CKD

New Products

High corrosion proof flow control valve
FMD00 Series

New product

Overview

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

Features

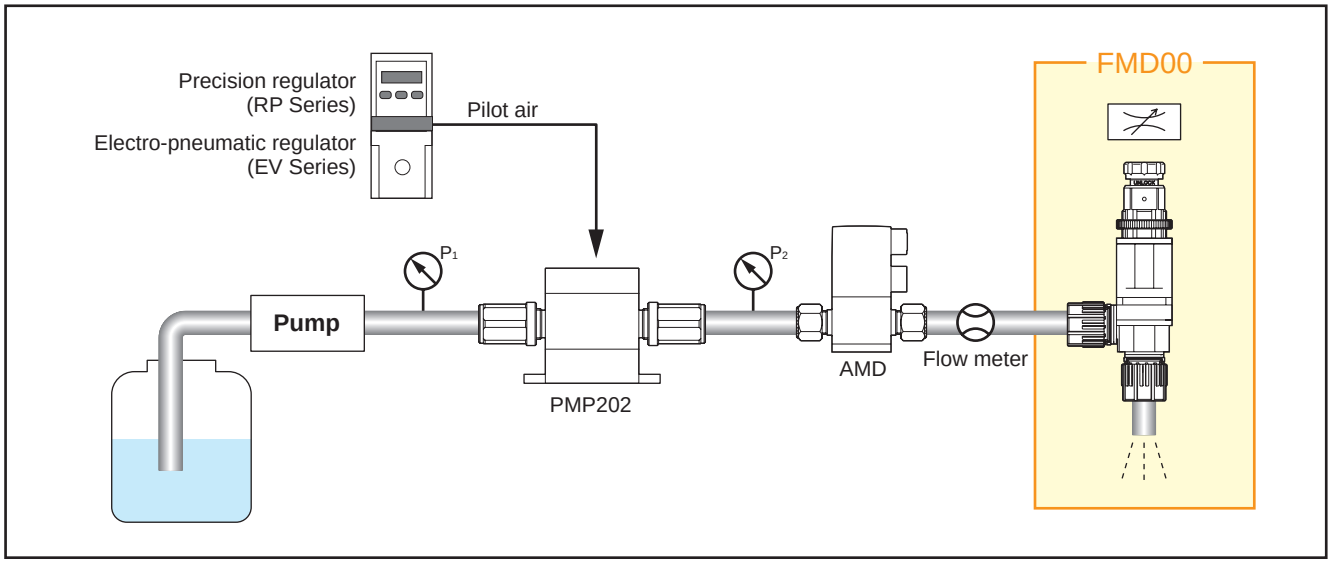
- **Easy one-push lock**

Before lock **After lock**

- **Easy one-push lock operation minimizes deviation in the flow rate.**
- **Adjust microflow accurately.**

For controlling flow of chemicals and pure water in semiconductor manufacturing equipment

Applications



Refer to handling manual and "Safety Precautions" in the latest High Purity Chemical Liquid System Component General Catalog (No. CB-031A) before starting use.

CKD Corporation

CC-899A

Specifications

Descriptions		FMD00-*	FMD00-*-1
Working fluid		Deionized water, chemical liquids, air or N_2 gas (Note 1)	
Fluid temperature	°C	5 to 80 (Note 2)	
Withstanding pressure	MPa	1	
Working pressure range	MPa	0 to 0.3	
Ambient temperature	°C	0 to 40	
Mounting attitude		Free	
Connection		O.D. Φ6 tube connection (fitting integrated type) O.D. 1/4'' tube connection (fitting integrated type) O.D. Φ10 tube connection (fitting integrated type) O.D. 3/8'' tube connection (fitting integrated type)	
Orifice		Φ1.6	Φ3.5

Note 1: Refer to safety precautions.
Note 2: 5 to 40°C for hydrofluoric acid.

How to order

FMD00 - 6UP - 1

Model no.

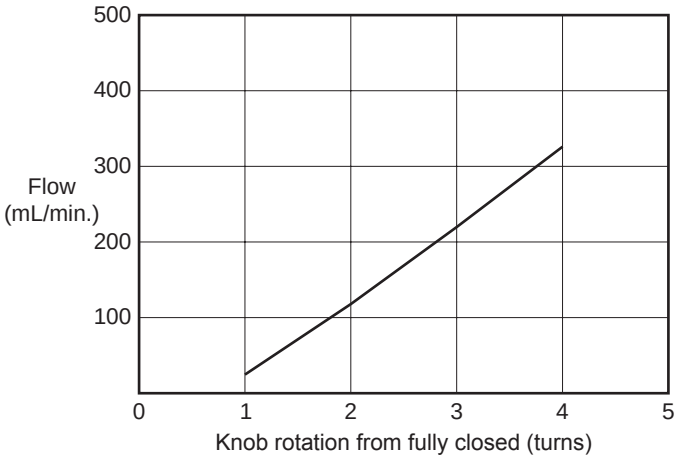
Ⓐ Connection

Symbol	Descriptions	6UP	8BUP	10UP	10BUP
		SUPER 300 type PILLAR fitting P Series integrated type			
		Φ6 x Φ4 tube connection	1/4''×5/32'' tube connection	Φ10 x Φ8 tube connection	3/8''×1/4'' tube connection
Ⓑ Orifice					
Blank	Φ1.6	●	●	●	●
1	Φ3.5	●	●	●	●

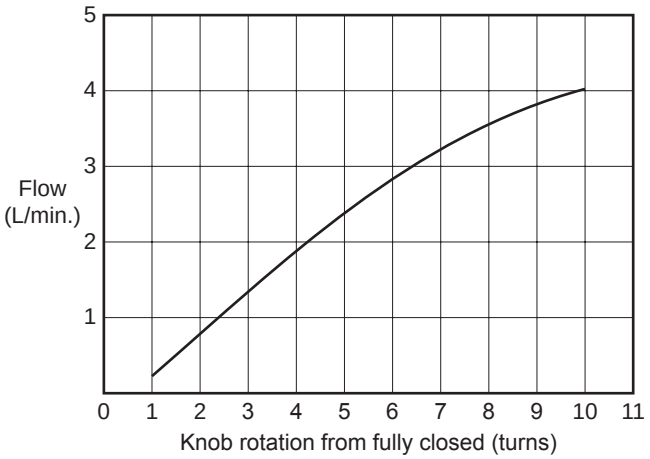
Ⓑ Orifice

Flow characteristics Δ P = 0.1 MPa fluid: Water (references data)

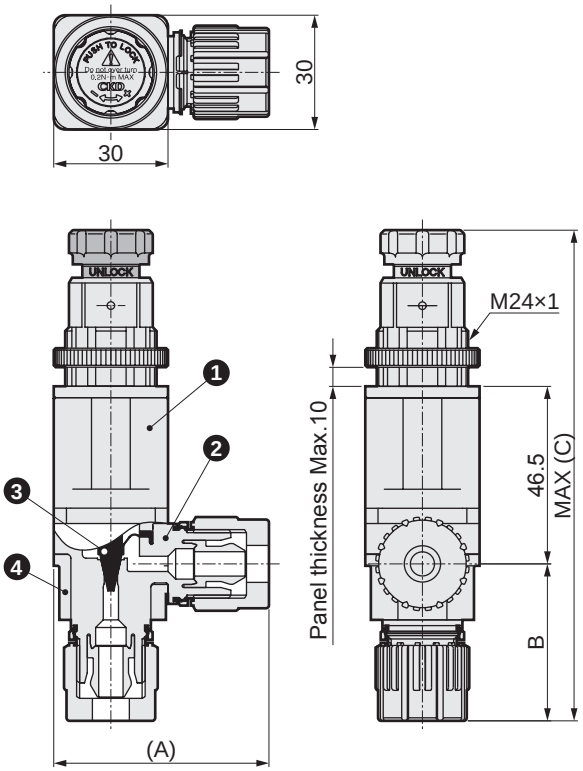
●FMD00-8BUP (orifice Φ1.6)



●FMD00-8BUP-1 (orifice Φ3.5)



Internal structure and parts list, dimensions



No.	Parts name	Material	Quantity
1	Actuator assembly	PP	1
2	Body	PFA	1
3	Diaphragm	PTFE	1
4	Mounting plate	PVDF	1

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

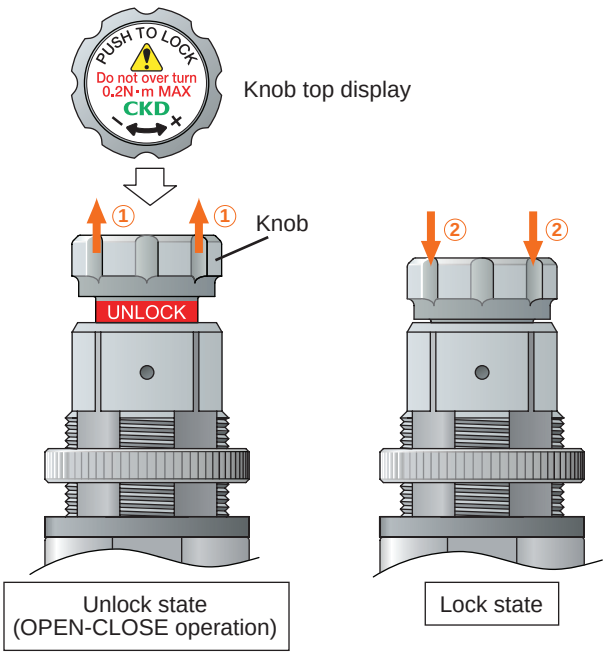
Flow control valve operation

When operating the flow adjustment valve, confirm the flow rate with the flow meter, and do not turn the knob too far. (Knob rotation torque must be 0.2 N·m or less.)

- **To increase the flow rate**
  Slide the knob upward until the UNLOCK characters are visible. (↑ (1)) Turn the [UNLOCK STATE] knob in the + direction.

- **To reduce the flow rate**
  Slide the knob upward until the UNLOCK characters are visible. (↑ (1)) Turn the [UNLOCK STATE] knob in the – direction.

- **Locking the knob**
  After turning the knob, slide the knob downward until the UNLOCK characters are hidden, then lock the knob so it does not turn. (↓ (2)) [LOCK STATE]
  → **This prevents incorrect operation.**



Safety precautions

Refer to handling manual and “Safety Precautions” in the latest General High Purity Chemical Liquid Components (Catalog No. CB-031A) before starting use.

⚠ DANGER

1 This product must not be disassembled or reassembled by the user.
Chemicals could leak out.

⚠ WARNING

1 Connecting joints
Dedicated tools are required to connect joints. Contact the joint maker for this work.

2 Main piping

(1) Check that stress, such as bending, tension, or compression, is not applied to the valve when connecting main pipes. Excessive force could cause the joints or body to deform or break, and could compromise performance.

(2) When installing the valve, fix it to the device with a panel mount. The body, piping, or joints could be damaged if supported only by joints.

3 Ambient environment
Do not use this regulator in the following environment because chemicals could leak from the product, or operation faults or damage, etc., could occur.

- Corrosive environment, explosive environment, or where chemicals could come in contact.
- Places where vibration or impact is generated.
- Near heat sources exceeding the working temperature, or outdoors

4 Chemical resistance
When using this regulator for chemicals, the user is responsible for confirming the compatibility of the working fluid and product materials. A person familiar with chemicals should refer to the table below to confirm compatibility. Wetted parts and the product components could be affected by the permeated gas, and could lead to leaks from products or misoperation, etc.

Working fluid	Compatibility	Working fluid	Compatibility
Deionized water	○	Sodium hydroxide	○
Sulfuric acid	○	Potassium hydroxide	○
Hydrochloric acid	○	Aqueous ammonia	○
Nitric acid	×	Amine-based peeling agent	○ Note 2
Hydrofluoric acid	○ Note 1	Acetone	× Note 3
Phosphoric acid	○	Isopropyl alcohol	○
Ammonium fluoride	○	Thinner	× Note 3
Hydrogen peroxide	○	Developer	○
Ozone water	×	Air/N_2 gas	○

○: Available ×: Not available
Consult with CKD when using fluids other than those on the left.

Note 1: When using hydrofluoric acid, the maximum fluid temperature is 40˚C.

Note 2: When using fluids containing a surface acting agent or highly permeable fluids such as a peeling agent, the fluid could permeate the part.

Note 3: Consult with CKD separately.

5 How to use
This product is made of resin. Use tools and check that excessive stress such as bending, tension, or compression is not applied to the valve. Deformation or damage may occur.

- Keep the temperature, pressure, and other working conditions within the product’s specified range.

⚠ CAUTION

1 Setting the flow rate

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

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