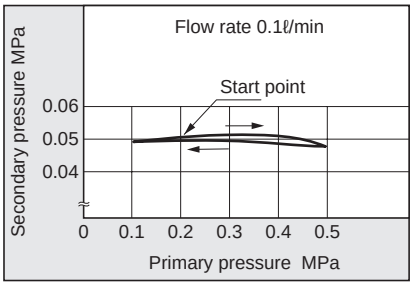
⚠ Always read the precautions on Intro Pages 9 to 18 before use.

Flow characteristics/pressure characteristics

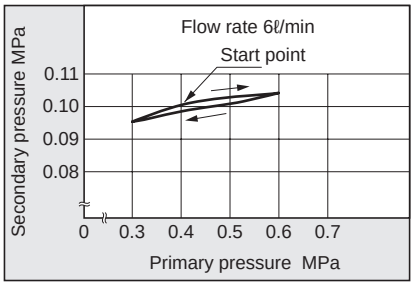
Flow characteristics (water)



Pressure characteristics 1 (water)

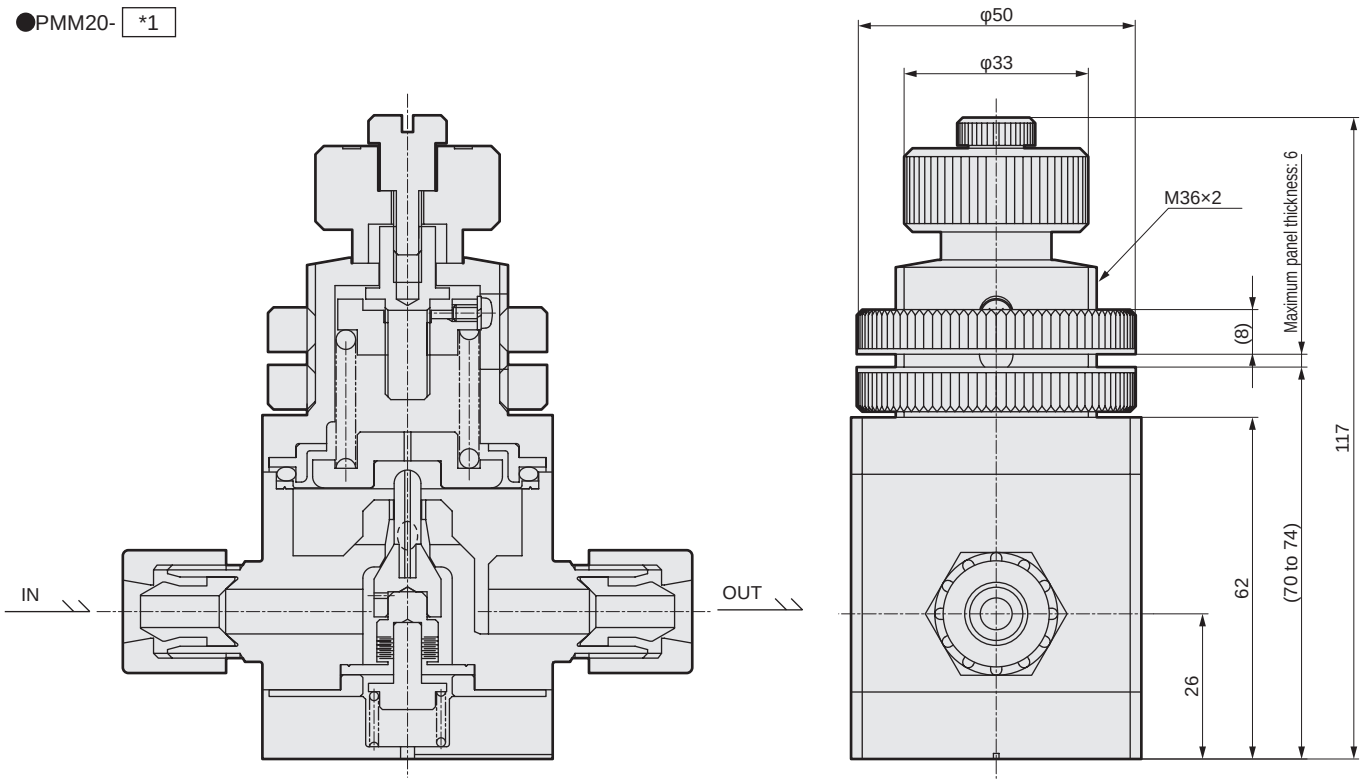


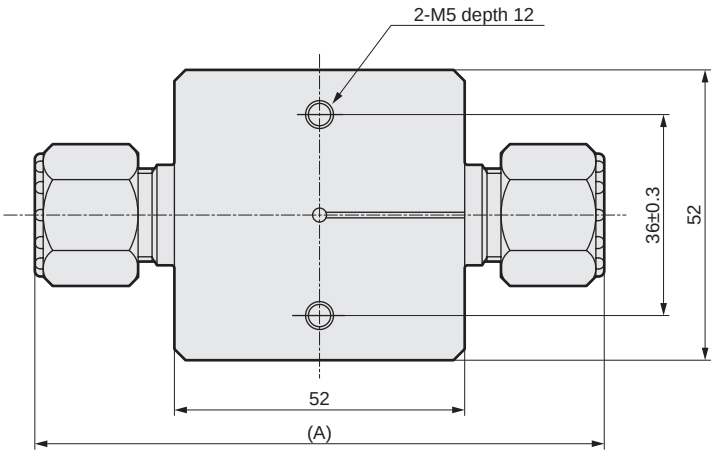
Pressure characteristics 2 (water)



Dimensions

●PMM20- *1

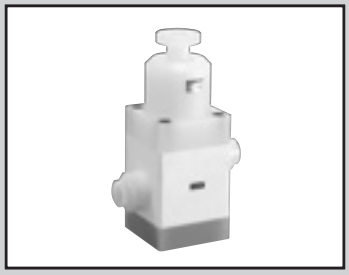




Dimensions *1 (Connector No.)	A
8US	94
10US	102
10BUS	102
10UP	102
10BUP	102
10UA	94
10BUA	94
10UR	126
10BUR	130
10UK	112
10BUK	112
10BUW	113

■ How to use

- Set the temperature, pressure, flow rate and other use conditions within the specification range of the product.
- If the product will be out of use for long periods, stop the supply pressure on the primary side.
- This product is a non-relief type, and if used with the secondary side closed, it may retain the high pressure generated by water hammer, etc.
- Do not use as a residual pressure exhaust valve.



Fine regulator (manual)

PMM50 Series

A pressure reducing valve designed to support a large flow rate supply of pure water and warm pure water.

● Connection Nominal 25, PVDF union integrated

RoHS

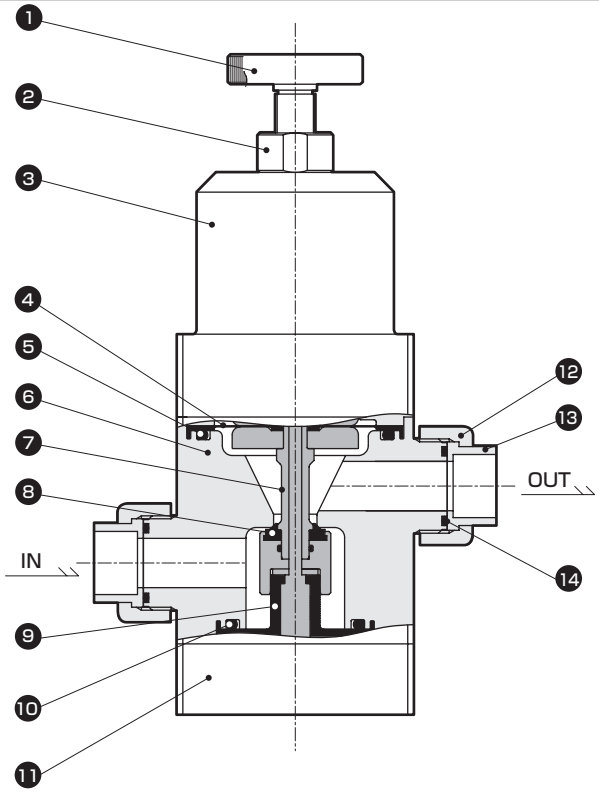
Made-to-order product | Export controlled items

Specifications

Item		PMM50-25AFU
Working fluid		Pure water
Fluid temperature	°C	5 to 80
Proof pressure	MPa	0.75
Max. working pressure	MPa	0.5
Set pressure	MPa	0.1 to 0.3
Ambient temperature	°C	5 to 40
Mounting orientation		Vertical mounting with the pressure adjustment knob on top
Connection		Nominal 25, PVDF union integrated fitting
Weight	Kg	5.5

*1: Non-relief

Internal structure and parts list



Part number	Part name	Material	Part number	Part name	Material
1	Pressure 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

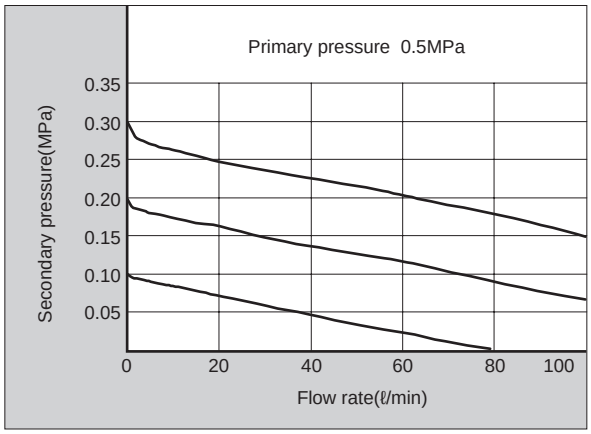
Model No. | Ⓐ Connection

PMM50
Ⓐ Connection
25AFU
PVDF union fitting Integrated
Nominal25

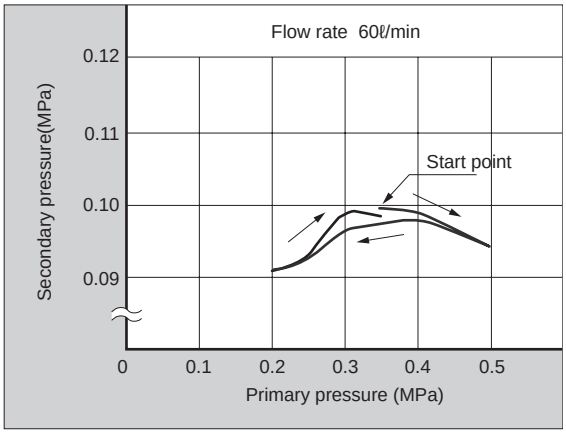
⚠ Always read the precautions on Intro Pages 9 to 18 before use.

Flow characteristics/pressure characteristics

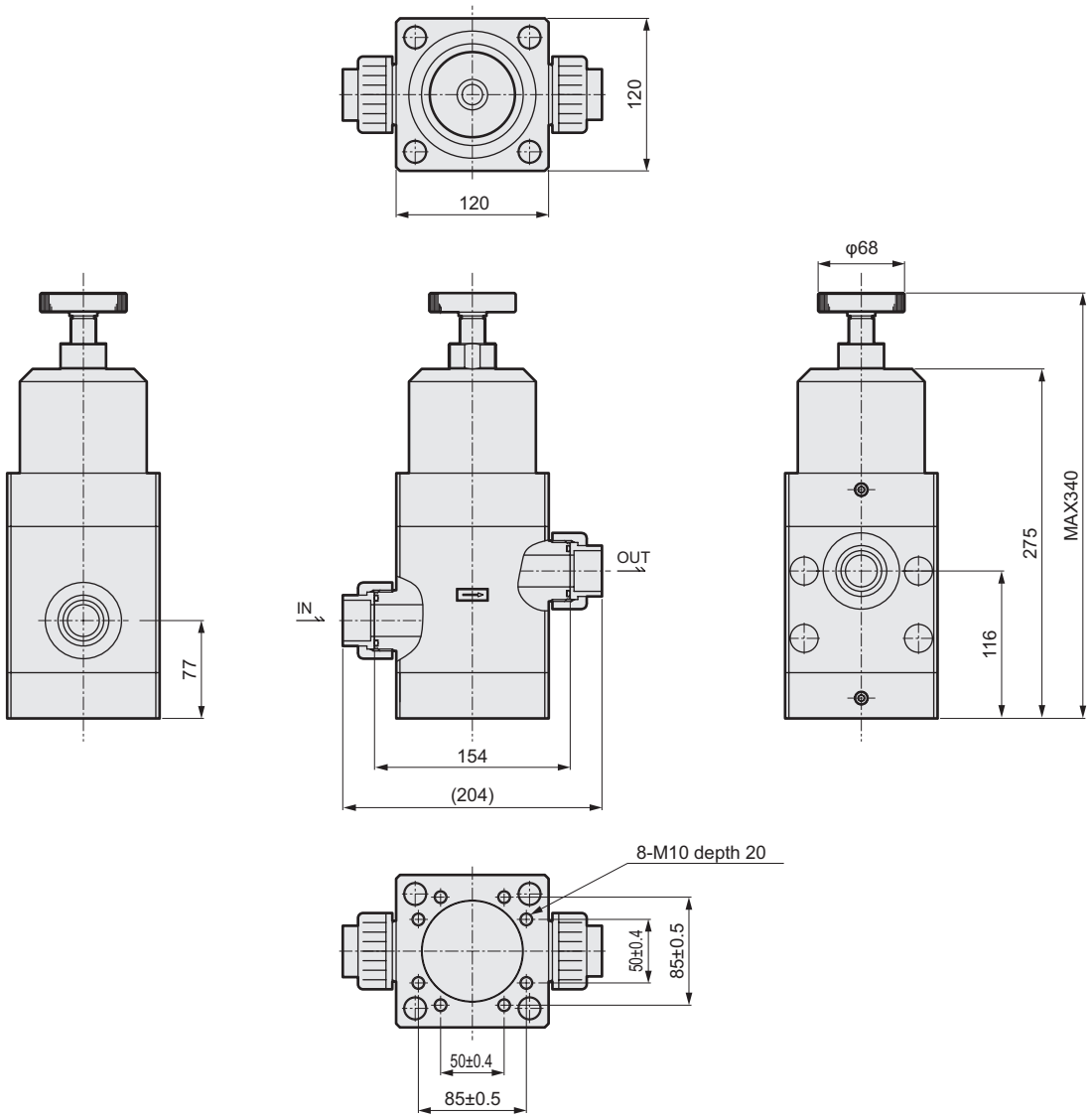
Flow characteristics (water)



Pressure characteristics (water)



Dimensions



■ How to use

- Set the temperature, pressure, flow rate and other use conditions within the specification range of the product.
- If the product will be out of use for long periods, stop the supply pressure on the primary side.
- This product is a non-relief type, and if used with the secondary side closed, it may retain the high pressure generated by water hammer, etc.
- Do not use as a residual pressure exhaust valve.

MEMO

Flow rate adjusting valve

Overview

A flow regulating valve using resin for the wetted parts that adjusts the flow rate of chemical liquids.

Features

MNV

- An electrical flow rate regulating valve with adjusting range of 600 steps.
- It supports fluids of 20°C to 195°C.

FMD00

- A fine flow rate control valve designed to support highly corrosive fluids.

Electric needle valve for chemical liquids

MNV Series

● Connection tube size: 3/8"

RoHS

Specifications

1. Valve/body

Item	MNV00-10BUP-1-G
Working fluid	Chemical liquids, pure water (*1)
Fluid temperature °C	20 to 195
Proof pressure MPa	0.5
Working pressure (A→B) MPa	0 to 0.2
Fluid differential pressure kPa	5 to 200 (differential pressure between ports A and B)
Setting range	0 to 600 stp (motor drive step) · 0 step valve open side, home sensor detection · 600 step valve closed side, with stopper
Operating ambient temperature °C	20 to 100
Operating ambient humidity %RH	20 to 85 (no condensation)
Storage ambient temperature °C	0 to 60
Storage ambient humidity %RH	20 to 85 (no condensation)
Mounting orientation	Unrestricted
Connection	Super 300 pillar fitting P series integrated 3/8"x 1/4" Fitting for PFA tube
Orifice size mm	ø3.4
Degree of protection	Waterproof (IP65 or equivalent)
Weight kg	0.51

*1: Check the compatibility of product structural materials, working fluids and atmosphere. (Refer to the compliant check list on Intro Page 17.) This product cannot be used for nitric acid, hydrochloric acid, hydrofluoric acid, ozone or organic fluids.

2. Motor

Type	2-phase stepper motor (bipolar)
Drive method	Full step (step angle: 1.8°)
Rated drive current mA/phase	350
Drive speed pps	650

3. Sensor

Power supply voltage	24 VDC ±10% Ripple (P-P) 10[%] or less
Current consumption	50 mA or less
Control output	NPN open collector output, 40 mA or less
Operation mode	Output ON when opening the valve open side from the origin position
Response frequency	1 kHz or more

4. Purge (*2)

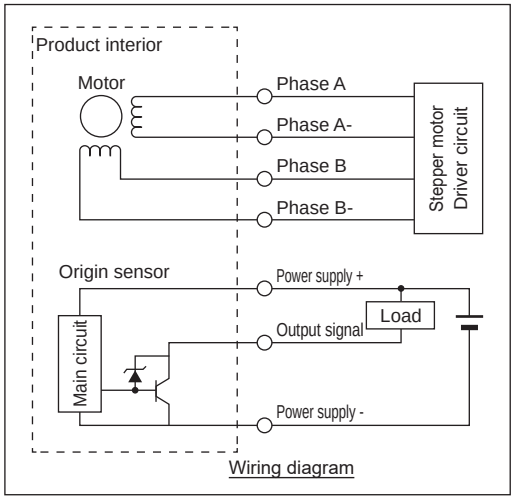
Purge flow rate L/min	15 to 30
Internal pressure kPa	0 to 100
Fluid temperature °C	10 to 30
Port size	IN port: Rc1/8, EXH port: Rc1/8
Purge supply fluid	Clean compressed air, JIS grade 2.6.1 or equivalent (JIS B 8392-1:2003)

*2: Purge must be performed. Also, be sure to adjust the flow rate to the specified flow rate by providing a speed control valve on the supply side.

5. Cable

Conductor sectional area	AWG#24, approx. 0.2[mm²]
Conductor material	Tin plated annealed copper wire
Lead wire coating O.D.	Approx. 1.14 [mm]
Lead wire insulation material	ETFE
Cable finish O.D.	Approx. 4.4 [mm]
Coating sheath material	FEP, black
Cable length	3m

6. Wiring



Wiring diagram

Insulator color	Access point
Green	Motor Phase A
Yellow	Motor Phase A-
White	Motor Phase B
Red	Motor Phase B-
Orange	Origin sensor Power supply +
Blue	Origin sensor Power supply -
Gray	Origin sensor Output signal
Black	N.C.

⚠ Always read the precautions and product specifications on Intro Pages 9 to 18 before use.

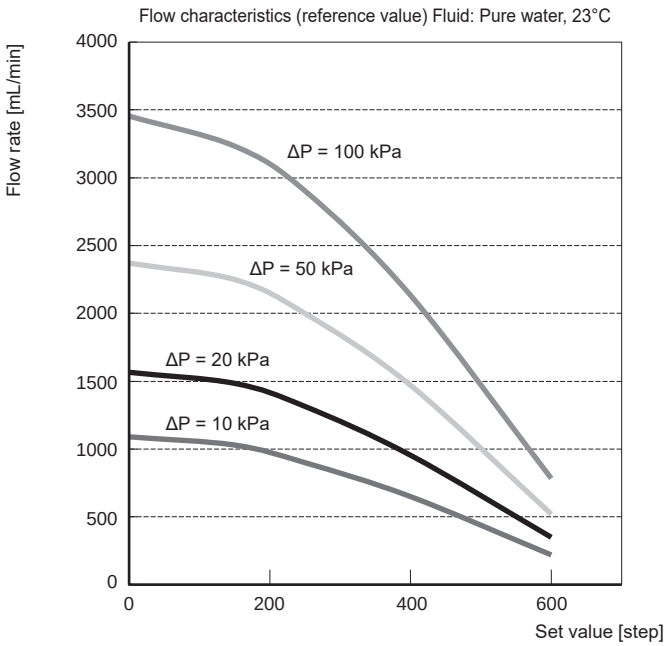
How to order

MNV00 - 10BUP - 1 - G

Ⓐ Model No. Ⓑ Connection Ⓒ Orifice size Ⓓ Fluid temperature

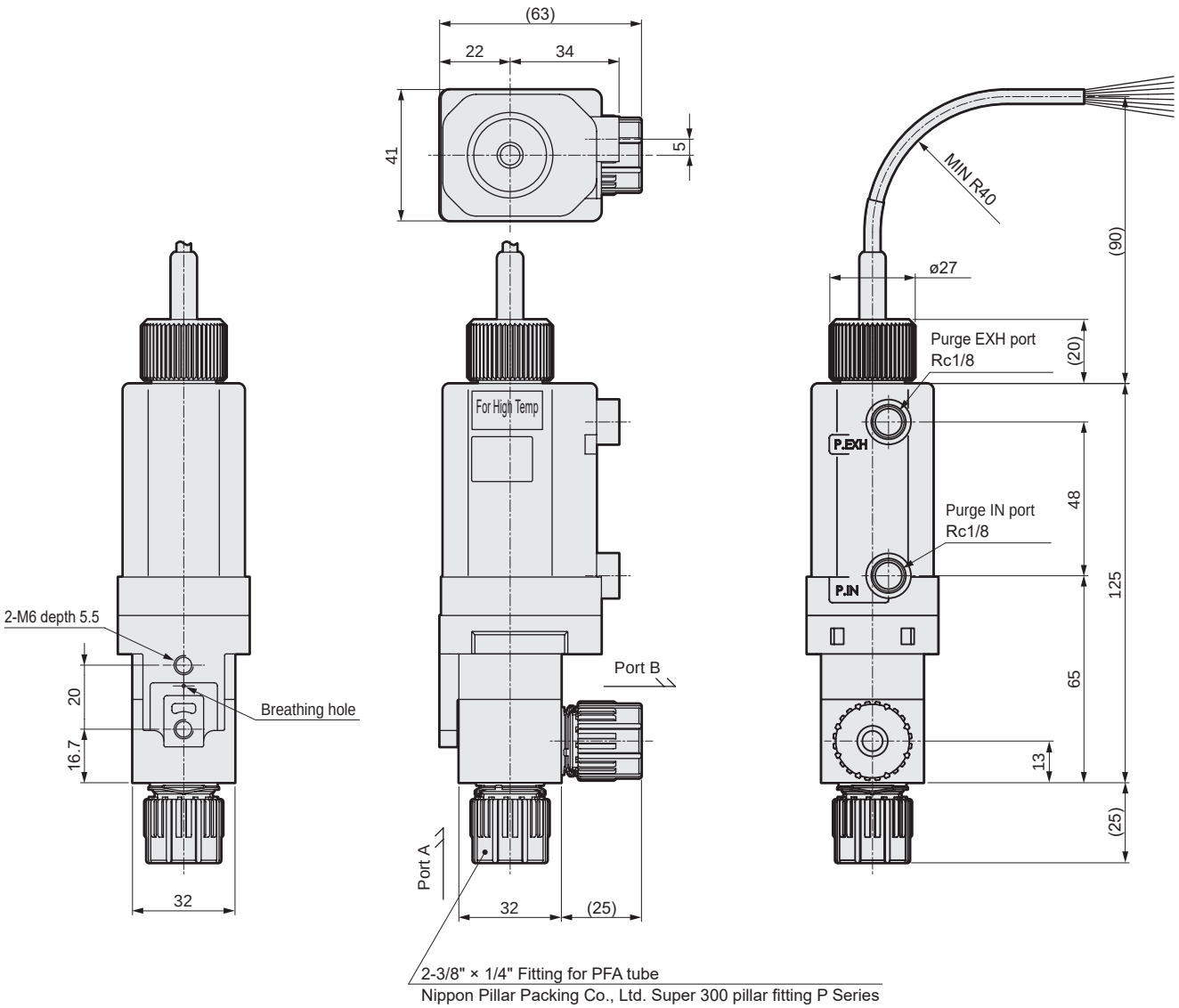
Code	Description
Ⓐ Model No.	
MNV00	
Ⓑ Connection	
10BUP	Super 300 pillar fitting P series integrated 3/8"×1/4" Tube connection
Ⓒ Orifice size	
1	ø3.4
Ⓓ Fluid temperature	
G	20 to 195°C

Flow characteristics



* The characteristics above are reference values.
There are individual differences in the actual flow characteristics.

Dimensions



Flow rate adjusting valve

FMD00 Series

A fine flow rate control valve designed to support highly corrosive fluids.

● Connection tube size:ø6,ø10, 1/4", 3/8"

RoHS

Specifications

Item		FMD00-*	FMD00-*-1
Working fluid		Pure water, chemical liquids, air, N_2Gas (*1)	
Fluid temperature	°C	5 to 80 (*2)	
Proof pressure	MPa	1	
Working pressure	MPa	0 to 0.3	
Ambient temperature	°C	0 to 40	
Mounting orientation		Unrestricted	
Connection		O.D. ø6 tube connection (integrated fitting) O.D. 1/4" tube connection (integrated fitting) O.D. ø10 tube connection (integrated fitting) O.D. 3/8" tube connection (integrated fitting)	
Orifice size		ø1.6	ø3.5
Weight	kg	0.11	

*1: Check the compliant of product structural materials, working fluids and atmosphere. (Refer to the compatibility check list on Intro Page 17.)

*2: For use with hydrofluoric acid, or when the fluid temperature exceeds 40°C, consult with CKD.

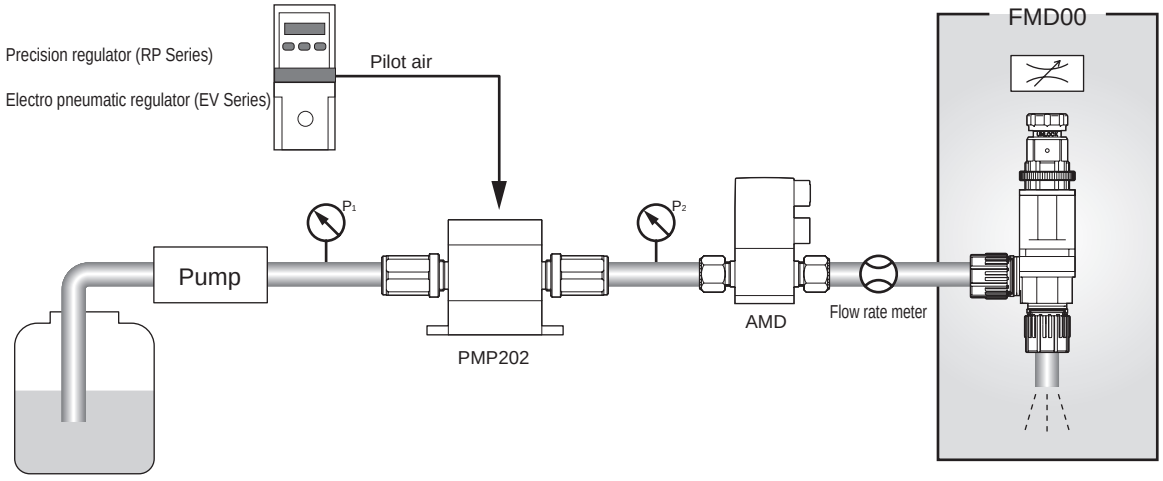
How to order

FMD00 - 6UP - 1

Model No. Ⓐ Connection Ⓑ Orifice size

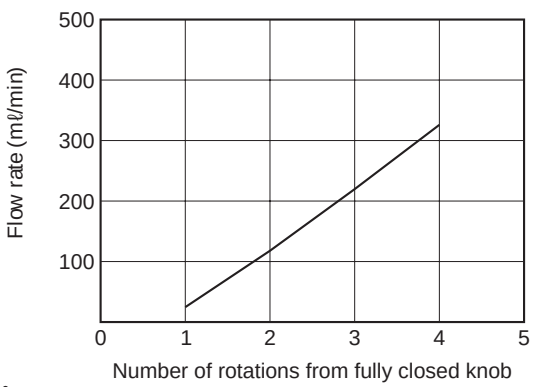
Code	Description	Ⓐ Connection 6UP	8BUP	10UP	10BUP
		Super 300 Pillar fitting P Series integrated			
		ø6×ø4 tube connection	1/4" x 5/32" tube connection	ø10 x ø8 tube connection	3/8" × 1/4" tube connection
Ⓑ Orifice size					
Blank	ø1.6	●	●	●	●
1	ø3.5	●	●	●	●

Applications

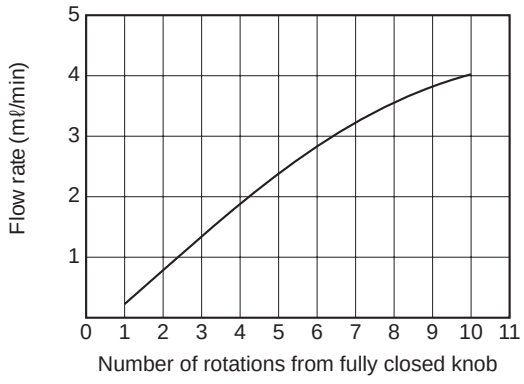


Flow characteristics ΔP = 0.1 MPa Fluid: Water (reference data)

● FMD00-8BUP (orifice size: ø1.6)

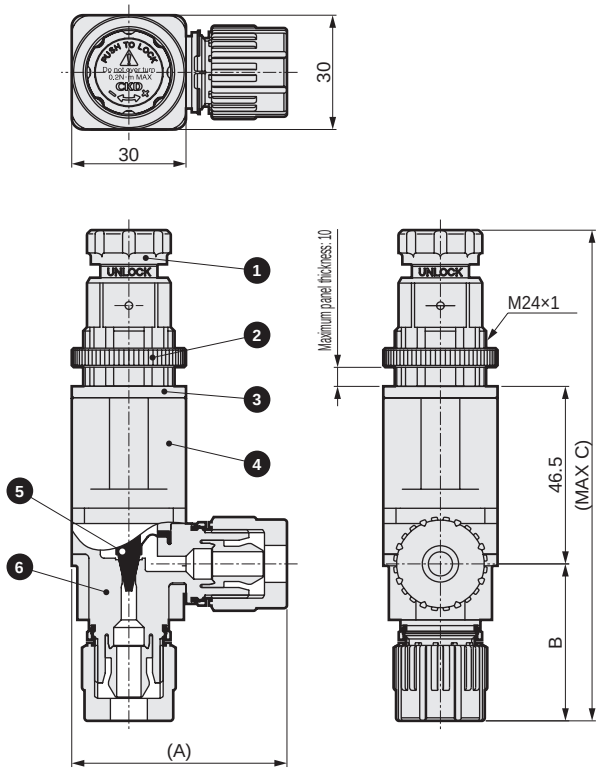


● FMD00-8BUP-1 (orifice size: ø3.5)



⚠ Always read the precautions on Intro Pages 9 to 18 before use.

Internal structure and parts list / Dimensions



Part number	Part name	Material
1	Knob	PP
2	Lock nut	PP
3	Gasket	FKM
4	Cover	PP
5	Diaphragm	PTFE
6	Body	PFA

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

Connector No.	A	B	C
6UP	51	36	123
8BUP	51	36	123
10UP	57	42	129
10BUP	57	42	129

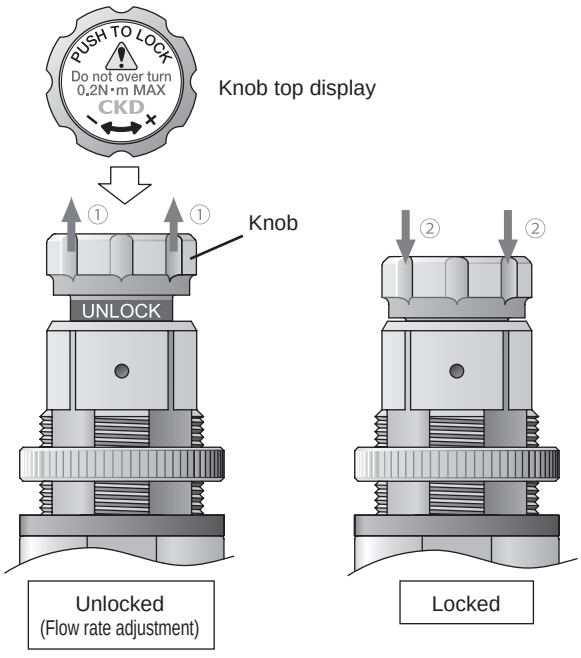
Operation mode of flow rate adjusting valve

When operating the flow regulating valve, be sure to adjust while checking the flow rate with the flowmeter, and be careful not to turn the knob too much. (The knob rotational torque should be 0.2 N·m or less)

- When increasing the flow rate
  Slide the knob up until you can see the word UNLOCK.
  (↑ ①) [Unlocked] Turn the knob in the + direction.

- When decreasing the flow rate
  Slide the knob up until you can see the word UNLOCK.
  (↑ ①) [Unlocked] Turn the knob in the - direction.

- Knob lock
  After operating the knob, you can lock the knob by sliding the knob down until the word UNLOCK cannot be seen.
  (↓ ②) [Locked]
  → This can prevent misoperation.



WARNING

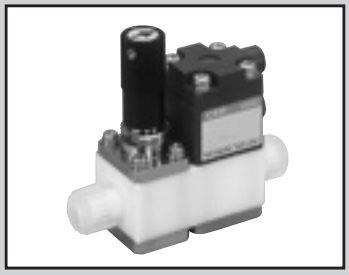
Install the valve body to the equipment with the panel mount. If mounted only with fittings, the main body and piping/fitting may be damaged.

CAUTION

1 Flow rate configuration

- When operating the valve, operate the knob with rotational torque of 0.2 N·m or less. Operating with torque larger than 0.2 N·m may damage the product.
- When unlocking, do not pull the knob forcibly.
- When carrying this product, do not dangle it by the knob.
- For use, be sure to confirm that there is no vibration under actual use conditions. Vibration may reduce the product life.
- As this product does not have a sealing function, fluid cannot be sealed. To seal the fluid, use a valve with a sealing function. Sealing the fluid with this product may crush the valve seat and lower the flow controllability of the product.
- When set to a fine flow rate, the valve opening will also be very small. Therefore, if foreign matter is mixed into the fluid, the valve may clog and the flow rate may change.
- If there is a change in the fluid temperature, the valve opening may change due to volume expansion of the fluororesin and the flow rate may change.

MEMO



Fine flow rate adjusting valve Series

The flow rate adjustment part and valve opening/closing function part are separated
Realizes stable fine flow rate adjustment
● Connection tube size: ø3, 1/8", Rc1/8

RoHS

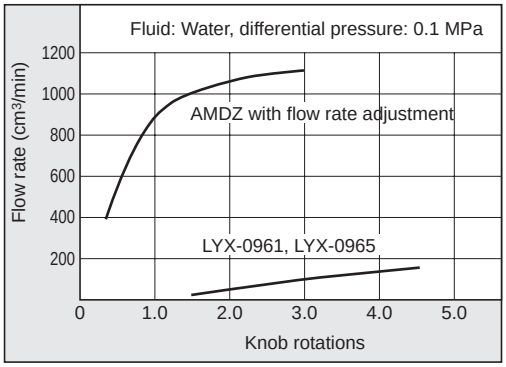
Specifications

Item		LYX-0961-*	LYX-0965-*
Working fluid		Chemical liquids, pure water (*1)	
Fluid temperature	°C	5 to 60	
Proof pressure	MPa	0.6	
Working pressure	MPa	0 to 0.3	
Ambient temperature	°C	0 to 60	
Mounting orientation		Unrestricted	
Weight	kg	0.12	0.07

*1: Cannot be used with acidic fluids. Check the compatibility of product structural materials, working fluids and atmosphere.
*2: Refer to AMDZ on page 100 for specifications of the air operated valve.

Flow characteristics/pressure characteristics

Flow characteristics comparison



How to order

LYX - 0961 - 6BUS - 1

Ⓐ Type
Ⓑ Connection
Ⓒ Actuation (Select only for LYX-0961)

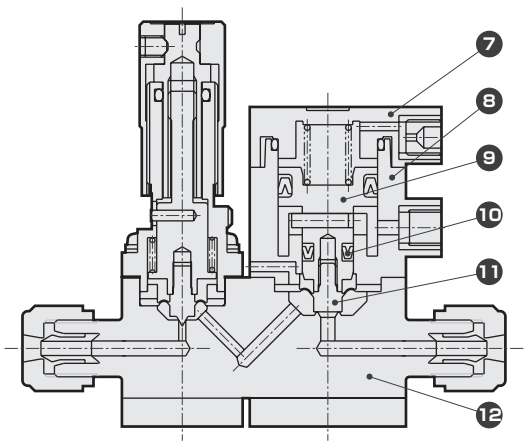
Ⓐ Type	
0961	Air operated valve integrated
0965	Fine flow rate adjusting valve only (no valve closing function)

Ⓑ Connection		
6	Rc1/8	
3US	Super type pillar integrated fitting	ø3 x ø2 tube connection
6BUS		1/8" x 0.086" tube connection
3UP	Super 300 Pillar fitting P Series	ø3 x ø2 tube connection
6BUP		1/8" x 0.086" tube connection
3UF	F-LOCK 20 Series integrated fitting	ø3 x ø2 tube connection
3UR	F-LOCK 60 Series integrated fitting	ø3 x ø2 tube connection
6BUR		1/8" × 1/16" tube connection

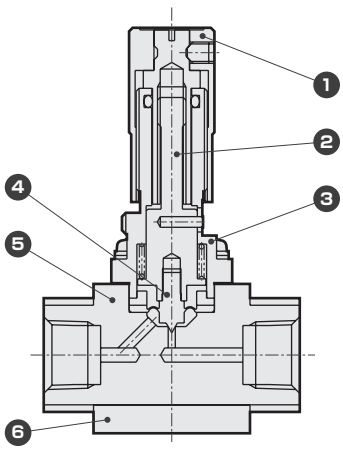
Ⓒ Actuation	
1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting

Internal structure and parts list

●LYX-0961



●LYX-0965



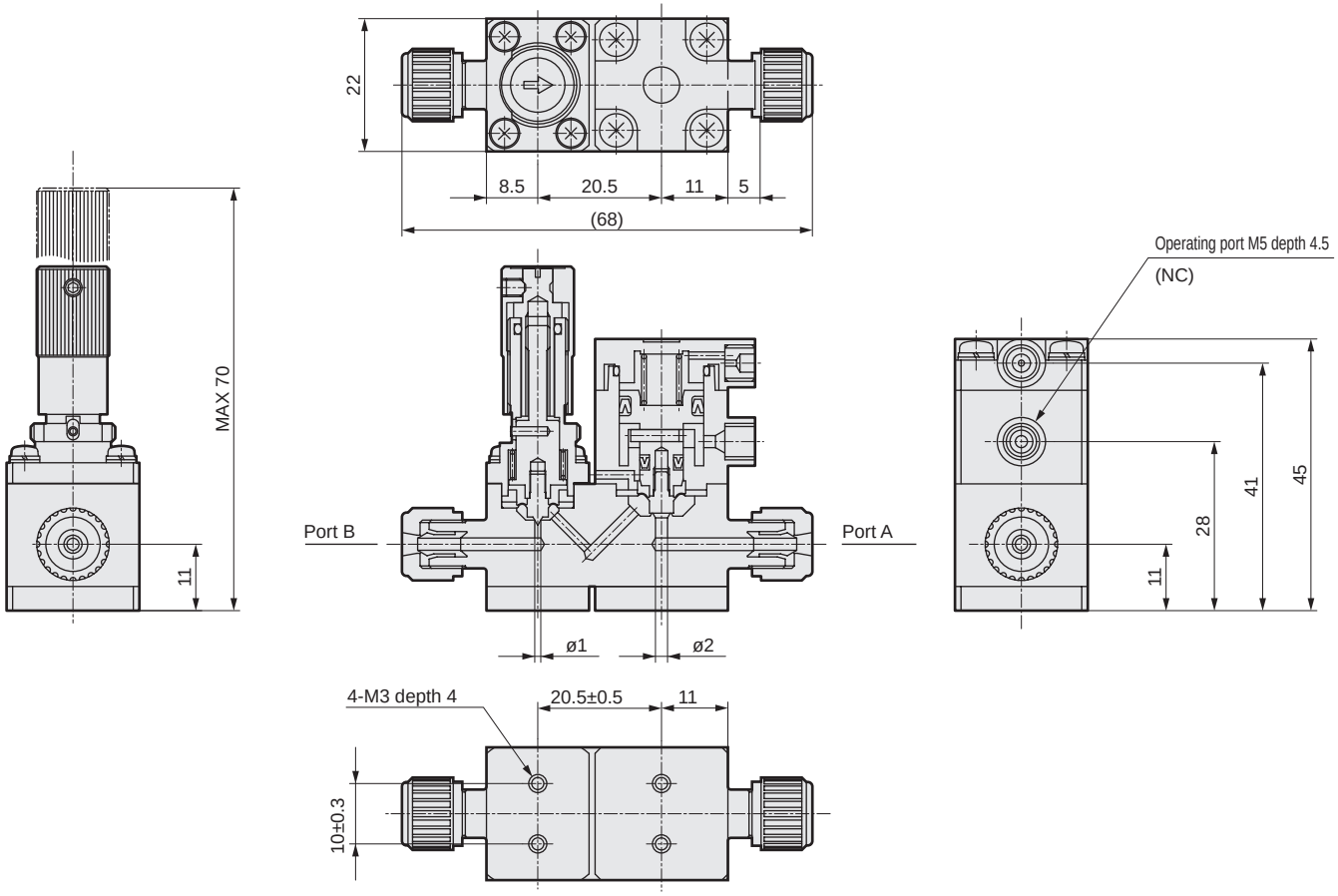
Part number	Part name	Material
1	Adjusting knob	A + 5056
2	Lower rod	SUS304
3	Needle cover	SUS304
4	Diaphragm	PTFE
5	Body	PTFE
6	Mounting plate	SUS304
7	Cover	PPS
8	Cylinder	PPS
9	Piston rod	SUS303
10	Y packing	NBR
11	Diaphragm	PTFE
12	Body	PTFE

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

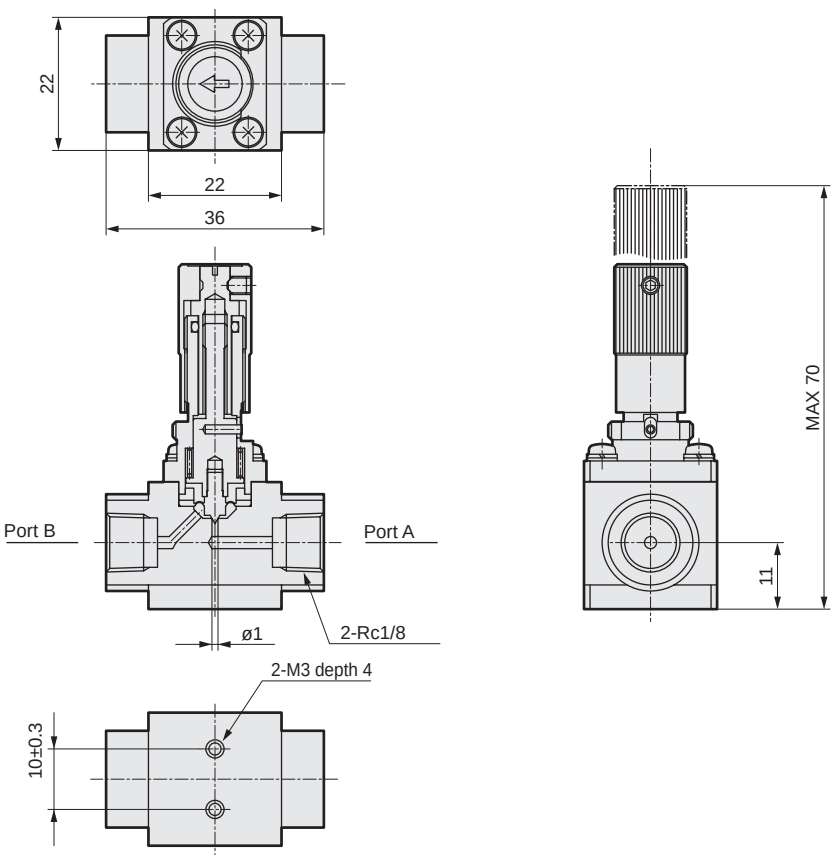
⚠ Always read the precautions on Intro Pages 9 to 18 before use.

Dimensions

● LYX-0961-6BUS-1



● LYX-0965-6



MEMO

Fine level switch

Overview

Detects with high accuracy the level of pure water and corrosive fluids including acids, alkalis and solvents, and outputs electrical signals.

Features

KML703

Detection point: 8-point

● Remote operation available

Since the sensor and display are separated, it is possible to install the operation display away from the liquid bath. Furthermore, the built-in communication function (RS485) allows operation from the host computer.

● Resistant to environmental pressure fluctuation

As the differential pressure method detects the pressure difference between the environmental pressure and water level, it is resistant to fluctuation in environmental pressure since the detection tube and environment detection tube are set in an environment with the same pressure.

● Detection flow rate setting not required

KML60

● Detection point: 4-point setting available

● It can be made into a mix manifold with KML50 (1-point detection)

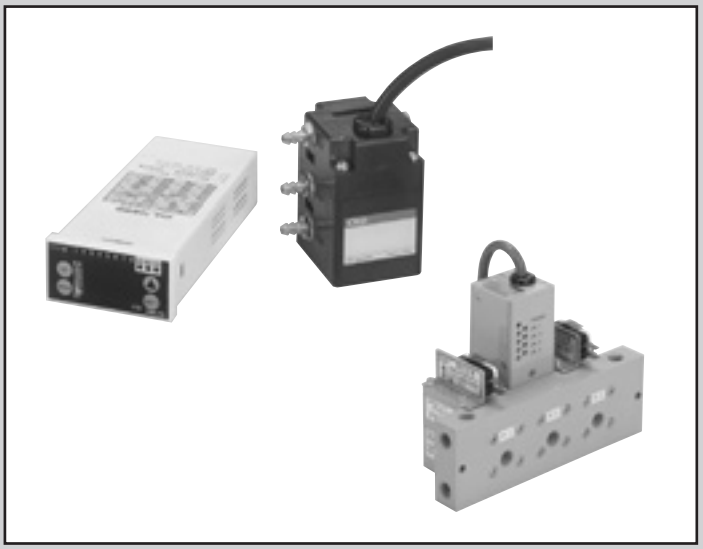
● With the internal fixed flow orifice, detection flow rate settings are rendered unnecessary.

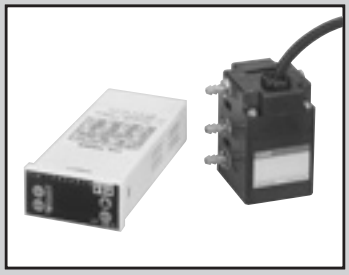
KML50

● High precision level detection (±1 mm)

● Excellent installability

● Select models made of material with high corrosion resistance according to the ambient atmosphere.





Digital fine level switch

KML703 Series

No need to set the flow rate to be detected
Resistant to environmental pressure fluctuation (differential pressure method)
Remote operation enabled and communication function (RS485) built in

RoHS

Specifications

Item		KML703-G-485		KML703-D-485
Detection		Gauge pressure method		Differential pressure method
Working fluid		Clean air, N_2(*1)		
Working pressure	kPa	10 to 30		
Fluid temperature	°C	5 to 50		
Ambient temperature	°C	5 to 50		
Proof pressure	kPa	Working pressure	100	
		Detection pressure	10	
Detection water level	mm	1 to 700 (*2)		
Environmental pressure fluctuation	kPa	-		Within ±3 (Confirm that detection tubes are in 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 supply voltage		24 VDC ±10%, voltage ripple rate 1% or less		
Current consumption	mA	130 or less (when using 24 VDC)		
Switch output		NPN open collector 8 points (CH1 to CH6 a contact, CH7 to CH8 b contact) (30 VDC 50 mA or less)		
Insulation resistance	MΩ	100 or more (500 VDC for 1 minute)		
Withstand voltage		Commercial frequency 500 VAC, 1 minute		
Repeatability	mm	±3 (10 minutes after power on) (*2)		
Hysteresis	mm	1 to 10 setting (*2)		
Response time	ms	600 or less (supply pressure: 20 kPa, detection tube I.D.: ø4 mm, length: 5 m)		
Temperature characteristics	mm/°C	Within ±1.2 (detection fluid: water)		
Detection tube I.D.	mm	4		
Detection tube length	m	Within 5		
Weight	kg	0.51		

*1: Use a filter with a Degree of filtration of 0.3 μm or more.
*2: The above specifications are values obtained in the following usage conditions: fluid pressure: 20kPa, power supply voltage: 24VDC, ambient temperature: 20°C, detection pipe bore size: ø4 × length: 5 m, specific gravity setting: 1, nozzle mounting height: 0. The detection fluid is water.

Safety precautions

1. Install the switch at a position higher than the liquid level to be detected.
2. Use piping with a ø4 mm bore for detection. Do not install anything that will create resistance, such as a throttle, in the middle of the piping.
3. Detection in sealed liquid tanks and similar liquid tanks is not possible.
4. Do not block the detection pipe and detection port with a valve, etc. Supply pressure will be directly applied to the sensor chip, which may cause damage.
5. Use pneumatic pressure with dust and oil filtered out through a submicron filter and micro alescer.
6. Do not stop the supply pressure. The chemical liquid atmosphere may flow back from the detection tube to the sensor and cause adverse effects.
7. With the gauge pressure method, leave the EXH port open and do not block it with a plug, etc.
8. This product cannot be used in an atmosphere where chemical liquid is present.

Always read the precautions on Intro Pages 9 to 18 before use.

How to order

●Single unit

KML703 - G - 485 - ( )

Model No.

Ⓐ Detection

Ⓑ Communication

Ⓒ Sensor cable length

Code	Description
Ⓐ Detection	
G	Gauge pressure method
D	Differential pressure method
Ⓑ Communication	
485	RS485 communication
Ⓒ Sensor cable length	
Blank	Sensor cable 5 m
3	Sensor cable 3 m

[Example of model No.]

KML703-G-485

Model: KML703

Ⓐ Detection : Gauge pressure method

Ⓑ Communication : RS485 communication

Ⓒ Sensor cable length : 5m

●Option (bracket/cable)

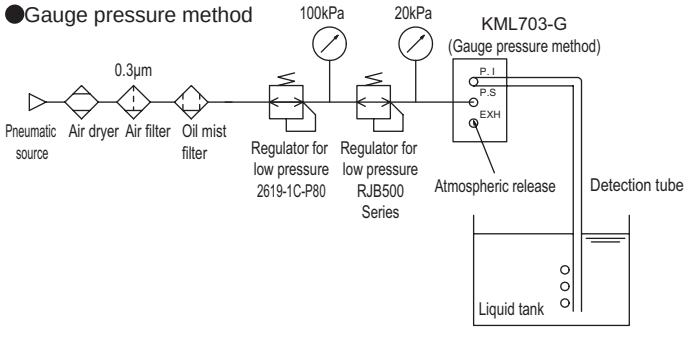
KML703 - B

Model No.

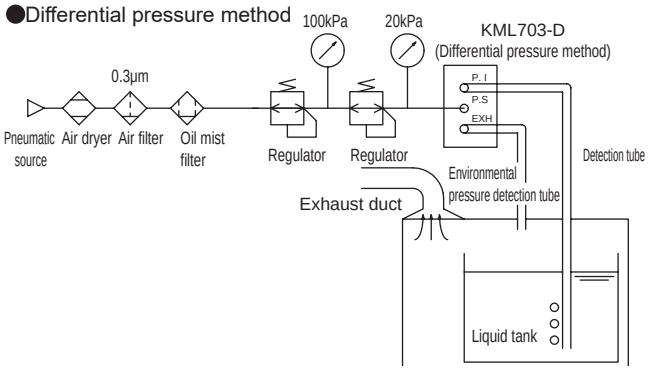
Code	Description
Ⓐ Option	
B	Bracket for sensor body
P	Power supply cable (3 m)
O	Output cable (3 m)

Piping example

●Gauge pressure method



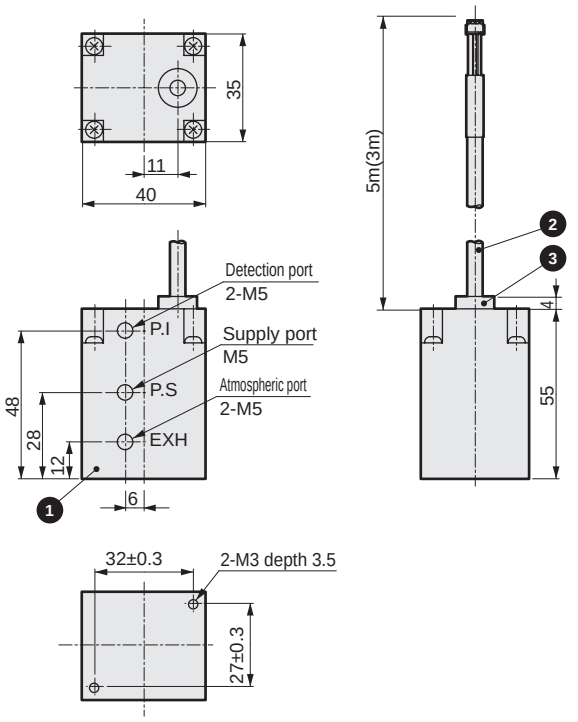
●Differential pressure method



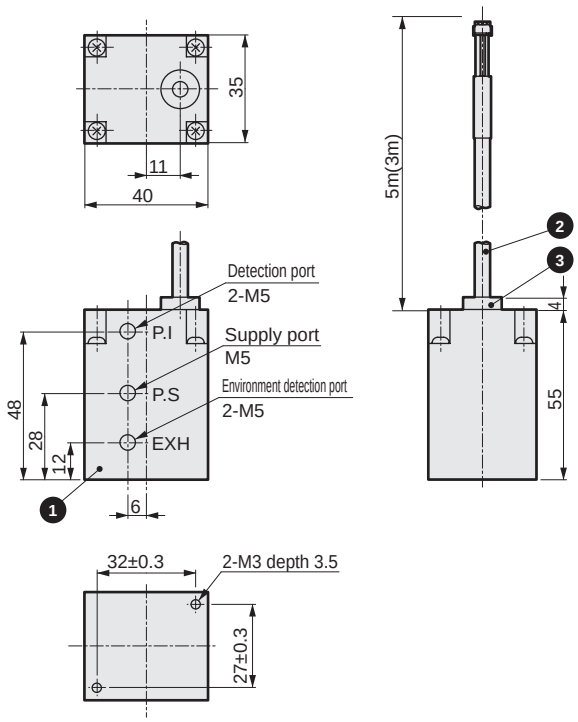
Internal structure and main part materials/Dimensions

● Sensor body

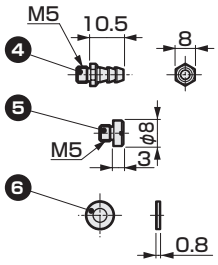
• KML703-G-485



• KML703-D-485



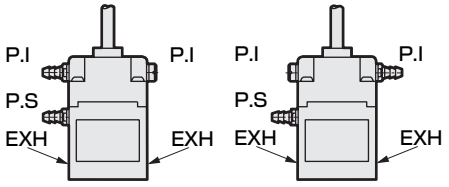
● Nipple, plug, gasket (accessory)



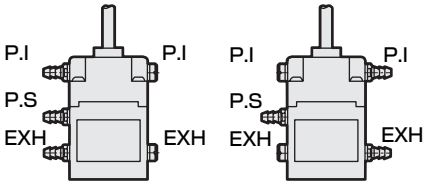
There are two PI and EXH ports on the front and back of this product. For unused ports, install the attached plugs to prevent leakage.

* With the gauge pressure method, leave the EXH port open and do not attach a plug.

Gauge pressure method

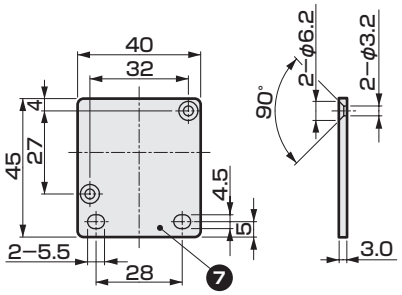


Differential pressure method



● Bracket for sensor body (option)

• KML703-B

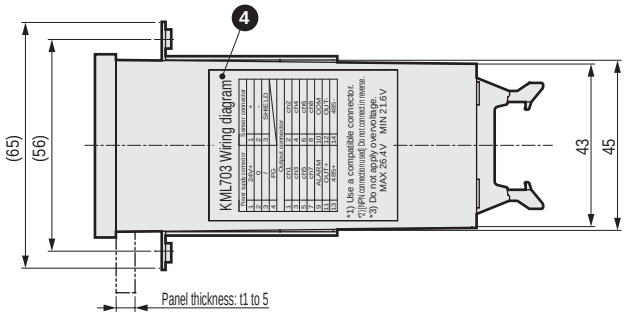


* Two flat head machine screws for bracket mounting attached

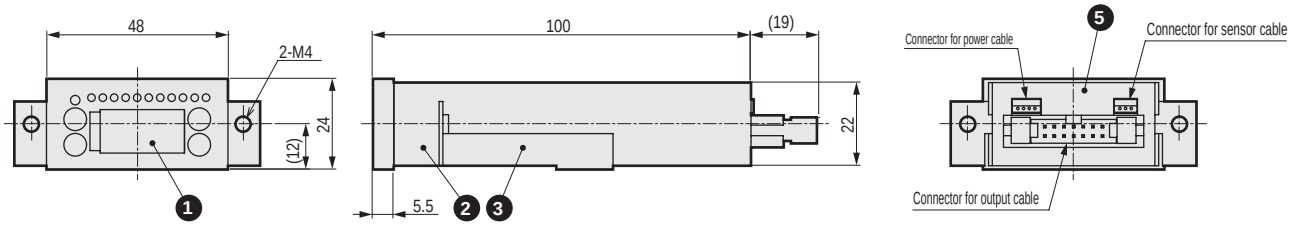
Part number	Part name	Material
1	Body	PPS
2	Sensor cable	PVC
3	Bush	PA
4	Nipple	SUS304
5	Plug	SUS304
6	Gasket	PTFE
7	Bracket	SUS304

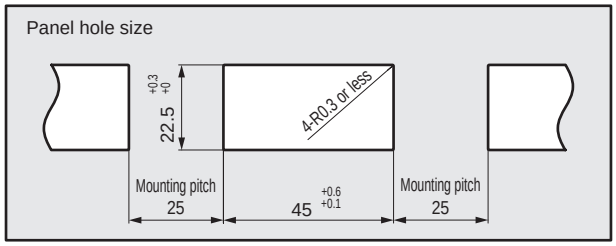
Internal structure and main part materials / Dimensions

● Display

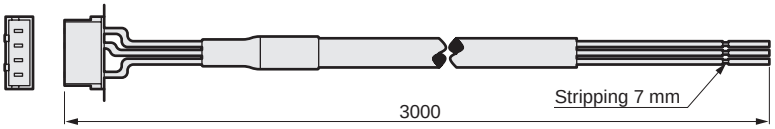


Part number	Part name	Material figure No.
1	Front panel	
2	Case	PBT
3	Mounting bracket	SUS304
4	Wiring indication nameplate	
5	Serial nameplate	

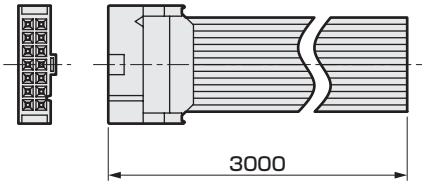




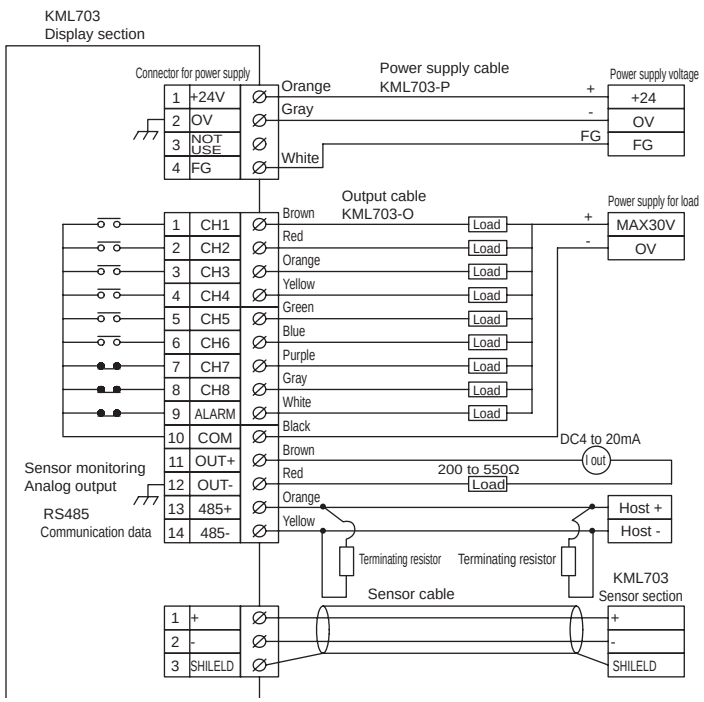
● Power cable (option)
・KML703-P

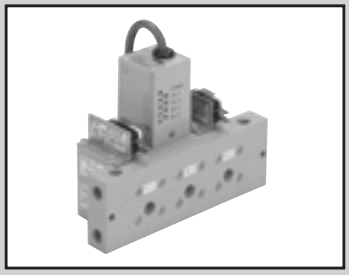


● Output cable (option)
・KML703-O



Wiring connection diagram





Fine level switch

KML60 Series

Detects liquid level at 4 points using 1 detection tube

RoHS

Specifications

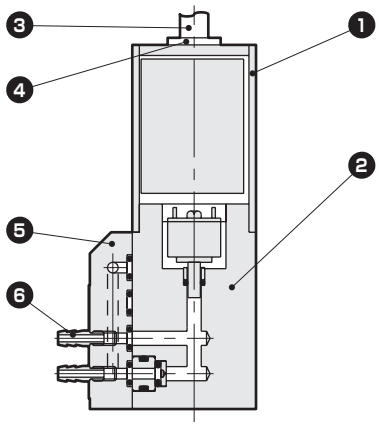
Item		KML60-4	
Working fluid		Air, N_2(*1)	
Working pressure	kPa	10 to 30 (when the set water level is 10 to 500 mm and water is used as the detection fluid)	
		15 to 30 (when the set water level is 10 to 1000 mm and water is used as the detection fluid)	
Fluid temperature	°C	5 to 50	
Ambient temperature	°C	5 to 50	
Proof pressure	kPa	Working pressure	100
		Detection pressure	20 (where detection water level is 2000 mm)
Detection water level	mm	10 to 1000 (*2)	
Power supply voltage		12 to 24 VDC ±10% Voltage ripple rate 5% or less	
Current consumption	mA	40 or less (when using 24 VDC)	
Switch output		NPN open collector 4-point (28 VDC 80 mA or less)	
Insulation resistance	MΩ	100 or more (500 VDC for 1 minute)	
Withstand voltage		Commercial frequency 500 VAC, 1 minute	
Repeatability	mm	±10 (10 minutes after power on) (*2)	
Hysteresis	mm	4 or less (set water level 10 to 200mmH_2O) 20 or less (set water level 200 to 1000mmH_2O)(*2)	
Response time	ms	600 or less (supply pressure: 20 kPa, detection tube I.D.: ø4 mm, length: 5 m)	
Temperature characteristics	mm/°C	±1.2	
Detection tube I.D.	ø mm	4	
Detection tube length	m	Within 5	
Weight	kg	0.23	

*1: Use fluid passed through a filter with filtration accuracy within 0.3 µm.
*2: The above specifications are values obtained in the following usage conditions: fluid pressure: 20kPa, power supply voltage: 24VDC, ambient temperature: 20°C. The detection fluid is water.

Safety precautions

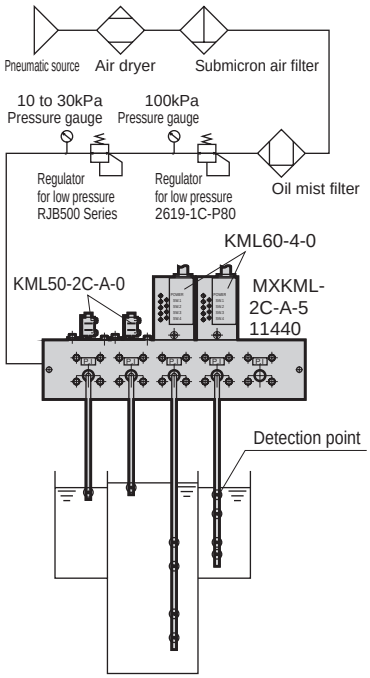
1. Install the switch at a position higher than the liquid level to be detected.
2. Use pneumatic pressure with dust and oil filtered out through a submicron filter and micro alescer.
3. Use a low-pressure regulator with oil-free processing.
4. Use piping with a ø4 mm bore for detection. Do not install anything that will create resistance, such as a throttle, in the middle of the piping.
5. Eight P/S ports are provided on the manifold. Perform masking for piping ports that are not used.
6. Detection in sealed liquid tanks and similar liquid tanks is not possible.
7. Do not block the detection pipe and detection port with a valve, etc. Supply pressure will be directly applied to the sensor chip, which may cause damage.
8. When using a mix manifold with the KML50 Series, refer to the Safety Precautions for the KML50 Series.
9. Do not stop the supply pressure. The chemical liquid atmosphere may flow back from the detection tube to the sensor and cause adverse effects.
10. This product cannot be used in an atmosphere where chemical liquid is present.

Internal structure and parts list



Part number	Part name	Material
1	Cover	PVC
2	Base	PVC
3	Sensor cable	PVC
4	Bush	Nylon 66
5	Manifold	PVC
6	Nipple	SUS304

Applications



Always read the precautions on Intro Pages 9 to 18 before use.

How to order

●Single unit

KML60 - 4 R - 0

Model No.

Ⓐ No. of output points

Ⓑ Setting trimmer operation indicator lamp direction

Ⓒ Mounting

Code	Description
Ⓐ No. of output points	
4	4-point setting
Ⓑ Setting trimmer operation indicator lamp direction	
Blank	P.I. port side
R	P.I. port rear side
Ⓒ Mounting (*1)	
Blank	Single unit
0	Single unit for manifold

*1: Ⓒ When installing the Item 0 product to the manifold sub-base, the two supply ports on the top of the manifold sub-base cannot be used. When using the ports on the top surface with an existing manifold, change to other supply ports.

[Example of model No.]

KML60-4R-0

Model: KML60
Ⓐ No. of output points : 4 points
Ⓑ Setting trimmer operation indicator lamp direction : P.I. port rear side
Ⓒ Mounting : For sub-plate mounting

●Manifold

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

Model No.

Ⓐ KML50 combination model No.

Ⓑ Number of sub-plates

Ⓒ Manifold switch array

Ⓓ Setting trimmer operation indicator lamp direction

Code	Description
Ⓐ KML50 combination model No.	
00-0	No KML50 combination
1C-A	KML50-1C-A-0 combined
1C-B	With KML50-1C-B-0 combination
2C-A	With KML50-2C-A-0 combination
2C-B	With KML50-2C-B-0 combination
0A-A	With KML50-0A-A-0 combination
0A-B	With KML50-0A-B-0 combination
1B-A	With KML50-1B-A-0 combination
2B-A	With KML50-2B-A-0 combination
2B-B	With KML50-2B-B-0 combination
Ⓑ Number of sub-plates	
1	1 stations
2	2 stations
3	3 stations
4	4 stations
5	5 stations
Ⓒ Manifold switch array (*1, *2, *3, *4)	
0	Masking
1	Ⓐ KML50 specified in Item
4	KML60-4-0
Ⓓ Setting trimmer operation indicator lamp direction	
Blank	P.I. port side
R	P.I. port rear side

*1: Specify the switch array on the manifold with an array of numbers 0, 1 and 4.
*2: Specify the array from the left front side of the manifold (P.I. port side).
*3: Ⓑ Specify with the same number of digits as the number of sub-plate stations specified in Item .
*4: When masking, be sure to specify 0 in the masking position.

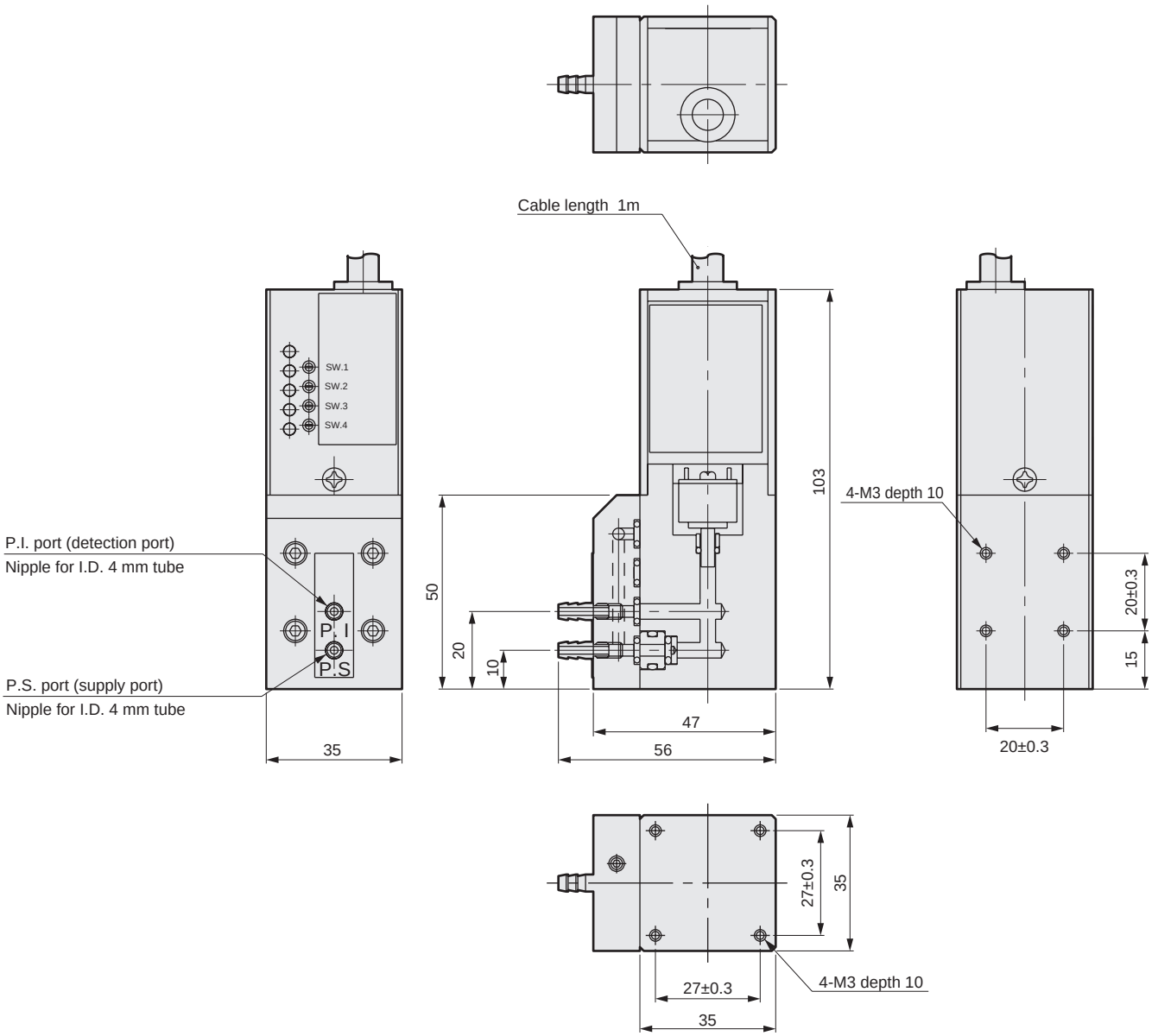
[Example of model No.]

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

Model No.: MXKML
Ⓐ KML50 combination model No. : KML50-1C-A-0
Ⓑ Number of sub-plates : 3 stations
Ⓒ Manifold switch array : From the front left, arrange in the order of KML50-1C-A-0, masking and KML60-4-0
Ⓓ Setting trimmer operation indicator lamp direction : P.I. port rear side

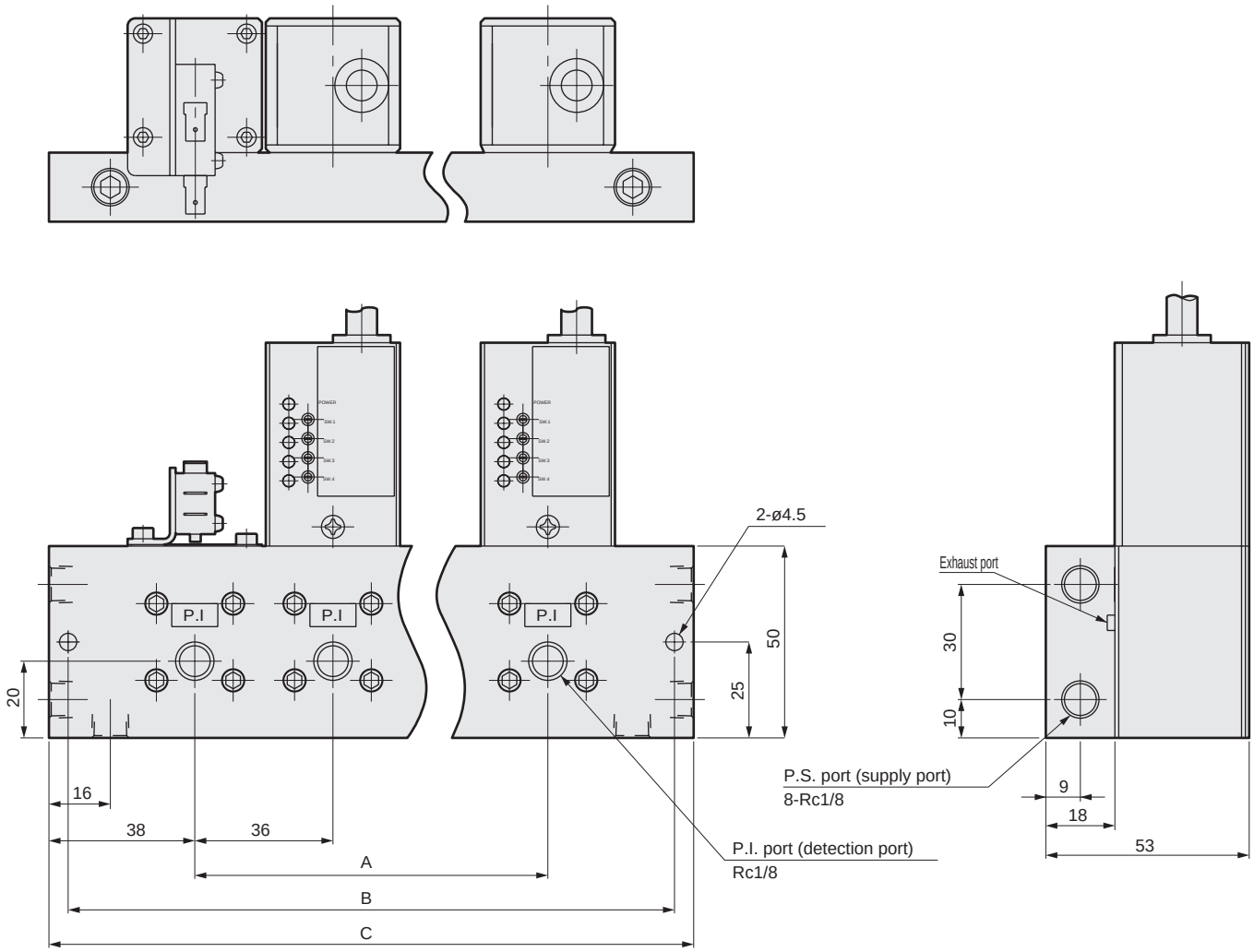
Dimensions

● KML60-4



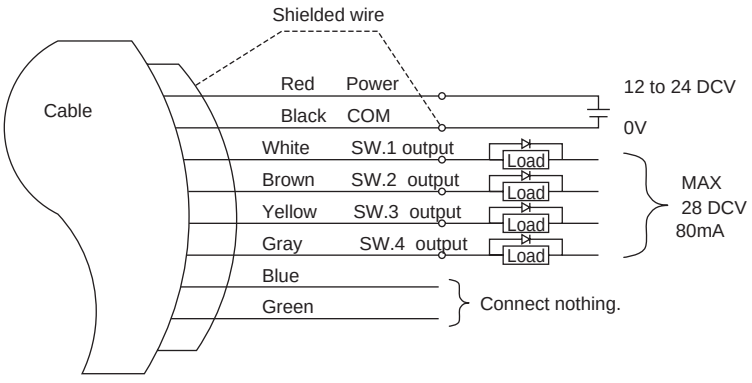
Dimensions

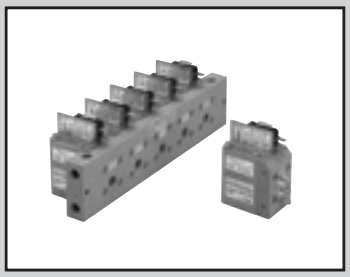
● MXKML-0A-A-*-* (manifold)



Number of sub-plates	A	B	C
1	-	66	76
2	36	102	112
3	72	138	148
4	108	174	184
5	144	210	220

Wiring connection diagram





Fine level switch

KML50 Series

Level detector that boasts detection precision of ±1 mm and excellent installability

Specifications

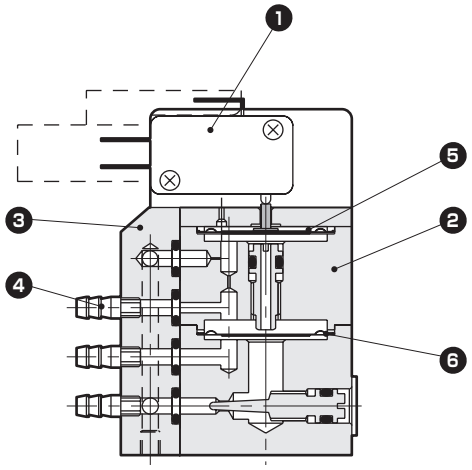
Item			KML50-0A-$^{A}_{B}$	KML50-1$^{B}_{C}$-$^{A}_{B}$	KML50-2$^{B}_{C}$-$^{A}_{B}$
Working fluid			Air, N_2		
Working pressure		kPa	15 to 35	10 to 30	
Fluid temperature		°C	5 to 60		
Ambient temperature		°C	15 to 40	5 to 60	
Proof pressure		kPa	50		
Detection water level		mm	8 to 100	1 to 600	
Contact capacity	A type		3 A 125 V / 250 VAC resistance load (micro switch)		
	B type		0.25 A 100 VDC resistance load (reed switch)		
Switching water level	Switching point		8 to 12 (*1)	8 to 12 (*1)	1 to 3 (*1)
	Hysteresis		5 or less (*1)	2 or less (*1)	2 or less (*1)
Repeatability		mm	±1		
Response time		ms	200 or less (detection flow rate 75cm^3/min (ANR), detection tube I.D. ø4 mm, length 2 m)		
Detection tube I.D.		ø mm	4		
Detection tube length		m	Within 2		
Air consumption		cm^3/min(ANR)	750 or less (at supply pressure of 20 kPa)		
Weight		kg	0.19	KML50-1B-* 0.27	KML50-2B-* 0.27
				KML50-1C-* 0.19	KML50-2C-* 0.19

*1: The above specifications are values obtained at supply pressure 20 kPa (ambient temperature: 24 ±2°C). Be sure to use supply pressure with a high degree of cleanliness. Value obtained with measured water.
*2: Micro switch is C contact and reed switch is A contact.

Safety precautions

1. Install the switch at a position higher than the liquid level to be detected.
2. Use pneumatic pressure with dust and oil filtered out through a submicron filter and micro alescer.
3. Use a low-pressure regulator with oil-free processing.
4. Water or a fluid of similar viscosity is used to adjust before shipping.
5. Use piping with a ø4 mm bore for detection. Do not install anything that will create resistance, such as a throttle, in the middle of the piping.
6. Eight P/S ports are provided on the manifold. Perform masking for piping ports that are not used.
7. Detection in sealed liquid tanks and similar liquid tanks is not possible.
8. Applying a pressure of 50 kPa or more to the PS port may cause damage. Gradually raise the pressure from 0.
9. With the switch section facing up, install at a position higher than the liquid level.
10. The needle is adjusted before shipping and should not be readjusted.
11. If the EXH port is blocked, excess pressure may be applied inside the product which may cause damage, so be sure to leave the EXH port open.
12. Do not stop supplying the supply gas if corrosive gas may enter from the detection tube. The switch protects the detection part from corrosive gas by discharging the detection gas from the detection tube.
13. This product cannot be used in an atmosphere where chemical liquid is present.

Internal structure and parts list

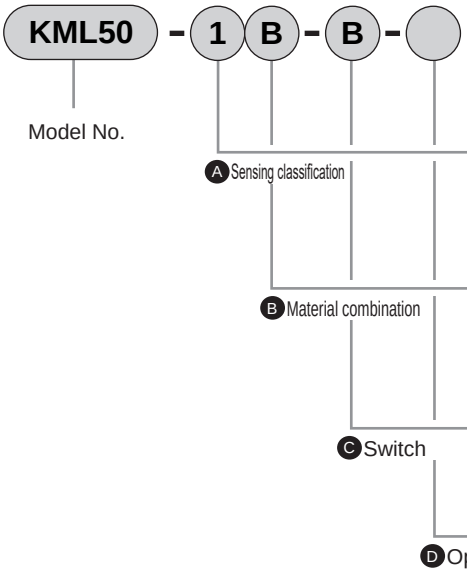


Part number	Part name	Material (by material combination)		
		A	B	C
1	Micro switch	-		
2	Body	PVC	A + 6063	PVC
3	Manifold	PVC	A + 6063	PVC
4	Nipple	SUS304		
5	Diaphragm A	U		
6	Diaphragm B	PTFE	U	U

Always read the precautions on Intro Pages 9 to 18 before use.

How to order

●Single unit



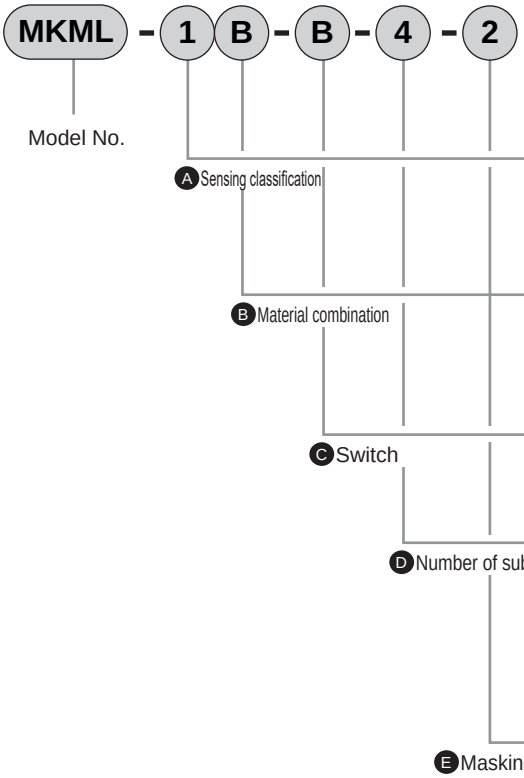
Code	Description	
A Sensing classification	Switching point	Hysteresis
0 (*1)	8 to 12	5
1 (*1)	8 to 12	2
2 (*1)	1 to 3	2

B Material combination	Body	Diaphragm
A	PVC	PTFE
B	A + 6063	U (Urethane)
C	PVC	U (Urethane)

C Switch	
A	Micro switch (C contact)
B	Reed switch (A contact)

D Option	
Blank	Single unit
0	Single unit for manifold

●Manifold



Code	Description	
A Sensing classification	Switching point	Hysteresis
0 (*1)	8 to 12	5
1 (*1)	8 to 12	2
2 (*1)	1 to 3	2

B Material combination	Body	Diaphragm
A	PVC	PTFE
B	A + 6063	U (Urethane)
C	PVC	U (Urethane)

C Switch	
A	Micro switch (C contact)
B	Reed switch (A contact)

D Number of sub-plates	
1	1 stations
2	2 stations
3	3 stations
4	4 stations
5	5 stations

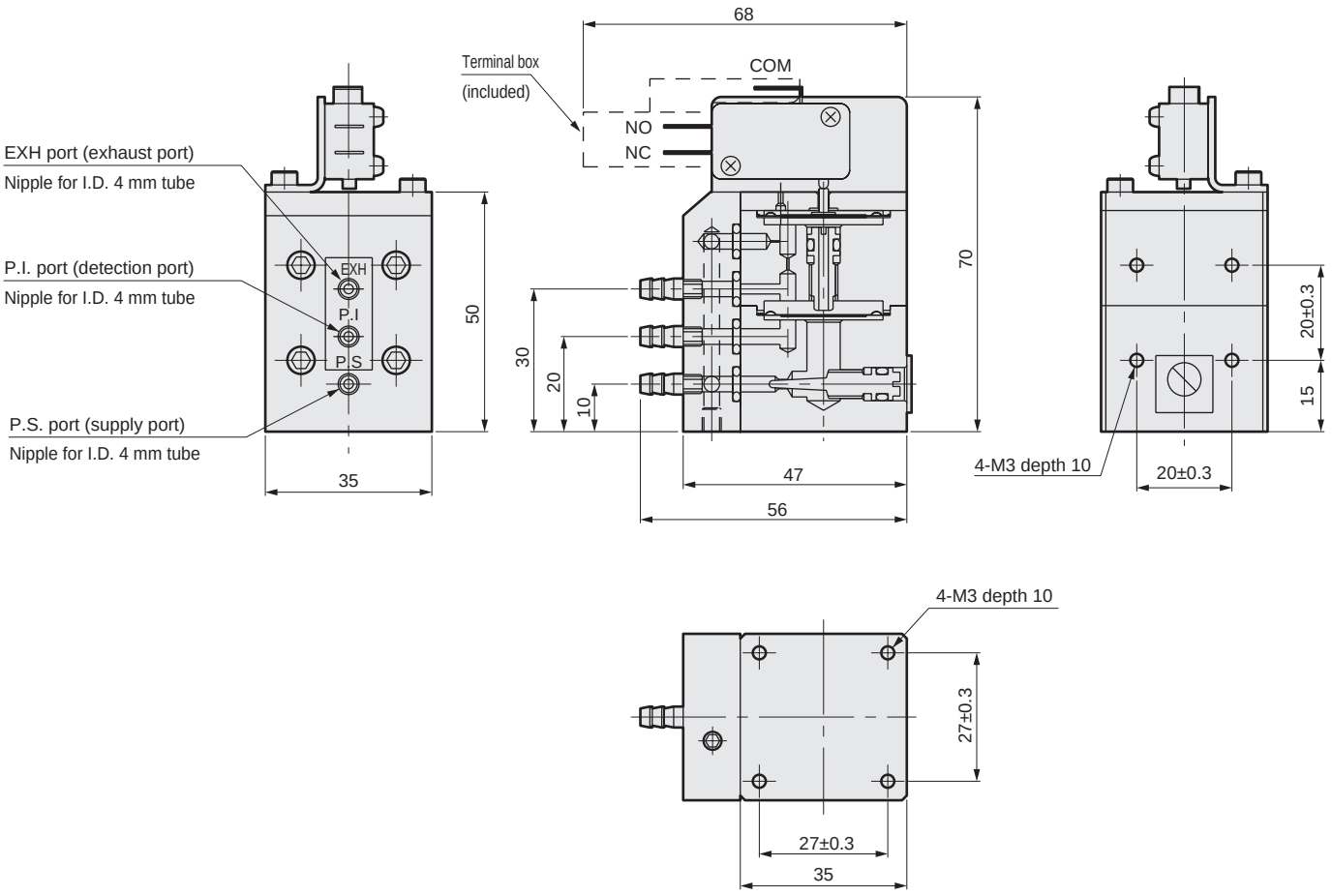
E Masking count	
0	No masking
1	1 mounted
2	2 mounted
3	3 mounted
4	4 mounted

Precautions for model No. selection

*1: When Item A is 0, only A is available for Item B. When Item A is 1 or 2, only B/C are available for Item B.

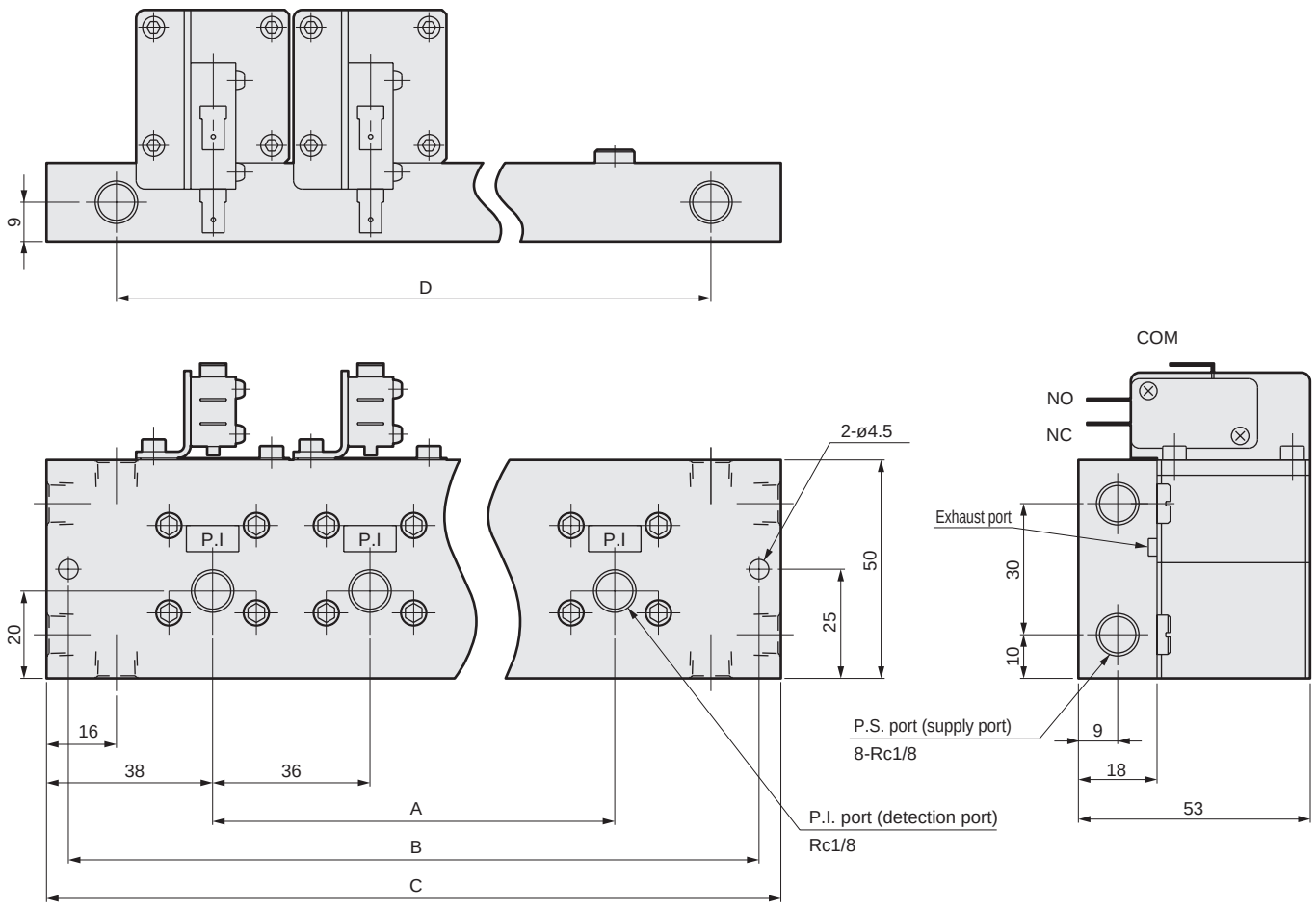
Dimensions

● KML50-0A-A



Dimensions

● MKML-0A-A-*-* (Manifold)



Number of sub-plates	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

MEMO

Related products

	Applications	Communication	
Solenoid valve for operation			
MN3E/MN4E	Air operated valve drive, etc.	CC-Link DeviceNet EtherCAT EtherNet/IP	230
3QRA/B	Air operated valve drive, etc.		231
MN4GA/B R	Air operated valve drive, etc.	CC-Link CC-Link IE Field Basic CC-Link IE Field DeviceNet PROFIBUS-DP PROFINET EtherCAT EtherNet/IP IO-Link	232
Electro pneumatic regulator			
EVS2	Pilot regulator control		233
MEVT	Pilot regulator control	CC-Link DeviceNet	233
EVR	Pilot regulator control		234
Clean regulator			
RC2000	Purge Air, N_2 Pressure adjustment		235
Flow rate sensor			
FSM3	Purge Air, N_2 Flow rate measurement	IO-Link	236
Auxiliary components			
Fiber tube	Air operated valve drive		237
FCS	Purge Air, Purification of N_2		239
Gas generator			
NS	N_2 extraction		240
PNA	Oxygen concentration measurement		241
ASU-S	Local air supply		241

Solenoid valve for operation

(Catalog No. CB-023SA)

Applications: Air operated valve drive, etc.

CC-Link **DeviceNet**

EtherCAT

EtherNet/IP

MN3E/MN4E Series

(3, 4, 3-port valve, two 2-port valves integrated)

Compact (width of 7 or 10 mm) 3, 4-port valve block manifolds that are highly integrated and offer space-saving with high performance

●Compact, space saving
Introducing the MN3/4EOO Series of 7 mm valve block width and 7 mm pitch manifold in addition to the MN3/4EO Series of 10 mm valve block width type. Helps to reduce device footprints. Can be installed anywhere. Individual wiring used for increased integration.

●Environmental conservation
Environment-friendly halogen-free lead wires have been adopted for internal wiring. (D-sub-connector T30 type)

●High performance
- 12 ms responsivity for balancing ports A and B
  (Our data value with two 3-port valves integrated)
- Cumbersome wiring work is not required
  With connector, wiring is completed at the same time as assembling.

●Variety
A wide range of electrical connections such as serial transmission corresponding to various connectors and networks are available.

●Energy saving
MN3/4E0 Series: 0.6W
MN3/4E00 Series: 0.4W
With energy saving type (Option E), it further reduces power consumption.

Specifications

CE RoHS

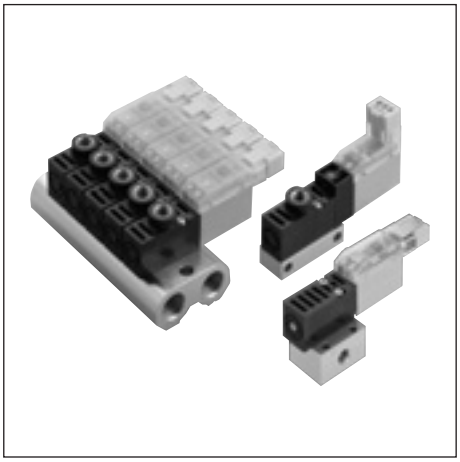
● MN3E00/MN4E00

Item		MN3E00	MN4E00
Working fluid		Compressed air	
Actuation		Pilot operated	
Valve structure		Soft spool	
Working pressure	MPa	0.2 to 0.7	
C[dm³/S•bar]		0.3 to 0.32	
Electrical specifications			
Rated voltage	V	DC12, 24	
Power consumption	W	0.4	

● MN3E0/MN4E0

Item		MN3E0	MN4E0
Working fluid		Compressed air	
Actuation		Pilot operated	
Valve structure		Soft spool	
Working pressure	MPa	0.2 to 0.7	
C[dm³/S•bar]		0.50 to 0.54	
Electrical specifications			
Rated voltage	V	DC12, 24	
Power consumption	W	0.6	

Solenoid valve for operation



(Catalog No. CC-1020A)

Applications: Air operated valve drive, etc.

3QRA/B Series

(3-port valve)

Realizes large flow rate/high-speed conversion

- Contributes to increased speed and optimization of equipment (downsizing and improved maintainability)
  Durability 100 million cycles or more (as under CKD-regulated stringent test conditions)
  Compact and lightweight 19 g (best weight) 10 mm (W) × 20mm (H) × 46mm (D)
- Enhanced flow rate and response time enable high-speed vacuum/atmosphere release
  Large flow rate C:0.4 (dm^3/s•bar) Large flow rate C:0.3 (dm^3/s•bar) Standard
  High response 4±1ms/1.5±1ms (ON/OFF)
- Standard compliant for various applications All ports from vacuum to positive pressure Universally pressurizable
  - Ozone resistance (rubber FKM used)
  - RoHS command compliant
  - Restricted copper materials (air passage, sliding part)

Common specifications

Item	Description
Valve and operation	Direct acting poppet valve
Working fluid	Compressed air, low vacuum
Max. working pressure MPa	0.70
Min. working pressure MPa	Low vacuum: -100 kPa
Proof pressure MPa	1.05 (low vacuum: -101 kPa)
Max. working pressure differential MPa	0.70
Ambient temperature °C	-5 to 50 (no freezing)
Fluid temperature °C	5 to 50
Lubrication	Not available *
Degree of protection	Dust-proof
Vibration/shock resistance m/s^2	50 or less/300 or less
Atmosphere	Cannot be used in corrosive gas environment.

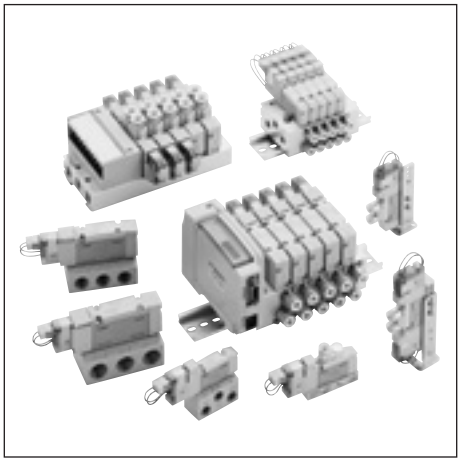
* Lubrication will degrade the performance.

Electrical specifications

Item		Standard specifications	Large flow rate specifications H
Rated voltage V	DC	24, 12	
Energizing rate		Intermittent *1	Continuous
Voltage fluctuation range		±10%	
Starting current A	24 VDC	-	0.13
	12 VDC	-	0.27
Holding current A	24 VDC	0.08	0.10
	12 VDC	0.17	0.20
Power consumption W		2.0	2.4 *2
Thermal class		B	

*1: Limit continuous energizing to within 5 minutes and energization ratio to 50% or less. Min. time of excitation for self-holding is 50 ms.
*2: 20 W for 3.2 ms after start.

Solenoid valve for operation



(Catalog No. CB-023SA)

Applications: Air operated valve drive, etc.

CC-Link

CC-Link IE Field Basic

CC-Link IE Field **DeviceNet**

PROFIBUS-DP **PROFINET**

EtherCAT **EtherNet/IP**

IO-Link

MN4GA/B R Series

(3, 5-port valve)

General purpose valves support a wide range of needs

●Safety
Includes protective cover to prevent misoperation of the manual override due to external force, etc.
Prevents malfunction of cylinders due to back pressure when using a single acting cylinder.

●Reliability
•Service life of 100 million cycles or more (at 0.5 MPa with clean air)
•Response 12 ms ± 2 ms (Our data for 4G1 Series)
Thanks to the new sliding mechanism, reliability performance such as service life and responsiveness has definitely been upgraded.

●Easy to use
•Wiring connector upward/lateral common
Just insert top-facing or side-facing. PAT.

●Energy savings: 0.35 W, 0.1 W (low exoergic/energy circuit)

●Diverse options
Eight types available

●Wide range of communication methods
Supports ten types of communication methods

Specifications

CE RoHS

Item		3G	4G
Working fluid		Compressed air	
Actuation		Pilot operated	
Valve structure		Soft spool	
Working pressure	MPa	0.2 to 0.7	
C[dm^3/S•bar]		0.92 to 2.6	0.92 to 4.5
Electrical specifications			
Rated voltage V	DC	12, 24	
	AC	100, 200	
Power consumption W	DC12,24	0.35 (0.4) with energy saving circuit 0.1	
Apparent power VA	100 VAC	1.0 (1.2) 0.93 (0.98)	
	200 VAC	1.40	

Values in ( ) apply when lamp is included.

Electro pneumatic regulator

EVS2 Series

(Catalog No. CB-024SA)

Compact, lightweight and high performance electro pneumatic regulator

- Compact and lightweight
  Compared with conventional models…Volume 20% reduced, weight 35% reduced
- Long service life
  Compared with conventional models…3x (compared with our products)
- High precision/high-speed response
  0.3% F.S. repeatability, 0.1% F.S. resolution, 0.1 sec response time (without load)
- 2-color display of the operational status
  At set pressure...Green
  Outside setting, at error...Red
- Easy to pipe/wire
  Push-in cartridge fitting and M12 connector are used.

Applications: Pilot regulator control

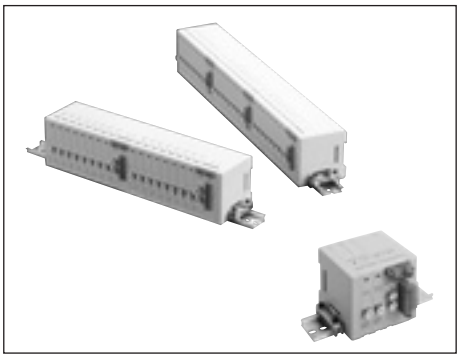
Specifications

Item		EVS2-100	EVS2-500
Working fluid		Clean compressed air (JIS B 8392-1:2012 (ISO 8573-1: 2010) [1:3:2] or equivalent)	
Max. working pressure		200 kPa	0.7 MPa
Min. working pressure		Set pressure + max. control pressure x 0.1	
Proof pressure	(Inlet side)	300 kPa	1.05Mpa
	(Output side)	150 kPa	0.75Mpa
Pressure control range (*1)		1 to 100 kPa	0.005 to 0.5 MPa
Accuracy (*2)	Hysteresis	0.4% F.S. or less	
	Linearity	Within ±0.5% F.S.	
	Resolution	0.1% F.S. or less	
	Repeatability	0.3% F.S. or less	
Temperature characteristics	Zero point fluctuation	0.12% F.S./°C or less	
	Span fluctuation	0.07% F.S./°C or less	
Max. flow rate (*3)		2L/min(ANR)	8L/min(ANR)
Step response (*4)	(No load)	0.1 s or less	
	($15cm^3$ Load)	0.5 s or less	

*1: 1% F.S. or less input signal cannot be controlled.
*2: The properties at right are obtained at power supply voltage: 24.0 ±0.1 VDC, ambient temperature: 25 ± 3°C, load: ø4 (I.D.) x 10 cm, working pressure ((1): 110 to 200 kPa, (2): 0.55 to 0.70 MPa), in static state only, with set pressure characteristics within the range of 10 to 100% F.S.
*3: Working pressure: Maximum working pressure, Control pressure: Maximum control pressure.
*4: Working pressure: Max. working pressure, step amount:
  50% F.S. → 100% F.S.
  50% F.S. → 60% F.S.
  50% F.S. → 40% F.S.
*5: The specification values on the right are obtained in a static state only. The control pressure may differ if air is consumed on the output side.

Electro pneumatic regulator

MEVT Series



(Catalog No. CB-024SA)

Manifold thin electro pneumatic regulator compatible with PC control and reduced wiring

- 14 mm thin and 80 g lightweight.
- Network-compatible.
- 2-color display of the operational status.
- Easy to pipe/wire.
- 2 installation directions.
- High precision and high response.
- Eco-friendly product.

Applications: Pilot regulator control

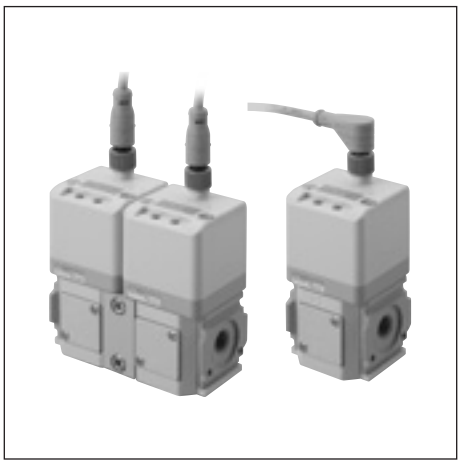
CC-Link **DeviceNet**

Specifications

Item		EVT100	EVT500
Working fluid		Clean compressed air (JIS B 8392-1:2012 (ISO 8573-1: 2010) [1:3:2] or equivalent)	
Max. working pressure		200 kPa	0.7 MPa
Min. working pressure		Control pressure + max. control pressure x 0.1	
Proof pressure	(Inlet side)	300 kPa	1.05Mpa
	(Output side)	150 kPa	0.75Mpa
Pressure control range		0 to 100 kPa	0 to 0.5 MPa
Hysteresis (*2)		0.4% F.S. or less	
Linearity (*2)		±0.5% F.S. or less	
Resolution (*2)		0.1% F.S. or less	
Repeatability (*2)		0.3% F.S. or less	
Max. flow rate (ANR) (*3)		2 L/min	6 L/min
Step response (*4)	(No load)	0.1 s or less	
	($15cm^3$ Load)	0.5 s or less	

*1: The characteristics at right are the values where power voltage is 24V±0.1VDC and measured at room temperature.
*2: The conditions are: 25±3°C ambient temperature, no load, working pressure of max. control pressure ×1.1 (EVT100:110kPa, EVT500:0.55MPa), and 10 to 100% control pressure. In addition, when the secondary side is a closed circuit, pressure fluctuations will occur if the product is used for blowing or for similar applications.
*3: The conditions where working pressure is maximum and control pressure is maximum are shown.
*4: The conditions where working pressure is maximum and step amount is
  50% F.S. → 100% F.S.
  50% F.S. → 60% F.S.
  50% F.S. → 40% F.S.

Electro pneumatic regulator



(Catalog No. CB-024SA)

Applications: Pilot regulator control

*1: 1% F.S. or less input signal stops control.
*2: The conditions for the values at right are: 24±0.1 VDC power supply voltage, 25±3°C ambient temperature, no load, working pressure from +0.05MPa max. control pressure to the max. working pressure, and 10 to 100% control pressure.In addition, when the secondary side is a closed circuit, pressure fluctuations will occur if the product is used for blowing or for similar applications.
*3: Working pressure: Max. working pressure, step amount:
50% F.S. → 100% F.S.
50% F.S. → 60% F.S.
50% F.S. → 40% F.S.

EVR Series

Electro pneumatic regulator that focuses on accuracy and stability

- The optimum pressure for your device can be selected.
  Pressure variation...9 variations are available at 100 kPa to 900kPa.
- High-precision pressure control
  The new control method, with built-in microcomputer, achieves more advanced pressure control.
- Temperature stability
  Built-in temperature compensation...Reduces the influence of ambient temperatures. No need for pressure correction due to equipment temperature rise.
- Pressure stability
  Residual pressure 0 when the input signal is 0%
  The pressure control pattern can be selected (3 patterns)
- Easy operation
  Two switches allow various settings
  With operation indicator
- Installability
  Connector…Straight and L types are available.
  Manifold is also usable

Specifications

Item		EVR-2100 (2109)	EVR-2200 (2209)	EVR-2300 (2309)	EVR-2400 (2409)
Working fluid		Clean compressed air (JIS B8392-1 (ISO 8573-1) [1.3.2])			
Max. working pressure		200 kPa	400 kPa	450 kPa	600 kPa
Min. working pressure		Set pressure +50kPa			
Proof pressure	Inlet	300 kPa	600 kPa	650 kPa	900 kPa
	Output side	150 kPa	300 kPa	450 kPa	600 kPa
Pressure control range *1		5 to 100 kPa	5 to 200 kPa	5 to 300 kPa	5 to 400 kPa
Performance *2 (Setting 1)	Hysteresis	0.3 kPa or less	0.6 kPa or less	1.5 kPa or less	
	Linearity	Within ±0.5 kPa	Within ±1.0 kPa	Within ±2.5 kPa	
	Resolution	0.1 kPa or less	0.2 kPa or less	0.5 kPa or less	
	Repeatability	0.2 kPa or less	0.4 kPa or less	1.0 kPa or less	
Temperature characteristics (Setting 1) Reference temperature 25°C	Zero point fluctuation	±0.06 kPa/°C	±0.12 kPa/°C	±0.30 kPa/°C	
	Span fluctuation	±0.06 kPa/°C	±0.12 kPa/°C	±0.30 kPa/°C	
Max. flow rate (L/min (ANR))		250	400	480	600
Step response (Setting 1)	No load *3	0.2 sec. or less			

Item		EVR-2500 (2509)	EVR-2600 (2609)	EVR-2700 (2709)	EVR-2800 (2809)	EVR-2900 (2909)
Working fluid		Clean compressed air (JIS B8392-1 (ISO 8573-1) [1.3.2])				
Max. working pressure		700 kPa	750 kPa	850 kPa	950 kPa	1,000 kPa
Min. working pressure		Set pressure +50kPa				
Proof pressure	Inlet	1,050 kPa	1,120 kPa	1,200 kPa	1,400 kPa	1,500 kPa
	Output side	750 kPa	900 kPa	1,050 kPa	1,200 kPa	1,350 kPa
Pressure control range *1		5 to 500 kPa	10 to 600 kPa	10 to 700 kPa	10 to 800 kPa	10 to 900 kPa
Performance *2 (Setting 1)	Hysteresis	1.5 kPa or less	3.0 kPa or less			
	Linearity	Within ±2.5 kPa	Within ±5.0 kPa			
	Resolution	0.5 kPa or less	0.9 kPa or less			
	Repeatability	1.0 kPa or less	1.8 kPa or less			
Temperature characteristics (Setting 1) Reference temperature 25°C	Zero point fluctuation	±0.30 kPa/°C	±0.60 kPa/°C			
	Span fluctuation	±0.30 kPa/°C	±0.60 kPa/°C			
Max. flow rate (L/min (ANR))		800	850	900	950	1,000
Step response (Setting 1)	No load *3	0.2 sec. or less				

Clean regulator

RC2000Series

(Catalog No. CB-024SA)

Ideal for pressure control of clean air and nitrogen

● Oil-prohibited specifications
Precision cleaning is performed on the gas contact parts, and the manufacturing processes from assembling to packaging are completed in clean rooms. No grease is used in gas-contacting parts.

● Compact/large flow rate
Compact size of Face to face 50mm, yet 0.8m³ A large flow rate of /min.
(Flow rate at 0.7 MPa primary pressure, 0.5 MPa set pressure, 0.1 MPa pressure drop)

● Reverse function (when back pressure is not applied)
This function reverses secondary pressure to the primary side when primary pressure is exhausted.
This safety-oriented product has no residual pressure on the secondary side.

RoHS

Applications: Purge Air, N_2 Pressure adjustment

Specifications

Model No.		RC2000-8-P90	RC2000-10-P90	RC2000-15-P90
Working fluid		Compressed air, N_2		
Max. working pressure MPa		1.0 (0.5 for low pressure)		
Proof pressure MPa		1.5		
Operating ambient temperature ℃		5 to 60		
Set pressure MPa		Standard: 0.05 to 0.7 Low pressure: 0.02 to 0.2		*1
Port size (IN/OUT)		Rc1/4	Rc3/8	Rc1/2
Pressure gauge port size		Rc1/8		
Gas contacting parts material	Metal	SUS316		
	Resin	PTFE		
	Rubber	FKM		
Assembling/inspection/packaging		Integrated production in cleanroom		
Cleaning (gas contact part)		Precision cleaning		
Weight kg		0.47	0.45	0.59
Attachment weight g		$G\frac{Y}{Z}$49:90, B3:40, E1:5		

*1: When using the standard with a set pressure of 0.4MPa or less, confirm that the primary pressure difference for the set pressure is within 0.5MPa. When using the low pressure type, confirm that the primary pressure difference for set pressure is within 0.3 MPa.

Flow rate sensor

(Catalog No. CC-1393A)

Applications: Purge Air, N_2 Flow rate measurement

IO-Link

Compact flow rate sensor (RAPIFLOW)-® FSM3 Series

Easy-to-use compact flow rate sensor with high performance and variety

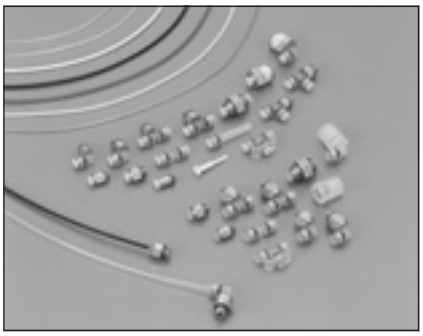
- Stainless steel body
  An oxygen-dedicated model is also available (oil-prohibited specifications)
  Select from JXR fitting type, double barbed fitting type and screw-in type
- Resin body
  Select from four fitting types: push-in elbow, push-in straight, screw-in elbow and screw-in straight
  2-port valve can be directly connected, contributing to further space saving
- Common specifications
  Flow rate range: Supports up to 1,000L
  Compatible with five types of gases in a single unit, including air, nitrogen, argon, carbon dioxide, and mixed gas
  Integrating the needle valve helps save space
- High precision/high-speed response
  Redesigned flow path reduces pressure loss by up to 50% compared to conventional products
  The flow direction can be set to forward, bi-direction or reverse direction
  Response time: 50 msec
- Automation of the entire factory using IO-Link
  IO-Link compatibility allows parameter and event data transmission, enabling preventative maintenance.
  Ideal for leakage inspection and air consumption control

Specifications

CE RoHS

Item		FSM3										
		005	010	020	050	100	200	500	101	201	501	102
Flow direction	U	Uni-direction										
	B	Bi-direction										
Measured flow rate Range (□ /min)	U	15 to 500mL	30 to 1000mL	0.06 to 2.00L	0.15 to 5.00L	0.30 to 10.00L	0.6 to 20.0L	1.5 to 50.0L	3.0 to 100.0L	6 to 200L	15 to 500L	30 to 1000L
	B	-500 to -15, 15 to 500mL	-1000 to -30, 30 to 1000mL	-2.00 to -0.06, 0.06 to 2.00L	-5.00 to -0.15, 0.15 to 5.00L	-10.00 to -0.30, 0.30 to 10.00L	-20.0 to -0.6, 0.6 to 20.0L	-50.0 to -1.5, 1.5 to 50.0L	-100.0 to -3.0, 3.0 to 100.0L	-200 to -6, 6 to 200L	-500 to -15, 15 to 500L	-1000 to -30, 30 to 1000L
Working conditions	Applicable fluids	Clean air (JIS B 8392-1:2012 1.1.1 to 5.6.2), compressed air (JIS B 8392-1:2012 1.1.1 to 1.6.2), N_2										
		Argon, carbon dioxide, and gas mixture (argon + carbon dioxide)									-	
	Temperature range	0 to 50°C (no condensation)										
	Pressure range	-0.07 to 0.75MPa (stainless steel body -0.01 to 1.00MPa)								0 to 0.75 MPa(Stainless steel body 0 to 1.00 MPa)	0 to 0.75 MPa	
	Proof pressure	1 MPa (stainless steel body 1.5MPa)										
Operating ambient temperature/humidity		0 to 50 °C, 90% RH or less										
Storage temperature		-10 to 60°C										
Accuracy (Fluid: in dry air)	Accuracy	Within ±3% F.S. (Secondary side released to atmosphere) (The scope of warranty is in accordance with the "measured flow rate range.")										
	Repeatability	Within ±1% F.S. (Secondary side released to atmosphere)										
	Temperature characteristics	Within ±0.2% F.S./°C (15 to 35°C, base temperature 25°C)										
Response time		50 msec or less (setting response time OFF)										
Current consumption		45 mA or less										
Lead wire		ø3.7, AWG26 or equivalent x 5-conductor (connector), insulator O.D. 1.0										
Functions		①Gas switching, ②Setting copy function, ③Flow rate integration,④Peak hold, etc.										
Degree of protection		IP40 or equivalent (IEC standard)										
Protection circuit		Power reverse connection protection, switch output reverse connection protection, switch output load short-circuit protection										
Vibration resistance		10 to 150 Hz, max. 100m/s^2, X, Y, Z directions, every 2 hours										
EMC Directive		EN55011, EN61000-6-2, EN61000-4-2/3/4/6/8										
Mounting	Mounting orientation	Unrestricted in vertical/horizontal direction										
	Straight piping section	Not required										

Auxiliary components



(Catalog No. CB-024SA)

Applications: Air operated valve drive

Fiber tube® for push-in fitting

New ultra-fine tube with increased usability through expanded inner diameter and push-in fitting

- New O.D. gripping structure used
- Expanded bore size from ø1.0 to ø1.2 for approx. three times larger flow rate
- Tube piping capacity is small, thus energy saving/space saving
- Series of clean-room models using highly corrosion-resistant materials
- Attachable and detachable push-in fitting, standard PG Series, clean-room CG Series available

RoHS

Specifications

● Fiber tube

Model No.	Antistatic UP-9402-F1	Clean-room EH-5802
Working fluid	Compressed air (*1)	
Working pressure (20°C) (*2)	−100kPa to 0.8MPa	−100kPa to 1.0MPa
Ambient temperature °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 resistance ratio Ω/cm	10^{10} to 10^{12}	−
Material	Antistatic urethane	Special polyolefin
Color	Black/white/transparent/transparent blue/ transparent green/yellow (*3)/red (*3)	Black/transparent

*1: Consult with CKD for other working fluids.
*2: Yellow and red are made-to-order products.

● Push-in fitting (standard)

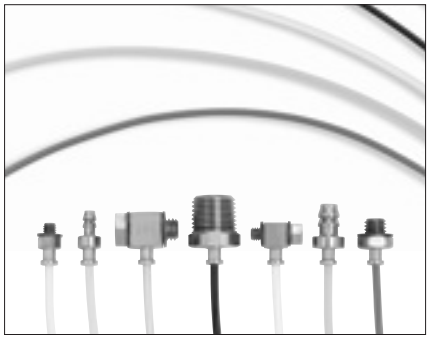
Model No.	PG Series
Working fluid	Compressed air (*1)
Working pressure	-100kPa to 1.0MPa
Ambient temperature °C	-10 to 60 (no freezing)
Tube used	Fiber tube (UP-9402-F1, EH-5802) *2

*1: Consult with CKD for other working fluids.
*2: Fiber tube for barbed fitting (UP-9102-F1) is not available.
*3: Sales unit is 1 set (10 pieces).

● Push-in fitting (clean-room)

Model No.	CG Series
Working fluid	Clean air (*1)
Working pressure	-100kPa to 1.0MPa
Ambient temperature °C	-10 to 60 (no freezing)
Lubricant	Oil-prohibited
Tube used	Fiber tube (UP-9402-F1, EH-5802) *2

*1: Rubber EPDM material is used, so this product cannot be used with fluids that contain m
Consult with CKD for other working fluids.
*2: Fiber tube for barbed fitting (UP-9102-F1) is not available.



(Catalog No. CB-024SA)

Applications: Air operated valve drive

Fiber tube®

Piping-free ultra-fine tube

- Extremely fine tubes are as fine and flexible as lead wires
- O.D. ø1.8 and min. bending radius 4 mm
- Electrical resistance is approx. $1\times17^{7}\Omega$•cm Antistatic
- Ideal for fine speed cylinder piping
- Equipped with a wide range of tube colors and fittings

RoHS

Specifications

● Tube

Item	UP-9102-20-*-F1
Working fluid	Compressed air
Working pressure (20°C) (*1)	−100kPa to 0.7MPa
Ambient temperature °C	−10 to 60(no freezing)
O.D. x I.D. mm	1.8×1.0
Inside diameter accuracy	±0.1
Diametral accuracy	±0.1
Min. bending radius (JIS B 8381) mm	2
Min. installation radius mm	4
Burst pressure (20°C) MPa	2.1(reference value)
Volume resistance ratio Ω/cm	1×10^{8} or less (black) 1×10^{12} or less (colors other than black)
Material	Conductive urethane
Color	Black, white, transparent, transparent blue, transparent green, yellow (*2), red (*2)

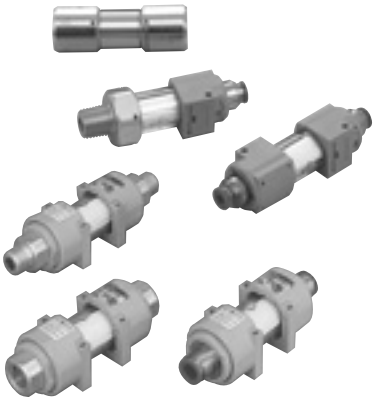
● Dedicated fitting

Item	PTN*
Port size	M3, M5, R1/8, ø3.2(*4), ø4(*4), ø6(*4)
Working fluid	Compressed air
Working pressure	-100kPa to 0.7MPa
Ambient temperature °C	-10 to 60 (no freezing)
Tube used	Tube UP-9102-20-*-F1
Effective cross-sectional area mm²	Straight, barbed nipple: 0.3 elbow: 0.2
Flow rate (*3) ℓ/min(ANR)	Straight, barbed nipple: 20 . Elbow: 13

*1: Made-to-order product.
*2: Flow rate is the atmospheric pressure conversion at 0.5 MPa.
*3: Compatible tube: Soft nylon tube (model No. FH-3224, F-1504, F-1506)
Urethane tube (model No. U-9504, U-9506)

Auxiliary components

FCSSeries



(Catalog No. CB-024SA)

Our proprietary hollow fiber membrane provides innovative filter performance

- **High-precision filtration**
  Hollow fiber membrane element has enabled 0.01 μm high precision filtration and 99.99% removal efficiency
- **Long service life**
  Considerably longer service life. Approximately five times longer than the flat membrane type
- **Compact/lightweight/large flow rate**
  A three to ten times filtration area enables larger flow rate and less pressure loss than the flat membrane type of the same capacity. Lighter and more compact at the same flow rate
- **Oil-prohibited specifications**
  Parts are all degreased and cleaned. Production from assembly through packaging takes place in cleanrooms
- **Easy maintenance**
  As the case of resin type is transparent, dirt on the element is visually apparent
- **Ample variations**
  Two kinds of flow rate (500 and 1000 Series), resin and stainless steel materials, and mounting options of push-in fitting, male thread piping and female thread piping are available.

RoHS

Applications: Purge Air, purification of N_2

Specifications(FCS500)

Item		Standard element resin	Male thread piping	P9 element stainless steel	
		FCS500-(*1)(*2)	FCS500-(*1)(*2)	FCS500-66-P90 FCS500-66-P94	FCS500-88-P90 FCS500-88-P94
Working fluid		Compressed air, N_2			
IN side port size (*1)		ø4, ø6, ø8orL Selection	Select from ø4, ø6, ø8, R1/8 and R1/4	Rc1/8	Rc1/4
OUT side port size (*2)				Rc1/8	Rc1/4
Proof pressure MPa		1.5	1.5	2.25(Compressed air),1.5(N_2)	
Differential resistant pressure MPa		0.5(where,45 to 50°Cis0.2)	0.5(where 45 to 50°C is0.2)	0.5	
Working pressure MPa		−0.095 to 0.99 *2	−0.095 to 0.99 *2	-0.095 to 1.5(Compressed air),-0.095 to 0.99(N_2)	
Ambient temperature °C		5 to 50	5 to 50	5 to 45	
Degree of filtration μm		0.01 (removal efficiency 99.99%)			
Processing flow rate L/min(ANR) *1		50 (H8H8 type: 80)	50 (H88A and 8AH8 types: 80)	50	80
Weight g		45	45	100	100
Material	Body	Polyamide	Polyamide,Aluminum(Alumite treatment)	Stainless steel	
	Case	Clear polyamide	Clear polyamide	Stainless steel	
	Element	Polypropylene + urethane			
Assembling/inspection/packaging		Integrated production in cleanroom			
Cleaning		Degreasing			

*1: Initial flow rate at primary pressure 0.7 MPa and pressure drop 0.03 MPa.
*2: Maximum working pressure varies with working temperature.

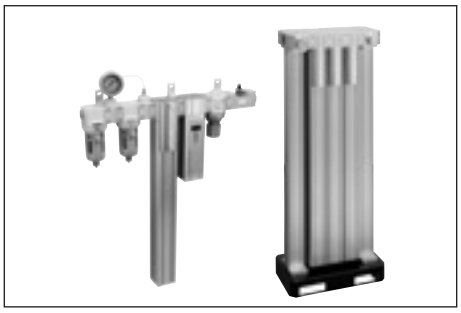
Specifications(FCS1000)

Item		Resin		Stainless steel (made to order)
		FCS1000-(*1) (*2)		FCS1000-(*1) (*2)-P90 FCS1000-(*1) (*2)-P94
Working fluid		Compressed air,N_2		
IN side port size (*1)		Push-in fitting ø8, ø10, ø12, Select from R1/4, R3/8, Rc1/4 and Rc3/8		Select from Rc1/4 and Rc3/8
OUT side port size (*2)				
Proof pressure MPa		1.5		2.25 (compressed air), 1.5(N_2)
Differential resistant pressure MPa		0.5		
Working pressure MPa		−0.095 to 0.99		-0.095 to 1.5 (compressed air), -0.095 to 0.99 (N_2)
Ambient temperature °C		5 to 45		
Degree of filtration μm		0.01 (removal efficiency 99.99%)		
Processing flow rate L/min (ANR)		300 to 400 *1		
Weight kg		Push-in fitting	Other than push-in fitting	0.5
		0.15	0.11	
Material	Body	Polyamide		Stainless steel
	Case	Clear polyamide		Stainless steel
	Element	Polypropylene + urethane		
Assembling/inspection/packaging		Integrated production in cleanroom		
Cleaning		Degreasing		

*1: Initial flow rate at primary pressure 0.7 MPa and pressure drop 0.03 MPa. (Differs according to port size.)

Gas generator

Nitrogen Gas Extraction Unit NS Series



(Catalog No. CC-1355A)

Easily extracts nitrogen gas from compressed air

- Install anywhere
  Nitrogen-enriched gas is obtained just by supplying compressed air.
  System Components are provided to reduce man-hours, piping and space.
- Power supply not required
  Usable even in explosion-proof atmospheres and different voltage regions.
  Quiet, with no heat generation as there is no drive system.
- Low cost
  Running cost is only the cost of electricity for the compressor.
  There are no ongoing costs such as cylinder management and filling fees.
- Easy maintenance
  Since there are no movable parts, stable performance can be maintained.
  Parts replacement is possible without disassembling the piping.

Applications: N_2 extraction

Common specifications

Item			NSU-3S	NSU-3L	NSU-4S	NSU-4L
Range of working conditions	Working fluid		Compressed air			
	Inlet air pressure	MPa	0.4 to 1.0			
	Inlet air temperature	°C	5 to 50			
	Relative humidity of inlet air	RH	50%			
	Ambient temperature	°C	5 to 50			
Rating	Inlet air pressure dew point	°C	10			
	Inlet air pressure	MPa	0.7			
	Inlet air temperature	°C	25			
	Ambient temperature	°C	25			

System type NSU Series
Specifications

Item				NSU-3S	NSU-3L	NSU-4S	NSU-4F	NSU-4L	NSU-4G	NSU-4H
Rated flow rate	Outlet nitrogen gas flow rate L/min(ANR)	Nitrogen conc (%)	99.9	1.9	5.6	11.0	20.9	30.6	31.9	49.0
			99	5.0	15.5	28.2	53.6	66.9	81.8	107.0
			97	8.9	28.7	49.9	94.8	118.1	159.7	189.0
			95	14.0	39.8	65.3	124.1	169.2	222.0	270.7
Air filter		Filtration rating μm		5						
Oil mist filter		Oil removal mg/m³		0.01Less than or equal to (0.1 or less after oil saturation) * Primary oil content 30mg/m³ when , 21°C.						
Regulator		Set pressure range MPa		0.05 to 0.85						

Unit NS Series
Specifications

RoHS

■ Single cylinder

Item				NS-3S1	NS-3L1	NS-4S1	NS-4L1
Rated flow rate	Outlet nitrogen gas flow rate L/min(ANR)	Nitrogen conc (%)	99.9	1.9	5.6	11.0	30.6
			99	5.0	15.5	28.2	66.9
			97	8.9	28.7	49.9	118.1
			95	14.0	39.8	65.3	169.2

■ Double cylinder

Item				NS-4S2	NS-4S3	NS-4L2	NS-4L3	NS-4L4	NS-4S6	NS-4S8	NS-4SA	NS-4L6	NS-4L8
Rated flow rate	Outlet nitrogen gas flow rate L/min(ANR)	Nitrogen conc (%)	99.9	22.0	33.0	61.2	91.8	122.4	66.0	88.0	110.0	183.6	244.8
			99	56.4	84.6	133.8	200.7	267.6	169.2	225.6	282.0	401.4	535.2
			97	99.8	149.7	236.2	354.3	472.4	299.4	399.2	499.0	708.6	944.8
			95	130.6	195.9	338.4	507.6	676.8	391.8	522.4	653.0	1015.2	1353.6

Gas generator

Inline oxygen monitor PNA Series

(Catalog No. CC-1414A)

Applications: Oxygen concentration measurement

A new kind of sensor that visualizes oxygen concentration

- Pressure resistant structure for inline use
  Modular structure saves piping space
- Switch displays between oxygen and inert gas concentrations
  The inert gas concentration is clear at a glance.
- Upper/lower limit switch output setting and analog output are available
  Alarms can be set for concentration changes, and status monitoring is possible.
- With self-diagnostic function
  Keeps you posted about abnormalities in the detector element.

Specifications

Item	Description
Measuring method	Zirconia solid electrolyte method
Display	Switchable oxygen conc display and nitrogen conc display (100-oxygen conc)
Working fluid	Nitrogen-rich compressed air
Working pressure MPa	0 to 1.0
Proof pressure MPa	1.5
Max. flow rate L/min (ANR)	500 *1
Measured range %O_2	0.00 to 25.00
Accuracy *2	±0.05%O_2 ±1digit (For 0.00 to 1.00% O_2) ±0.10%O_2 ±1digit (For 1.01 to 2.50% O_2) ±0.5%O_2 ±1digit (For 2.51 to 10.00% O_2) ±1.0%O_2 ±1digit (For 10.01 to 25.00% O_2)
Power supply voltage	24 VDC ±15% (with AC adapter: 100 to 240 VAC)
Degree of protection	IP 65 or equiv.
EMC Directive	EN61326-1
Weight kg	1.6

*1 For values exceeding 500 L/min (ANR), consult with CKD.
*2 Value referring to the dry gas made up of oxygen and nitrogen.

Gas generator

Portable Air Supply Unit ASU-S Series

(Catalog No. CC-1363A)

Applications: Local air supply

A compact, all-in-one body.

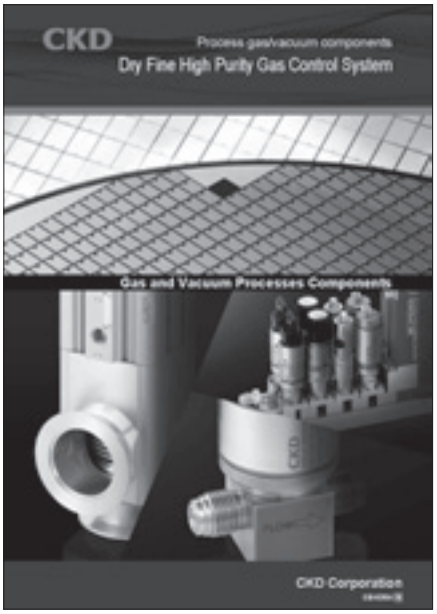
- Easy to carry
  It is shaped like a carry case, making it easy for anyone to transport it.
- Supplies clean air
  The after cooler and centrifuge removes drain and the filter removes foreign matter
- Continuous use possible
  Heat resistance around the pump is increased, enabling long periods of use

Specifications

Item	ASU-S-C6-1
Rated pressure	0.4 MPa
Max. allowable pressure	0.5 MPa
Discharge air quantity (50/60 Hz)	19/25 L/min(ANR)*1*3
Rated voltage	Single-phase 100VAC (50/60 Hz)
Rated current (50/60 Hz)	3.3/3.5 A
Noise level	60 dB (A) with lid closed
Pump electric motor	4P, F-type, capacitor induction Automatic return thermal protector

Item	ASU-S-C6-1
Pump electric motor output	90 W
Ambient temperature	5 to 35°C
Weight	15 kg
Dimensions	W350 x D225 x H560 mm
Pump starting	Pressure switch
Pump warranty period	1 year or 3,000 hours*2

*1: Flow rate at atmosphere release.
*2: When ambient temperature is 5 to 35 °C, rated pressure is 0.4 MPa, and under continuous operation
*3: Measured value according to CKD test conditions. It is not a guaranteed value.

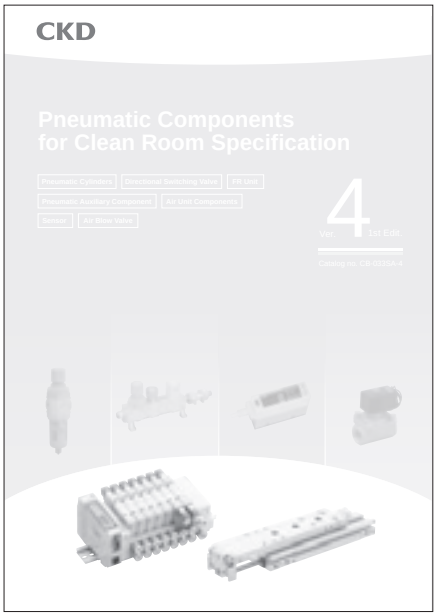


Responding to high-level needs for semiconductor manufacturing process control

Dry Fine System/high purity gas control system components

Catalog No.CB-035A

- Industry top performance and reliability
- High quality achieved by advanced spec super cleanroom and consistent production system from design to assembly/packaging
- Variety of versatile fitting variations



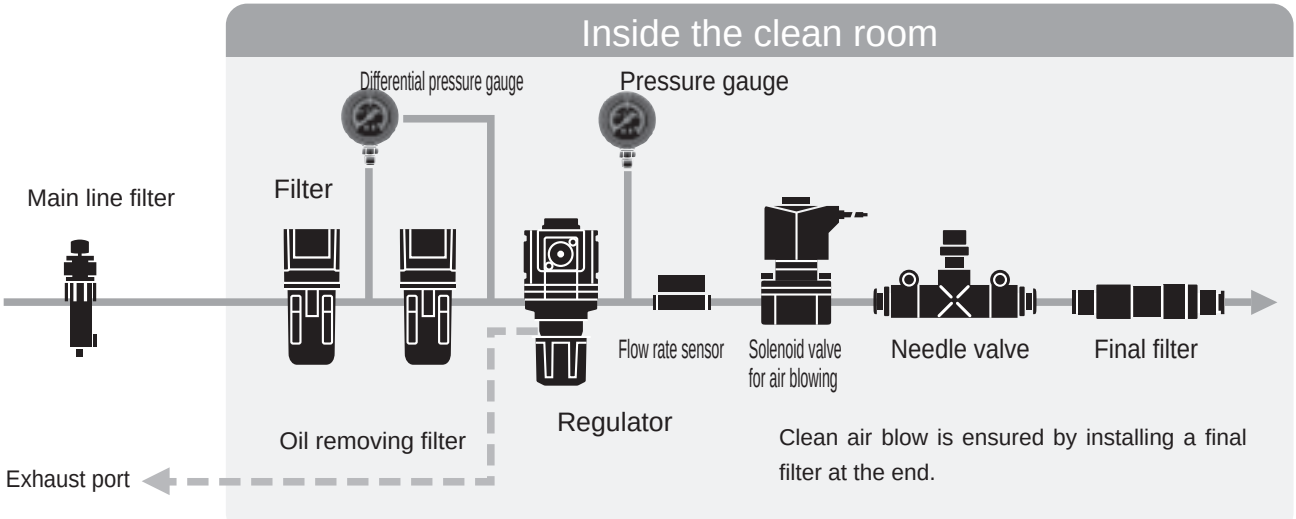
Components for clean room specifications

Catalog No.CB-33A

Satisfies the various levels of clean room cleanliness in a wide range of industries

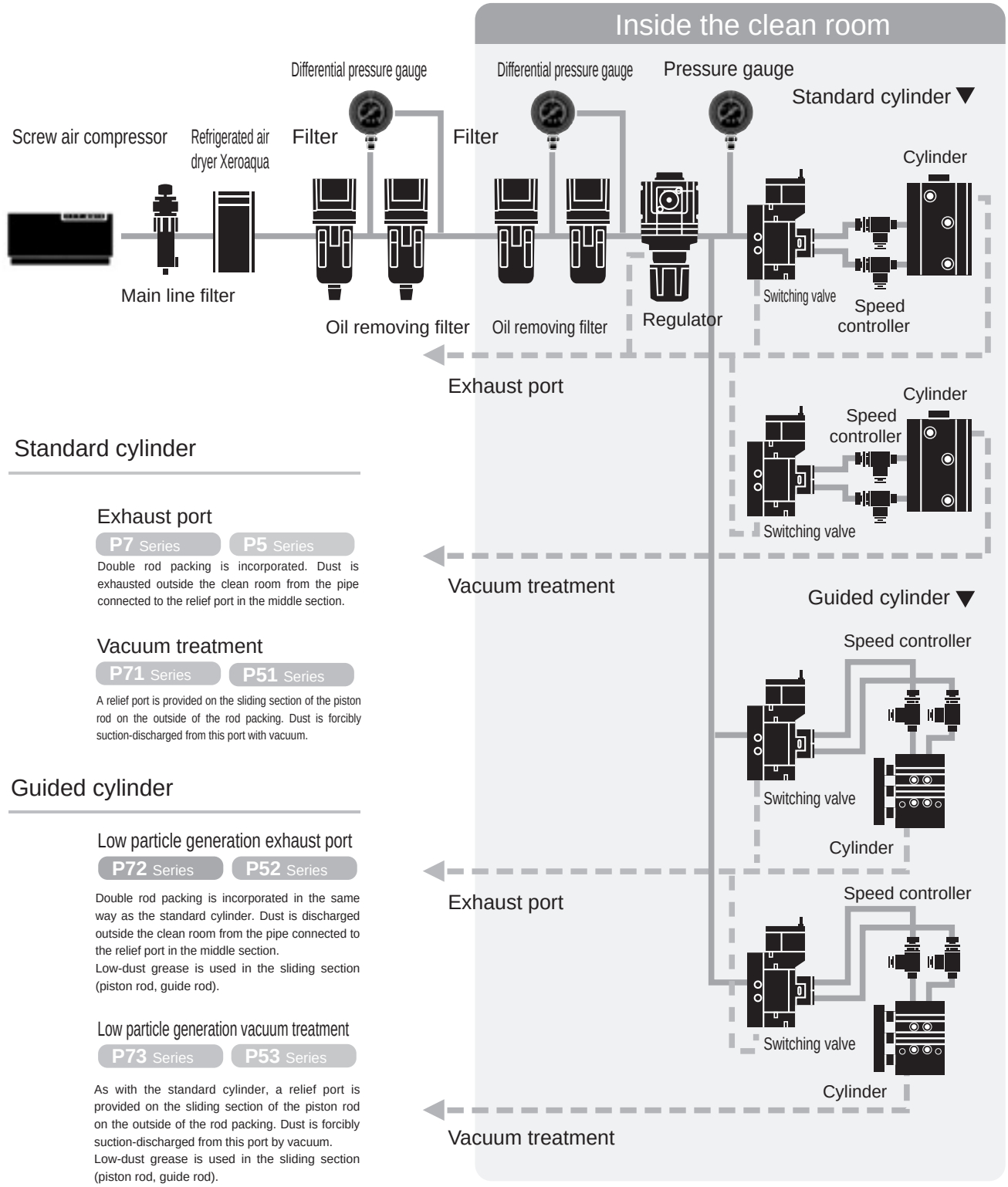
Reliably producing high cleanliness air

Clean blow system model circuit



Zero particle generation with vacuum treatment and exhaust port

Air-driven actuator system circuit structure



Standard cylinder

Exhaust port

P7 Series **P5** Series

Double rod packing is incorporated. Dust is exhausted outside the clean room from the pipe connected to the relief port in the middle section.

Vacuum treatment

P71 Series **P51** Series

A relief port is provided on the sliding section of the piston rod on the outside of the rod packing. Dust is forcibly suction-discharged from this port with vacuum.

Guided cylinder

Low particle generation exhaust port

P72 Series **P52** Series

Double rod packing is incorporated in the same way as the standard cylinder. Dust is discharged outside the clean room from the pipe connected to the relief port in the middle section.
Low-dust grease is used in the sliding section (piston rod, guide rod).

Low particle generation vacuum treatment

P73 Series **P53** Series

As with the standard cylinder, a relief port is provided on the sliding section of the piston rod on the outside of the rod packing. Dust is forcibly suction-discharged from this port by vacuum.
Low-dust grease is used in the sliding section (piston rod, guide rod).

Have questions about chemical liquid, gas or vacuum control? Call a CKD Fine product representative for information!

- I need to suppress fluctuations in flow rate
- I need to control dripping when the valve is closed
- I need to switch between multiple chemical liquids in a compact manner
- I need a proposal for a pneumatic valve set

Contact: FS Development Department

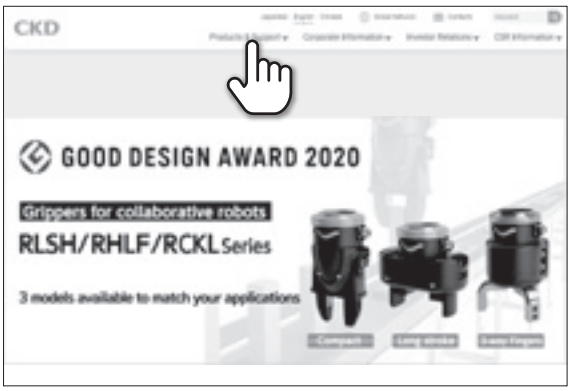
Tel: (+81)52-223-1126

Reception hours: JST 9:00 to 12:00/13:00 to 17:00
(Closed weekends and holidays)

Homepage

Catalog PDFs and CAD data of CKD products are available for download.

https://www.ckd.co.jp/en/



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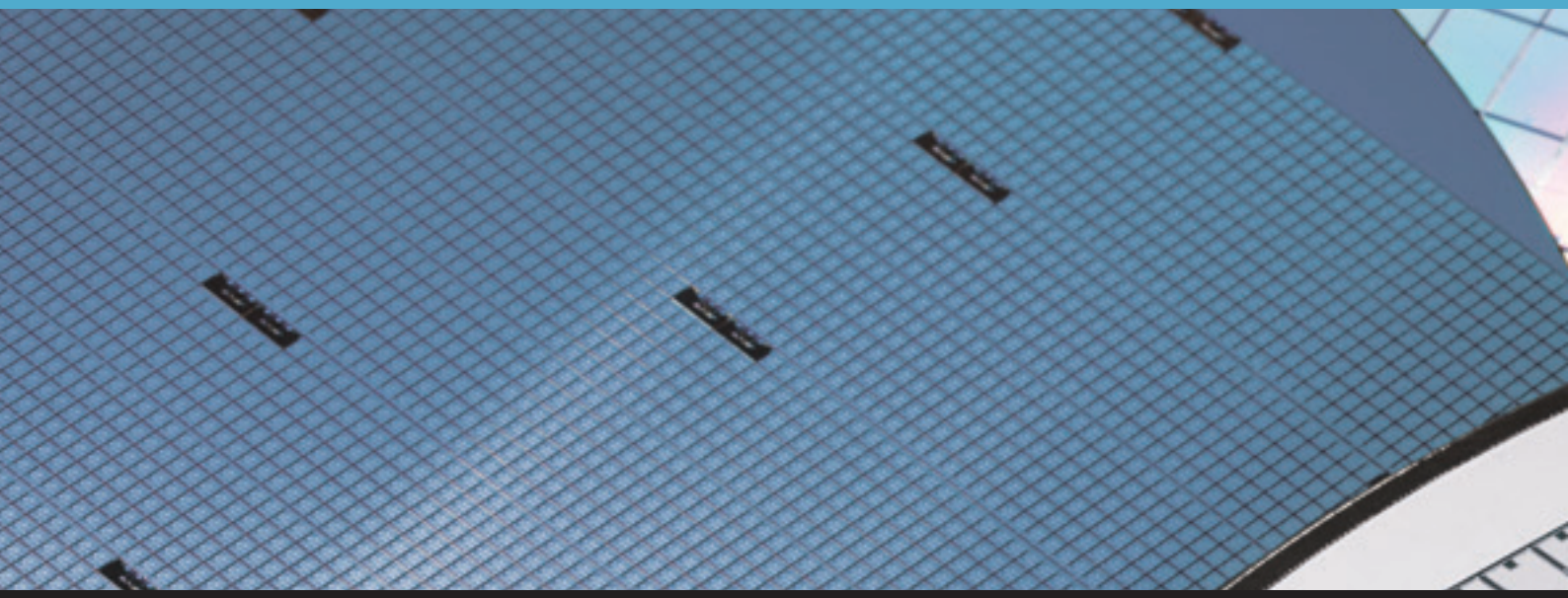
Components for Pure water/Chemical liquids

Wet Fine Components General Catalog



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- Specifications are subject to change without notice.

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