



Manual Valve for Process Gas

# MGD□0R Series

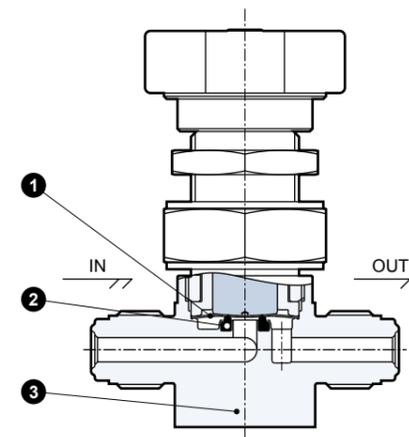
- Metal diaphragm
- 270° rotation



## MGD□0R Series

Internal Structure Diagram, Materials, and External Dimensions

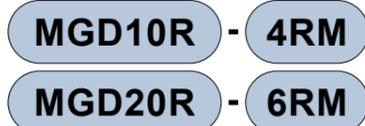
### Internal Structure Diagram and Materials



#### Gas-wetted Materials

Part No.	Part Name	Material
1	Diaphragm	Ni-Co Alloy
2	Valve Seat	PCTFE
3	Body	SUS316L

### Model No. Notation Method



- 1 Model No.
- 2 Connection Method

		1 Model No.	
2 Connection Method		MGD10R	MGD20R
Code	Content		
4RM	JXR MALE FITTING	●	
4R	JXR FEMALE FITTING	●	
4S	DOUBLE FERRULE FITTING	●	
6RM	JXR MALE FITTING		●
6R	JXR FEMALE FITTING		●
6S	DOUBLE FERRULE FITTING		●

Note) JXR fitting can be connected to VCR fitting.

### Specifications

Item	MGD10R	MGD20R
Applicable Fluid	Inert gas / Process gas	
Operating Pressure Pa (abs) - MPa (G)	1.3x10 <sup>-6</sup> to 0.99	
Fluid Temperature °C	5 to 80	
Operating Ambient Temperature °C	5 to 80	
Storage Ambient Temperature °C	-10 to 80	
Valve Seat Leakage Pa·m <sup>3</sup> /s (He)	1.0x10 <sup>-10</sup> or less	
Valve Seat Leakage Pa·m <sup>3</sup> /s (He)	2.8x10 <sup>-12</sup> or less	
Cv Value (at 23°C, under pressure)	0.3	0.65
Connection Method	1/4" JXR Male Fitting 1/4" JXR Female Fitting 1/4" Double Ferrule Fitting	3/8" JXR Male Fitting 3/8" JXR Female Fitting 3/8" Double Ferrule Fitting
Weight kg	0.30 *1	0.64 *1
Durability	Proven 60,000 cycles *2	

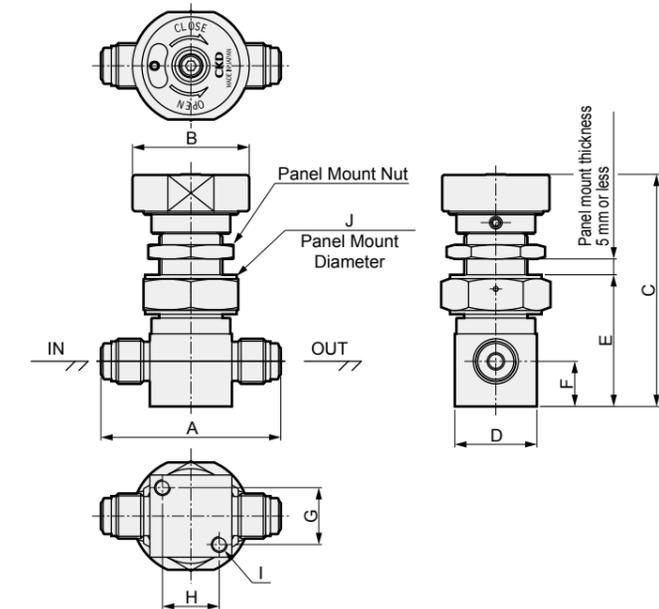
\*1: Values for MGD10R-4RM (1/4" JXR male fitting) and MGD20R-6RM (3/8" JXR male fitting).

\*2: Service life when the applicable fluid is an inert gas within the specifications and does not contain solid matter such as reaction products.

### External Dimensions

#### MGD10R-4RM MGD20R-6RM

- JXR Male Fitting

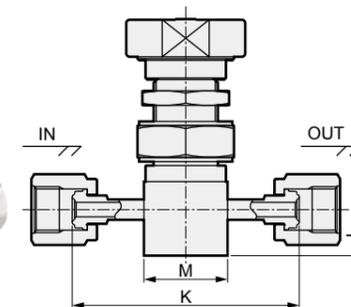


Model No.	A	B	C	D	E	F	G	H	I	J
MGD10R-4RM	57	ø37	74	□26	42	14.3	18	18	2-M5 Depth 6	ø20.5
MGD20R-6RM	76	ø37	86	□34	57	16	20.2	20.2	2-M5 Depth 8	ø20.5

Note) The panel mount nut is not included with the standard product. Products with a panel mount nut are special-order items.

#### MGD10R-4R MGD20R-6R

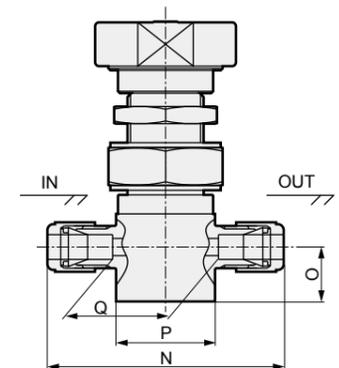
- JXR Female Fitting



Model No.	K	L	M
MGD10R-4R	70.6	14.3	□26
MGD20R-6R	83	16	□34

#### MGD10R-4S MGD20R-6S

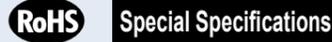
- Double Ferrule Fitting



Model No.	N	O	P	Q
MGD10R-4S	62	14.3	□26	27.8
MGD20R-6S	80	16	□34	44.3

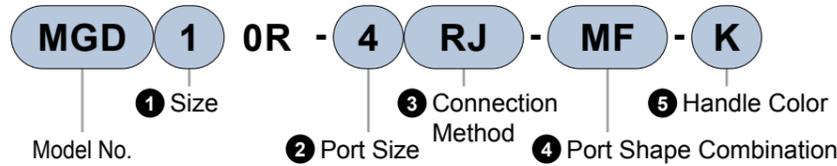
# Optional Products

MGD□0R Series



Model	Option Details
MGD□0R	Body option (39P. to 42). ● Connection Method ● Port Shape Combination ● Handle Color
	Safety specification options (43Page) ● Double-Action Mechanism

### Model No. Notation Method



**1 Size**

Code	Content
1	1/4"
2	3/8"

**2 Port Size**

Code	Content	MGD1	MGD1
4	1/4"	●	
6	3/8"		●
8	1/2"		●

**4 Port Shape Combination:** Refer to the options compatibility table.

Content	Code
2-Port Valve	IN, OUT Same fitting type: <b>Blank</b> IN: Male OUT: Female: <b>MF</b> IN: Female OUT: Male: <b>FM</b>
3-Port Diverter Valve	abc Female-Female-Female: <b>FFF</b> abc Female-Female-Male: <b>FFM</b> abc Female-Male-Male: <b>FMM</b> abc Male-Male-Male: <b>MMM</b> abc Automatic Weld Fitting: <b>WWW</b> abc □/□/□ (*1): <b>□□□</b>

\*1: Select the following codes for □.  
F: Female, M: Male, W: Fittings Automatic welding Free combination

**3 4 Options Compatibility Table**

Code	3 Connection Method				
	RJ	R	RM	W	S
Blank	●	●	●	●	●
MF	●	●			
FM	●	●			
FFF	●	●			
FFM	●	●			
FMM	●	●			
MMM			●		
WWW				●	
□□□	●	●	●	●	●

**3 Connection Method:**

Refer to the options compatibility table.

Code	Content
RJ	JXR Female Fitting (with bearing)
R	JXR Female Fitting
RM	JXR Male Fitting
W	Automatic Weld Fitting
S	Double Ferrule Fitting

**5 Handle Color**

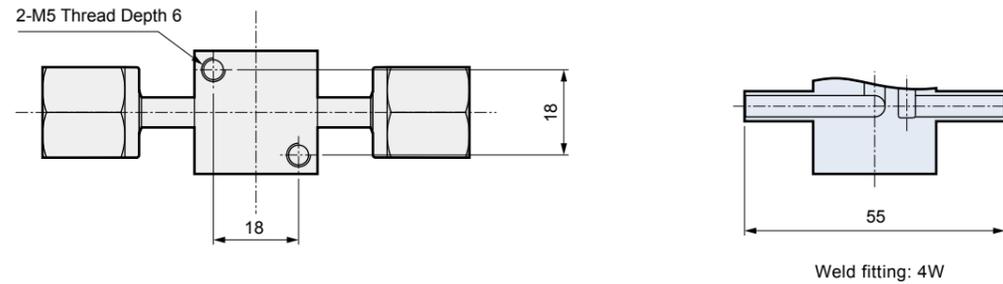
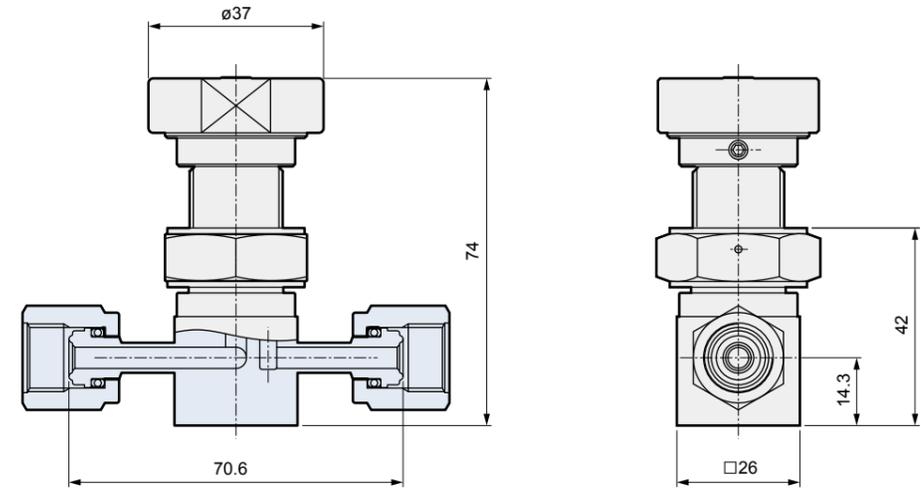
Code	Content
Blank	Silver
K	Black
B	Blue
Y	Yellow
R	Red

**MGD10R 2-Port Valve Special Specifications**

External Dimensions

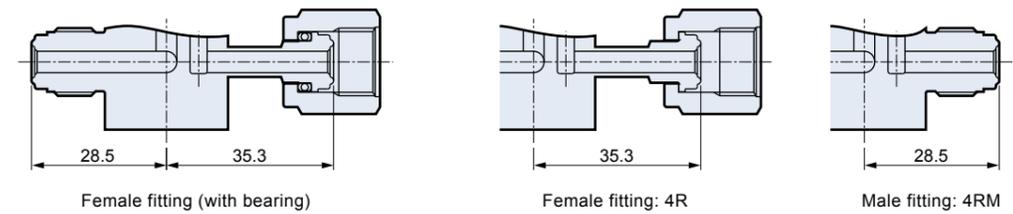
- MGD10R-4RJ** (-K, B, Y, R) (1/4" JXR Female Fitting (with bearing) Type)
- MGD10R-4R** (-K, B, Y, R) (1/4" JXR Female Fitting Type)
- MGD10R-4RM** (-K, B, Y, R) (1/4" JXR Male Fitting Type)
- MGD10R-4W** (-K, B, Y, R) (1/4" Automatic Weld Fitting Type)
- MGD10R-4S** (-K, B, Y, R) (1/4" Double Ferrule Fitting Type)

Diagram shows MGD10R-4RJ-K Female fitting (with bearing)



**MGD10R-4RJ-□□** (-K, B, Y, R) (1/4" JXR Female (with bearing) - Male Combination Type)

**MGD10R-4R-□□** (-K, B, Y, R) (1/4" JXR Female - Male Combination Type)



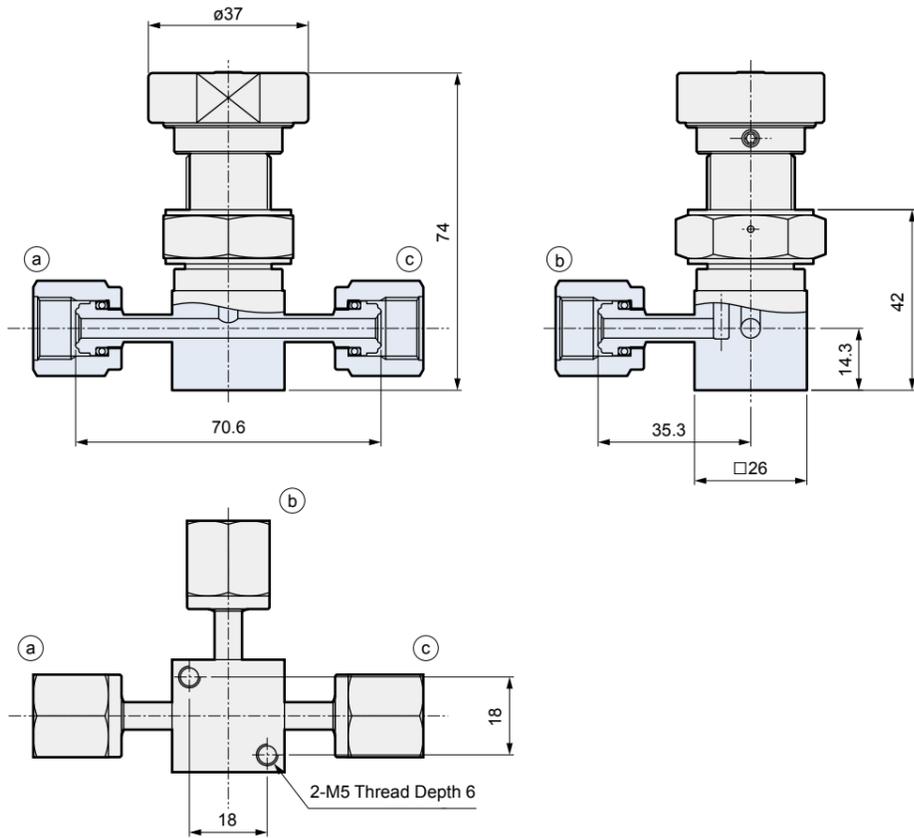
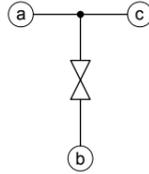
**MGD10R 3-Port Diverter Valve**

**Special Specifications**

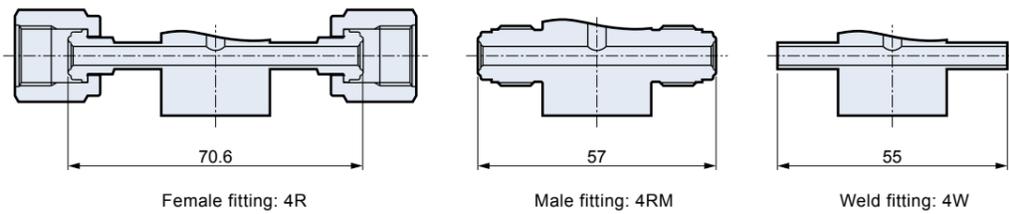
External Dimensions

- MGD10R-4RJ-□□□** (-K, B, Y, R) (1/4" JXR Female Fitting (with bearing) Combination Type)
- MGD10R-4R-□□□** (-K, B, Y, R) (1/4" JXR Female Fitting Combination Type)
- MGD10R-4RM-MMM** (-K, B, Y, R) (1/4" JXR Male Fitting Type)
- MGD10R-4W-□□□** (-K, B, Y, R) (1/4" Automatic Weld Fitting Combination Type)

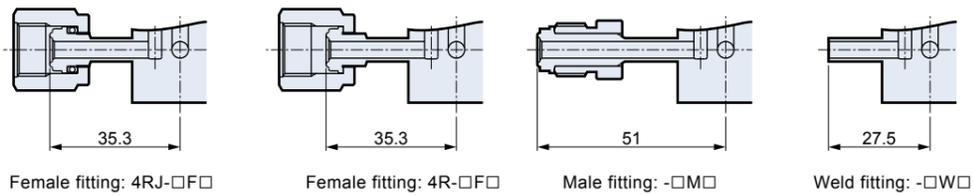
Diagram shows MGD10R-4RJ-FFF-K  
Female fitting (with bearing)



[Main Port]



[Branch Port]



Female fitting: 4RJ-□□□  
(with bearing)

Female fitting: 4R-□□□

Male fitting: -□M□

Weld fitting: -□W□

**MGD20R 2-Port Valve**

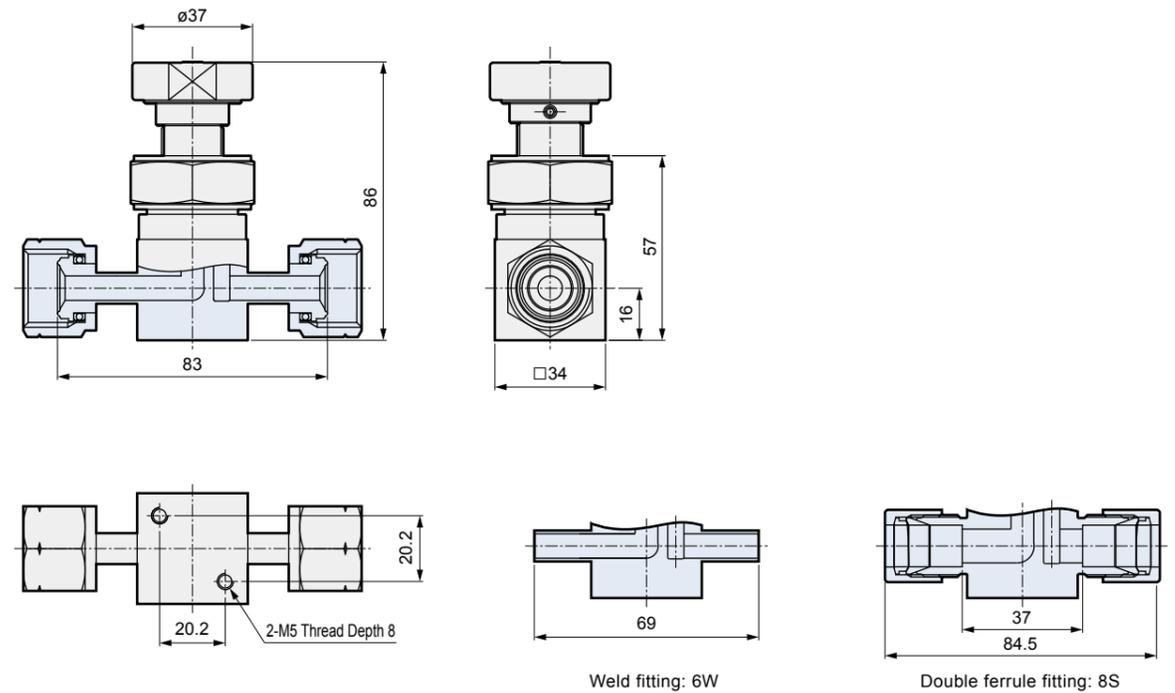
**Special Specifications**

External Dimensions

- MGD20R-6RJ** (-K, B, Y, R) (3/8" JXR Female Fitting (with bearing) Type)
- MGD20R-6R** (-K, B, Y, R) (3/8" JXR Female Fitting Type)
- MGD20R-6RM** (-K, B, Y, R) (3/8" JXR Male Fitting Type)
- MGD20R-6W** (-K, B, Y, R) (3/8" Automatic Weld Fitting Type)
- MGD20R-6S** (-K, B, Y, R) (3/8" Double Ferrule Fitting Type)

• 1/2" size also available. The face-to-face dimension is the same as the 3/8" size. (Double ferrule fittings are different)

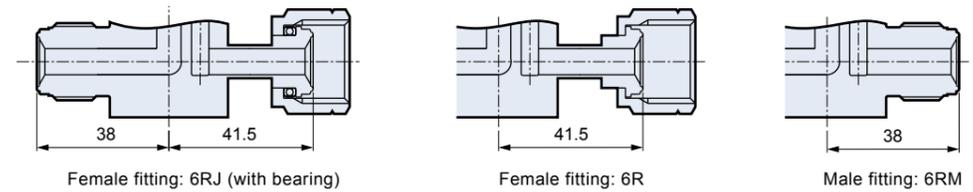
Diagram shows MGD20R-6RJ-K  
Female fitting (with bearing)



**MGD20R-6RJ-□□** (-K, B, Y, R) (3/8" JXR Female (with bearing) - Male Combination Type)

**MGD20R-6R-□□** (-K, B, Y, R) (3/8" JXR Female - Male Combination Type)

• 1/2" size also available. The face-to-face dimension is the same as the 3/8" size.



Female fitting: 6RJ (with bearing)

Female fitting: 6R

Male fitting: 6RM

MGD20R 3-Port Diverter Valve Special Specifications

External Dimensions

- MGD20R-6RJ-□□□ (3/8" JXR Female Fitting (with bearing) Combination Type)
- MGD20R-6R-□□□ (3/8" JXR Female Fitting Combination Type)
- MGD20R-6RM-MMM (3/8" JXR Male Fitting Type)
- MGD20R-6W-□□□ (3/8" Automatic Weld Fitting Combination Type)

• 1/2" size also available. The face-to-face dimension is the same as the 3/8" size.

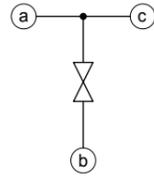
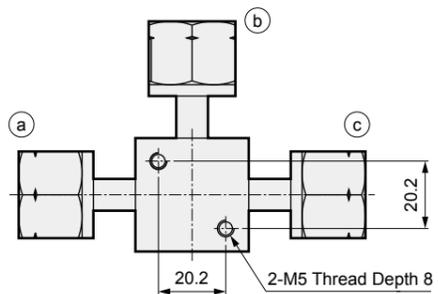
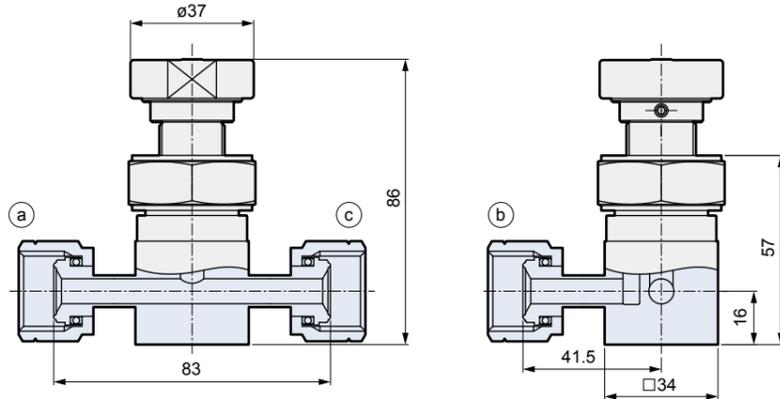
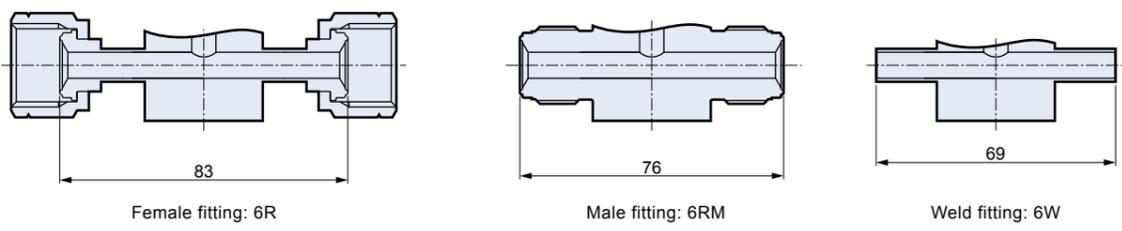


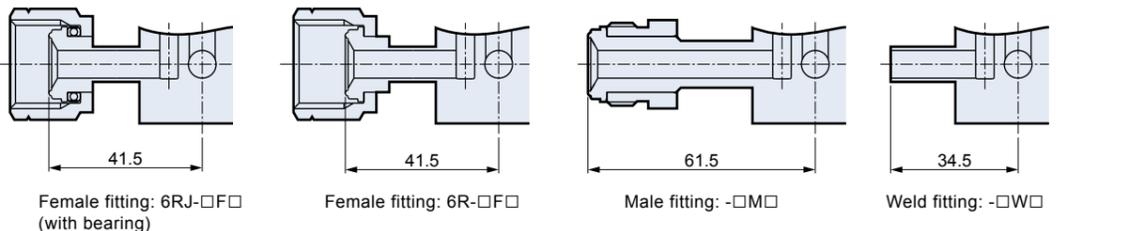
Diagram shows MGD20R-6RJ-FFF Female fitting (with bearing)



[Main Port]



[Branch Port]



Manual Valve Safety Specification Options Special Specifications

External View

MGD With Double-Action Mechanism



■ Pushing and turning the handle (double-action) prevents erroneous operation.

\*For details such as model numbers, please contact our sales representative.

AGD
OGD
MGD Process Gas Valve
LGD
High Durability
Other Gas Components
PGM Regulator
IAGD Integrated System
AVB High Vacuum Valve
MVB High Vacuum Valve
IAYB Vacu Press Control Sys
Ending

AGD
OGD
MGD Process Gas Valve
LGD
High Durability
Other Gas Components
PGM Regulator
IAGD Integrated System
AVB High Vacuum Valve
MVB High Vacuum Valve
IAYB Vacu Press Control Sys
Ending



Components for Process Gas

# To Use This Product Safely

Please be sure to read this before use.  
For General Precautions refer to P. Intro 9.

Individual Precautions: Manual Valve for Process Gas, MGD Series

## Design / Selection

### 1. Confirmation of Specifications

#### Warning

■ This product is not designed to function as a safety valve, such as an emergency shut-off valve. If such a function is required, please implement other reliable safety measures.

■ Incorrect equipment selection and handling can cause problems not only in this product, but also to your system. Product selection and handling should be performed after confirming the product specifications and their suitability for the customer's system, at the customer's own responsibility.

■ Check the compatibility between the gas contact part materials and working fluid before use.

■ Use within the specified fluid temperature and pressure range.

### 2. Ambient Environment

#### Caution

■ Do not use in atmospheres containing corrosive gases or in locations where substances that may affect the product such as chemicals, salt water, water or steam could make contact. Use within the specified ambient temperature range.

### 3. Securing Space

#### Caution

■ Secure sufficient space for maintenance and inspection.

### 4. Piping

#### Warning

■ Foreign materials or burrs in the piping and piping work could damage the valve seat or diaphragm seal, and lead to leaks. Before installing the valve, be sure to remove any debris or burrs and take measures such as installing a primary side filter.

#### Caution

■ Make sure not to use the wrong connecting port when connecting the pipes to the product.

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

■ If the tube for piping is bent, it will cause malfunctions; pipe with suitable tube lengths.

### 5. Purging

#### Caution

■ When removing valves using toxic, combustible or corrosive gases, purge with an inert gas such as nitrogen gas before removal.

### 6. During Use

#### Warning

■ Do not touch heater-equipped products with hands or body. Direct contact may cause burns.

#### Caution

■ Do not use valves as a footing or place any heavy objects on top of the valves.

■ Store unused products in a location where they are not exposed to direct sunlight or high temperatures.

For cautions about mounting, installation, adjustment, use, and maintenance, refer to CKD components Product Site (<https://www.ckd.co.jp/kiki/jp/>) → "Model No." [Instruction Manuals](#)

MEMO

AGD
OGD
MGD Process Gas Valve
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High Durability
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