



Flow rate adjusting valve

FMD00 Series

A valve designed for minute flow rate adjustment, in order to handle highly corrosive fluids.

- Orifice size: $\phi 1.6$, $\phi 3.5$



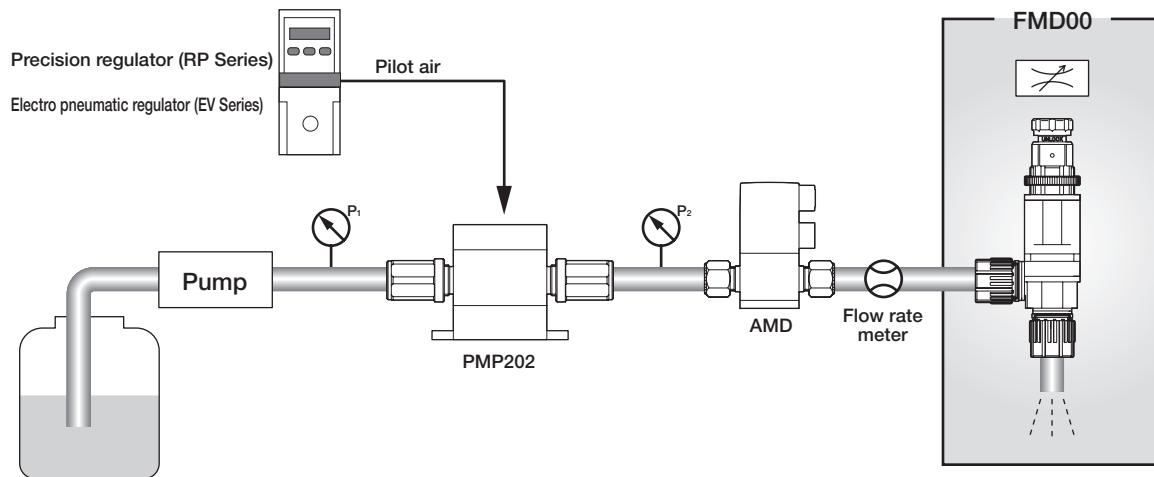
Specifications

Descriptions	FMD00-*	FMD00-*-1
Working fluid	Pure water, chemical liquids, air, N ₂ gas (Note 1)	
Fluid temperature °C	5 to 80 (Note 2)	
Proof pressure MPa	1	
Working pressure MPa	0 to 0.3	
Ambient temperature °C	0 to 40	
Mounting orientation	Unrestricted	
Connection	OD $\phi 6$ tube connection (fitting integrated type) OD 1/4" tube connection (fitting integrated type) OD $\phi 10$ tube connection (fitting integrated type) OD 3/8" tube connection (fitting integrated type)	
Orifice size	$\phi 1.6$	$\phi 3.5$

Note 1: Before use, check the compatibility of the product structural materials with the working fluids and ambient atmosphere. (Refer to the compatibility check list on Intro Page 16.)

Note 2: Contact CKD if using hydrofluoric acid or fluids at temperatures exceeding 40°C.

Applications



How to order

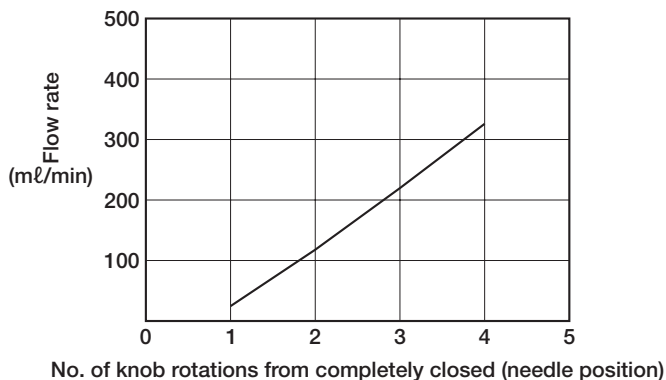
FMD00 - **6UP** - **1**

Model No. **A** Connection **B** Orifice size indication

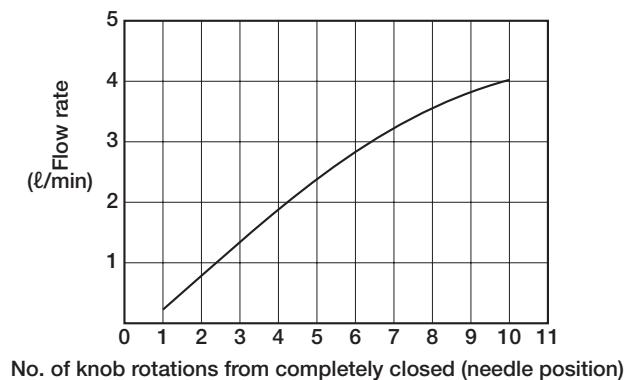
		A Connection			
		6UP	8BUP	10UP	10BUP
		Super 300 type Pillar fitting P Series integrated type			
		$\phi 6 \times \phi 4$ tube connection	1/4" x 5/32" tube connection	$\phi 10 \times \phi 8$ tube connection	3/8" x 1/4" tube connection
B Orifice size	Code	Content			
	Blank	$\phi 1.6$	●	●	●
	1	$\phi 3.5$	●	●	●

Flow rate characteristics $\Delta P=0.1\text{MPa}$ Fluid: water (reference data)

● FMD00-8BUP (orifice size $\phi 1.6$)

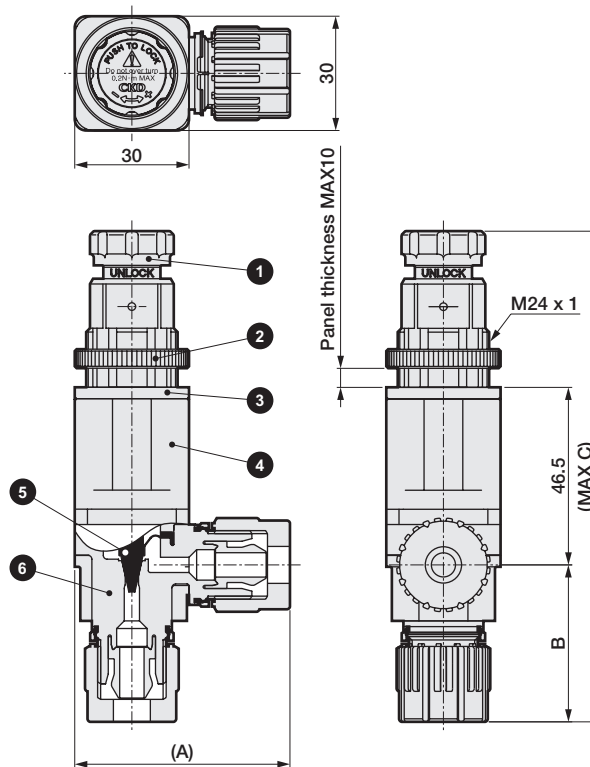


● FMD00-8BUP-1 (orifice size $\phi 3.5$)



! Be sure to read the usage precautions on Intro Pages 7 to 16.

Internal structure and parts list/dimensions



No.	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 differ depending on the model number. Contact CKD for details.

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

Operating method for flow rate adjusting valve

When operating the adjusting valve, adjust the flow rate with the flowmeter while taking care not to turn the knob too far.
(Use with a knob turning torque of 0.2N•m or less)

● Increasing the flow rate

Slide the knob up until the word "UNLOCK" is visible. (↑ (1)) Turn the [UNLOCK] knob in the + direction.

● Decreasing the flow rate

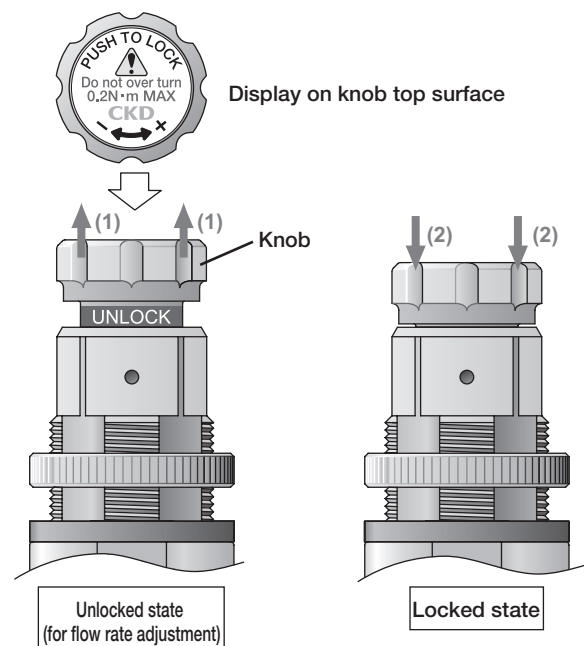
Slide the knob up until the word "UNLOCK" is visible. (↑ (1)) Turn the [UNLOCK] knob in the - direction.

● Knob locking

After adjusting the knob, it can be locked to prevent rotation by sliding it down until the word "UNLOCK" is no longer visible.

(↓ (2)) [Locked state]

→ **This prevents malfunction.**



WARNING

When installing the valve body, fix it in place with panel mounting. Mounting the valve by the fitting only could result in damage to the main body or the piping/fitting.

CAUTION

1 Flow rate setting

- When operating the valve, adjust the knob with a rotation torque of 0.2N•m or less. Adjusting with a torque greater than 0.2N•m may damage the product.
- Do not pull the knob too vigorously when the lock is released.
- Do not carry the product by holding only the knob.
- When using this product, first check that there is no vibration during practical use. Vibration could reduce the service life of the product.
- Since the product's structure does not include a closing function, the fluid cannot be shut off. Use a valve with a closing function to shut off the fluid. Shutting off the fluid with this product will crush the valve seat portion, reducing flow rate controllability.
- When used with a minimal flow rate setting, the valve opening will also be extremely small. Thus, any foreign matter mixed in with the fluid could block the valve, causing the flow rate to vary.
- If there is fluctuation in the fluid temperature, the valve opening could change size due to expansion of the fluororesin, causing the flow rate to vary.

MEMO

AMD ² 3R	AMD ² Z	AMD ⁰ 2	AMD ³ 2	AMD ⁴ 2	AMD ⁵ 2	AMD ¹ H	AMD ¹ M	AMG ² 3R	AMG ² Z	AMG ⁰ 2	GAMD ² 3R	GAMD ² 2A	GAMD ² 2	High pressure specifications	AMD	For characteristics	MMMD ⁰ 2	MMMD ⁰ H	MMMD ⁰ M	GMMD ⁰ 2	MMMD ⁰ 0	TMD ⁰ 2	FMD⁰0	AMN	AMS	AMDS	Fine regulator	KML	Others	Related
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Electric needle valve for chemical liquids

MNV Series



Specifications

1. Valve/body

Descriptions	MNV00-10BUP-1-G
Working fluid	Chemical liquids/pure water (Note 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 A port and B port)
Setting range	0 to 600 stp. (motor driven step) • 0 steps, valve open side, origin sensor detection • 600 steps, 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 temperature % RH	20 to 85 (no condensation)
Mounting orientation	Unrestricted
Connection	Super 300 type Pillar fitting P Series integrated type 3/8" x 1/4" fitting for PFA tube
Orifice size mm	φ3.4
Degree of protection	Waterproof (IP65 equivalent)

Note 1: Before use, check the compatibility of the product structural materials with the working fluids and ambient atmosphere. (Refer to the compatibility check list on Intro Page 16.)

Cannot be used with nitric acid, hydrochloric acid, hydrofluoric acid, ozone, or organic fluids.

2. Motors

Type	2-phase stepper motor (bipolar)
Driving method	Full step (step angle 1.8°)
Rated driving current mA/phase	350
Driving speed pps	650

3. Sensors

Power supply voltage	24VDC±10%, Ripple (P-P) 10[%] or less
Current consumption	50mA or less
Control output	NPN open collector output, 40mA or less
Operation mode	Output ON when opened from origin position on valve opening side
Response frequency	1kHz or more

4. Purge (Note 2)

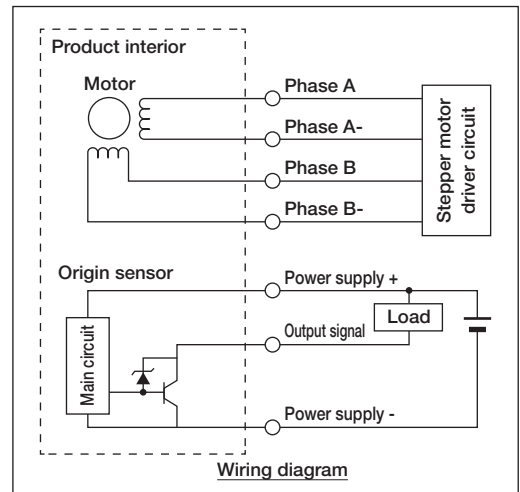
Purge flow rate L/min	15 to 30
Internal pressure kPa	0 to 100
Fluid temperature °C	10 to 30
Port size	IN port: Rc1/8, EXH port: Rc1/8
Purge supply fluid	Clean compressed air, JIS grade 2.6.1 equivalent (JIS B 8392-1: 2003)

Note 2: Be sure to perform purge. Also, provide a speed controller on the supply side for the flow rate to adjust to the specified flow rate.

5. Cables

Conductor sectional area	AWG#24, Approx.0.2 [mm ²]
Conductor material	Tin-plated soft copper wire
Outer diameter of lead wire covering	Approx. 1.14 [mm]
Lead wire insulating material	ETFE
Finish outer diameter of cable	Approx. 4.4 [mm]
Outer skin sheath material	FEP, Black
Cable length	3m

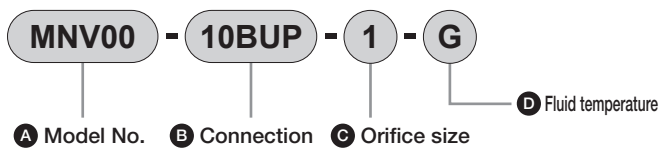
6. Wiring



Insulator color	Connection 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.

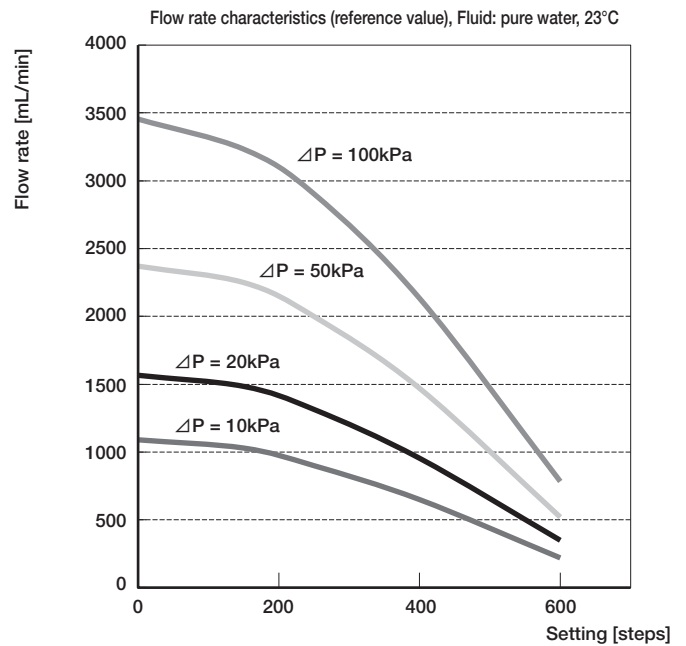
Be sure to read the usage precautions on Intro Pages 7 to 16.

How to order



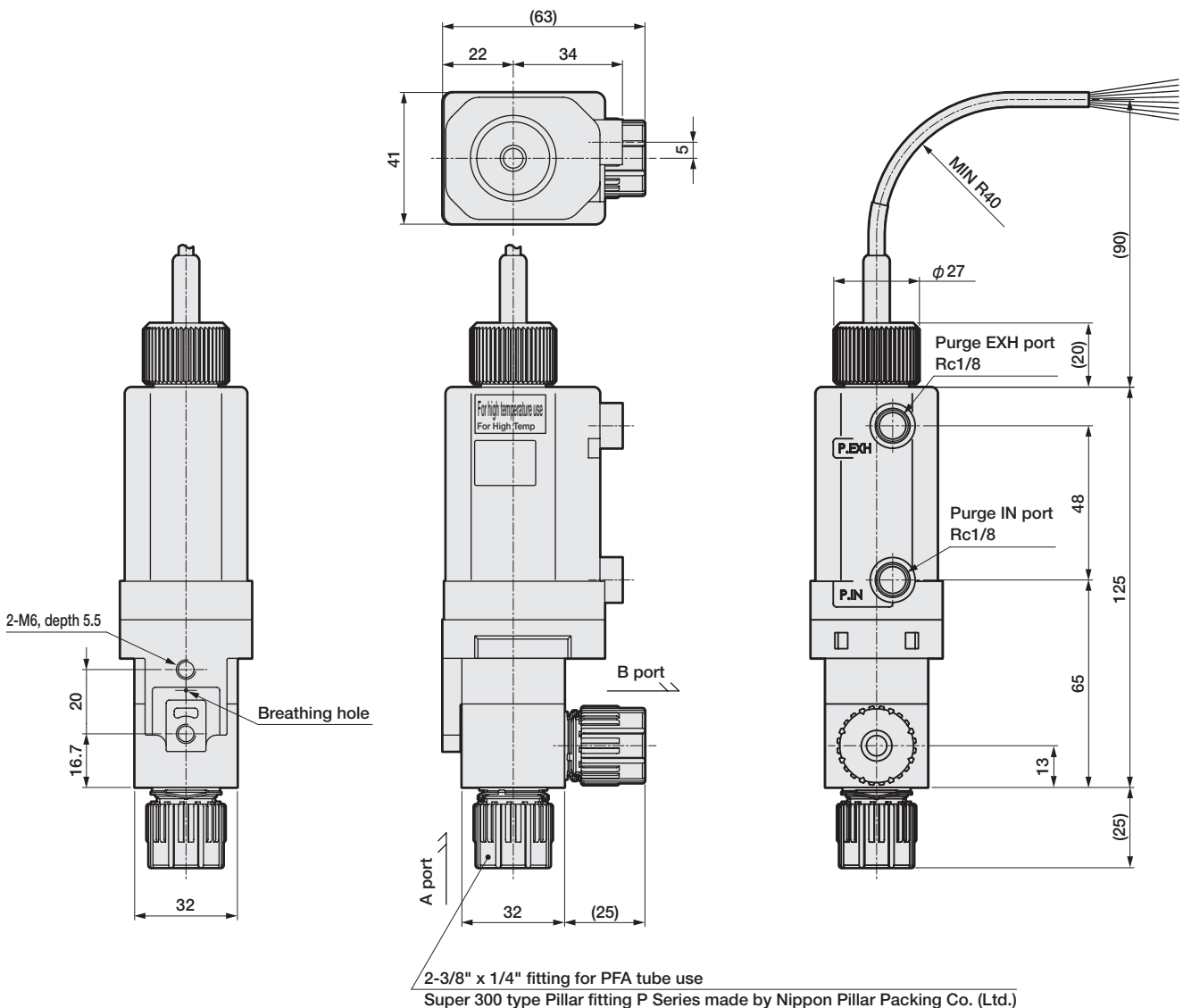
Code	Content
A Model No.	MNV00
B Connection	Super 300 type Pillar fitting P Series integrated type 3/8" x 1/4" tube connection
C Orifice size	1 $\phi 3.4$
D Fluid temperature	G 20 to 195°C

Flow characteristics



* The above characteristics are for reference only. There will be individual differences in flow rate characteristics.

Dimensions



AMDZ3R
AMD3R
AMD0
AMDZ
AMD02
AMD32
AMD42
AMD52
AMD1H
AMD1M
AMG3R
AMG3R
AMG3R
AMG00
AMG20
AMG02
GAMD3R
GAMD3R
GAMD2A
GAMD2
High pressure specifications
AMD
Flow characteristics
MMD02
MMD0H
MMD0M
GAMD02
MMD0
TMD02
FMD00
MNV
AMS
AMDS
Fine regulator
KML
Others
Related