



Air Operated Valve for Process Gas

AGD0□R Series

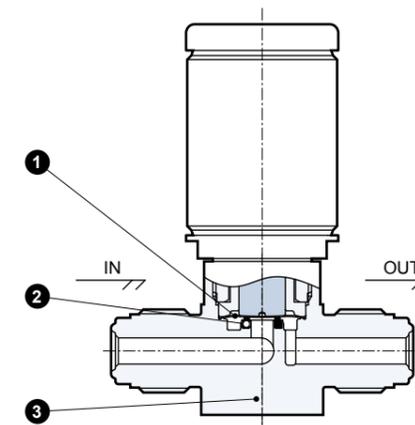
- Metal diaphragm
- Machined body



AGD0□R 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



Model No. **1** Actuation Method **2** Connection Method

1 Actuation method

Code	Content
1	NC Type (Normally Closed)
2	NO Type (Normally Open)

2 Connection Method

Code	Content
4RM	1/4" JXR Male Fitting
4R	1/4" JXR Female Fitting

Note) JXR fitting can be connected to VCR fitting.

Specifications

Item	AGD01R	AGD02R
Applicable Fluid	Inert gas / Process gas	
Operating Pressure Pa (abs) - MPa (G)	1.3x10 ⁻⁶ 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 ³ /s (He)	1.0x10 ⁻¹⁰ or less	
Valve Seat Leakage Pa·m ³ /s (He)	2.8x10 ⁻¹² or less	
Cv Value (at 23°C, under pressure)	0.1	
Connection Method	1/4" JXR Male Fitting 1/4" JXR Female Fitting	
Actuation Method	NC Type (Normally Closed)	NO Type (Normally Open)
Operating Pressure MPa	0.4 to 0.6	0.4 to 0.5
Pilot Port	M5	
Weight kg	0.16 *1	
Durability	Proven 3 million cycles *2	

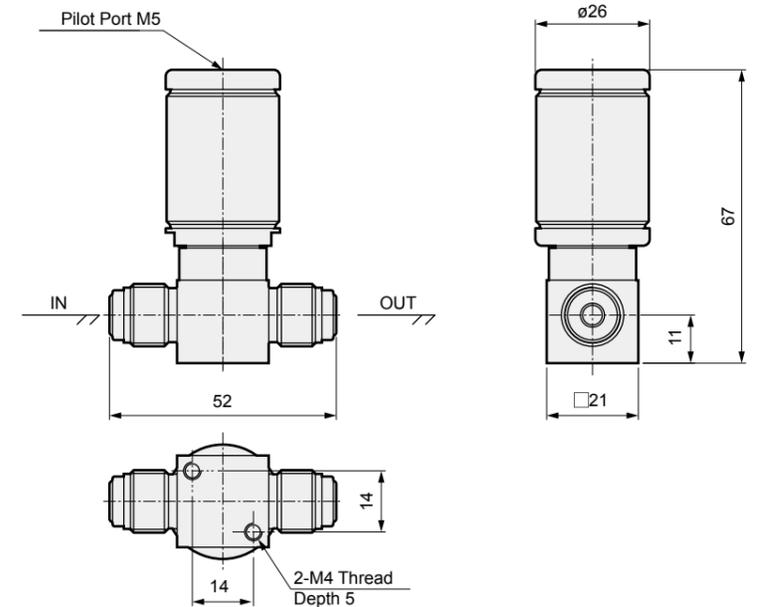
*1: Value for AGD01R-4RM (1/4" JXR male fitting).

*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

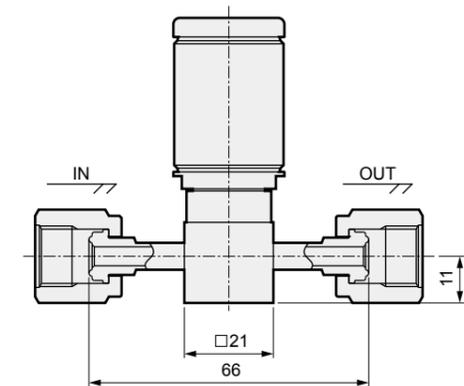
AGD0□R-4RM

- JXR Male Fitting



AGD0□R-4R

- JXR Female Fitting





Air Operated Valve for Process Gas

AGD1□R Series AGD2□R Series

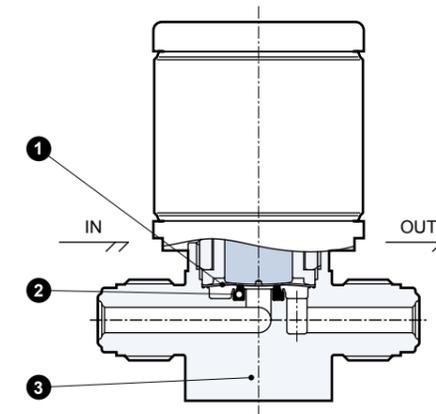
- Metal diaphragm
- Machined body



AGD1□R, AGD2□R 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

AGD1 **1** **R** - **4RM**

Model No. **1** Actuation Method **2** Connection Method

1 Actuation method

Code	Content
1	NC Type (Normally Closed)
2	NO Type (Normally Open)

2 Connection Method

Code	Content
4RM	1/4" JXR Male Fitting
4R	1/4" JXR Female Fitting
4S	1/4" Double Ferrule Fitting

Note) JXR fitting can be connected to VCR fitting.

AGD2 **1** **R** - **6R**

Model No. **1** Actuation Method **2** Connection Method

1 Actuation method

Code	Content
1	NC Type (Normally Closed)
2	NO Type (Normally Open)

2 Connection Method

Code	Content
6RM	3/8" JXR Male Fitting
6R	3/8" JXR Female Fitting
6S	3/8" Double Ferrule Fitting

Note) JXR fitting can be connected to VCR fitting.

Specifications

Item	AGD1□□R	AGD2□□R
Applicable Fluid	Inert gas / Process gas	
Operating Pressure Pa (abs) - MPa (G)	1.3x10 ⁻⁶ 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 ³ /s (He)	1.0x10 ⁻¹⁰ or less	
Valve Seat Leakage Pa·m ³ /s (He)	2.8x10 ⁻¹² 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
Actuation Method	NC Type (Normally Closed) NO Type (Normally Open)	
Operating Pressure MPa	NC: 0.4 to 0.6 NO: 0.4 to 0.5	
Pilot Port	M5	
Weight kg	0.26 *1	0.59 *1
Durability	Proven 3 million cycles *2	

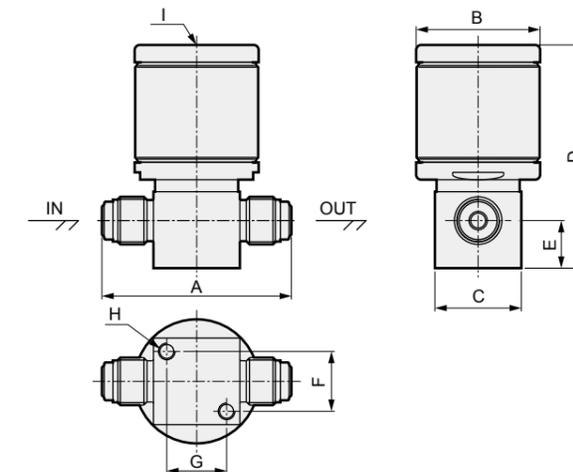
*1: Values for AGD11R-4RM (1/4" JXR male fitting) and AGD21R-6RM (3/8" JXR male fitting).

*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

AGD1□R-4RM
AGD2□R-6RM

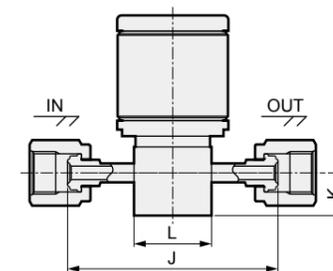
●JXR Male Fitting



Model No.	A	B	C	D	E	F	G	H	I
AGD1□R-4RM	57	ø37	□26	67	14.3	18	18	2-M5 Depth 6	M5
AGD2□R-6RM	76	ø48	□34	88	16	20.2	20.2	2-M5 Depth 8	M5

AGD1□R-4R
AGD2□R-6R

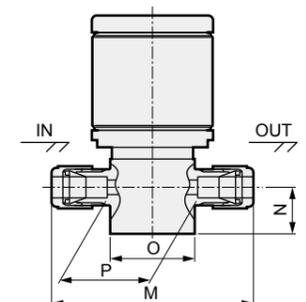
●JXR Female Fitting



Model No.	J	K	L
AGD1□R-4R	70.6	14.3	□26
AGD2□R-6R	83	16	□34

AGD1□R-4S
AGD2□R-6S

●Double Ferrule Fitting



Model No.	M	N	O	P
AGD1□R-4S	62	14.3	□26	27.8
AGD2□R-6S	80	16	□34	44.3

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

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

Ending

Ending

Optional Products

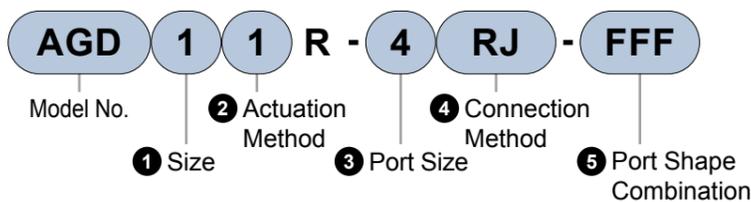
AGD□□R Series

RoHS Special Specifications

Model	Option Details
AGD□□R	Body option (P. 11to21). ● Flow Path Direction ● NC/NO Combination ● Connection Method ● Port Shape Combination



Model No. Notation Method 2-Port Valve, 3-Port Diverter Valve



1 Size

Code	Content
0	1/8"
1	1/4"
2	3/8"

2 Actuation method

Code	Content
1	NC Type
2	NO Type

3 Port Size

Code	Content	AGD0	AGD1	AGD2
4	1/4"	●	●	
6	3/8"			●
8	1/2"			●

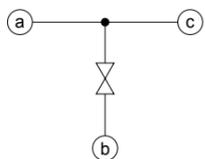
4 Connection Method: Refer to the options compatibility table.

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

5 Port Shape Combination: Refer to the options compatibility table.

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

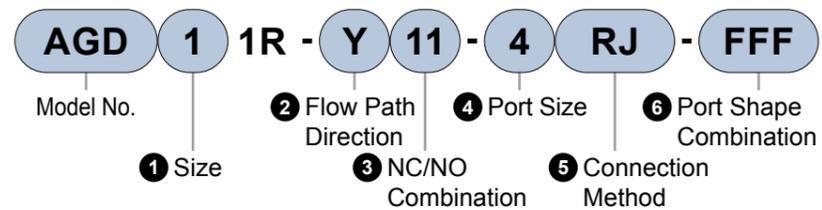
*1: Select the following code for □.
 F: Female, M: Male, W: Fittings Automatic welding Free combination
 *2: For F Female fittings, 4 the female fitting selected under "Connection Method" will be applied.
 *3: For other fitting specifications, please contact our sales office.



4 5 Options Compatibility Table

Port Shape Combination	4 Connection Method				
	Code	RJ	R	RM	W
Blank	●	●	●	●	●
MF	●	●			
FM	●	●			
FFF	●	●			
FFM	●	●			
FMM			●		
MMM				●	
WWW				●	
□□□	●	●	●	●	●

Model No. Notation Method Dual 3-Port Valve



1 Size

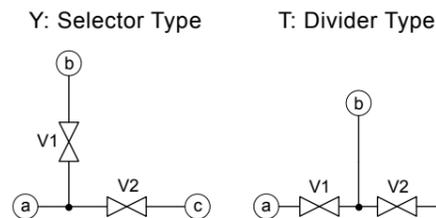
Code	Content
0	1/8"
1	1/4"
2	3/8"

2 Flow Path Direction

Code	Content
Y	Selector Type
T	Divider Type

3 NC/NO Combination

Code	Content
11	V1: NC, V2: NC
12	V1: NC, V2: NO
21	V1: NO, V2: NC
22	V1: NO, V2: NO



4 Port Size

Code	Content	AGD0	AGD1	AGD2
4	1/4"	●	●	
6	3/8"			●

5 Connection Method: Refer to the options compatibility table.

Code	Content	Diagram
RJ	JXR Female Fitting (with bearing)	
R	JXR Female Fitting	
RM	JXR Male Fitting	

6 Port Shape Combination: Refer to the options compatibility table.

Code	Content
FFF	abc Female-Female-Female
MMM	abc Male-Male-Male
□□□	abc □□□ *1

*1: Select the following code for □.
 F: Female, M: Male, Free combination

5 6 Options Compatibility Table

Port Shape Combination	5 Connection Method		
	Code	RJ	R
FFF	●	●	
MMM			●
□□□	●	●	

AGD0□R 2-Port Valve Special Specifications

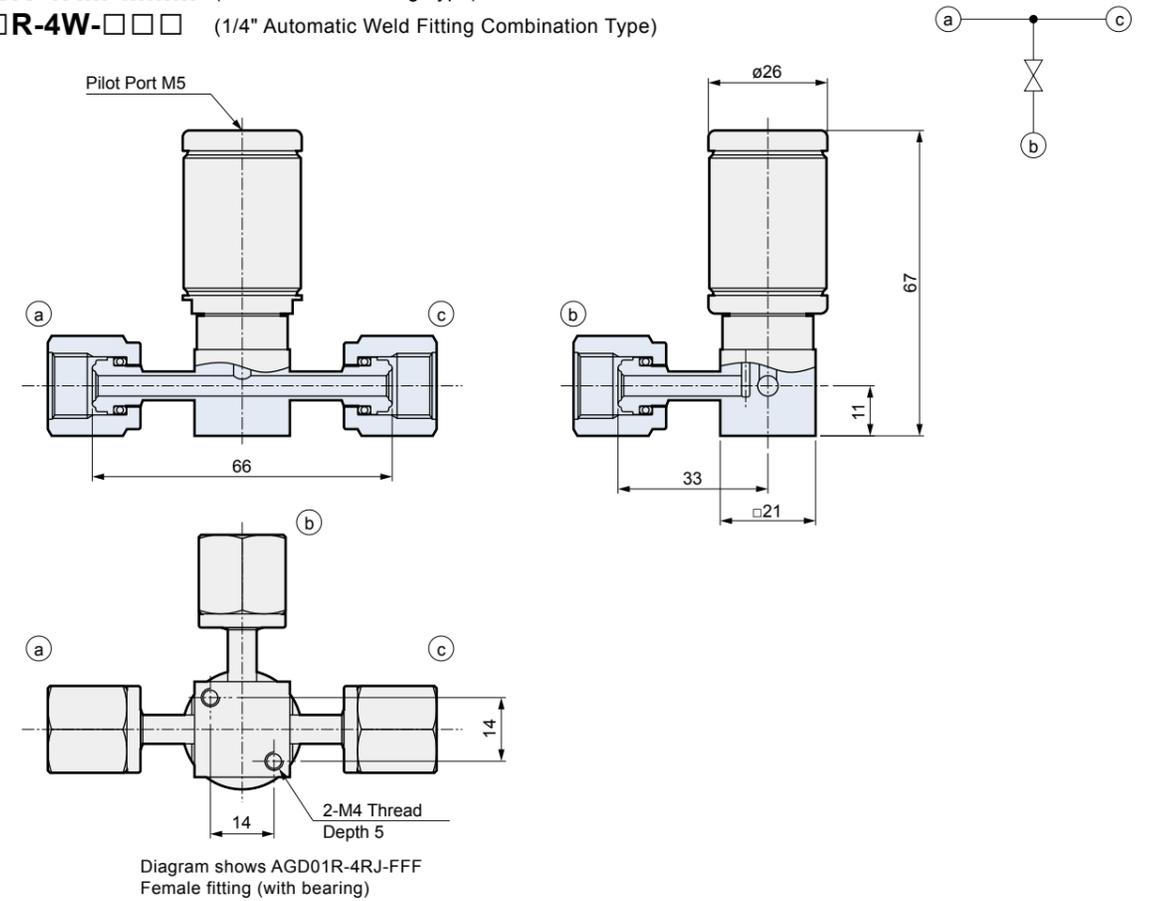
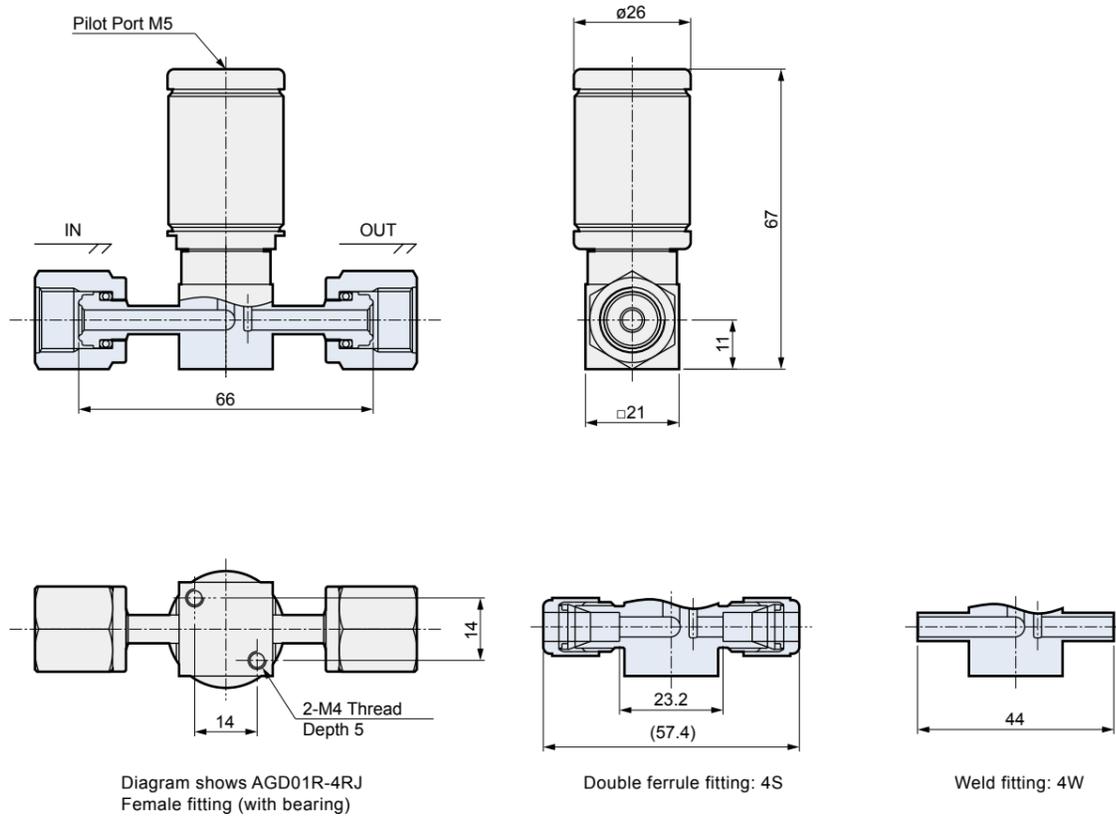
AGD0□R 3-Port Diverter Valve Special Specifications

External Dimensions

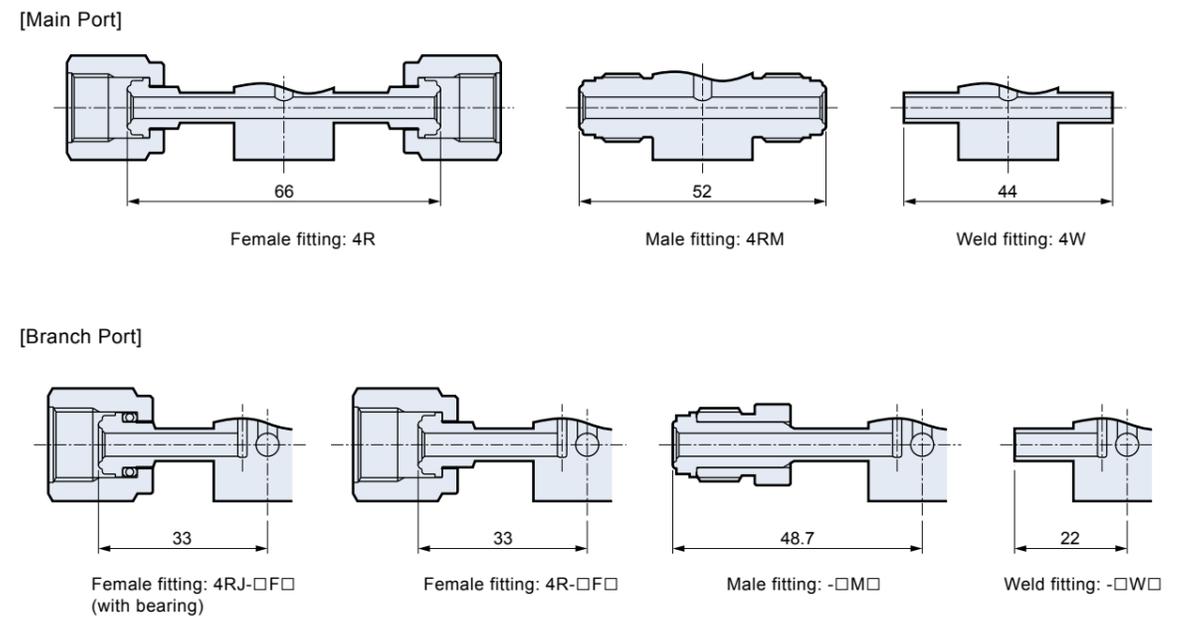
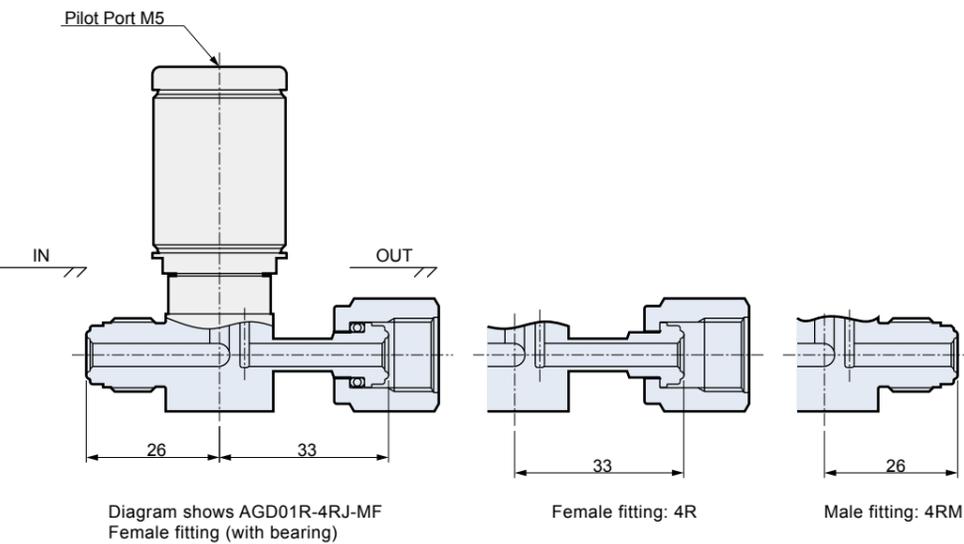
External Dimensions

- AGD0□R-4RJ (1/4" JXR Female Fitting (with bearing) Type)
- AGD0□R-4S (1/4" Double Ferrule Fitting Type)
- AGD0□R-4W (1/4" Automatic Weld Fitting Type)

- AGD0□R-4RJ-□□□ (1/4" JXR Female Fitting (with bearing) Combination Type)
- AGD0□R-4R-□□□ (1/4" JXR Female Fitting Combination Type)
- AGD0□R-4RM-MMM (1/4" JXR Male Fitting Type)
- AGD0□R-4W-□□□ (1/4" Automatic Weld Fitting Combination Type)



- AGD0□R-4RJ-□□□ (1/4" JXR Female (with bearing) - Male Combination Type)
- AGD0□R-4R-□□□ (1/4" JXR Female - Male Combination Type)



AGD0□R Dual 3-Port Valve

Special Specifications

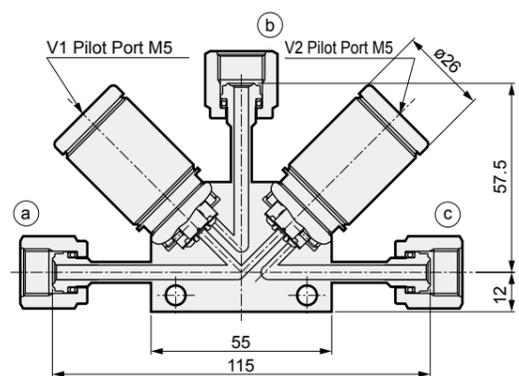
External Dimensions

AGD01R-□□□-4RJ-□□□ (1/4" JXR Female Fitting (with bearing) Combination Type)

AGD01R-□□□-4R-□□□ (1/4" JXR Female Fitting Combination Type)

AGD01R-□□□-4RM-MMM (1/4" JXR Male Fitting Type)

[Y: Selector type]



[T: Divider type]

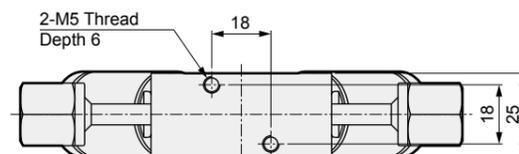
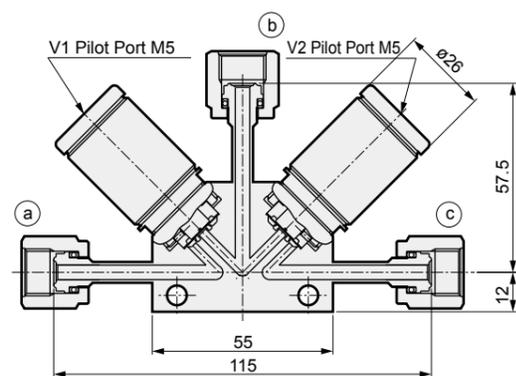


Diagram shows AGD01R-Y11-4RJ-FFF Female fitting (with bearing)

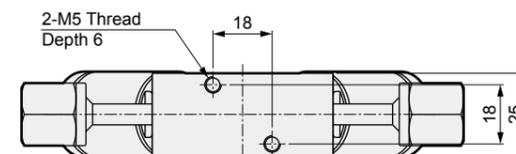
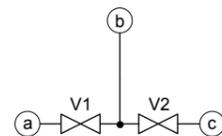
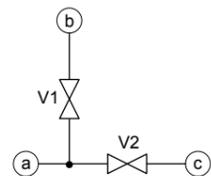
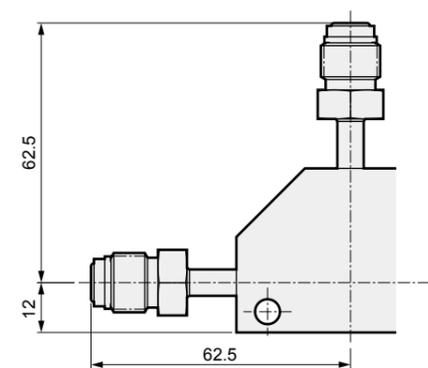


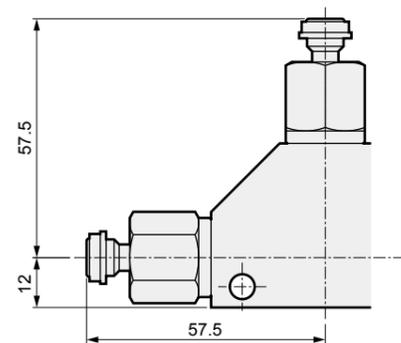
Diagram shows AGD01R-T11-4RJ-FFF Female fitting (with bearing)



[Other Fitting Dimensions]



Male fitting: 4RM



Female fitting: 4R

AGD1□R 2-Port Valve

Special Specifications

External Dimensions

AGD1□R-4RJ (1/4" JXR Female Fitting (with bearing) Type)

AGD1□R-4W (1/4" Automatic Weld Fitting Type)

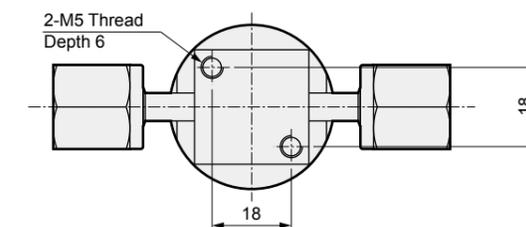
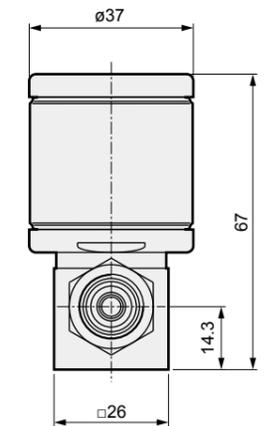
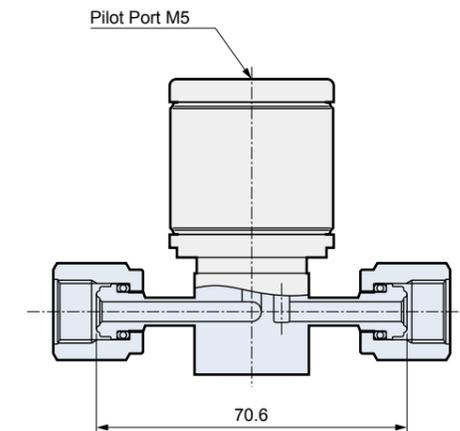
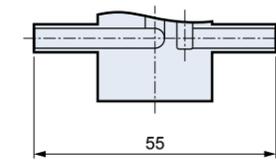


Diagram shows AGD11R-4RJ Female fitting (with bearing)



Weld fitting: 4W

AGD1□R-4RJ-□□ (1/4" JXR Female Fitting (with bearing) Male Combination Type)

AGD1□R-4R-□□ (1/4" JXR Female - Male Combination Type)

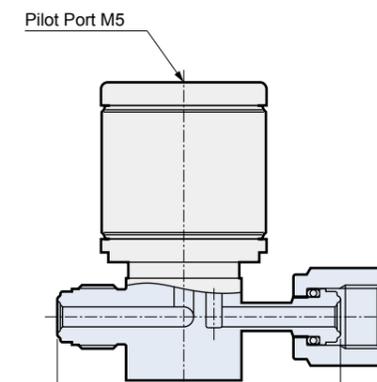
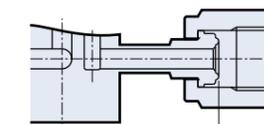
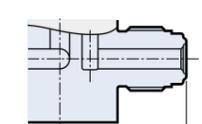


Diagram shows AGD11R-4RJ-MF Female fitting (with bearing)



Female fitting: 4R



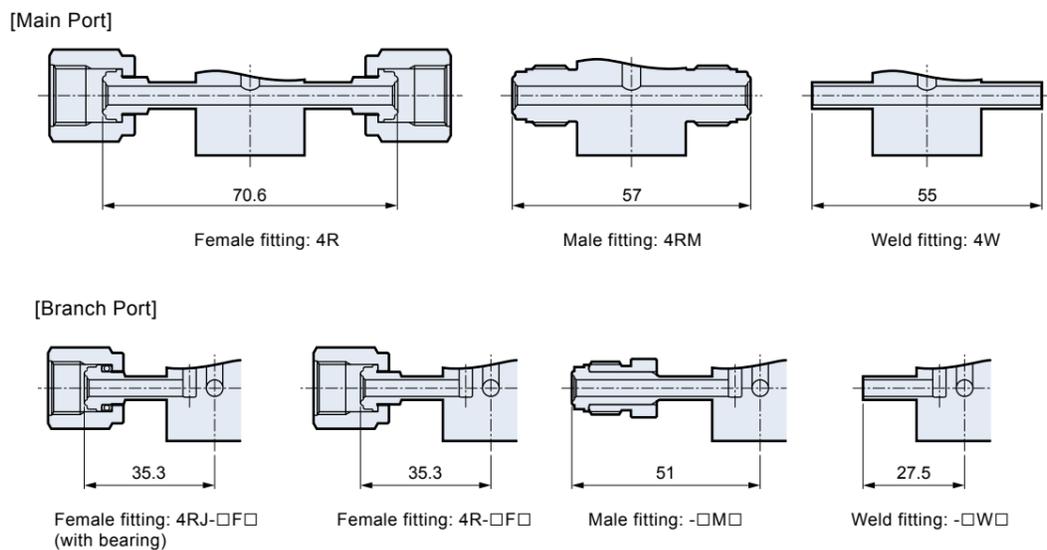
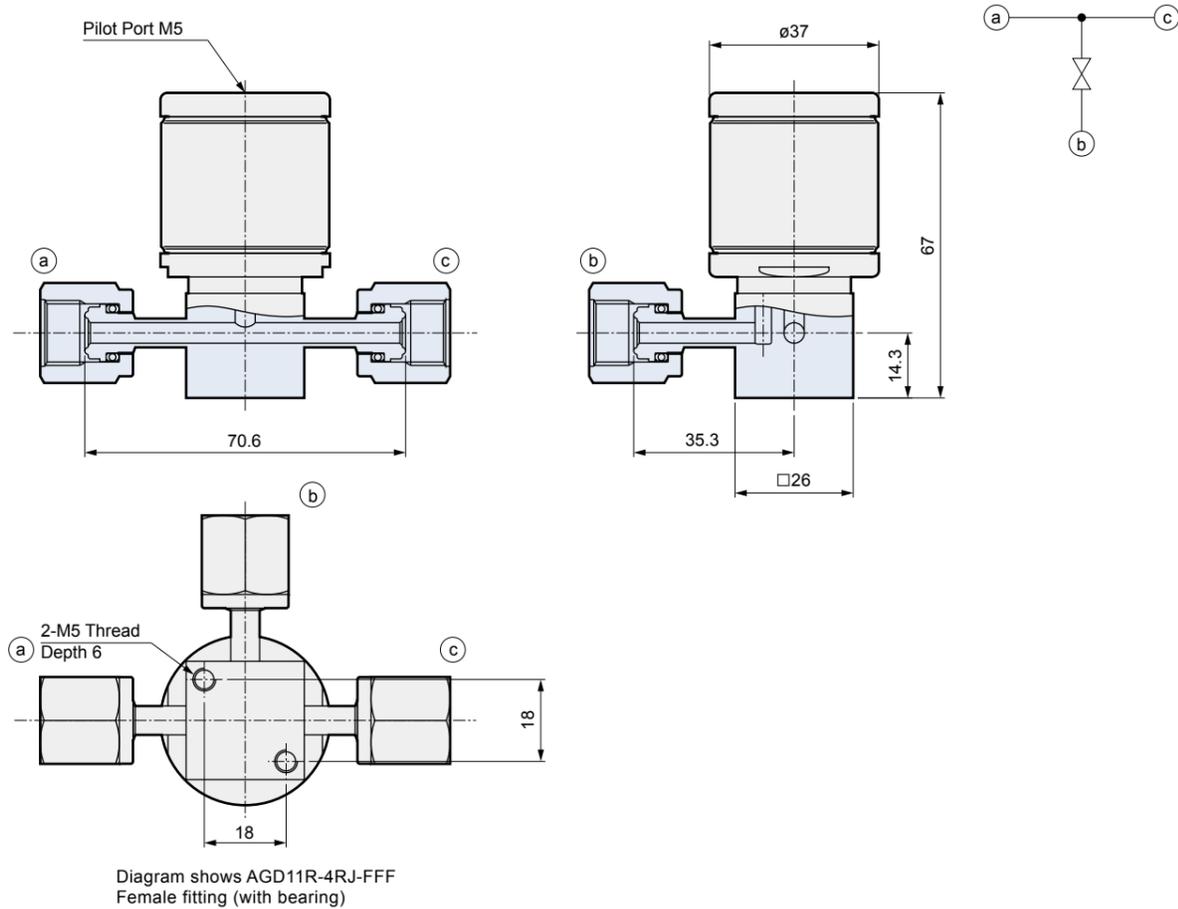
Male fitting: 4RM

AGD1□R 3-Port Diverter Valve

Special Specifications

External Dimensions

- AGD1□R-4RJ-□□□ (1/4" JXR Female Fitting (with bearing) Combination Type)
- AGD1□R-4R-□□□ (1/4" JXR Female Fitting Combination Type)
- AGD1□R-4RM-MMM (1/4" JXR Male Fitting Type)
- AGD1□R-4W-□□□ (1/4" Automatic Weld Fitting Combination Type)

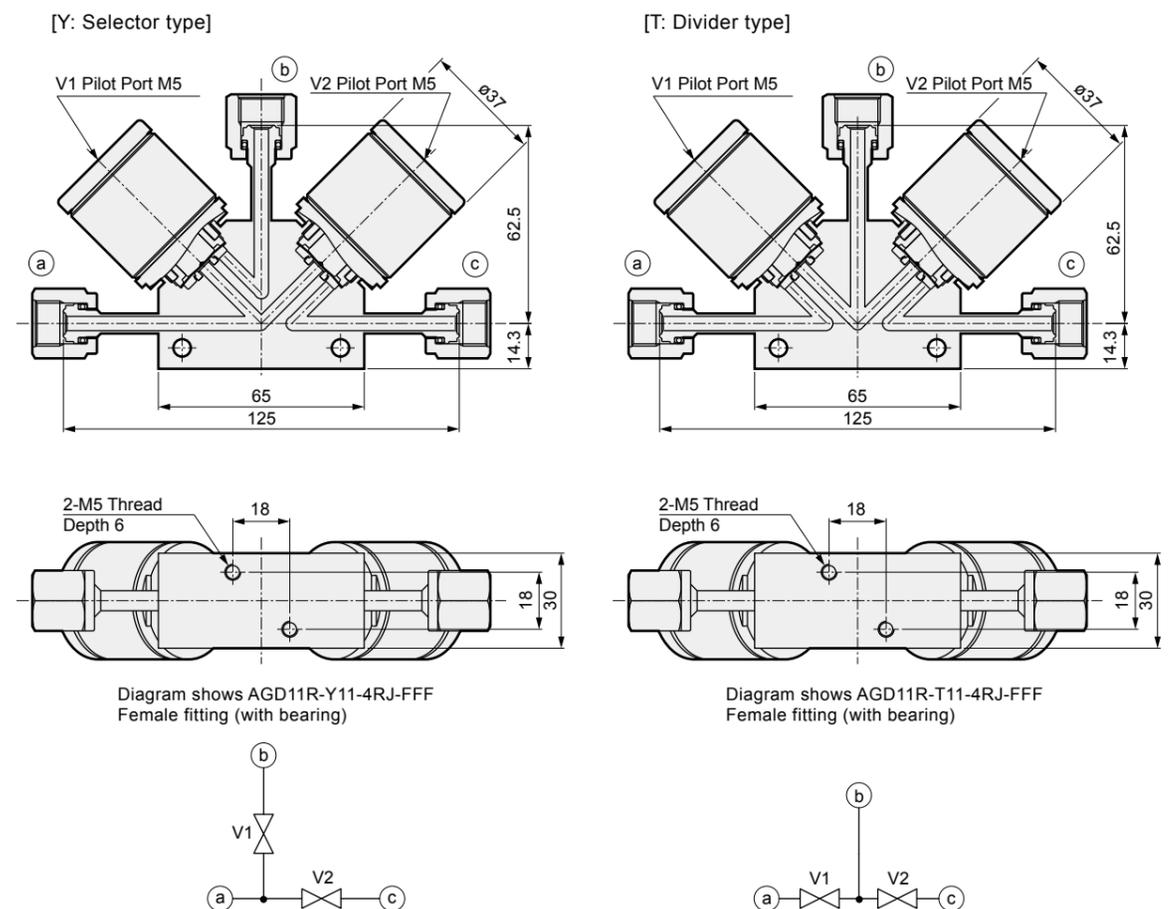


AGD11R Dual 3-Port Valve

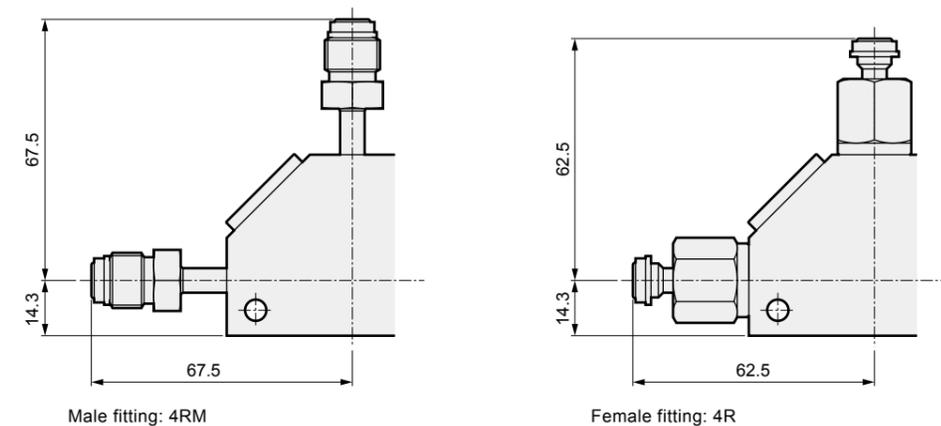
Special Specifications

External Dimensions

- AGD11R-□□□-4RJ-□□□ (1/4" JXR Female Fitting (with bearing) Combination Type)
- AGD11R-□□□-4R-□□□ (1/4" JXR Female Fitting Combination Type)
- AGD11R-□□□-4RM-MMM (1/4" JXR Male Fitting Type)



[Other Fitting Dimensions]

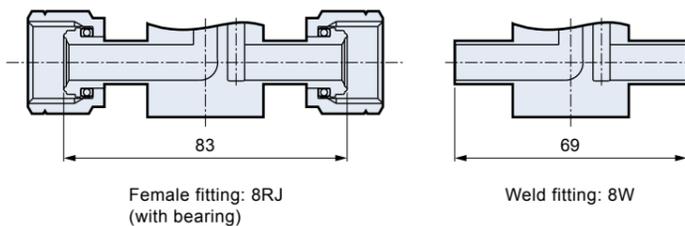
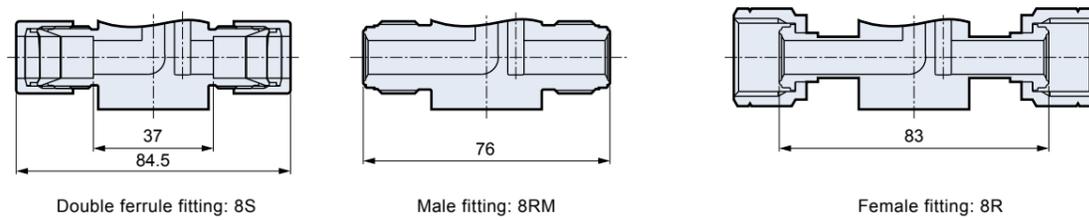
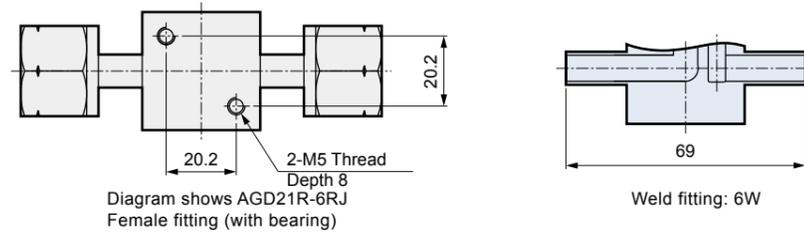
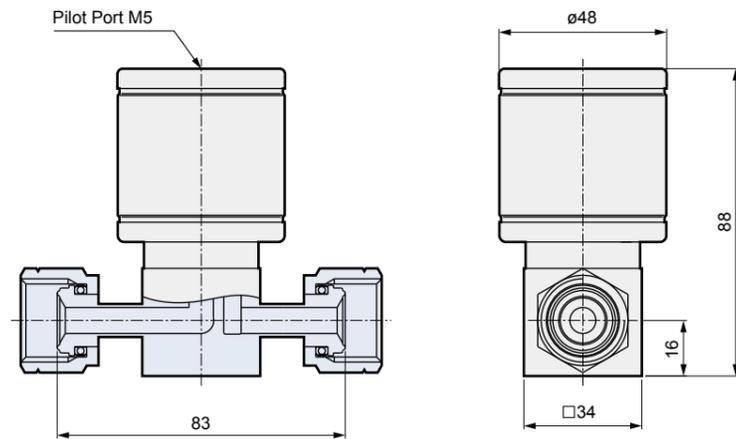


AGD2□R 2-Port Valve

Special Specifications

External Dimensions

- AGD2□R-6RJ (3/8" JXR Female Fitting (with bearing) Type)
- AGD2□R-6W (3/8" Automatic Weld Fitting Type)
- AGD2□R-8S (1/2" Double Ferrule Fitting Type)
- AGD2□R-8RM (1/2" JXR Male Fitting Type)
- AGD2□R-8R (1/2" JXR Female Fitting Type)
- AGD2□R-8RJ (1/2" JXR Female Fitting (with bearing) Type)
- AGD2□R-8W (1/2" Automatic Weld Fitting Type)

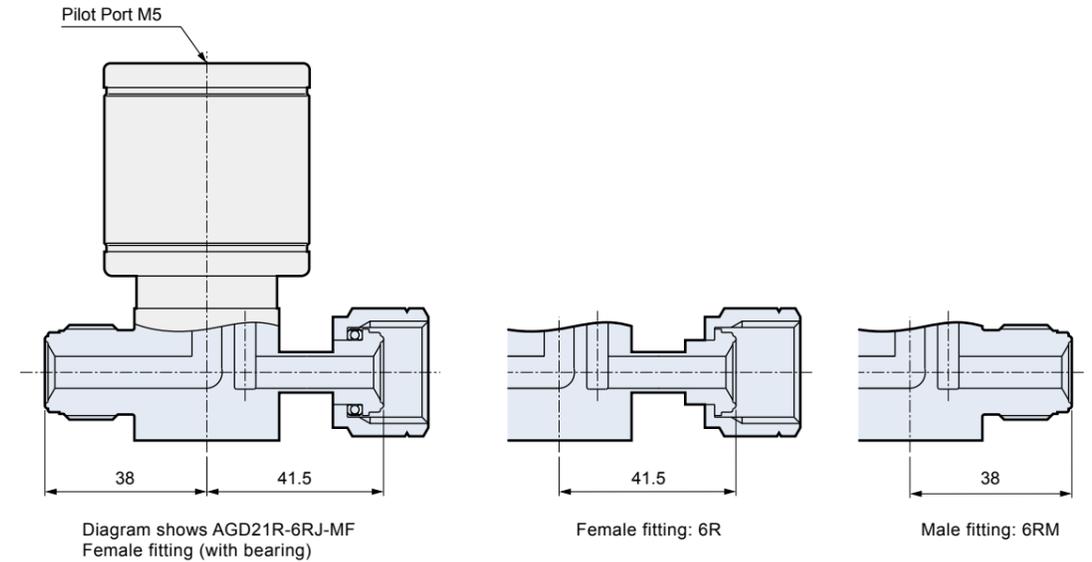


AGD2□R 2-Port Valve

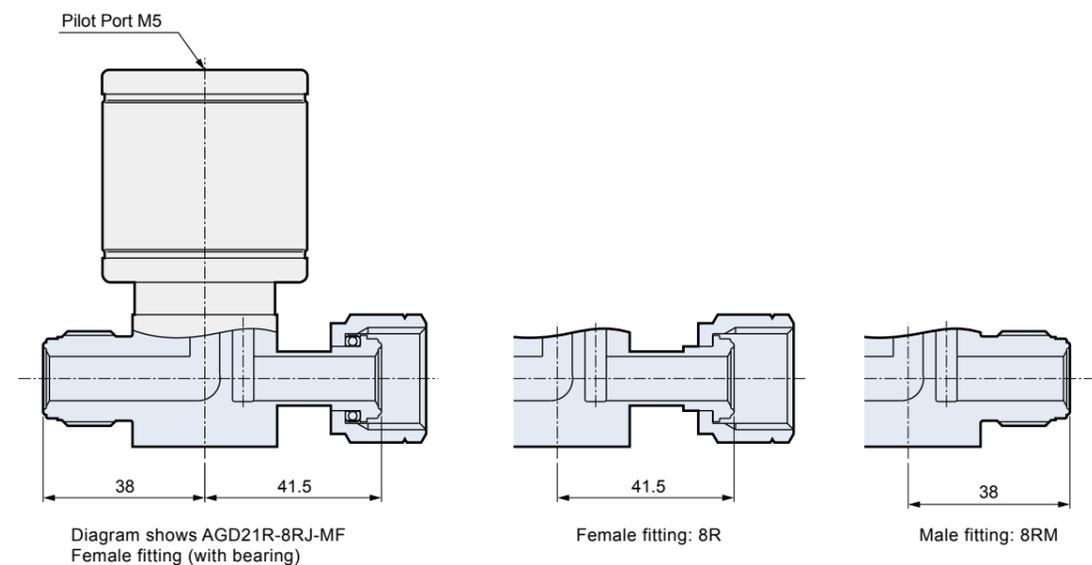
Special Specifications

External Dimensions

- AGD2□R-6RJ-□□ (3/8" JXR Female Fitting (with bearing) Male Combination Type)
- AGD2□R-6R-□□ (3/8" JXR Female - Male Combination Type)



- AGD2□R-8RJ-□□ (1/2" JXR Female Fitting (with bearing) Male Combination Type)
- AGD2□R-8R-□□ (1/2" JXR Female - Male Combination Type)



AGD2□R 3-Port Diverter Valve

Special Specifications

External Dimensions

- AGD2□R-6RJ-□□□ (3/8" JXR Female Fitting (with bearing) Combination Type)
- AGD2□R-6R-□□□ (3/8" JXR Female Fitting Combination Type)
- AGD2□R-6RM-MMM (3/8" JXR Male Fitting Type)
- AGD2□R-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.

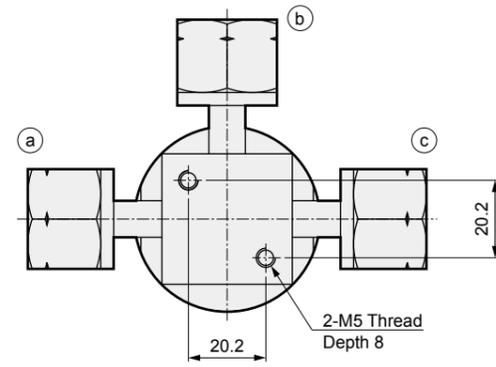
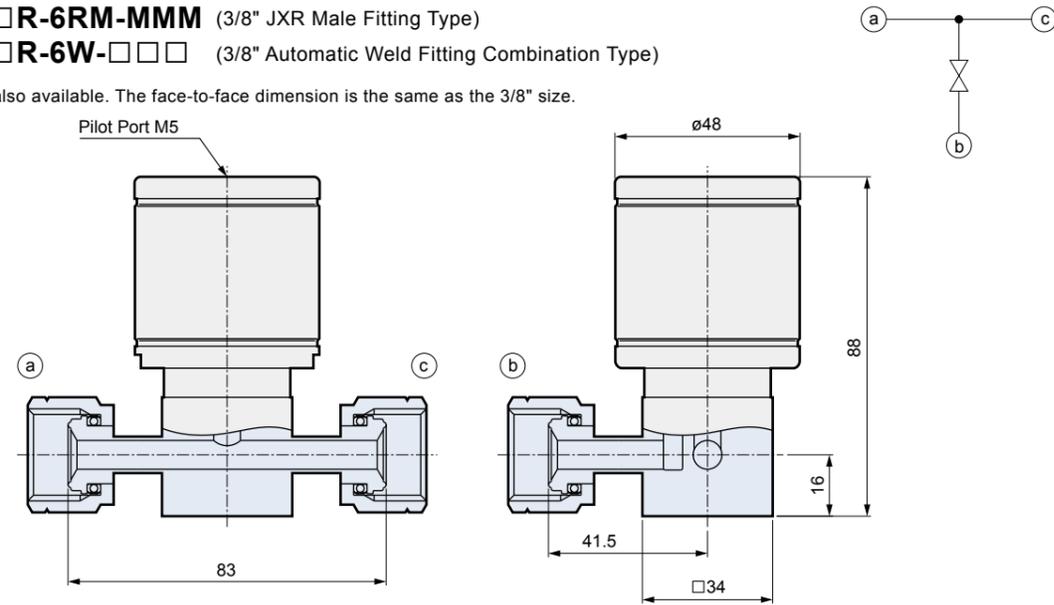
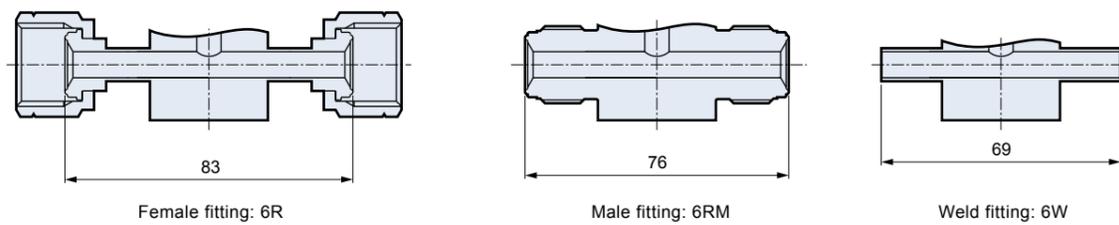
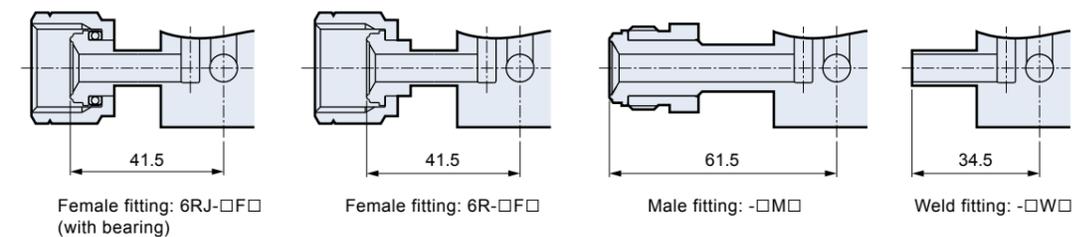


Diagram shows AGD21R-6RJ-FFF Female fitting (with bearing)

[Main Port]



[Branch Port]

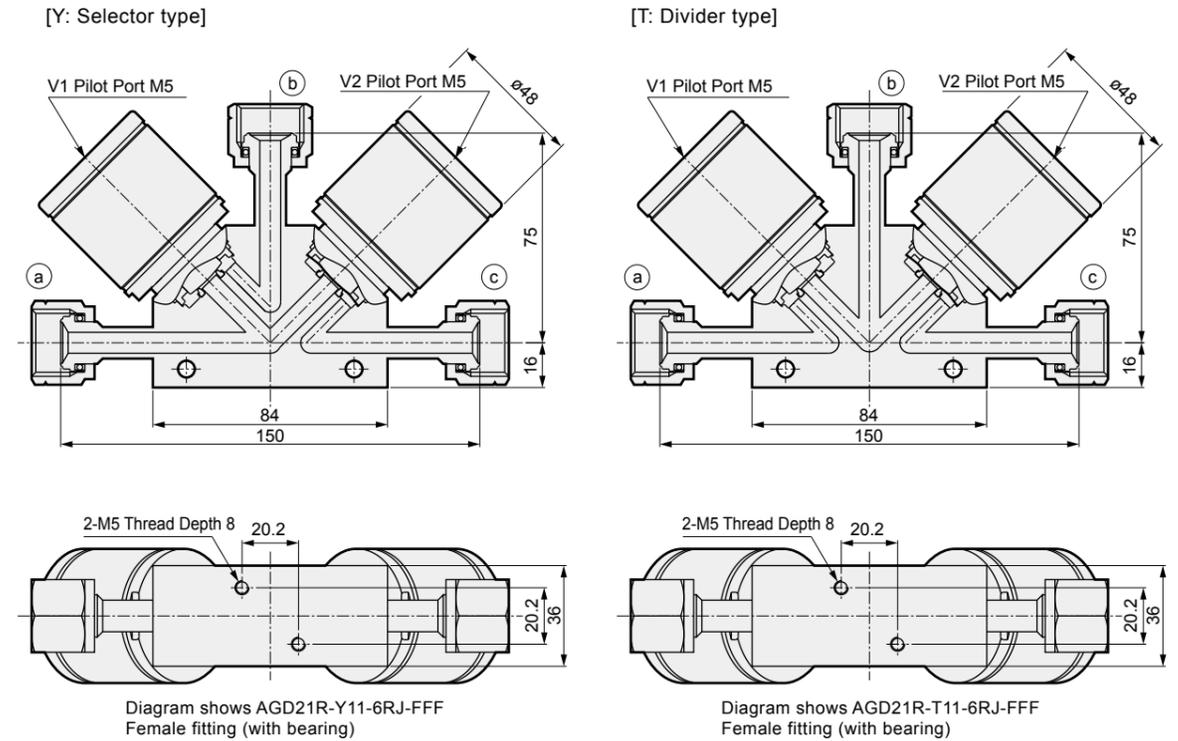


AGD11R Dual 3-Port Valve

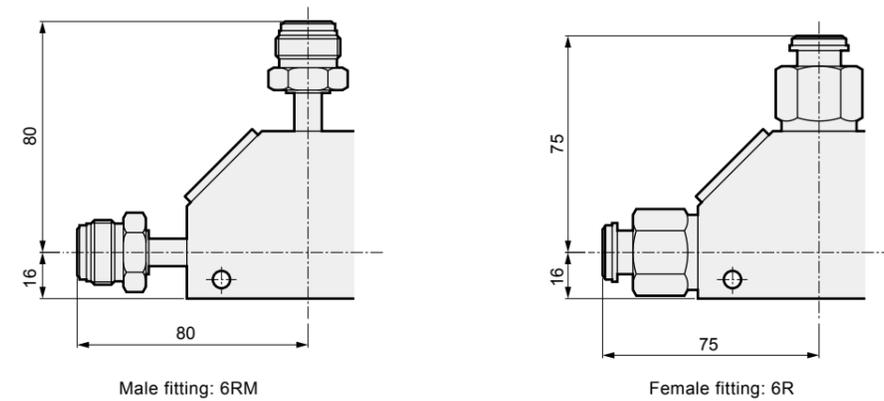
Special Specifications

External Dimensions

- AGD21R-□□□-6RJ-□□□ (3/8" JXR Female Fitting (with bearing) Combination Type)
- AGD21R-□□□-6R-□□□ (3/8" JXR Female Fitting Combination Type)
- AGD21R-□□□-6RM-MMM (3/8" JXR Male Fitting Type)



[Other Fitting Dimensions]



Optional Products

AGD Series

Special Specifications

●With valve opening adjustment mechanism



■Flow rate is adjusted when the valve is open by rotating the knob on top of the actuator.

Specifications

Item	AGD0□V	AGD1□V	AGD2□V
Applicable Fluid	Inert gas / Process gas		
Operating Pressure Pa (abs) - MPa (G)	1.3x10 ⁻⁶ to 0.5	1.3x10 ⁻⁶ to 0.99	
Fluid temperature °C	-10 to 80		
Ambient Temperature °C	-10 to 80		
Valve Seat Leakage Pa·m ³ /s (He)	1.3x10 ⁻⁹ or less		
Valve Seat Leakage Pa·m ³ /s (He)	2.8x10 ⁻¹² or less		
Cv Value (at 23°C, under pressure)	0.1	0.26	0.6
Connection Method ^{Note)}	1/4" JXR Male Fitting 1/4" JXR Female Fitting	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
Actuation Method	NC Type (Normally Closed) NO Type (Normally Open)		
Operating Pressure MPa	NC: 0.4 to 0.6 NO: 0.4 to 0.45	NC: 0.4 to 0.6 NO: 0.4 to 0.5	
Pilot Port	M5	Rc1/8	

^{Note)} JXR fitting can be connected to VCR fitting.

●With proximity sensor



■Valve open/close can be detected.

Please contact our sales representative regarding the mounted sensor.

Specifications

Item	AGD0□R	AGD1□R	AGD2□R
Applicable Fluid	Inert gas / Process gas		
Operating Pressure Pa (abs) - MPa (G)	1.3x10 ⁻⁶ to 0.99		
Fluid temperature °C	5 to 80 (Proximity sensor section 70°C or less)		
Ambient Temperature °C	5 to 80 (Proximity sensor section 70°C or less)		
Storage Ambient Temperature °C	-10 to 80		
Valve Seat Leakage Pa·m ³ /s (He)	1.0x10 ⁻¹⁰ or less		
Valve Seat Leakage Pa·m ³ /s (He)	2.8x10 ⁻¹² or less		
Cv Value (at 23°C, under pressure)	0.1	0.3	0.65
Connection Method ^{Note)}	1/4" JXR Male Fitting 1/4" JXR Female Fitting	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
Actuation Method	NC Type (Normally Closed) NO Type (Normally Open)		
Operating Pressure MPa	NC: 0.4 to 0.6 NO: 0.4 to 0.5		
Pilot Port	M5		

^{Note)} JXR fitting can be connected to VCR fitting.

●For high temperature fluids



■High temperature fluids up to 180°C can be used.

Specifications

Item	AGD0□V	AGD1□V	AGD2□V
Applicable Fluid	Inert gas / Process gas		
Operating Pressure Pa (abs) - MPa (G)	1.3x10 ⁻⁶ to 0.5	1.3x10 ⁻⁶ to 0.99	
Fluid temperature °C	-10 to 180		
Ambient Temperature °C	-10 to 80		
Valve Seat Leakage Pa·m ³ /s (He)	1.3x10 ⁻⁹ or less		
Valve Seat Leakage Pa·m ³ /s (He)	2.8x10 ⁻¹² or less		
Cv Value (at 23°C, under pressure)	0.1	0.26	0.6
Connection Method ^{Note)}	1/4" JXR Male Fitting 1/4" JXR Female Fitting	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
Actuation Method	NC Type (Normally Closed) NO Type (Normally Open)		
Operating Pressure MPa	NC: 0.4 to 0.6 NO: 0.4 to 0.45	NC: 0.4 to 0.6 NO: 0.4 to 0.5	
Pilot Port	M5	Rc1/8	

^{Note)} JXR fitting can be connected to VCR fitting.

*For details such as model Nos. of optional products, please contact our sales representative.



Components for Process Gas

To Use This Product Safely

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

MEMO

Individual Precautions: Air Operated Valves for Process Gas AGD 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.
- Use the driving solenoid valve connected to the drive unit according to the specifications or applications.
- As for operating air, use air or inert gas passed through a filter with a filtration rating of 5 μm or more.

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](#)

AGD

OGD

MGD

LGD

High Durability

Other Gas Components

Regulator

Integrated System

AVB

MVB

IABV

Ending

25

AGD

OGD

MGD

LGD

High Durability

Other Gas Components

Regulator

Integrated System

AVB

MVB

IABV

Ending

24