

# Pilot operated 5-port valve ISO valve

## Overview

The PV5G/PV5 series ISO valves are pilot operated 5-port valves in compliance with the ISO standards which regulate international valve mounting dimensions.

Suitable for operating cylinders of up to  $\phi 160$ .

## Features

### Compliant with ISO standards

The mounting pitch, thread size, and flow path dimensions of the valve body are in accordance with ISO standards.

### Energy saving

A low wattage design of 1 W (without lamp) and 1.2 W (with lamp) will contribute to conservation of energy.

### Space saving

Compact design with a valve width of 38 to 50 mm. Contributes to reduction of the size of devices, etc., being assembled.

### Degree of protection of IP65 or equivalent

The dust-proof and jet-proof structure of IP65 or equivalent is suitable for harsh environments.

### Resource saving

Use of special soft packing.  
Can be used with no lubrication

### Compatible with long term use

The soft spool method with proven performance has been employed.  
Service life is long.

### Compatible with driving a 2-piston cylinder

The exhaust pressurized type has been made available as a series.  
Optimal for driving a 2-piston cylinder used in welders, etc.

### Abundant options available

Size 1 and size 2 mix manifolds.

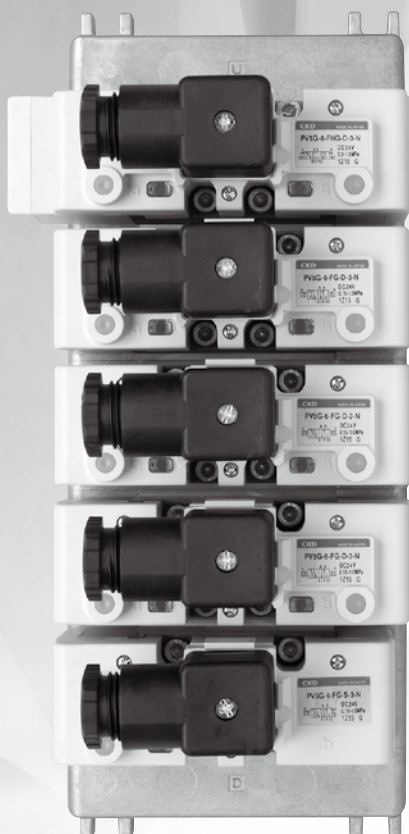
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4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
<b>PV5G GMF</b>
<b>PV5 GMF</b>
<b>PV5S-0</b>
3QR 3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# Introducing the new ISO valve that's now more

New ISO valve PV5G / PV5 / GMF Series that's compact, lightweight and energy efficient, with improved operability, service life and environmental performance.

- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (mastr)
- 4GD/E
- M4GD/E
- MN4GD/E
- 4GA4/B4
- MN3E  
MN4E
- W4GA/B2
- W4GB4
- 4TB
- 4L2-4/  
LMF0
- MN3S0  
MN4S0
- 4SA/B0
- 4KA/B
- 4KA/B (mastr)
- 4F
- 4F (mastr)
- PV5G  
GMF**
- PV5  
GMF**
- PV5S-0**
- 3QR  
3QB
- MV3QR
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP/  
NVP
- 4F\*0EX
- 4F\*0E
- HMV  
HSV
- 2QV  
3QV
- SKH
- PCD
- Silencer
- TotAirSys  
(Total Air)
- TotAirSys  
(Gamma)
- Ending



## Compact body size

It has become more compact while improving the total performance.



← compared to CKD conventional products **10% LESS**

## Improvement of operability

Manual buttons and conduction indicator lamp are optimally positioned in consideration of the ease of operation, visibility, etc. Operability has improved in adjustment, maintenance and the like when installing.

▼ Enlarged view

## Uses 2-color display lamp

Solenoid a: red  
Solenoid b: green



Power indicator lamp

## Improvement of reliability and safety

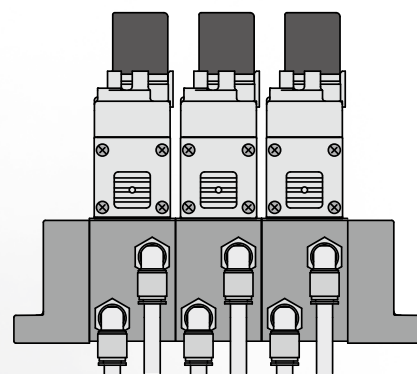
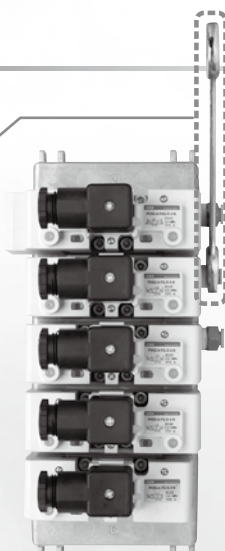
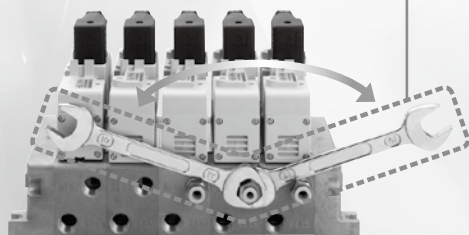
Rubber cover for manual override button.  
Prevents intake of foreign matter leading to misoperation.  
It emphasizes safety, making it ideal for operation using manual tools.

Manual button (with rubber cover)

## Simple, easy piping

The valve body does not protrude over the base of the manifold, and does not interfere with the rotation of a wrench or similar tool, thus promoting efficient piping work.

Wrench can be rotated at a large angle.



A/B ports are placed offset, making it easier to install fittings.

# compact and easier to use.



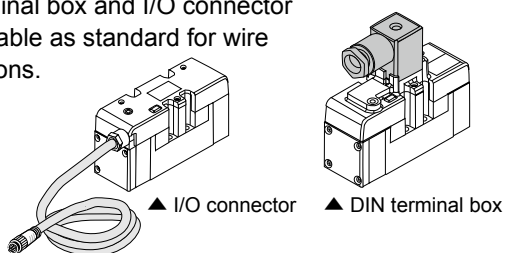
CKD  
Green  
Technology

## Low wattage design **1W**

Power consumption is reduced from conventional 1.8 W to 1 W.  
Significantly more energy efficient.

## Standard I/O connector

DIN terminal box and I/O connector are available as standard for wire connections.



## RoHS compliant

Has an environment-friendly design which is compliant to RoHS Directive.











# RoHS

## Degree of protection of **IP65** or equivalent

The dust-proof and water jet-proof structure of IP65 or equivalent is suitable for harsh environments.

- **Longer service life**  
Service life is further extended by improvements in structure of sliding section and packing, etc.
- **Lighter weight**  
The body is made of aluminum and the rest is resin. Features a lightweight design.
- **Compliant with ISO standards**  
Pilot operated pneumatic 5-port valve with mounting pitch, thread size and flow path dimensions that are in accordance with ISO standards.
- **Improved design**  
The design has been renewed with white coloring and rounded corners.

## ■ PV5G/PV5/GMF/PV5S-0 Series


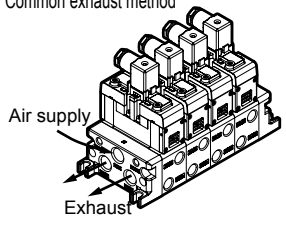
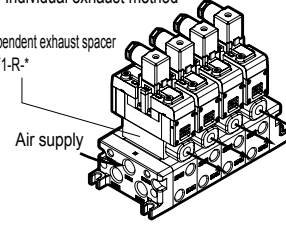
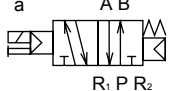


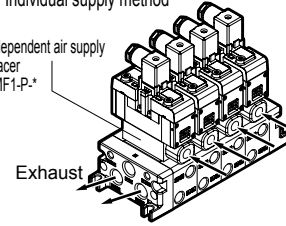
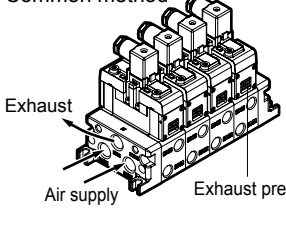
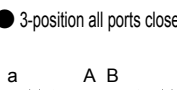
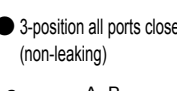


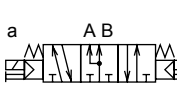
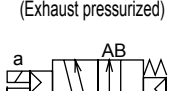
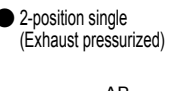

Series/appearance		Applicable cylinder bore size	Port size	Voltage		
ISO size 1	Single valve <b>PV5G-6</b> Series  DIN terminal box	Manifold <b>GMF1</b> Series  	P/A/B    Rc1/4, Rc3/8  R <sub>1</sub> /R <sub>2</sub> Rc3/8, Rc1/2	MAX. φ100  100 VAC 110 VAC 200 VAC 220 VAC 12 VDC 24 VDC		
	Single valve <b>PV5-6R</b> Series  I/O connector				P/A/B    Rc1/4, Rc3/8  R <sub>1</sub> /R <sub>2</sub> Rc3/8, Rc1/2	24 VDC
	Master valve <b>PV5S-6-0</b> 					
ISO size 2	Single valve <b>PV5G-8</b> Series  DIN terminal box	Manifold <b>GMF2</b> Series  	P/A/B    Rc3/8, Rc1/2, Rc3/4  R <sub>1</sub> /R <sub>2</sub> Rc1/2, Rc3/4	MAX. φ160  100 VAC 110 VAC 200 VAC 220 VAC 12 VDC 24 VDC		
	Single valve <b>PV5-8R</b> Series  I/O connector				P/A/B    Rc3/8, Rc1/2, Rc3/4  R <sub>1</sub> /R <sub>2</sub> Rc1/2, Rc3/4	24 VDC
	Master valve <b>PV5S-8-0</b> 					

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
<b>PV5G GMF</b>
<b>PV5 GMF</b>
<b>PV5S-0</b>
3QR 3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# Series variation

# PV5G/PV5/GMF Series

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
PV5G GMF
PV5 GMF
PV5S-0
3QR 3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)


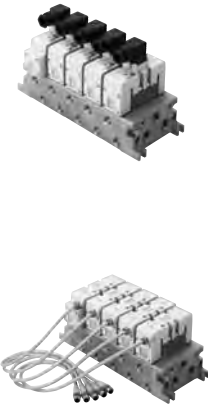
Series/appearance		Position	Valve performance					
Size	Connection	Number of solenoids	Cylinder bore size	Flow characteristics C [dm <sup>3</sup> /(s·bar)]	Voltage			
ISO size 1	DIN terminal box	Single valve	Individual wiring manifold * The figure is an example of a DIN terminal box.	JIS symbol				
		<b>PV5G-6</b>  Single unit ..... page 1438 Manifold ..... Page 1450	<ul style="list-style-type: none"> <li>Common exhaust method </li> <li>Individual exhaust method Independent exhaust spacer CMF1-R-* </li> </ul>	<ul style="list-style-type: none"> <li>2-position single </li> <li>2-position double </li> </ul>	MAX. φ100  P→A/B 3.4 to 6.3  A/B→R1/R2 3.0 to 6.9  *1      *2	100 VAC 200 VAC 12 VDC 24 VDC 110 VAC 220 VAC		
			<b>PV5-6R</b>  Single unit ..... page 1466 Manifold ..... page 1478	<ul style="list-style-type: none"> <li>Individual supply method Independent air supply spacer CMF1-P-* </li> <li>Common method </li> </ul>			<ul style="list-style-type: none"> <li>3-position all ports closed </li> <li>3-position all ports closed (non-leaking) </li> </ul>	
	DIN terminal box	<b>PV5G-8</b>  Single unit ..... page 1444 Manifold ..... Page 1454		<ul style="list-style-type: none"> <li>Individual supply/exhaust method Air supply and exhaust are processed individually by inserting an independent air supply spacer (CMF1-P-*) and an independent exhaust spacer (CMF1-R-*) between the manifold block and the valve body.</li> <li>Rear piping method When piping cannot be installed from the side, it is possible to install all or part of the piping of A/B ports from the bottom surface of the manifold.</li> </ul>			<ul style="list-style-type: none"> <li>3-position A/B/R connection </li> <li>3-position P/A/B connection </li> <li>2-position single (Exhaust pressurized) </li> <li>2-position single (Exhaust pressurized) </li> </ul>	MAX. φ160  P→A/B 6.6 to 11.0  A/B→R1/R2 6.2 to 13.0  *1      *2
		<b>PV5-8R</b>  Single unit ..... page 1472 Manifold ..... Page 1482						
			I/O connector					

\*1: Effective cross-sectional area "S" and sonic conductance "C" are converted as  $S \approx 5.0 \times C$ .

\*2: The I/O connector is only available for 24 VDC.

# PV5G/PV5/GMF Series

Series variation

ISO size	Size 1				Size 2					
	Single unit: PV5G-6, PV5-6R Series Manifold: GMF1 Series				Single unit: PV5G-8, PV5-8R Series Manifold: GMF2 Series					
Sub-plate	DIN terminal box I/O connector		Page 1438 Page 1466		DIN terminal box I/O connector		Page 1444 Page 1472			
	Model No.	Connection	Port size		Model No.	Connection	Port size			
			P/A/B	R <sub>1</sub> , R <sub>2</sub>			P/A/B	R <sub>1</sub> , R <sub>2</sub>		
	CB1-A02	Side piping	Rc1/4	Rc3/8	CB2-A03	Side piping	Rc3/8	Rc1/2		
	CB1-A03		Rc3/8		CB2-A04		Rc1/2			
				CB2-A06	Rc3/4		Rc3/4			
Manifold	DIN terminal box I/O connector		Page 1450 Page 1478		DIN terminal box I/O connector		Page 1454 Page 1482			
	Model No.	Descriptions		Specifications	Model No.	Descriptions		Specifications		
	GMF1	Station No.		1 station to 10 stations		GMF2	Station No.		1 station to 10 stations	
		Piping connection	A/B Port	Rc1/4, 3/8			Piping connection	A/B Port	Rc3/8, 1/2	
			P/R <sub>1</sub> /R <sub>2</sub> port	Rc3/8, 1/2				P/R <sub>1</sub> /R <sub>2</sub> port	Rc1/2, 3/4	
	Option	Independent air supply spacer		CMF1-P*		Option	Independent exhaust spacer		CMF2-P*	
		Independent exhaust spacer		CMF1-R*			Independent exhaust spacer		CMF2-R*	
		Masking plate		CM1-00			Masking plate		CM2-00	
		Spacer regulator		CMF1-SR-A B			Spacer regulator		CMF2-SR-A B	
		Air pilot check valve		CMF1-PC			Air pilot check valve		CMF2-PC	
	<b>Manifold method</b> (As an option, a GMFZ which is a combination of GMF1 and GMF2 is also available. )									
	1	Common exhaust method				1	Common exhaust method			
	2	Individual exhaust method				2	Individual exhaust method			
3	Individual supply method				3	Individual supply method				
4	Different pressure supply method				4	Different pressure supply method				
5	Individual supply/exhaust method				5	Individual supply/exhaust method				
6	Rear piping method				6	Rear piping method				

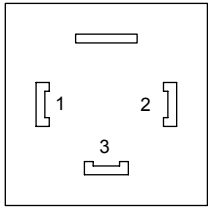
4GA/B  
M4GA/B  
MN4GA/B  
4GA/B (mastr)  
4GD/E  
M4GD/E  
MN4GD/E  
4GA4/B4  
MN3E  
MN4E  
W4GA/B2  
W4GB4  
4TB  
4L2-4/  
LMF0  
MN3S0  
MN4S0  
4SA/B0  
4KA/B  
4KA/B (mastr)  
4F  
4F (mastr)  
PV5G  
GMF  
PV5  
GMF  
PV5S-0  
3QR  
3QB  
MV3QR  
3MA/B0  
3PA/B  
P/M/B  
NP/NAP/  
NVP  
4F\*0EX  
4F\*0E  
HMV  
HSV  
2QV  
3QV  
SKH  
PCD  
Silencer  
TotAirSys  
(Total Air)  
TotAirSys  
(Gamma)  
Ending

# PV5G/PV5/GMF Series

- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (mastr)
- 4GD/E
- M4GD/E
- MN4GD/E
- 4GA4/B4
- MN3E  
MN4E
- W4GA/B2
- W4GB4
- 4TB
- 4L2-4/  
LMF0
- MN3S0  
MN4S0
- 4SA/B0
- 4KA/B
- 4KA/B (mastr)
- 4F
- 4F (mastr)
- PV5G  
GMF**
- PV5  
GMF**
- PV5S-0
- 3QR  
3QB
- MV3QR
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP/  
NVP
- 4F\*0EX
- 4F\*0E
- HMV  
HSV
- 2QV  
3QV
- SKH
- PCD
- Silencer
- TotAirSys  
(Total Air)
- TotAirSys  
(Gamma)
- Ending

## PV5G/GMF (DIN terminal box)

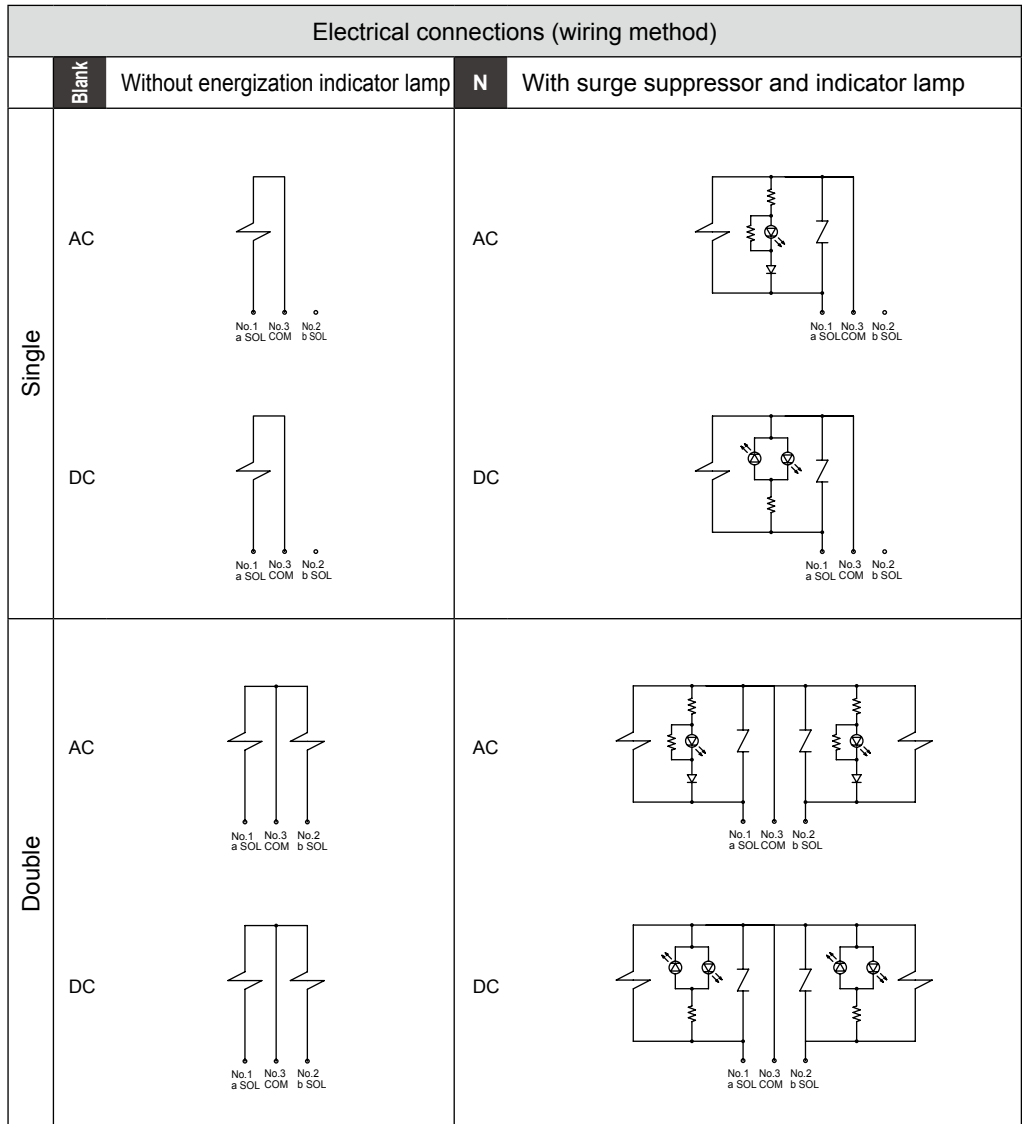
How to wire



Pin No.	Name
1	a SOL
2	b SOL
3	COM

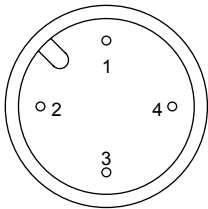
There is no specification of polarity when using a DC power supply.

Electric connection circuit diagram



## PV5/GMF (I/O connector)

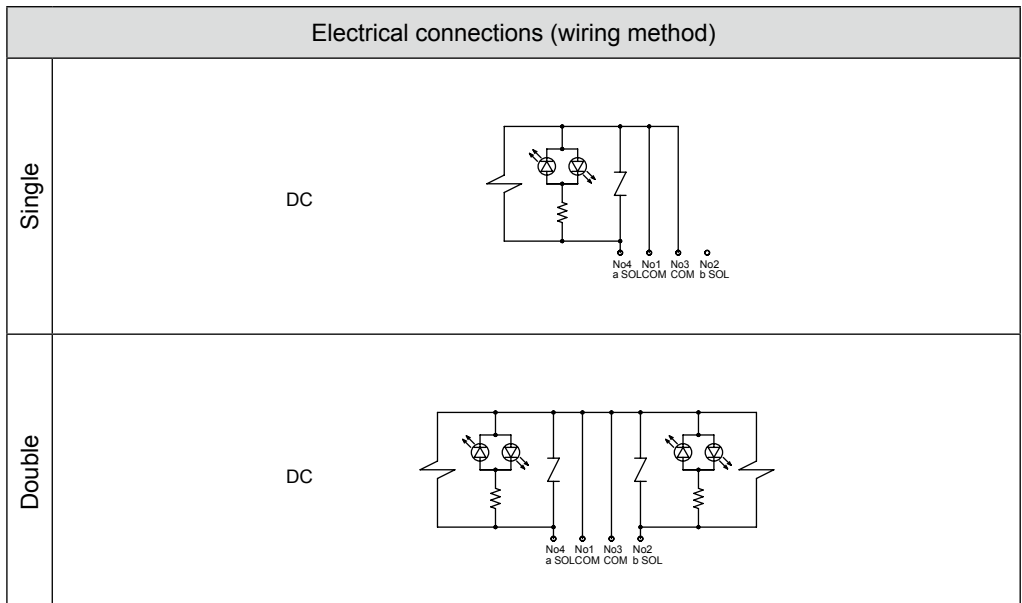
How to wire



Pin No.	Name
1	COM(NPN)
2	b SOL
3	COM(PNP)
4	a SOL

Pin 2 will not be used when using a single type.

Electric connection circuit diagram



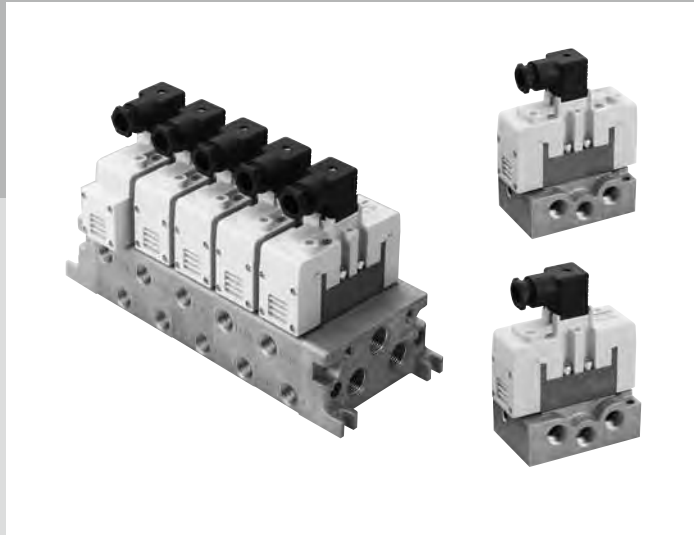
Note: Only available with a rated voltage of 24 VDC and with surge suppressor and indicator lamp.

# PV5G/GMF

## (DIN terminal box)

Pilot operated 5-port valve

ISO valve



### CONTENTS

Single valve	
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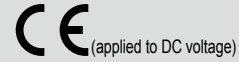
4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
<b>PV5G GMF</b>
<b>PV5 GMF</b>
PV5S-0
3QR 3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending



Single valve ISO size 1  
 DIN terminal box  
 Pilot operated 5-port valve ISO compliant valve

# PV5G-6 Series

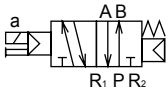
● Cylinder bore size: max.  $\phi 100$



## JIS symbol

● 5-port valve

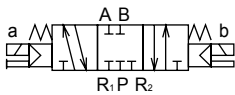
2-position single (FG-S)



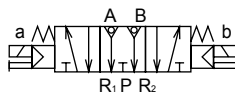
2-position double (FG-D)



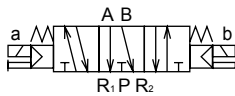
3-position all ports closed (FHG)



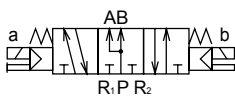
3-position all ports closed Non-leaking (FPG)



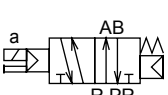
3-position A/B/R connection (FJG)



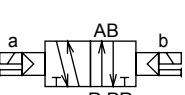
3-position P/A/B connection (FIG)



2-position single Exhaust pressurized (YZ-S)



2-position double Exhaust pressurized (YZ-D)



## Common specifications

Descriptions	Content
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)
Min. working pressure MPa	0.15 ( $\approx 22$ psi, 1.5 bar) 0.20 ( $\approx 29$ psi, 2 bar) (3-position) *1
Proof pressure MPa	1.50 ( $\approx 220$ psi, 15 bar)
Ambient temperature °C	-5 (23°F) to 60 (140°F) (no freezing)
Fluid temperature °C	5 (41°F) to 60 (140°F)
Lubrication	Not required
Degree of protection	Dust proof/jet proof (IP65 or equivalent)
Leakage $\text{cm}^3/\text{min}$ (A, B $\rightarrow$ R port)	10 (ANR) or less
Vibration resistance $\text{m/s}^2$	50 or less
Shock resistance $\text{m/s}^2$	300 or less
Atmosphere	Cannot be used in corrosive gas environment.

\*1: With YZ-S only, use with a working pressure of  $R1 > R2 \geq 0.15$  MPa.

\*2: The initial value is listed.

## Electrical specifications

Descriptions	Content				
Rated voltage	V AC	100(50/60 Hz) 110(50/60 Hz) 200(50/60 Hz) 220(50/60 Hz)			
	DC	12,24			
Voltage fluctuation range	$\pm 10\%$				
Starting current	A AC	100 V	0.056/0.044		
		110 V	0.051/0.040		
		200 V	0.034/0.026		
		220 V	0.031/0.024		
Holding current	A AC	100 V	0.028/0.022		
		110 V	0.025/0.020		
		200 V	0.017/0.013		
		220 V	0.015/0.012		
		DC		12 V	0.083
		24 V	0.042		
Power consumption	W AC	100 V	1.8/1.4		
		110 V	(1.8/1.5)		
		200 V	2.1/1.6		
		220 V	(2.2/1.7)		
		DC		12 V	1(1.2)
24 V					
Values in ( ) are with lamp					
Thermal class	B (molded coil)				
Wiring method	Electrical plug connector				

## Individual specifications

Descriptions	PV5G-6	
Port size	Rc1/4, Rc3/8	
Response time ms	2-position Single	30 (ON), 40 (OFF)
	Double	30
*2	3-position	30 (when ON), 50 (when neutral)
Weight kg	2-position Single	0.40
	Double	0.44
*3	3-position Other than non-leaking	0.48
	All ports closed non-leaking	1.14

\*1: As G and NPT threads can also be used for piping port screws, contact CKD for details.

\*2: The response time is the value with a working pressure of 0.5 MPa, no lubrication, and a DC power supply. It depends on the pressure and the lubricant quality.

\*3: The weight listed is the weight without the sub-plate.

- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (mastr)
- 4GD/E
- M4GD/E
- MN4GD/E
- 4GA4/B4
- MN3E
- MN4E
- W4GA/B2
- W4GB4
- 4TB
- 4L2-4/LMF0
- MN3S0
- MN4S0
- 4SA/B0
- 4KA/B
- 4KA/B (mastr)
- 4F
- 4F (mastr)
- PV5G GMF
- PV5 GMF
- PV5S-0
- 3QR
- 3QB
- MV3QR
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP/NVP
- 4F\*0EX
- 4F\*0E
- HMV
- HSV
- 2QV
- 3QV
- SKH
- PCD
- Silencer
- TotAirSys (Total Air)
- TotAirSys (Gamma)
- Ending



## Flow characteristics

Model No.	Port size	Solenoid position	P→A/B		A/B→R1/R2	
			C[dm <sup>3</sup> /(s·bar)]	b	C[dm <sup>3</sup> /(s·bar)]	b
PV5G-6	Rc1/4	2-position single	6.1	0.28	6.7	0.20
		2-position double	6.1	0.28	6.7	0.20
		3-position all ports closed	5.2	0.32	5.6	0.30
		3-position A/B/R connection	5.1	0.32	6.9	0.16
		3-position P/A/B connection	6.3	0.28	5.9	0.28
		3-position all ports closed non-leaking	3.4	-	3.0	-

\*1: Effective cross-sectional area S and sonic conductance C are converted as  $S \approx 5.0 \times C$ .

### Coolant proof specifications

Can be selected with "How to order" Item ④ option "A" on page 1440.

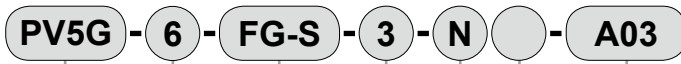
4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
<b>PV5G GMF</b>
<b>PV5 GMF</b>
PV5S-0
3QR 3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# PV5G-6 Series

Single valve; ISO size 1

## How to order DIN terminal box

● ISO Size 1



Model No.

ISO size 1

**A** Solenoid position

**B** Voltage

**C** Surge suppressor/lamp

**D** Option

**E** With/without sub-plate and port size

### ⚠ Precautions for model No. selection

\*1: Refer to page 1436 for the circuit diagram with a surge suppressor/lamp.

### [Example of model No.]

## PV5G-6-FG-S-3-N-A03

Model: PV5G/ISO size 1 (DIN terminal box)

- A** Solenoid position : P pressurized type 2-position Single solenoid
- B** Voltage : 24 VDC
- C** Surge suppressor/indicator lamp : With surge suppressor and indicator lamp
- D** Option : None
- E** Sub-plate port size : Side piping (Rc3/8)

## ISO size 1 sub-plate specifications and how to order

**CB1 - A02**

**A** Piping connection method

Code	Type	P/A/B port	R1/R2 port	Weight (kg)
<b>A Piping connection method</b>				
<b>A02</b>	Side	Rc1/4	Rc3/8	0.27
<b>A03</b>	piping	Rc3/8		

Code		Content	Model No.
<b>PV5G-6</b>			
<b>A Solenoid position</b>			
<b>FG-S</b>	P pressurized	2-position single	●
<b>FG-D</b>		2-position double	●
<b>FHG-D</b>		3-position all ports closed	●
<b>FJG-D</b>		3-position ABR connection	●
<b>FIG-D</b>		3-position PAB connection	●
<b>FIG-D</b>		3-position all ports closed non-leaking	●
<b>FIG-D</b>		3-position all ports closed non-leaking	●
<b>YZ-S</b>	Exhaust	2-position single	●
<b>YZ-D</b>	pressurized	2-position double	●
<b>B Voltage</b>			
<b>1</b>	100 VAC		●
<b>2</b>	200 VAC		●
<b>3</b>	24 VDC		●
<b>4</b>	12 VDC		●
<b>5</b>	110 VAC		●
<b>6</b>	220 VAC		●
<b>C Surge suppressor/lamp</b>			
<b>Blank</b>	None		●
<b>N</b>	With surge suppressor/lamp *1		●
<b>D Option</b>			
<b>Blank</b>	None		●
<b>A</b>	Coolant proof		●
<b>E With/without sub-plate and port size</b>			
<b>Blank</b>	Without sub-plate		●
<b>A02</b>	Side piping (Rc1/4 (Rc3/8 for R port only))		●
<b>A03</b>	Side piping (Rc3/8)		●

## Internal structure and parts list: DIN terminal box

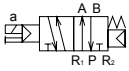
### PV5G-6-FG-S

- 2-position single



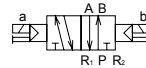
### PV5G-6-YZ-S

- 2-position single
- Exhaust pressurized



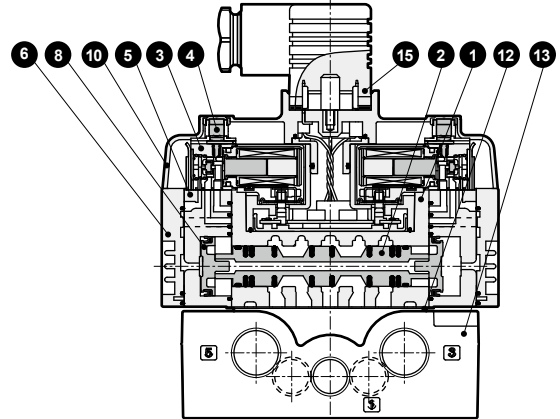
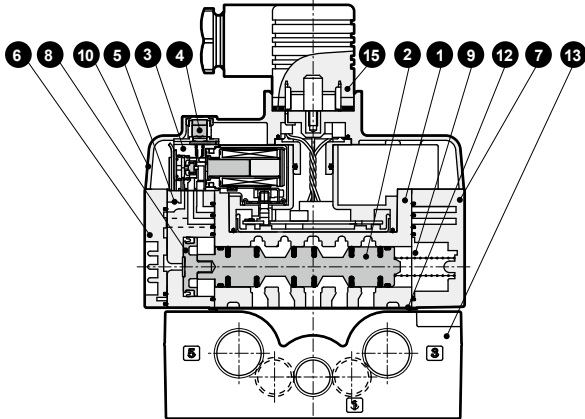
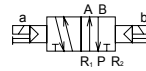
### PV5G-6-FG-D

- 2-position double



### PV5G-6-YZ-D

- 2-position double
- Exhaust pressurized



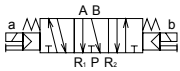
### PV5G-6-FHG-D

- 3-position all ports closed



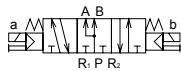
### PV5G-6-FJG-D

- 3-position A/B/R connection



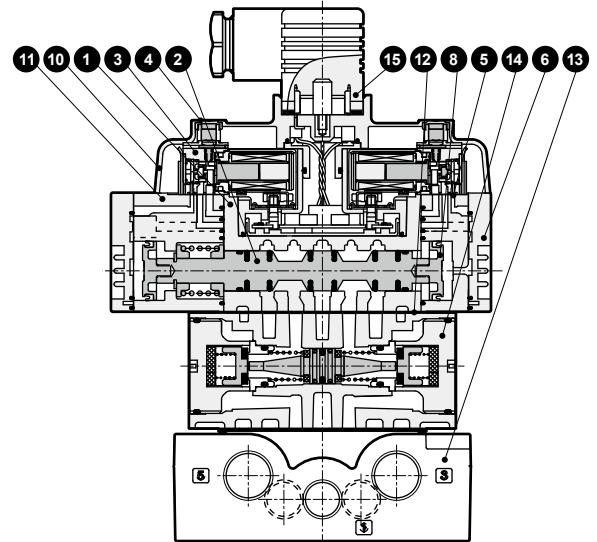
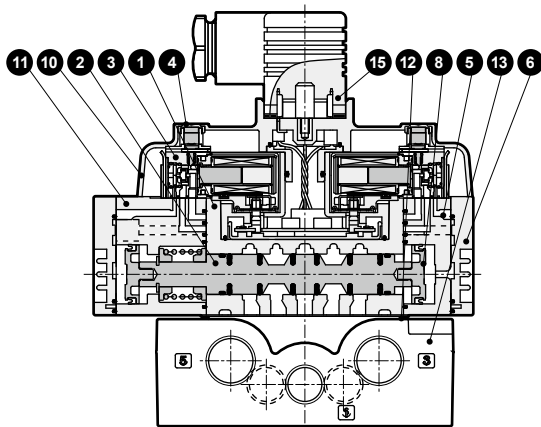
### PV5G-6-FIG-D

- 3-position P/A/B connection



### PV5G-6-FPG-D

- 3-position all ports closed
- Non-leaking type



## Main parts list

No.	Part name	Material	No.	Part name	Material
1	Body	Aluminum alloy die-casting	9	Spring S	-
2	Spool assembly	-	10	Wiring cover	Resin
3	Pilot valve	-	11	Pilot valve assembly for 3-position	Resin
4	Manual override	-	12	Gasket	-
5	Pilot valve assembly for double	Resin	13	Sub-plate	Aluminum alloy die-casting
6	Cap D	Resin	14	Air pilot check valve	-
7	Cap S	Resin	15	DIN terminal box	-
8	Piston D assembly	-			

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
<b>PV5G GMF</b>
PV5 GMF
PV5S-0
3QR 3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# PV5G-6 Series

Single valve; ISO size 1

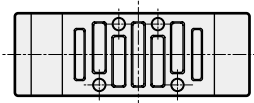
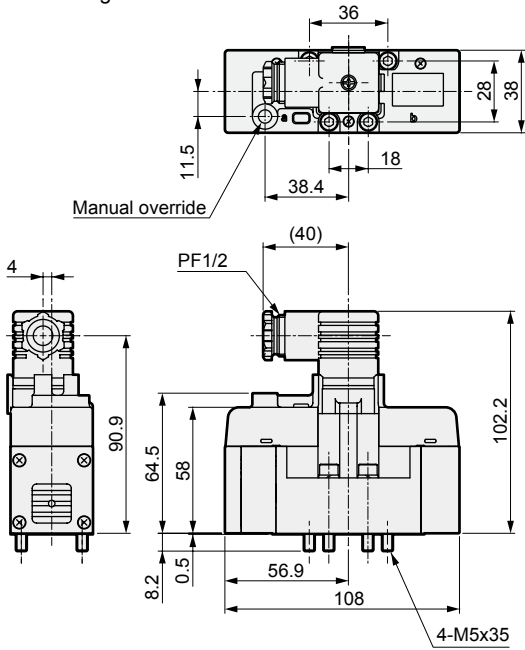
Dimensions: DIN terminal box (out sub-plate)

- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (mastr)
- 4GD/E
- M4GD/E
- MN4GD/E
- 4GA4/B4
- MN3E
- MN4E
- W4GA/B2
- W4GB4
- 4TB
- 4L2-4/LMF0
- MN3S0
- MN4S0
- 4SA/B0
- 4KA/B
- 4KA/B (mastr)
- 4F
- 4F (mastr)
- PV5G GMF**
- PV5 GMF
- PV5S-0
- 3QR
- 3QB
- MV3QR
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP/NVP
- 4F\*0EX
- 4F\*0E
- HMV
- HSV
- 2QV
- 3QV
- SKH
- PCD
- Silencer
- TotAirSys (Total Air)
- TotAirSys (Gamma)
- Ending

## PV5G-6-FG-S-\*

## PV5G-6-YZ-S-\*

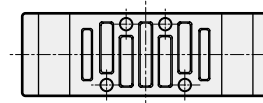
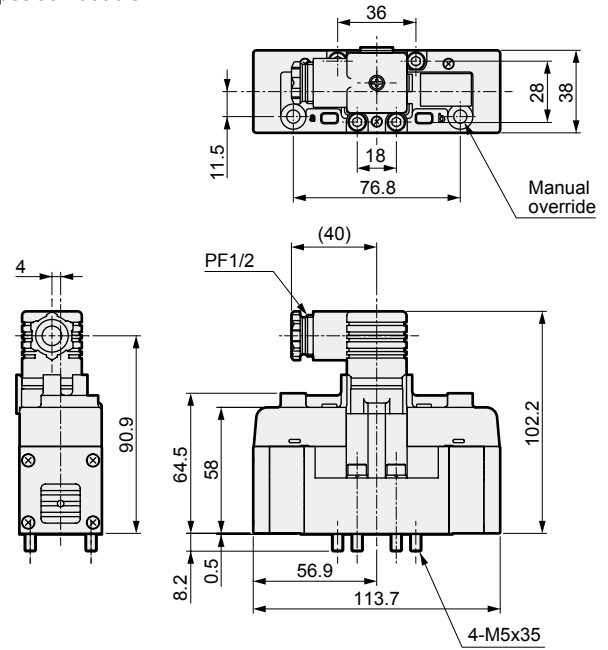
● 2-position single



## PV5G-6-FG-D-\*

## PV5G-6-YZ-D-\*

● 2-position double

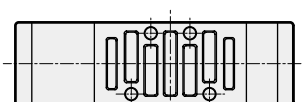
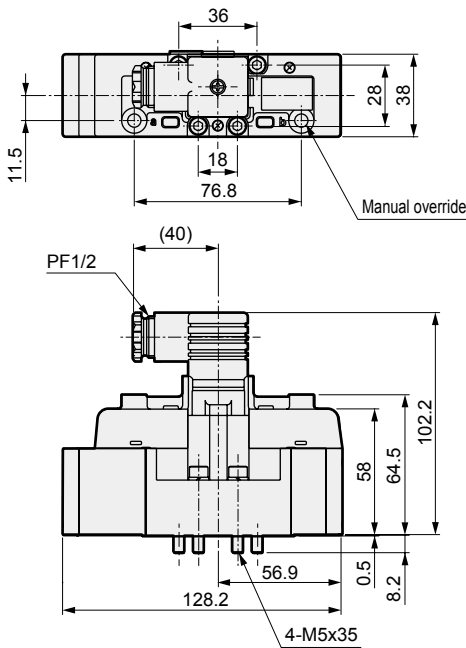


## PV5G-6-FHG-D-\*

## PV5G-6-FJG-D-\*

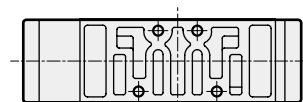
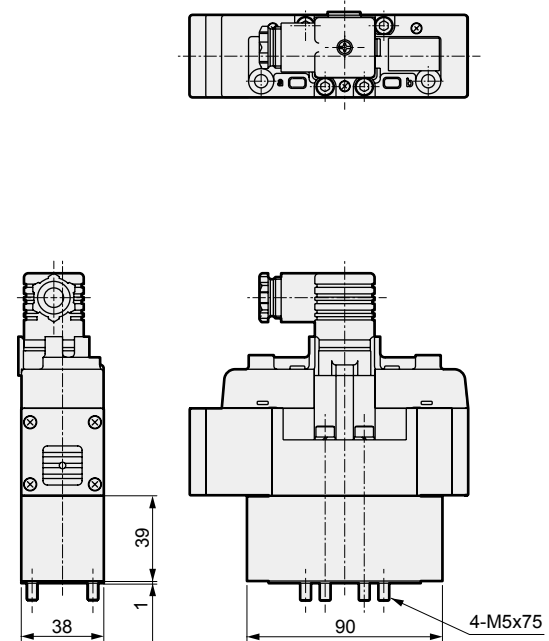
## PV5G-6-FIG-D-\*

● 3-position



## PV5G-6-FPG-D-\*

● 3-position/non-leaking

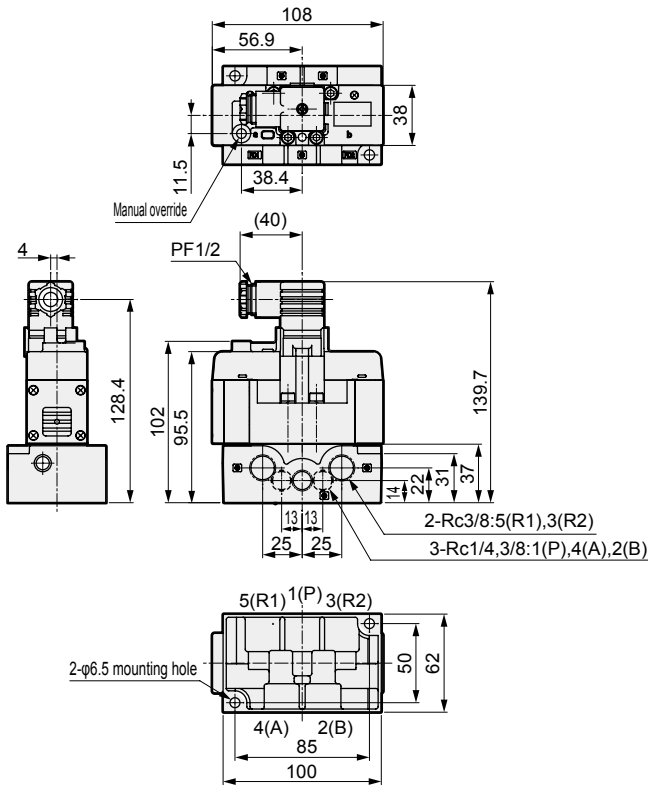


Dimensions: DIN terminal box (with sub-plate)

**PV5G-6-FG-S-\*\*-\***

**PV5G-6-YZ-S-\*\*-\***

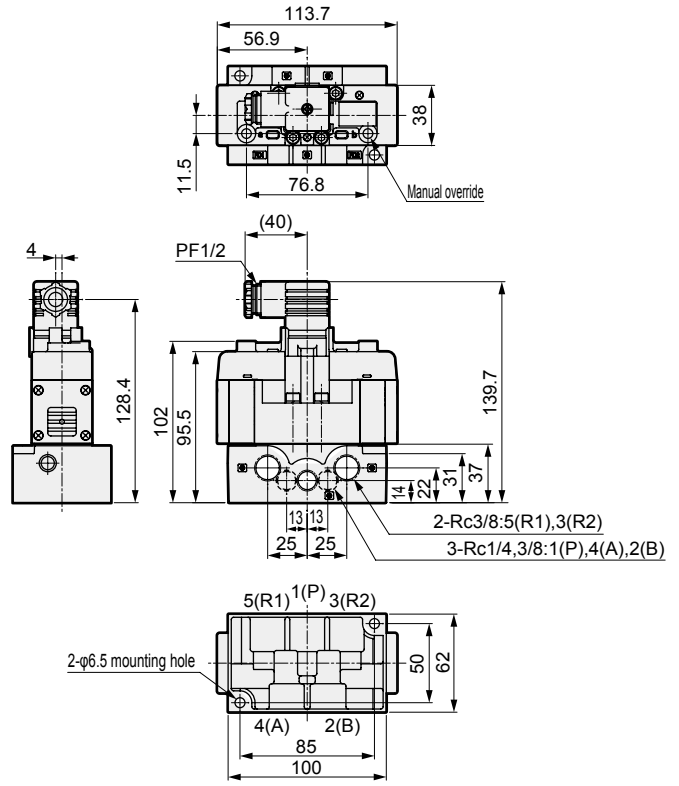
● 2-position single



**PV5G-6-FG-D-\*\*-\***

**PV5G-6-YZ-D-\*\*-\***

● 2-position double

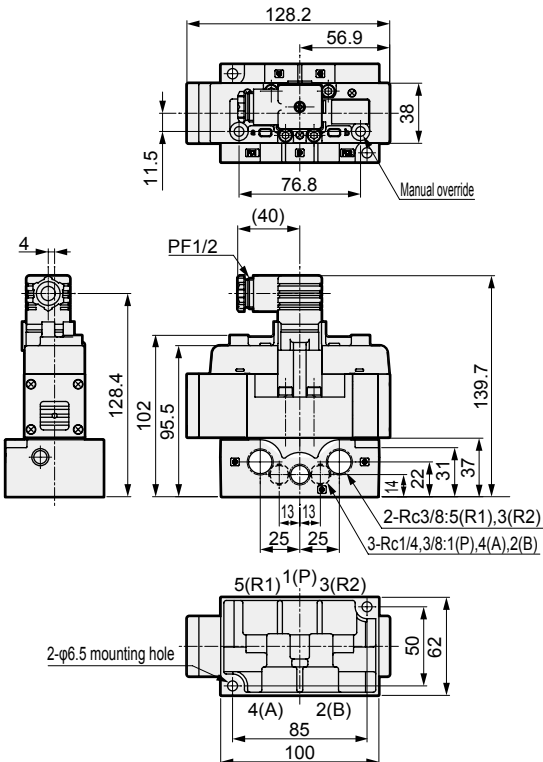


**PV5G-6-FHG-D-\*\*-\***

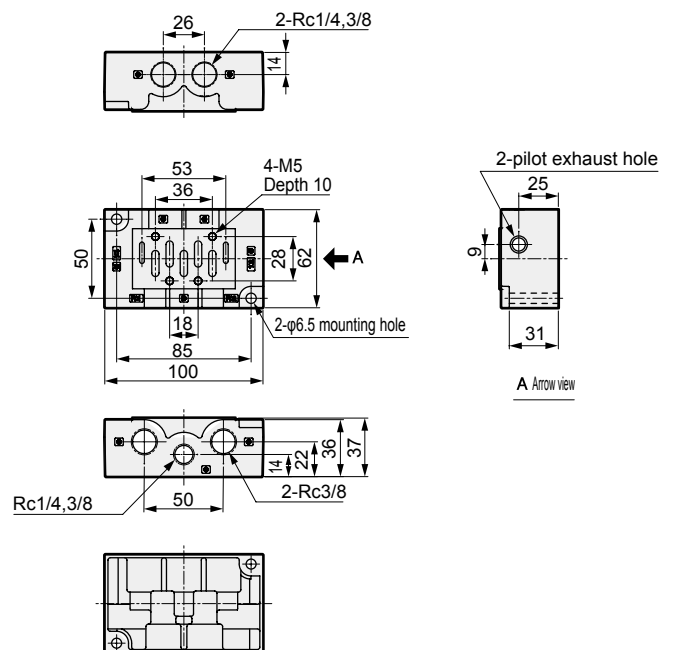
**PV5G-6-FJG-D-\*\*-\***

**PV5G-6-FIG-D-\*\*-\***

● 3-position



● Sub-plate dimensions



4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
4TB
4L2-4/LMFO
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
<b>PV5G GMF</b>
PV5 GMF
PV5S-0
3QR
3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending



Single valve ISO size 2  
 DIN terminal box  
 Pilot operated 5-port valve ISO compliant valve

# PV5G-8 Series

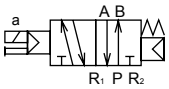
● Cylinder bore size: max.  $\phi 160$



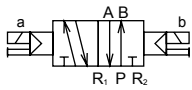
## JIS symbol

● 5-port valve

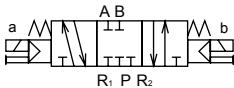
2-position single (FG-S)



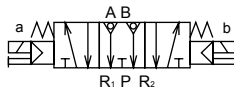
2-position double (FG-D)



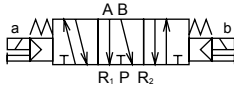
3-position all ports closed (FHG)



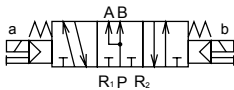
3-position all ports closed Non-leaking (FPG)



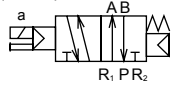
3-position A/B/R connection (FJG)



3-position P/A/B connection (FIG)



2-position single Exhaust pressurized (YZ-S)



2-position double Exhaust pressurized (YZ-D)



## Common specifications

Descriptions	Content
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	1.0
Min. working pressure MPa	0.15 0.20 (3-position) *1
Proof pressure MPa	1.50
Ambient temperature °C	-5 to 60 (no freezing)
Fluid temperature °C	5 to 60
Lubrication	Not required
Degree of protection	Dust proof/jet proof (IP65 or equivalent)
Leakage cm <sup>3</sup> /min (A, B → R port)	10 (ANR) or less
Vibration resistance m/s <sup>2</sup>	3-position all ports closed non-leaking only 0.3 (ANR) or less *2
Shock resistance m/s <sup>2</sup>	50 or less
Atmosphere	300 or less
	Cannot be used in corrosive gas environment.

\*1: With YZ-S only, use the unit with a working pressure of  $R_1 > R_2 \geq 0.15$  MPa.

\*2: The initial value is listed.

## Electrical specifications

Descriptions	Content		
Rated voltage	V AC	100(50/60 Hz) 110(50/60 Hz) 200(50/60 Hz) 220(50/60 Hz)	
	DC	12,24	
Voltage fluctuation range	±10%		
Starting current	A AC	100 V	0.056/0.044
		110 V	0.051/0.040
		200 V	0.034/0.026
		220 V	0.031/0.024
Holding current	A AC	100 V	0.028/0.022
		110 V	0.025/0.020
		200 V	0.017/0.013
		220 V	0.015/0.012
	DC	12 V	0.083
		24 V	0.042
Power consumption	W AC	100 V	1.8/1.4
		110 V	(1.8/1.5)
		200 V	2.1/1.6
		220 V	(2.2/1.7)
Values in ( ) are with lamp	DC	12 V	1(1.2)
		24 V	
Thermal class	B (molded coil)		
Wiring method	Electrical plug connector		

## Individual specifications

Descriptions	PV5G-8	
Port size	Rc3/8, Rc1/2, Rc3/4	
Response time ms	2-position Single	40 (ON), 60 (OFF)
	2-position Double	40
*2	3-position	40 (when ON), 60 (when neutral)
Weight kg	2-position Single	0.63
	2-position Double	0.67
*3	3-position Other than non-leaking	0.70
	3-position All ports closed non-leaking type	1.35

\*1: As G and NPT threads can also be used for piping port screws, contact CKD for details.

\*2: The response time is the value with a working pressure of 0.5 MPa, no lubrication, and a DC power supply. It depends on the pressure and the lubricant quality.

\*3: The weight listed is the weight without the sub-plate.

- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (mastr)
- 4GD/E
- M4GD/E
- MN4GD/E
- 4GA4/B4
- MN3E
- MN4E
- W4GA/B2
- W4GB4
- 4TB
- 4L2-4/LMF0
- MN3S0
- MN4S0
- 4SA/B0
- 4KA/B
- 4KA/B (mastr)
- 4F
- 4F (mastr)
- PV5G GMF**
- PV5 GMF
- PV5S-0
- 3QR
- 3QB
- MV3QR
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP/NVP
- 4F\*0EX
- 4F\*0E
- HMV
- HSV
- 2QV
- 3QV
- SKH
- PCD
- Silencer
- TotAirSys (Total Air)
- TotAirSys (Gamma)
- Ending

## Flow characteristics

Model No.	Port size	Solenoid position	P→A/B		A/B→R1/R2	
			C[dm <sup>3</sup> /(s·bar)]	b	C[dm <sup>3</sup> /(s·bar)]	b
PV5G-8	Rc3/8	2-position single	10.7	0.17	13.0	0.19
		2-position double	10.7	0.17	13.0	0.19
		3-position all ports closed	10.0	0.16	11.0	0.25
		3-position A/B/R connection	9.9	0.14	13.0	0.16
		3-position P/A/B connection	11.0	0.12	12.0	0.21
		3-position all ports closed non-leaking	6.6	-	6.2	-

\*1: Effective cross-sectional area S and sonic conductance C are converted as  $S \approx 5.0 \times C$ .

### Coolant proof specifications

Select the option "A" of item ④ in How to order on page 1446.

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
4TB
4L2-4/LMF0
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
<b>PV5G</b>
<b>GMF</b>
<b>PV5</b>
<b>GMF</b>
PV5S-0
3QR
3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# PV5G-8 Series

Single valve; ISO size 2

## How to order DIN terminal box

● ISO size 2

**PV5G-8-FG-S-3-N-A03**

Model No.

ISO size 2

**A** Solenoid position

**B** Voltage

**C** Surge suppressor/lamp

**D** Option

**E** With/without sub-plate and port size

### ⚠ Precautions for model No. selection

\*1: Refer to page 1436 for the circuit diagram with a surge suppressor/lamp.

### [Example of model No.]

## PV5G-8-FG-S-3-N-A03

Model: PV5G/ISO size 2 (DIN terminal box)

- A** Solenoid position : P pressurized 2-position  
Single solenoid
- B** Voltage : 24 VDC
- C** Surge suppressor/lamp : With surge suppressor and indicator lamp
- D** Option : None
- E** Sub-plate port size : Side piping (Rc3/8)  
R port Rc1/2

Code		Content	Model No.
<b>A Solenoid position</b>			
<b>FG-S</b>	P pressurized	2-position single	●
<b>FG-D</b>		2-position double	●
<b>FHG-D</b>		3-position all ports closed	●
<b>FJG-D</b>		3-position ABR connection	●
<b>FIG-D</b>		3-position PAB connection	●
<b>FPG-D</b>		3-position all ports closed non-leaking	●
<b>YZ-S</b>	Exhaust pressurized	2-position single	●
<b>YZ-D</b>		2-position double	●
<b>B Voltage</b>			
<b>1</b>	100 VAC		●
<b>2</b>	200 VAC		●
<b>3</b>	24 VDC		●
<b>4</b>	12 VDC		●
<b>5</b>	110 VAC		●
<b>6</b>	220 VAC		●
<b>C Surge suppressor/lamp</b>			
<b>Blank</b>	None		●
<b>N</b>	With surge suppressor/lamp *1		●
<b>D Option</b>			
<b>Blank</b>	None		●
<b>A</b>	Coolant proof		●
<b>E With/without sub-plate and port size</b>			
<b>Blank</b>	Without sub-plate		●
<b>A03</b>	Side piping Rc3/8 (Rc1/2 for R port only)		●
<b>A04</b>	Side piping (Rc1/2)		●
<b>A06</b>	Side piping (Rc3/4)		●

## ISO size 2 sub-plate specifications and how to order

**CB2 - A03**

**A** Piping connection method

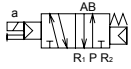
Code	Type	P/A/B port	R1/R2 port	Weight (kg)
<b>A Piping connection method</b>				
<b>A03</b>	Side piping	Rc3/8	Rc1/2	0.49
<b>A04</b>		Rc1/2		
<b>A06</b>		Rc3/4	Rc3/4	1.40



## Internal structure and parts list: DIN terminal box

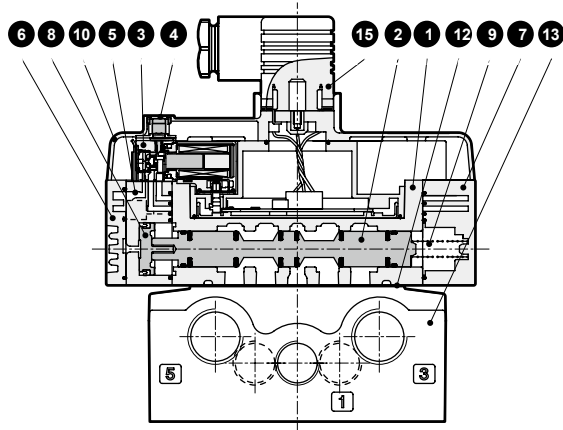
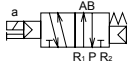
### PV5G-8-FG-S

- 2-position single



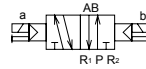
### PV5G-8-YZ-S

- 2-position single
- Exhaust pressurized



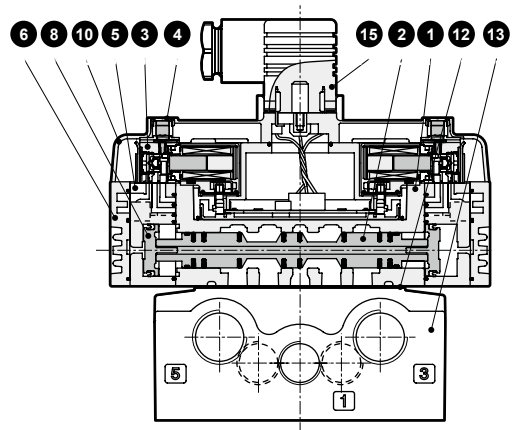
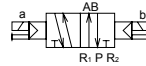
### PV5G-8-FG-D

- 2-position double



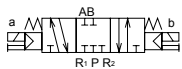
### PV5G-8-YZ-D

- 2-position double
- Exhaust pressurized



### PV5G-8-FHG-D

- 3-position all ports closed



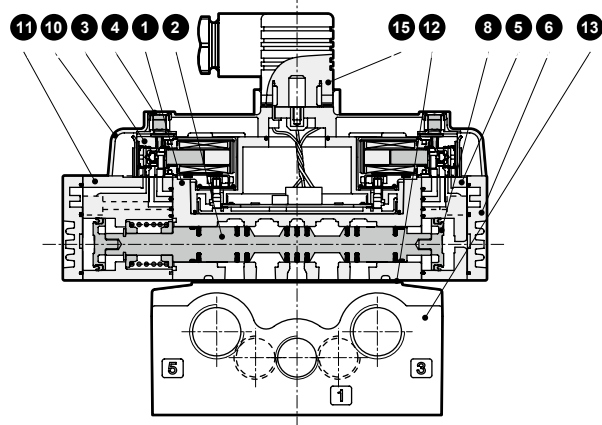
### PV5G-8-FJG-D

- 3-position A/B/R connection



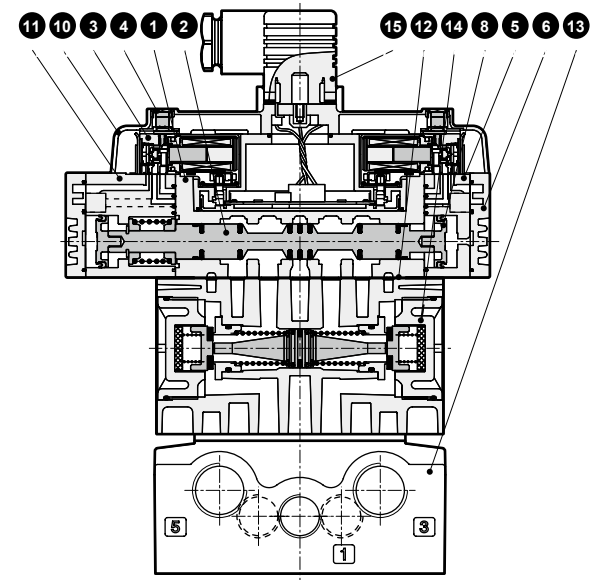
### PV5G-8-FIG-D

- 3-position P/A/B connection



### PV5G-8-FPG-D

- 3-position all ports closed non-leaking



## Main parts list

No.	Part name	Material	No.	Part name	Material
1	Body	Aluminum alloy die-casting	9	Spring S	-
2	Spool assembly	-	10	Wiring cover	Resin
3	Pilot valve	-	11	Pilot valve assembly for 3-position	Resin
4	Manual override	-	12	Gasket	-
5	Pilot valve assembly for double	Resin	13	Sub-plate	Aluminum alloy die-casting
6	Cap D	Resin	14	Air pilot check valve	-
7	Cap S	Resin	15	DIN terminal box	-
8	Piston D assembly	-			

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
4TB
4L2-4/LMF0
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
<b>PV5G GMF</b>
PV5 GMF
PV5S-0
3QR
3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# PV5G-8 Series

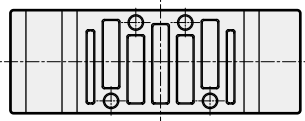
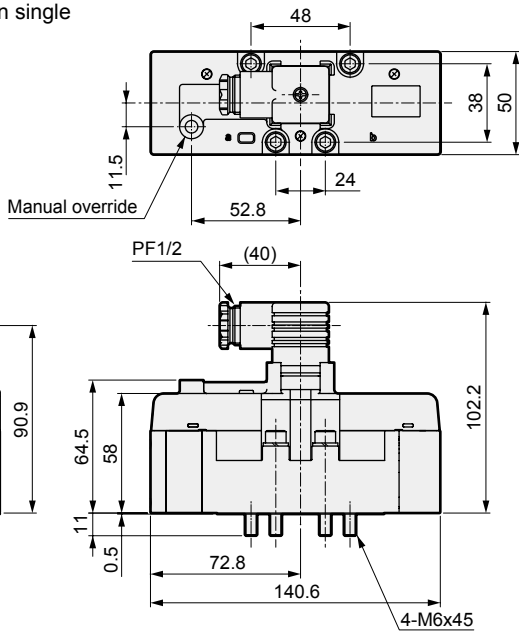
Single valve; ISO size 2

Dimensions: DIN terminal box (without sub-plate)

- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (mastr)
- 4GD/E
- M4GD/E
- MN4GD/E
- 4GA4/B4
- MN3E
- MN4E
- W4GA/B2
- W4GB4
- 4TB
- 4L2-4/LMF0
- MN3S0
- MN4S0
- 4SA/B0
- 4KA/B
- 4KA/B (mastr)
- 4F
- 4F (mastr)
- PV5G GMF**
- PV5 GMF
- PV5S-0
- 3QR
- 3QB
- MV3QR
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP/NVP
- 4F\*0EX
- 4F\*0E
- HMV
- HSV
- 2QV
- 3QV
- SKH
- PCD
- Silencer
- TotAirSys (Total Air)
- TotAirSys (Gamma)
- Ending

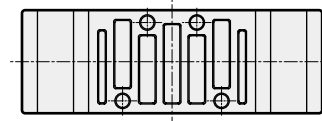
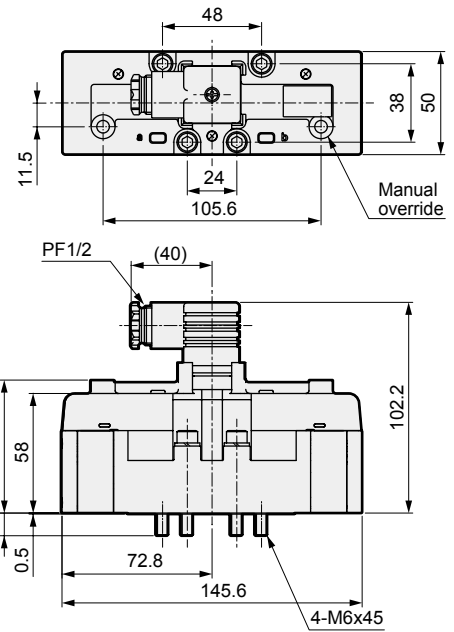
## PV5G-8-FG-S-\* PV5G-8-YZ-S-\*

● 2-position single



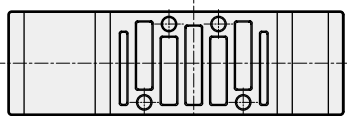
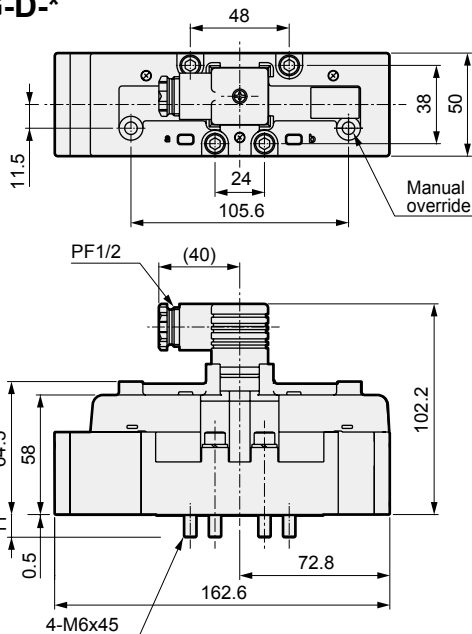
## PV5G-8-FG-D-\* PV5G-8-YZ-D-\*

● 2-position double



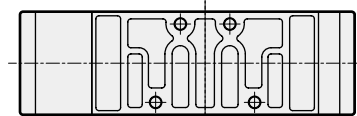
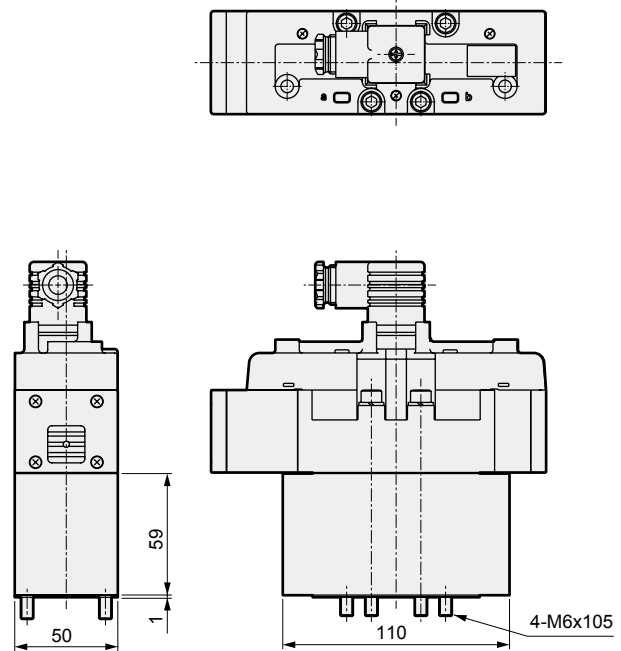
## PV5G-8-FHG-D-\* PV5G-8-FJG-D-\* PV5G-8-FIG-D-\*

● 3-position



## PV5G-8-FPG-D-\*

● 3-position/non-leaking



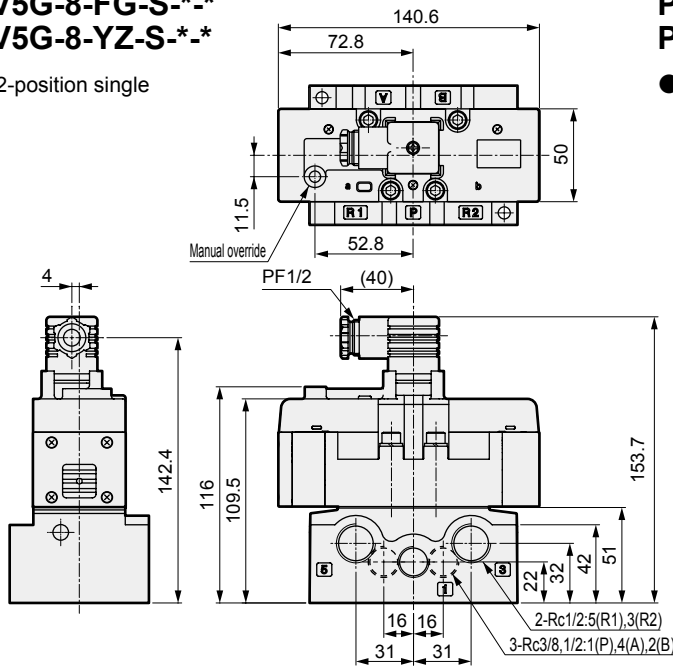
# PV5G-8 Series

Single valve; ISO size 2

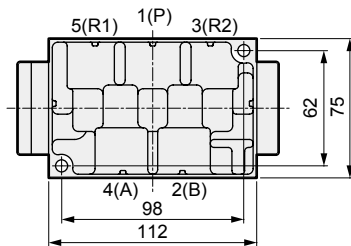
Dimensions: DIN terminal box (with sub-plate)

**PV5G-8-FG-S-\*\*-\***  
**PV5G-8-YZ-S-\*\*-\***

● 2-position single

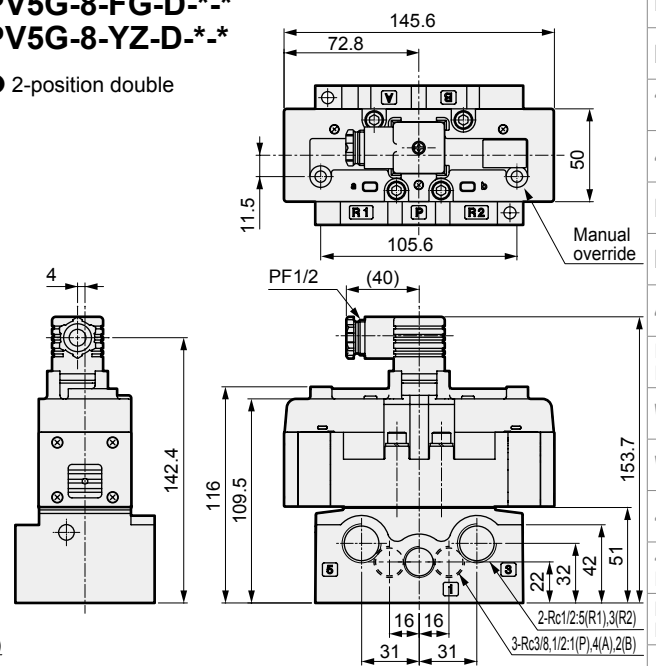


(Note: Refer to the following table for CB2-A06 dimensions.)

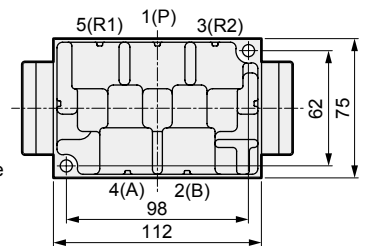


**PV5G-8-FG-D-\*\*-\***  
**PV5G-8-YZ-D-\*\*-\***

● 2-position double

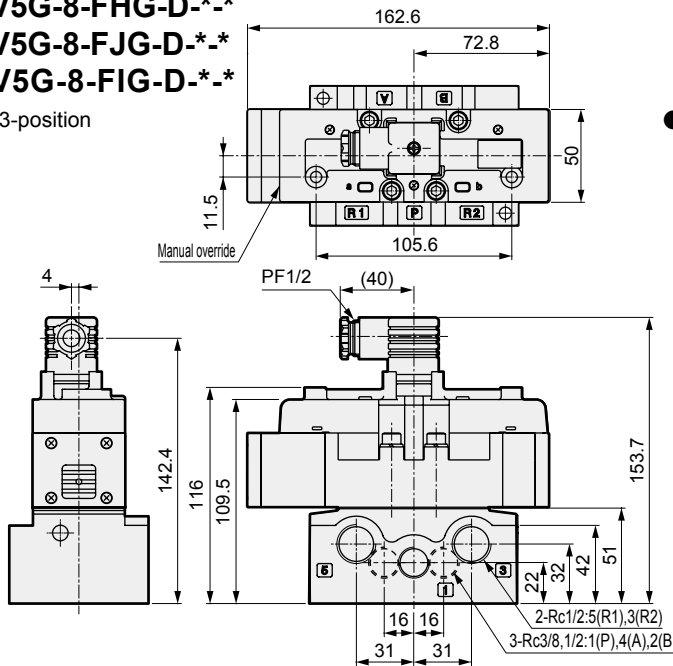


(Note: Refer to the following table for CB2-A06 dimensions.)

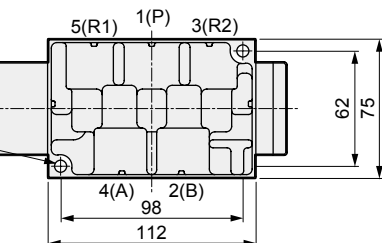


**PV5G-8-FHG-D-\*\*-\***  
**PV5G-8-FJG-D-\*\*-\***  
**PV5G-8-FIG-D-\*\*-\***

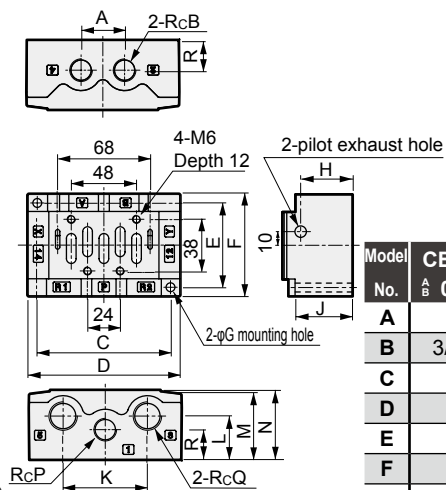
● 3-position



(Note: Refer to the table at right for CB2-A06 dimensions.)

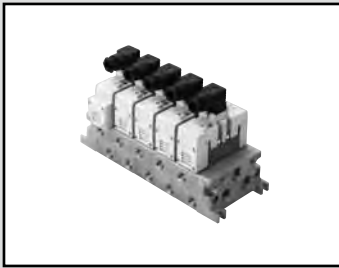


● Sub-plate dimensions (CB2-\*)



Model No.	CB2-A 03	CB2-A 04	CB2-A 06
A	32	40	
B	3/8	1/2	3/4
C	98	128	
D	112	142	
E	62	72	
F	75	86	
G	6.5	7.5	
H	38	53	
J	42	55	
K	62	84	
L	32	42	
M	50	62	
N	51	63	
P	3/8	1/2	3/4
Q	1/2	3/4	
R	22	30	

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
4TB
4L2-4/LMF0
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
<b>PV5G</b>
<b>GMF</b>
PV5
GMF
PV5S-0
3QR
3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending



Individual wiring manifold ISO size 1  
 DIN terminal box  
 Pilot operated 5-port valve ISO compliant valve

# GMF1 Series

● Cylinder bore size: max.  $\phi 100$



## Common specifications

Descriptions	Content
Manifold method	Manifold integrated
Manifold	Common supply/common exhaust Common supply/individual exhaust Individual supply/common exhaust Individual supply/individual exhaust Different pressure supply
Station No.	1 to 10 stations
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)
Min. working pressure MPa	0.15 ( $\approx 22$ psi, 1.5 bar) 0.20 ( $\approx 29$ psi, 2 bar) (3-position) *1
Proof pressure MPa	1.50 ( $\approx 220$ psi, 15 bar)
Ambient temperature $^{\circ}\text{C}$	-5 (23 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ ) (no freezing)
Fluid temperature $^{\circ}\text{C}$	5 (41 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ )
Lubrication	Not required
Degree of protection	Dust proof/jet proof (IP65 or equivalent)
Leakage $\text{cm}^3/\text{min}$ (A, B $\rightarrow$ R port)	10 (ANR) or less 3-position all ports closed non-leaking only 0.3 (ANR) or less *2
Vibration resistance $\text{m/s}^2$	50 or less
Shock resistance $\text{m/s}^2$	300 or less
Atmosphere	Cannot be used in corrosive gas environment.

\*1: With YZ-S only, use with a working pressure of  $R1 > R2 \geq 0.15$  MPa.

\*2: The initial value is listed.

## Electrical specifications

Descriptions	Content
Rated voltage V AC	100(50/60 Hz) 110(50/60 Hz) 200(50/60 Hz) 220(50/60 Hz)
DC	12,24
Voltage fluctuation range	$\pm 10\%$
Starting current A AC	100 V 0.056/0.044 110 V 0.051/0.040 200 V 0.034/0.026 220 V 0.031/0.024
Holding current A AC	100 V 0.028/0.022 110 V 0.025/0.020 200 V 0.017/0.013 220 V 0.015/0.012
DC	12 V 0.083 24 V 0.042
Power consumption W AC	100 V 1.8/1.4 110 V (1.8/1.5) 200 V 2.1/1.6 220 V (2.2/1.7)
DC	12 V 1(1.2) 24 V
Values in ( ) are with lamp	
Thermal class	B (molded coil)
Wiring method	Electrical plug connector

## Individual specifications

Descriptions	GMF1
Port size *1	P/R1/R2 port Rc3/8, Rc1/2 A/B port Rc1/4, Rc3/8
Response time *2 ms	2-position Single 30 (ON), 40 (OFF) Double 30 3-position 30 (when ON), 50 (when neutral)

\*1: As G and NPT threads can also be used for piping port screws, contact CKD for details.

\*2: The response time is the value with a working pressure of 0.5 MPa, no lubrication, and a DC power supply. It depends on the pressure and the lubricant quality.

## Weight

Manifold base	Station No.	1	2	3	4	5	6	7	8	9	10
(kg)		1.04	1.50	1.95	2.40	2.85	3.30	3.75	4.20	4.65	5.10
Silencer box	Model No.	SB									
Added to manifold base assembly (kg)		0.13									
Spacer	Model No.	P	R	SR	PC						
(kg)		0.22	0.22	0.64	0.25						

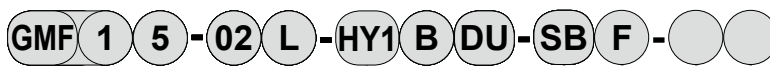
## Flow characteristics

Model No.	Port size	Solenoid position	P $\rightarrow$ A/B		A/B $\rightarrow$ R1/R2	
			C[ $\text{dm}^3/(\text{s}\cdot\text{bar})$ ]	b	C[ $\text{dm}^3/(\text{s}\cdot\text{bar})$ ]	b
GMF1	Rc1/4	2-position single	4.8	0.25	5.2	0.26
		2-position double	4.8	0.25	5.2	0.26
		3-position all ports closed	4.4	0.27	4.7	0.27
		3-position A/B/R connection	4.4	0.25	5.3	0.25
		3-position P/A/B connection	4.8	0.27	4.7	0.27
		3-position all ports closed non-leaking	3.2	-	2.8	-

\*1: Effective cross-sectional area S and sonic conductance C are converted as  $S \approx 5.0 \times C$ .

## How to order DIN terminal box

● ISO Size 1



Model No. ● A Station No.

Quantity of port size 02 of A/B port

● B A/B port size \*1

Quantity of port size 03 of A/B port

● C A/B port position \*2

● D P/R port size

● E P/R port position \*3 \*4

● F HY configuration

● G Silencer box

● H Option

### ⚠ Precautions for model No. selection

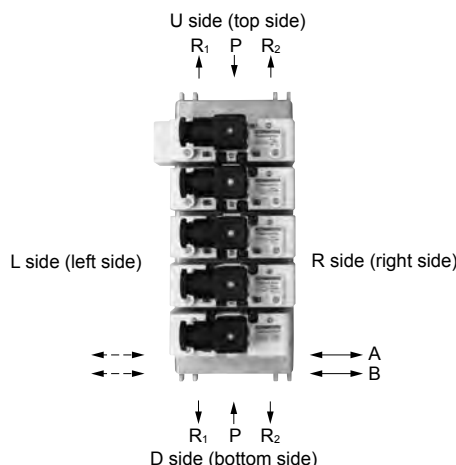
- \*1: HX is a mixture of bore sizes. Contact CKD for details.
- \*2: The instructions of ● C indicate the port positions. Those other than the instructions will all be plugs.
- \*3: The instructions of ● E indicate the port positions. The opposite side of the instructions will be plugs.
- \*4: When ● E is with silencer box, this will be position selection for the P-port which can be selected from B, D, U, and T. The R port is assembled with a plug for both the top and bottom.

[Example of model No.]

### GMF15-02L-HY1BDU-SBF

Model: Manifold ISO size 1

- A Station No. : 5 stations
- B ● C A/B port : Rc1/4 (left and right both sides piping)
- D ● E ● F P/R port : Rc3/8 and Rc1/2 mixture (Rc3/8 for bottom side piping and Rc1/2 for top side piping)
- G Silencer box : Yes (D side installation)
- H Option : P/A/B-port filter integrated



Code		Content	Model No.
			<b>GMF1</b>
<b>A Station No.</b>			
1	1 station		●
to	to		
10	10 stations		
<b>B A/B port size</b>			
02	Rc 1/4		●
03	Rc 3/8		●
HX1	Rc 1/4 and Rc 3/8 mixture		●
<b>C A/B port position</b>			
Blank	Right		●
L	Left and right sides (select position with manifold specifications)		●
H	Left		●
Z	Rear side		●
T	Free selection (plug attached) (rear side not available)		●
<b>D P/R port size</b>			
03	Rc3/8		●
04	Rc1/2		●
HY1	Rc3/8 and Rc1/2 mixture		●
<b>E P/R port position</b>			
B	Top and bottom sides		●
D	Bottom side		●
U	Top side		●
E	P on top, R on bottom		●
F	P on bottom, R on top		●
T	Free selection (plug attached)		●
<b>F HY configuration</b>			
Blank	When other than HY1 is selected with ● D		●
DU	Rc 3/8 on bottom, Rc 1/2 on top		●
UD	Rc 3/8 on top, Rc 1/2 on bottom		●
<b>G Silencer box</b>			
Blank	None		●
SB	Yes (D side installation)		●
<b>H Option</b>			
Blank	None		●
F	P/A/B port filter integrated		●

The valve body must be prepared separately. For how to order valves, refer to page 1440. For arrangement of manifolds with valve bodies, **the manifold specifications sheet** on page 1462 **will be necessary** in addition to each model No.

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
4TB
4L2-4/LMF0
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
PV5G GMF
PV5 GMF
PV5S-0
3QR
3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

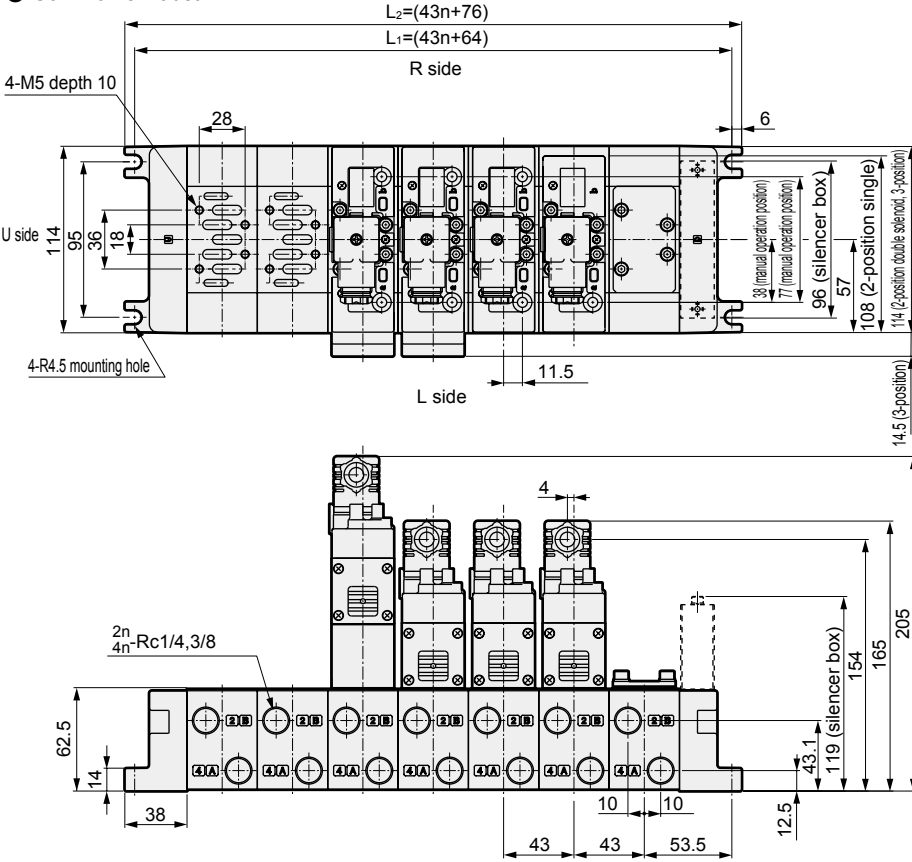
# GMF1 Series

Individual wiring manifold; ISO size 1

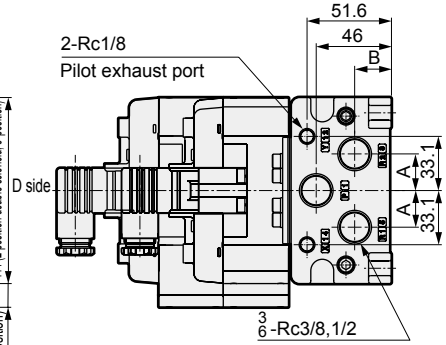
Dimensions: DIN terminal box

## GMF1

● Common exhaust

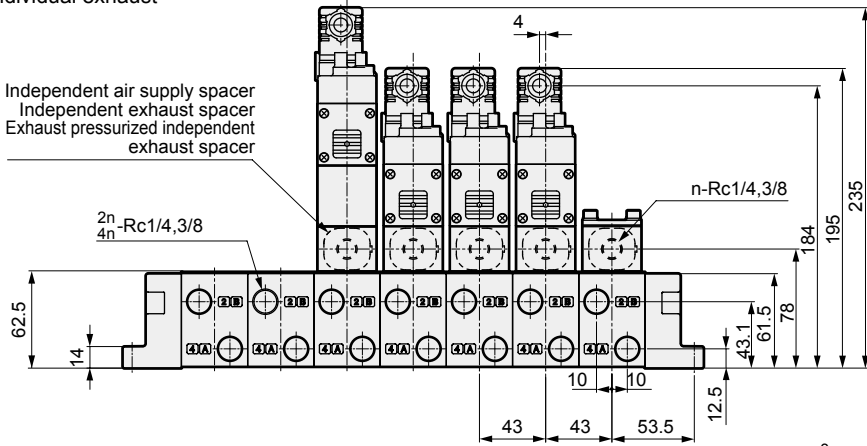


P/R port size	A	B
Rc 3/8	18.4	23.5
Rc 1/2	22.4	22.5



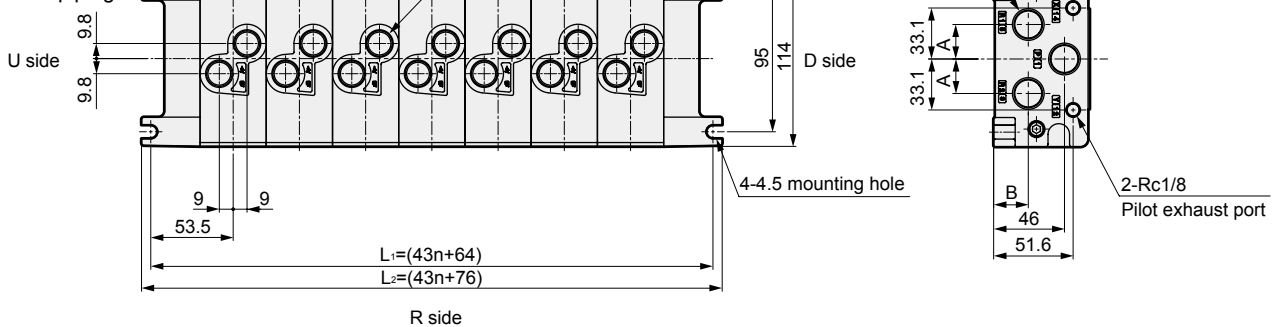
## GMF1

● Individual exhaust



## GMF1

● Rear piping



## How to order

- Spacer regulator



A Size	
1	ISO size 1

B Press reduction port position	
P	P port
A	A port
B	B port

C Pressure gauge	
T05	MPa display (With limit marker)

D Check valve	
Blank	None
C	Yes

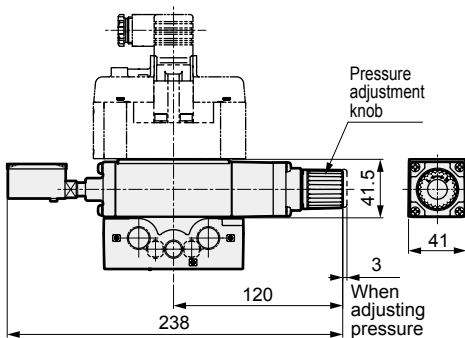
\* Note that the direction of the pressure gauge is different with CMF1-SR-A-T05C.

List without check valve (blank) for SR-P and list with check valve (C) for SR-A and SR-B.

## CMF1-SR-P-T05 CMF1-SR-B-T05C

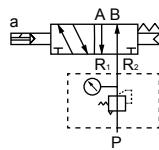
## CMF1-SR-A-T05C

- Spacer regulator

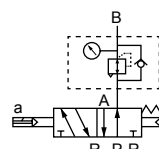


- JIS symbol

CMF1-SR-P-T05

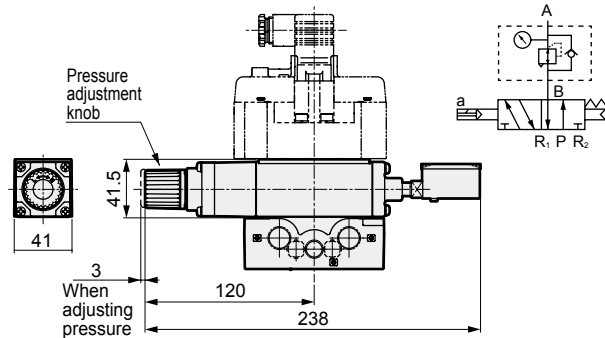


CMF1-SR-B-T05C

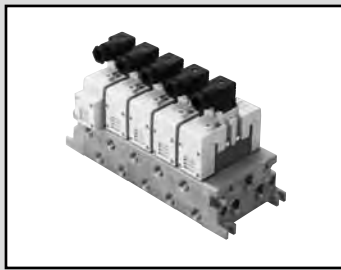


- JIS symbol

CMF1-SR-A-T05C



4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
<b>PV5G GMF</b>
<b>PV5 GMF</b>
<b>PV5S-0</b>
3QR 3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending



Individual wiring manifold ISO size 2  
DIN terminal box  
Pilot operated 5-port ISO valve

# GMF2 Series

● Cylinder bore size: max.  $\phi 160$



## Common specifications

Descriptions	Content
Manifold method	Manifold integrated
Manifold	Common supply/common exhaust    Common supply/individual exhaust Individual supply/common exhaust    Individual supply/individual exhaust Different pressure supply
Station No.	1 to 10 stations
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)
Min. working pressure MPa	0.15 ( $\approx 22$ psi, 1.5 bar)    0.20 ( $\approx 29$ psi, 2 bar) (3-position) *1
Proof pressure MPa	1.50 ( $\approx 220$ psi, 15 bar)
Ambient temperature $^{\circ}\text{C}$	-5 (23 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ ) (no freezing)
Fluid temperature $^{\circ}\text{C}$	5 (41 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ )
Lubrication	Not required
Degree of protection	Dust proof/jet proof (IP65 or equivalent)
Leakage $\text{cm}^3/\text{min}$	10 (ANR) or less
(A, B $\rightarrow$ R port)	3-position all ports closed non-leaking only 0.3 (ANR) or less *2
Vibration resistance $\text{m/s}^2$	50 or less
Shock resistance $\text{m/s}^2$	300 or less
Atmosphere	Cannot be used in corrosive gas environment.

\*1: With YZ-S only, use with a working pressure of  $R1 > R2 \geq 0.15$  MPa.

\*2: The initial value is listed.

## Electrical specifications

Descriptions	Content		
Rated voltage	V AC	100(50/60 Hz) 110(50/60 Hz) 200(50/60 Hz) 220(50/60 Hz)	
	DC	12,24	
Voltage fluctuation range	$\pm 10\%$		
Starting current	A AC	100 V	0.056/0.044
		110 V	0.051/0.040
		200 V	0.034/0.026
		220 V	0.031/0.024
Holding current	A AC	100 V	0.028/0.022
		110 V	0.025/0.020
	DC	200 V	0.017/0.013
		220 V	0.015/0.012
		12 V	0.083
		24 V	0.042
Power consumption	W AC	100 V	1.8/1.4
		110 V	(1.8/1.5)
		200 V	2.1/1.6
		220 V	(2.2/1.7)
	DC	12 V	1(1.2)
		24 V	
Thermal class	B (molded coil)		
Wiring method	Electrical plug connector		

## Individual specifications

Descriptions	GMF2		
Port size	P/R1/R2 port	Rc1/2, Rc3/4	
	A/B port	Rc3/8, Rc1/2	
Response time	2-position	Single	40 (ON), 60 (OFF)
		Double	40
	*2	3-position	40 (when ON), 60 (when neutral)

\*1: As G and NPT threads can also be used for piping port screws, contact CKD for details.

\*2: The response time is the value with a working pressure of 0.5 MPa, no lubrication, and a DC power supply. It depends on the pressure and the lubricant quality.

## Weight

Manifold base	Station No.	1	2	3	4	5	6	7	8	9	10
		(kg)	2.30	3.17	4.04	4.91	5.79	6.66	7.53	8.40	9.27
Silencer box	Model No.	SB									
		Added to manifold base assembly (kg)	0.17								
Spacer	Model No.	P	R	SR	PC						
		(kg)	0.41	0.41	1.18	0.54					

## Flow characteristics

Model No.	Port size	Solenoid position	P $\rightarrow$ A/B		A/B $\rightarrow$ R1/R2	
			C[ $\text{dm}^3/(\text{s}\cdot\text{bar})$ ]	b	C[ $\text{dm}^3/(\text{s}\cdot\text{bar})$ ]	b
GMF2	Rc3/8	2-position single	9.7	0.12	11.0	0.14
		2-position double	9.7	0.12	11.0	0.14
		3-position all ports closed	9.2	0.12	10.1	0.15
		3-position A/B/R connection	9.2	0.11	11.6	0.11
		3-position P/A/B connection	9.6	0.11	10.2	0.18
		3-position all ports closed non-leaking	6.2	-	5.9	-

\*1: Effective cross-sectional area S and sonic conductance C are converted as  $S \approx 5.0 \times C$ .



## How to order DIN terminal box

● ISO size 2



Model No.      **A** Station No.      Quantity of port size 03 of A/B port

**B** A/B port size \*1      Quantity of port size 04 of A/B port

**C** A/B port position \*2      **D** P/R port size      **E** P/R port position \*3 \*4

**F** HY configuration

**G** Silencer box

**H** Option

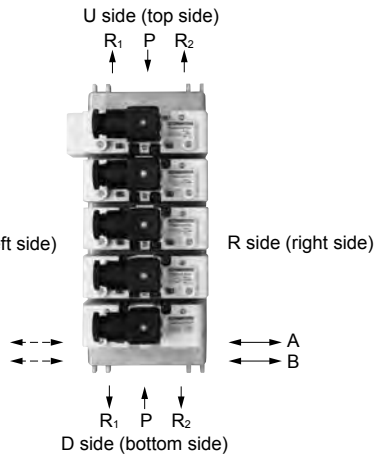
### ⚠ Precautions for model No. selection

- \*1: HX is a mixture of bore sizes. Contact CKD for details.
- \*2: The instructions of **C** indicate the port positions. Those other than the instructions will all be plugs.
- \*3: The instructions of **E** indicate the port positions. The opposite side of the instructions will be plugs.
- \*4: When **E** is with silencer box, this will be position selection for the P-port which can be selected from B, D, U, and T. The R port is assembled with a plug for both the top and bottom.

[Example of model No.]  
**GMF25-03L-04B-SBF**

Model: Manifold ISO size 2

- A** Station No. : 5 stations
- B C** A/B port : Rc3/8 (left and right both sides piping)
- D E** P/R port : Rc1/2 (top and bottom both sides piping)
- G** Silencer box : Yes (D side installation)
- H** Option : P/A/B-port filter integrated



Code		Content	Model No.
<b>A Station No.</b>			●
1	1 station		
to	to		
10	10 stations		
<b>B A/B port size</b>			●
03	Rc3/8		
04	Rc1/2		
HX2	Rc3/8 and Rc 1/2 mixture		
<b>C A/B port size</b>			●
Blank	Right		
L	Left and right sides (select position with manifold specifications)		
H	Left		
Z	Rear side		
T	Free selection (plug attached)		
<b>D P/R port size</b>			●
04	Rc1/2		
06	Rc3/4		
HY2	Rc1/2 and Rc 3/4 mixture		
<b>E P/R port position</b>			●
B	Top and bottom sides		
D	Bottom side		
U	Top side		
E	P on top, R on bottom		
F	P on bottom, R on top		
T	Free selection (plug attached)		
<b>F HY configuration</b>			●
Blank	When other than HY2 is selected with <b>D</b>		
DU	Rc1/2 on bottom, Rc3/4 on top		
UD	Rc1/2 on top, Rc3/4 on bottom		
<b>G Silencer box</b>			●
Blank	None		
SB	Yes (D side installation)		
<b>H Option</b>			●
Blank	None		
F	P/A/B port filter integrated		

The valve body must be prepared separately. For how to order valves, refer to page 1446. For arrangement of manifolds with valve bodies, **the manifold specifications sheet** on page 1463 **will be necessary** in addition to each model No.

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
4TB
4L2-4/LMF0
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
PV5G GMF
PV5 GMF
PV5S-0
3QR
3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# GMF2 Series

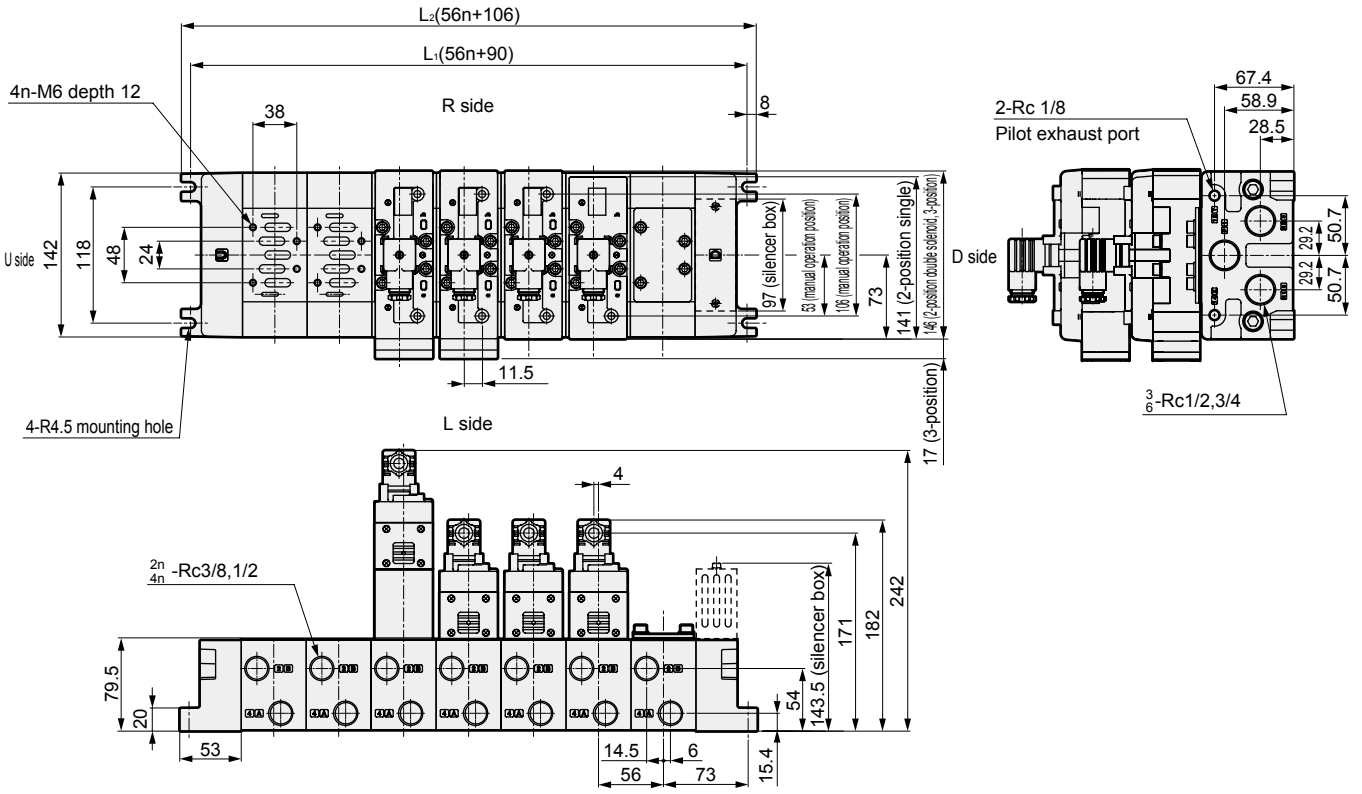
Individual wiring manifold; ISO size 2

Dimensions: DIN terminal box

- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (mastr)
- 4GD/E
- M4GD/E
- MN4GD/E
- 4GA4/B4
- MN3E
- MN4E
- W4GA/B2
- W4GB4
- 4TB
- 4L2-4/LMF0
- MN3S0
- MN4S0
- 4SA/B0
- 4KA/B
- 4KA/B (mastr)
- 4F
- 4F (mastr)
- PV5G**
- GMF**
- PV5
- GMF
- PV5S-0
- 3QR
- 3QB
- MV3QR
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP/NVP
- 4F\*0EX
- 4F\*0E
- HMV
- HSV
- 2QV
- 3QV
- SKH
- PCD
- Silencer
- TotAirSys (Total Air)
- TotAirSys (Gamma)
- Ending

## GMF2

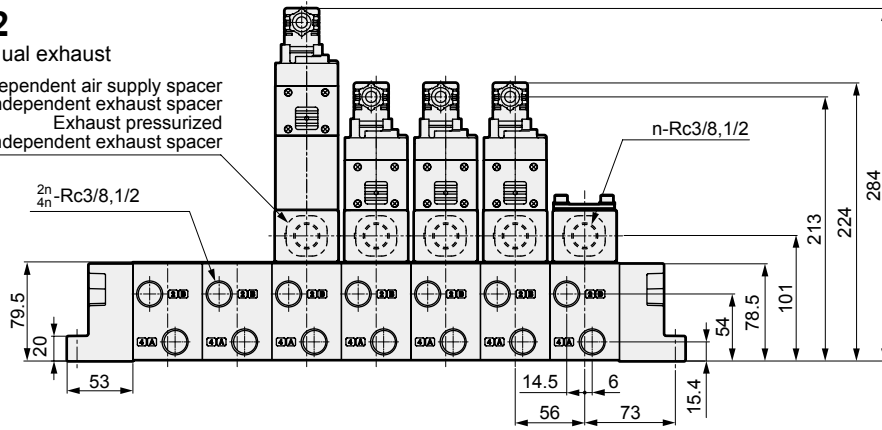
● Common exhaust



## GMF2

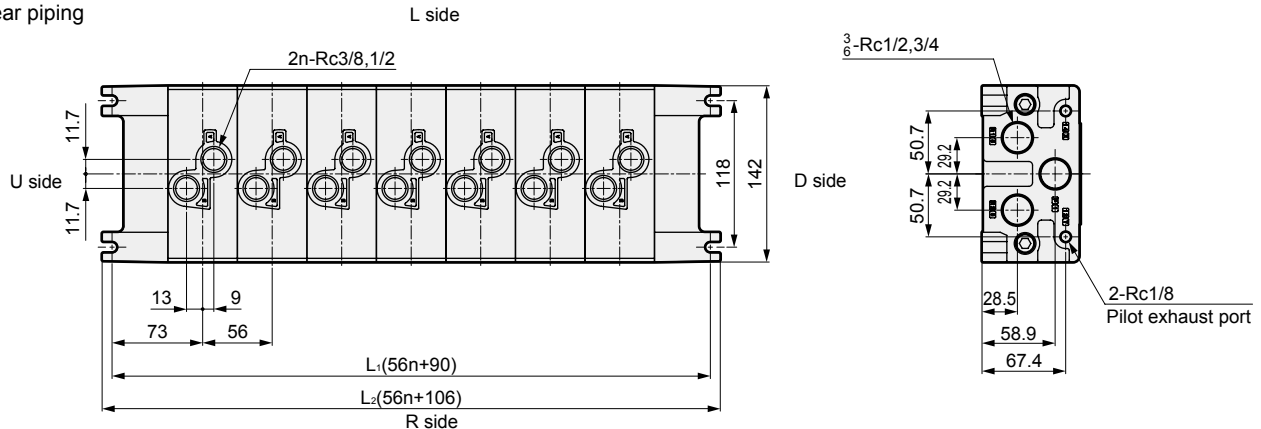
● Individual exhaust

Independent air supply spacer  
Independent exhaust spacer  
Exhaust pressurized  
independent exhaust spacer



## GMF2

● Rear piping



## How to order

● Spacer regulator

**CMF** **2** - **SR** - **A** - **T05** **C**

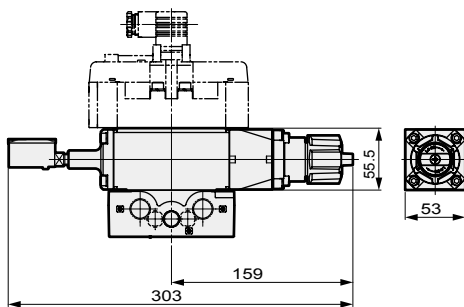
A Size		B Press reduction port position		C Pressure gauge		D Check valve	
2	ISO size 2	P	P port	T05	MPa display (With limit marker)	Blank	None
		A	A port			C	Yes
		B	B port				

List without check valve (blank) for SR-P and list with check valve (C) for SR-A and SR-B.

\* Note that the direction of the pressure gauge is different with **CMF2-SR-A-T05C**.

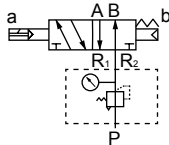
### CMF2-SR-P-T05 CMF2-SR-B-T05C

● Spacer regulator

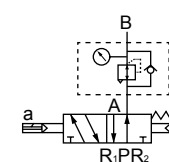


● JIS symbol

CMF2-SR-P-T05



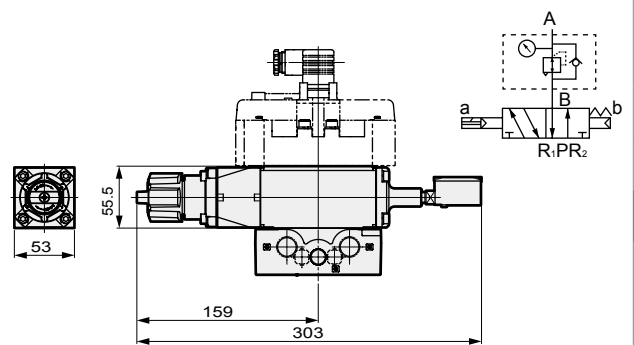
CMF2-SR-B-T05C



### CMF2-SR-A-T05C

● JIS symbol

CMF2-SR-A-T05C

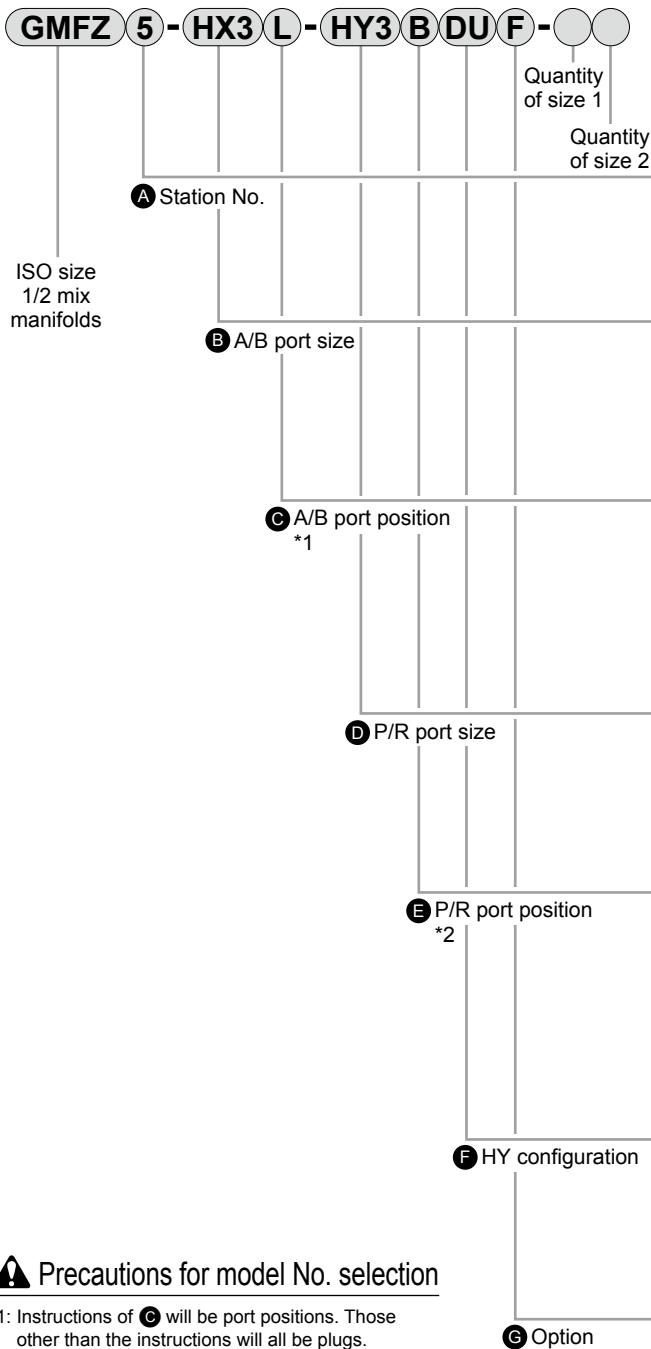


4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
4TB
4L2-4/LMF0
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
PV5G GMF
PV5 GMF
PV5S-0
3QR
3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# GMFZ Series

Mix manifold; ISO size 1/2 mixture

## How to order DIN terminal box



Model No.

GMFZ

Code	Content	Model No.
<b>A Station No.</b>		
2	2 stations	●
to	to	
10	10 stations	
<b>B A/B port size</b>		
HX3	Size 1: 02/size 2: 03	●
HX4	Size 1: 02/size 2: 04	●
HX5	Size 1: 03/size 2: 03	●
HX6	Size 1: 03/size 2: 04	●
<b>C A/B port position</b>		
Blank	Right	●
L	Left and right sides (select position with manifold specifications)	●
H	Left	●
Z	Rear side	●
T	Free selection (plug attached)	●
<b>D P/R port size</b>		
HY3	Size 1: 03/size 2: 04	●
HY4	Size 1: 03/size 2: 06	●
HY5	Size 1: 04/size 2: 04	●
HY6	Size 1: 04/size 2: 06	●
<b>E P/R port position</b>		
B	Top and bottom sides	●
D	Bottom side	●
U	Top side	●
E	P on top, R on bottom	●
F	P on bottom, R on top	●
T	Free selection (plug attached)	●
<b>F HY configuration</b>		
DU	Smaller bore size on bottom, larger bore size on top, or 1 on bottom, 2 on top	●
UD	Smaller bore size on top, larger bore size on bottom, or 1 on top, 2 on bottom	●
<b>G Option</b>		
Blank	None	●
F	P/A/B port filter integrated	●

### ⚠ Precautions for model No. selection

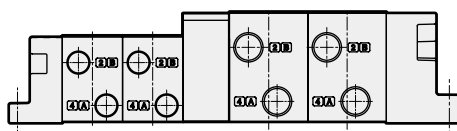
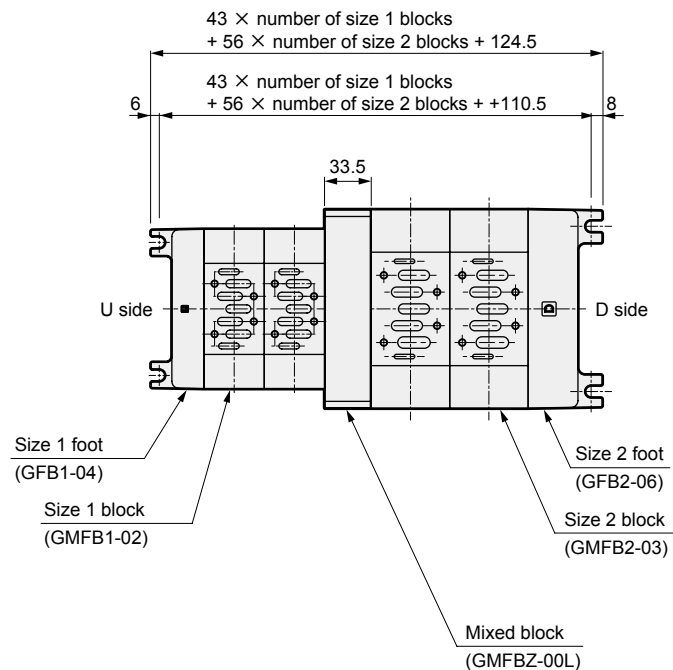
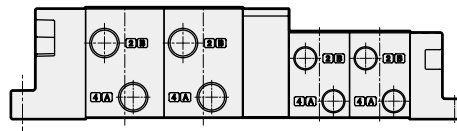
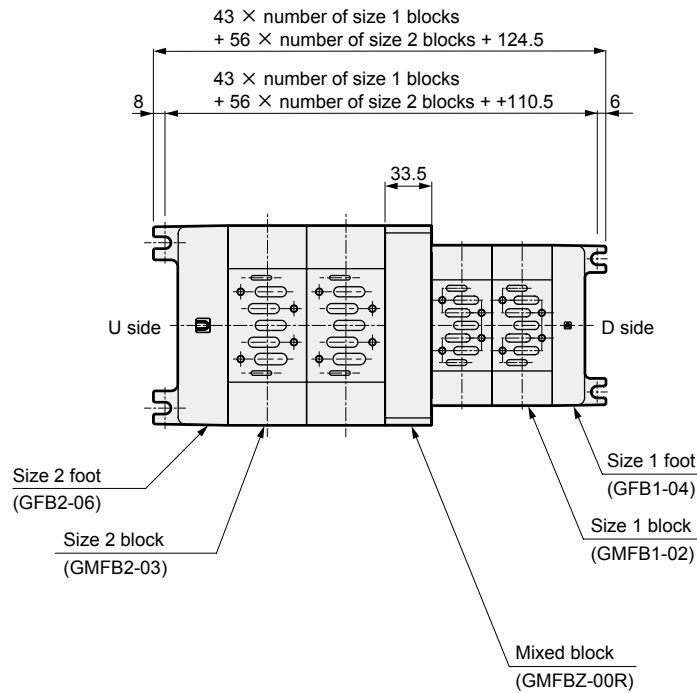
\*1: Instructions of C will be port positions. Those other than the instructions will all be plugs.

\*2: Instructions of E will be port positions. The opposite side of the instructions will be plugs.

The valve body must be prepared separately. For how to order valves, refer to pages 1440 and 1446. For arrangement of manifolds with valve bodies, **the manifold specifications sheet** on page 1464 **will be necessary** in addition to each model No.

No	Descriptions	Model No.	Fig.	Remarks
1	ISO size 1/2 mixed block	GMFBZ-00L		U side size 1 D side size 2 for mixed block with bolts and gasket
		GMFBZ-00R		U side size 2 D side size 1 for mixed block with bolts and gasket

### Mix manifold outline drawing

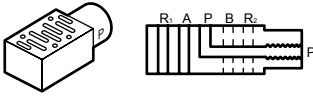
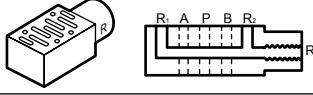
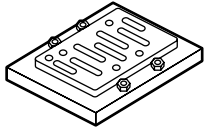
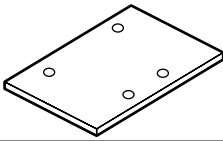

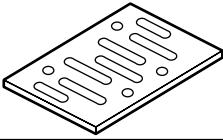
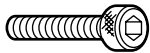
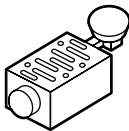
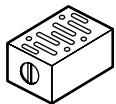
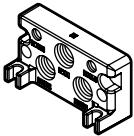
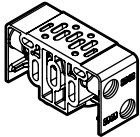

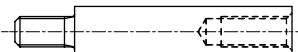


\* The dimensions for the size 1/2 feet and the blocks are as listed on pages 1452 and 1456.

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
<b>PV5G GMF</b>
<b>PV5 GMF</b>
PV5S-0
3QR 3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# GMF1/2 Series

## Manifold option

	Optional descriptions	Model No.		Remarks
		ISO size 1	ISO size 2	
4GA/B M4GA/B MN4GA/B 4GA/B (mastr) 4GD/E M4GD/E MN4GD/E 4GA4/B4 MN3E MN4E W4GA/B2 W4GB4	1. Independent air supply spacer 	CMF1-P-02 ( Rc1/4 ) 03 ( Rc3/8 )	CMF2-P-03 ( Rc3/8 ) 04 ( Rc1/2 )	1. For individual air supply port Clamp/used for differing pressures 2. Individual exhaust for exhaust pressurization
	2. Independent exhaust spacer 	CMF1-R-02 ( Rc1/4 ) 03 ( Rc3/8 )	CMF2-R-03 ( Rc3/8 ) 04 ( Rc1/2 )	1-port exhaust with individual exhaust (back pressure countermeasures)
	3. Adaptor 	CU1-00 (FS/FD2 Series, Rc1/4, 3/8) CU1-01 (FS/FD3 Series, Rc1/4, 3/8, 1/2)	CU2-00 (FS/FD3 Series, Rc1/4, 3/8, 1/2) CU2-01 (FS/FD4 Series, Rc1/2, 3/4)	PV5G-6 and PV5G-8 are installed on conventional model type F <sub>D3</sub> <sup>S2</sup> (Custom order product)
4TB 4L2-4/LMF0 MN3S0 MN4S0	4. Masking plate 	CM1-00	CM2-00	For PV5G-6 For PV5G-8 For discrete masking
4SA/B0 4KA/B 4KA/B (mastr)	5. Flow path cutoff plate 	GM1-01	GM2-01	Manifold (GMF1/GMF2) P/R <sub>1</sub> /R <sub>2</sub> port For masking
4F 4F (mastr) PV5G GMF PV5 GMF PV5S-0	6. Base gasket 	PV5G-6-BASE-GASKET PV5-6-BASE-GASKET	PV5G-8-BASE-GASKET PV5-8-BASE-GASKET	For PV5G-6 For PV5G-8 These cannot be used on the bottom surface of the spacers. For the bottom surface of spacers
	7. Mounting screw 	CMF1-M5X35	CMF2-M6X45	Set of 4
3QR 3QB MV3QR 3MA/B0	8. Spacer regulator 	CMF1-SR-P-T05 CMF1-SR-A-T05C CMF1-SR-B-T05C Model No. selection page 1453	CMF2-SR-P-T05 CMF2-SR-A-T05C CMF2-SR-B-T05C Model No. selection page 1457	Use with different pressures
3PA/B P/M/B	9. Air pilot check valve 	CMF1-PC	CMF2-PC	Retain custom position of cylinder
NP/NAP/ NVP 4F*0EX 4F*0E	10. Foot U side  D side	GFB1- <sub>03</sub> <sup>04</sup> U GFB1- <sub>03</sub> <sup>04</sup> D	GFB2- <sub>04</sub> <sup>06</sup> U GFB2- <sub>04</sub> <sup>06</sup> D	2 hexagon socket head cap screws, plugs, and a gasket on the U side foot are attached.
HMV HSV 2QV 3QV SKH	11. Manifold; block 	GMFB1- <sub>03</sub> <sup>02</sup> T GMFB1- <sub>03</sub> <sup>02</sup> Z	GMFB2- <sub>04</sub> <sup>03</sup> T GMFB2- <sub>04</sub> <sup>03</sup> Z	2 tie rods, plug and gasket are attached. 2 tie rods and gasket are attached.
PCD Silencer TotAirSys (Total Air) TotAirSys (Gamma)	12. Tie rod 	GMF1-TR-V*1 *1: 1 to 10 (station No.)	GMF2-TR-V*1 *1: 1 to 10 (station No.)	Tie rod length is from 1 station to 10 stations, shipped in sets of 2.
Ending	13. Tie rod for station expansion 	GMF1-TR-VZ	GMF2-TR-VZ	Use these when adding on to the set of 2 tie rods. Length can be added by 1 station.

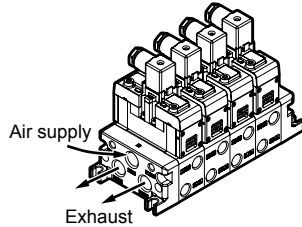
## Manifold

A wide variety of combinable supply, exhaust, and piping methods are available in the lineup. Select the ideal function for your application.

### 1 General use

#### ● Common exhaust method

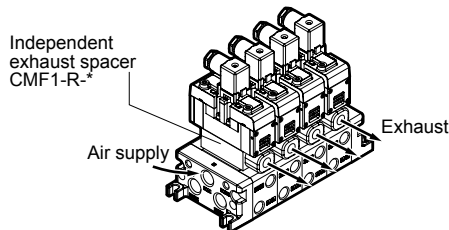
The most common method, in which solenoid valve supply and exhaust is centralized in one location through the use of P (supply) and R (exhaust) ports passing through the connected manifold block interior.



### 2 Applications for general use

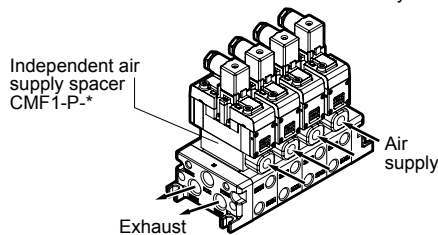
#### ● Individual exhaust method

As the R1/2 (exhaust) ports are independent for each solenoid valve, this prevents the popping out phenomenon of adjacent cylinders caused by back pressure. Exhaust is processed individually by inserting an independent exhaust spacer (CMF1-R-\*) between the manifold block and the valve body.



#### ● Individual supply method

As the P (air supply) port is independent for each valve, it is possible to supply a different pressure only to certain valves within the manifold. Air supply is processed individually by inserting an independent air supply spacer (CMF1-P-\*) between the manifold block and the valve body.



#### ● Individual supply/individual exhaust method

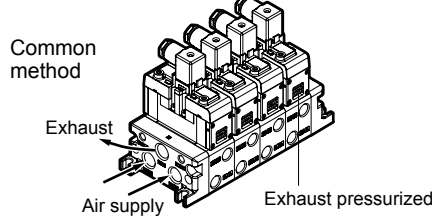
Use this method in order to allow individual configurations for the P (air supply) port and R (exhaust) port of certain valves within the manifold. Example: When the unit is being used with no lubrication but a certain valve alone must be lubricated. Air supply and exhaust are processed individually by inserting an independent air supply spacer (CMF1-P-\*) and an independent exhaust spacer (CMF1-R-\*) between the manifold block and the valve body.

#### ● Different pressure supply method

With this method of supplying both higher and lower pressure to a single manifold, a flow path cutoff plate (GM1-01) is inserted between the manifold blocks with different pressures.

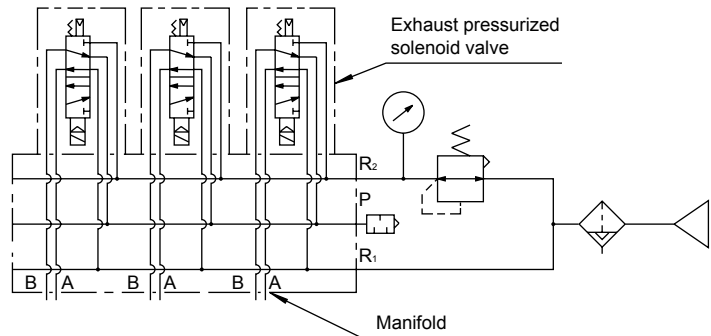
### 3 Special use (exhaust pressurized method)

Optimal for use when there is a need to supply two or more types of different pressures to a single manifold. Example: When driving a 2-piston cylinder used with a welder

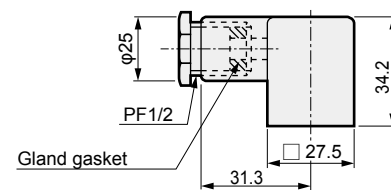


#### ● Example of use of exhaust pressurized type

#### Common method

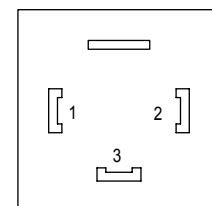


#### ● Terminal box (model No.: PV5G-DIN-TRM-BOX)



Gland gasket inner diameter	Color	Compatible (cord/cable) O.D.
φ10.5	Black	φ8.5 to φ11.5

#### How to wire



Pin No.	Name
1	a SOL
2	b SOL
3	COM

There is no specification of polarity when using a DC power supply.

### 4 General/special common descriptions

#### ● Rear piping method

When piping cannot be installed from the side, it is possible to install all or part of the piping of A/B ports from the bottom surface of the manifold.

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
4TB
4L2-4/LMF0
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
PV5G GMF
PV5 GMF
PV5S-0
3QR
3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

## Manifold specifications sheet

### ISO size 1 DIN terminal box

Issued / /

Your company name

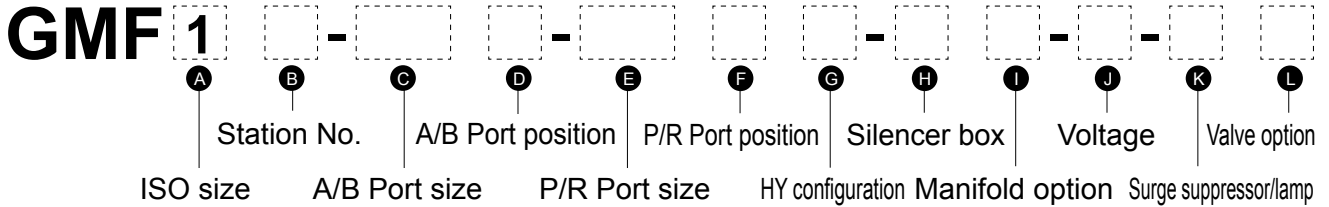
Contact

Order No.

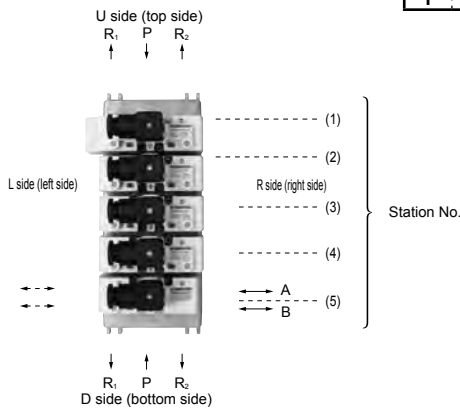
● Contact      ● Quantity      Set ● Delivery date /

Slip No.	Order No.
----------	-----------

● Manifold model No.



A ISO size	B Station No.	C A/B Port size	D A/B Port position	E P/R Port size	F P/R Port position	G HY configuration	H Silencer box	I Manifold option
<b>1</b> : PV5G-6	<b>1</b> : 1 station <b>to to</b>	<b>02</b> : Rc 1/4 <b>03</b> : Rc 3/8 <b>HX1</b> : Rc 1/4, Rc 3/8 Mix	<b>Blank</b> : Right <b>L</b> : Left/right sides <b>H</b> : Left <b>Z</b> : Rear side <b>T</b> : Plug attached	<b>03</b> : Rc 3/8 <b>04</b> : Rc 1/2 <b>HY1</b> : Rc 3/8, Rc 1/2 Mix	<b>B</b> : Top/bottom sides <b>D</b> : Bottom side <b>U</b> : Top side <b>E</b> : P: top/R: bottom <b>F</b> : P: bottom/R: top <b>T</b> : Plug attached	<b>Blank</b> : When other than HY is selected with (G) <b>DU</b> : Rc 3/8 on bottom, Rc 1/2 on top <b>E</b> : Rc 3/8 on top, Rc 1/2 on bottom	<b>Blank</b> : None <b>SB</b> : Yes (D installation)	<b>Blank</b> : None <b>F</b> : P/A/B port filter equipped



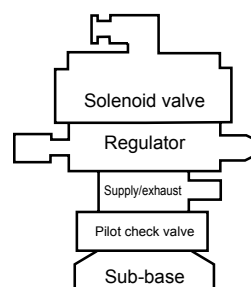
J Voltage	K Surge suppressor/lamp	L Valve option
<b>1</b> : 100 VAC	<b>Blank</b> : None	<b>Blank</b> : None
<b>2</b> : 200 VAC	<b>N</b> : With surge suppressor/indicator lamp	<b>A</b> : Coolant proof
<b>3</b> : 24 VDC		
<b>4</b> : 12 VDC		
<b>5</b> : 110 VAC		
<b>6</b> : 220 VAC		

Note: Items (J), (K), and (L) are when the manifold is assembled and the mounted valve option has been selected.

★ When placing an order, list the solenoid valve model No. (1) to (9) from the figure at left in the following field for the solenoid valve model No. When selecting options, mark the corresponding field for the option below with a circle.

Station No	1	2	3	4	5	6	7	8	9	10	
Solenoid valve model No.	PV5G-6										
When L has been selected with (D), designate the plug position	R L										
Option	Air supply spacer										
	Exhaust spacer										
	Pilot check valve										
	Spacer regulator	CMF*-SR-P									
		CMF*-SR-A									
CMF*-SR-B											
Flow path cutoff plate	Air supply path cutoff plate										
	Exhaust path cutoff plate										
When (C) is HX, specify the mixed configuration of the bore size.	02										
	03										

Solenoid valve model No.		
2-position single		PV5G-6-FG-S (1)
2-position double		PV5G-6-FG-D (2)
3-position all ports closed		PV5G-6-FHG-D (3)
3-position A-B-R connection		PV5G-6-FJG-D (4)
3-position P-A-B connection		PV5G-6-FIG-D (5)
3-position all ports closed non-leaking		PV5G-6-FPG-D (6)
2-position single exhaust pressurized		PV5G-6-YZ-S (7)
2-position double exhaust pressurized		PV5G-6-YZ-D (8)
Masking plate		CM1-00 (9)



Order of assembly of options (spacers)

Note) The order from the sub-base to the solenoid valve is basically as shown in the figure at left. For spacers not in use, simply stack them as removed.



## Manifold specifications sheet

### ISO size 2 DIN terminal box

Issued / /

Your company name

● Contact      ● Quantity      Set ● Delivery date /

Slip No.      Order No.

Contact

Order No.

● Manifold model No.

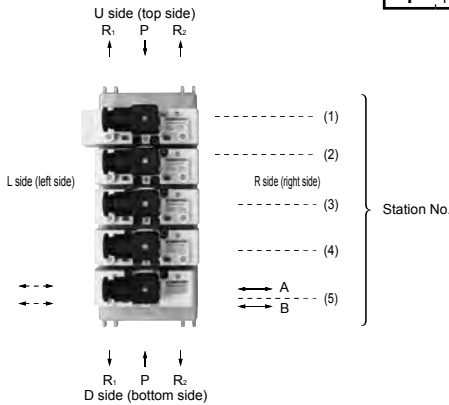
**GMF 2**    -    -    -    -    -    -    -    -    -    -    -

A    B    C    D    E    F    G    H    I    J    K    L

Station No.    A/B Port position    P/R Port position    Silencer box    Voltage    Valve option

ISO size    A/B Port size    P/R Port size    HY configuration    Manifold option    Surge suppressor/lamp

A ISO size	B Station No.	C A/B Port size	D A/B Port position	E P/R Port size	F P/R Port position	G HY configuration	H Silencer box	I Manifold option
2 : PV5G-8	1 : 1 station	03 : Rc $\frac{3}{8}$	Blank : Right	04 : Rc $\frac{1}{2}$	B : Top/bottom sides	Blank : When other than HY is selected with ⑥	Blank : None	Blank : None
	to to	04 : Rc $\frac{1}{2}$	L : Left/right sides	06 : Rc $\frac{3}{4}$	D : Bottom side	DU : Rc $\frac{1}{2}$ on bottom, Rc $\frac{3}{4}$ on top	SB : Yes (D installation)	F : P/A/B port filter equipped
	10 : 10 stations	HX2 : Rc $\frac{1}{8}$ , Rc $\frac{1}{4}$ Mix	H : Left	HY2 : Rc $\frac{1}{2}$ , Rc $\frac{3}{4}$ Mix	U : Top side	E : P: top/R: bottom		
			Z : Rear side		F : P: bottom/R: top	UD : Rc $\frac{1}{2}$ on top, Rc $\frac{3}{4}$ on bottom		
			T : Plug attached		T : Plug attached			



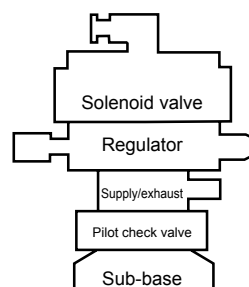
J Voltage	K Surge suppressor/lamp	L Valve option
1 : 100 VAC	Blank : None	Blank : None
2 : 200 VAC	N : With surge suppressor/indicator lamp	A : Coolant proof
3 : 24 VDC		
4 : 12 VDC		
5 : 110 VAC		
6 : 220 VAC		

Note: Items J, K, and L are when the manifold is assembled and the mounted valve option has been selected.

★ When placing an order, list the solenoid valve model No. (1) to (9) from the figure at left in the following field for the solenoid valve model No. When selecting options, mark the corresponding field for the option below with a circle.

Station No	1	2	3	4	5	6	7	8	9	10	
Solenoid valve model No.	PV5G-8										
When L has been selected with ①, designate the plug position	R										
	L										
Option	Air supply spacer										
	Exhaust spacer										
	Pilot check valve										
	Spacer Regulator	CMF*-SR-P									
		CMF*-SR-A									
Flow path cutoff plate	Air supply path cutoff plate										
	Exhaust path cutoff plate										
When ③ is HX, specify the mixed configuration of the bore size.	03										
	04										

Solenoid valve model No.		
2-position single		PV5G-8-FG-S (1)
2-position double		PV5G-8-FG-D (2)
3-position all ports closed		PV5G-8-FHG-D (3)
3-position A-B-R connection		PV5G-8-FJG-D (4)
3-position P-A-B connection		PV5G-8-FIG-D (5)
3-position all ports closed non-leaking		PV5G-8-FPG-D (6)
2-position single exhaust pressurized		PV5G-8-YZ-S (7)
2-position double exhaust pressurized		PV5G-8-YZ-D (8)
Masking plate		CM2-00 (9)



Order of assembly of options (spacers)

Note) The order from the sub-base to the solenoid valve is basically as shown in the figure at left. For spacers not in use, simply stack them as removed.

- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (mastr)
- 4GD/E
- M4GD/E
- MN4GD/E
- 4GA4/B4
- MN3E
- MN4E
- W4GA/B2
- W4GB4
- 4TB
- 4L2-4/LMF0
- MN3S0
- MN4S0
- 4SA/B0
- 4KA/B
- 4KA/B (mastr)
- 4F
- 4F (mastr)
- PV5G GMF
- PV5 GMF
- PV5S-0
- 3QR
- 3QB
- MV3QR
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP/NVP
- 4F\*0EX
- 4F\*0E
- HMV
- HSV
- 2QV
- 3QV
- SKH
- PCD
- Silencer
- TotAirSys (Total Air)
- TotAirSys (Gamma)
- Ending

## Manifold specifications sheet

### ISO size 1/2 mixture DIN terminal box

Issued / /

Your company name

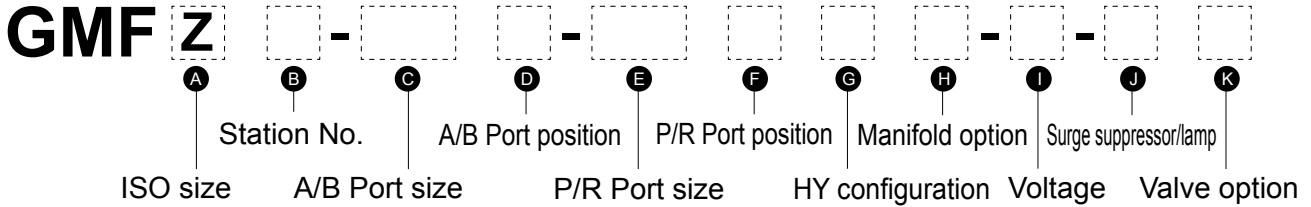
Contact

Order No.

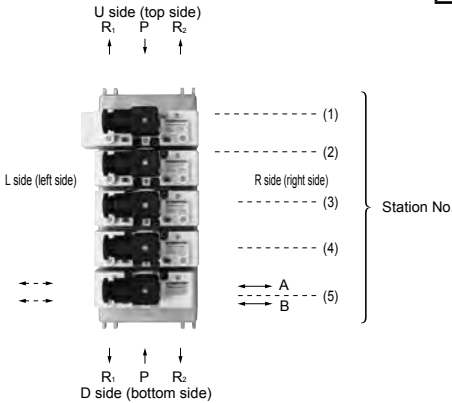
● Contact      ● Quantity      Set ● Delivery date /

Slip No.      Order No.

● Manifold model No.



A ISO size	B Station No.	C A/B Port size	D A/B Port position	E P/R Port size	F P/R Port position	G HY configuration	H Manifold option	I Voltage
<b>Z</b> : Mixture of size 1 and 2	<b>1</b> : 1 station <b>to</b> to <b>10</b> : 10 stations	<b>HX3</b> : 1:02/2:03 <b>HX4</b> : 1:02/2:04 <b>HX5</b> : 1:03/2:03 <b>HX6</b> : 1:03/2:04	<b>Blank</b> : Right <b>L</b> : Left/right sides <b>H</b> : Left <b>Z</b> : Rear side <b>T</b> : Plug attached	<b>HY3</b> : 1:03/2:04 <b>HY4</b> : 1:03/2:06 <b>HY5</b> : 1:04/2:04 <b>HY6</b> : 1:04/2:06	<b>B</b> : Top/bottom sides <b>D</b> : Bottom side <b>U</b> : Top side <b>E</b> : P: top/R: bottom <b>F</b> : P: bottom/R: top <b>T</b> : Plug attached	<b>DU</b> : Size 1 on bottom and size 2 on top <b>UD</b> : Size 1 on top and size 2 on bottom	<b>Blank</b> : None <b>F</b> : P/A/B port filter equipped	<b>1</b> : 100 VAC <b>2</b> : 200 VAC <b>3</b> : 24 VDC <b>4</b> : 12 VDC <b>5</b> : 110 VAC <b>6</b> : 220 VAC



J Surge suppressor/lamp	K Valve option
<b>Blank</b> : None <b>N</b> : With surge suppressor/indicator lamp	<b>Blank</b> : None <b>A</b> : Coolant proof

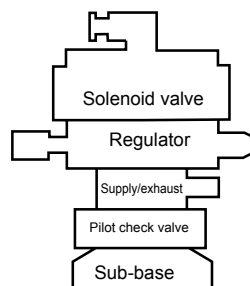
Note: Items ①, ②, and ③ are when the manifold is assembled and the mounted valve option has been selected.

★ When placing an order, list the solenoid valve model No. (1) to (9) from the figure at left in the following field for the solenoid valve model No. When selecting options, mark the corresponding field for the option below with a circle.

Station No	1	2	3	4	5	6	7	8	9	10	
Solenoid valve model No.	PV5G-6										
	PV5G-8										
When L has been selected with	R										
①, designate the plug position	L										
Option	Air supply spacer										
	Exhaust spacer										
	Pilot check valve										
	Spacer	CMF*-SR-P									
		CMF*-SR-A									
		CMF*-SR-B									
	Flow path Cutoff plate	Air supply path cutoff plate									
		Exhaust path cutoff plate									
	When ③ is HX, specify the mixed configuration of the bore size.	02									
		03									
04											

	Solenoid valve model No.	
2-position single	PV5G-*-FG-S	(1)
2-position double	PV5G-*-FG-D	(2)
3-position all ports closed	PV5G-*-FHG-D	(3)
3-position A-B-R connection	PV5G-*-FJG-D	(4)
3-position P-A-B connection	PV5G-*-FIG-D	(5)
3-position all ports closed non-leaking	PV5G-*-FPG-D	(6)
2-position single exhaust pressurized	PV5G-*-YZ-S	(7)
2-position double exhaust pressurized	PV5G-*-YZ-D	(8)
Masking plate	CM*-00	(9)

Note) The \* marking for solenoid valve is either "6" or "8". With the masking plate and options, this will be either "1" or "2".



Order of assembly of options (spacers)

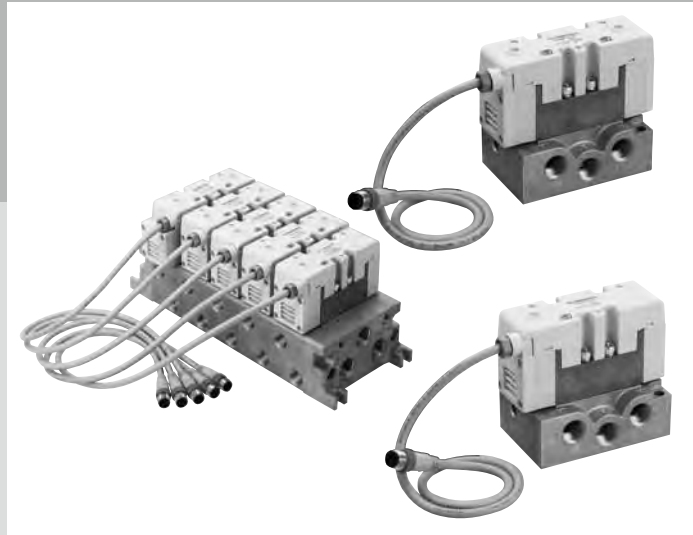
Note) The order from the sub-base to the solenoid valve is basically as shown in the figure at left. For spacers not in use, simply stack them as removed.

# PV5/GMF

## (I/O connector)

Pilot operated 5-port valve

ISO valve



### CONTENTS

Single valve	
● ISO size 1 (PV5-6R)	1466
● ISO size 2 (PV5-8R)	1472
Individual wiring manifold	
● ISO size 1 (GMF1)	1478
● ISO size 2 (GMF2)	1482
Mix manifold	
● ISO size 1/2 (GMFZ)	1486
Manifold option	1488
Technical data	
(1) Manifold	1489
Manifold specifications sheets	1490

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
<b>PV5G GMF</b>
<b>PV5 GMF</b>
PV5S-0
3QR 3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending



Single valve ISO size 1  
I/O connector  
Pilot operated 5-port ISO valve

# PV5-6R Series

● Cylinder bore size: max.  $\phi 100$



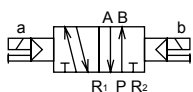
## JIS symbol

● 5-port valve

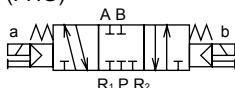
2-position single (FG-S)



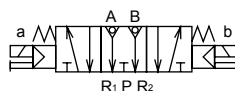
2-position double (FG-D)



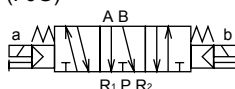
3-position all ports closed (FHG)



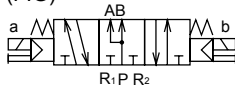
3-position all ports closed Non-leaking (FPG)



3-position A/B/R connection (FJG)



3-position P/A/B connection (FIG)



## Common specifications

Descriptions	Content
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)
Min. working pressure MPa	0.15 ( $\approx 22$ psi, 1.5 bar) 0.20 ( $\approx 29$ psi, 2 bar) (3-position)
Proof pressure MPa	1.50 ( $\approx 220$ psi, 15 bar)
Ambient temperature $^{\circ}\text{C}$	-5 ( $23^{\circ}\text{F}$ ) to 60 ( $140^{\circ}\text{F}$ ) (no freezing)
Fluid temperature $^{\circ}\text{C}$	5 ( $41^{\circ}\text{F}$ ) to 60 ( $140^{\circ}\text{F}$ )
Lubrication	Not required
Degree of protection	Dust proof/jet proof (IP65 or equivalent)
Leakage $\text{cm}^3/\text{min}$ (A, B $\rightarrow$ R port)	10 (ANR) or less 3-position all ports closed non-leaking only 0.3 (ANR) or less *1
Vibration resistance $\text{m/s}^2$	50 or less
Shock resistance $\text{m/s}^2$	300 or less
Atmosphere	Cannot be used in corrosive gas environment.

\*1: The initial value is listed.

## Electrical specifications

Descriptions	Content
Rated voltage V	DC 24
Voltage fluctuation range	$\pm 10\%$
Power consumption W(Current value A)	1.2 (0.050) * Value for models with lamp.
Thermal class	B (molded coil)
Wiring method	I/O connector

## Individual specifications

Descriptions	PV5-6R	
Port size	Rc1/4, Rc3/8	
Response time	30 (ON), 40 (OFF)	
ms	2-position	30
	3-position	30 (when ON), 50 (when neutral)
Weight	2-position	0.40
	3-position	0.44
kg	Other than non-leaking	0.46
	All ports closed non-leaking	1.12

\*1: As G and NPT threads can also be used for piping port screws, contact CKD for details.

\*2: The response time is the value at 0.5 MPa working pressure, with no lubrication. It depends on the pressure and the lubricant quality.

\*3: The weight listed is the weight without the sub-plate.

## Flow characteristics

Model No.	Port size	Solenoid position	P $\rightarrow$ A/B		A/B $\rightarrow$ R1/R2	
			C [dm <sup>3</sup> /(s·bar)]	b	C [dm <sup>3</sup> /(s·bar)]	b
PV5-6R	Rc1/4	2-position single	6.1	0.28	6.7	0.20
		2-position double	6.1	0.28	6.7	0.20
		3-position all ports closed	5.2	0.32	5.6	0.30
		3-position A/B/R connection	5.1	0.32	6.9	0.16
		3-position P/A/B connection	6.3	0.28	5.9	0.28
		3-position all ports closed non-leaking	3.4	-	3.0	-

\*1: Effective cross-sectional area S and sonic conductance C are converted as  $S \approx 5.0 \times C$ .

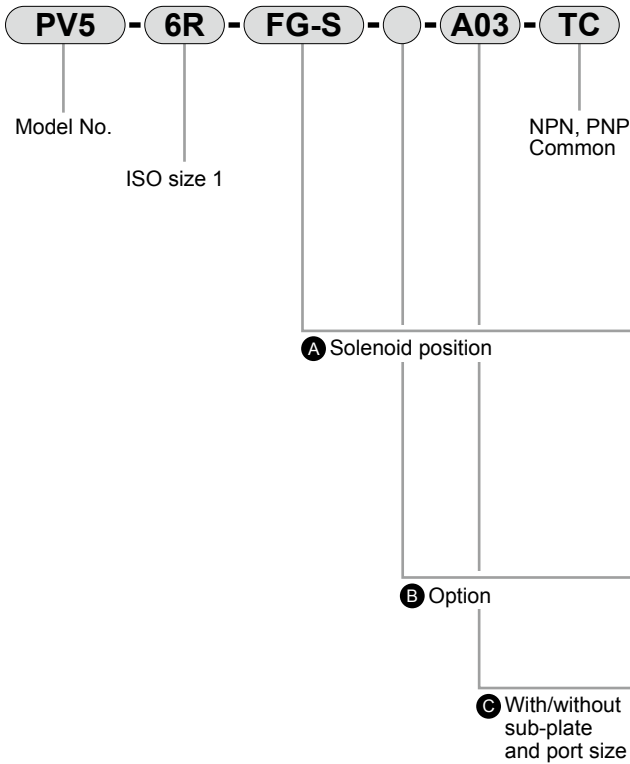
## Coolant proof specifications

Select the option "A" of Item (B) in How to order on page 1467.

- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (mastr)
- 4GD/E
- M4GD/E
- MN4GD/E
- 4GA4/B4
- MN3E  
MN4E
- W4GA/B2
- W4GB4
- 4TB
- 4L2-4/  
LMF0
- MN3S0  
MN4S0
- 4SA/B0
- 4KA/B
- 4KA/B (mastr)
- 4F
- 4F (mastr)
- PV5G  
GMF
- PV5  
GMF
- PV5S-0
- 3QR  
3QB
- MV3QR
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP/  
NVP
- 4F\*0EX
- 4F\*0E
- HMV  
HSV
- 2QV  
3QV
- SKH
- PCD
- Silencer
- TotAirSys  
(Total Air)
- TotAirSys  
(Gamma)
- Ending

## How to order I/O connector

● ISO Size 1



			Model No.
Code	Content		PV5-6R
<b>A Solenoid position</b>			
FG-S	P pressurized type	2-position single	●
FG-D		2-position double	●
FHG-D		3-position all ports closed	●
FJG-D		3-position ABR connection	●
FIG-D		3-position PAB connection	●
FPG-D		3-position all ports closed non-leaking	●
<b>B Option</b>			
Blank	None		●
A	Coolant proof		●
<b>C With/without sub-plate and port size</b>			
Blank	Without sub-plate		●
A02	Side piping Rc1/4 (Rc3/8 for R port only)		●
A03	Side piping Rc3/8		●

[Example of model No.]

### PV5-6R-FG-S-A03-TC

Model: PV5/ISO size 1 (I/O connector)

- A** Solenoid position : P pressurized 2-position single solenoid
- C** Sub-plate port size : side piping Rc3/8

### ● Remarks

Descriptions	Content
(1) Wiring method	I/O connector (M12) NPN, PNP common type
(2) Rated voltage	24 VDC
(3) Surge suppressor/lamp	Standard with surge suppressor and indicator lamp

\*1: Refer to page 1436 for the circuit diagram with a surge suppressor/lamp.

## ISO size 1 sub-plate specifications and how to order

**A** Piping connection method

Code	Type	P/A/B port	R1/R2 port	Weight (kg)
<b>A Piping connection method</b>				
A02	Side	Rc1/4	Rc 3/8	0.27
A03	piping	Rc3/8		

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
PV5G GMF
PV5 GMF
PV5S-0
3QR 3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# PV5-6R Series

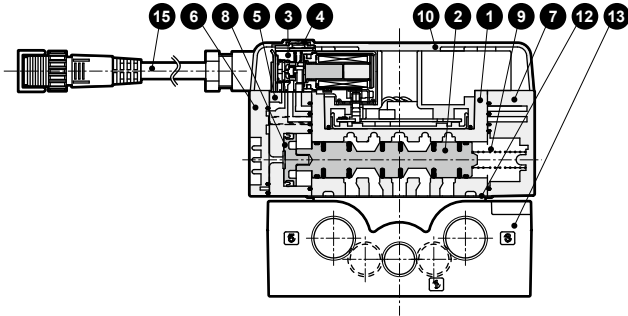
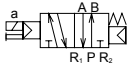
Single valve; ISO size 1

Internal structure and parts list: I/O connector

- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (mastr)
- 4GD/E
- M4GD/E
- MN4GD/E
- 4GA4/B4
- MN3E  
MN4E
- W4GA/B2
- W4GB4
- 4TB
- 4L2-4/  
LMF0
- MN3S0  
MN4S0
- 4SA/B0
- 4KA/B
- 4KA/B (mastr)
- 4F
- 4F (mastr)
- PV5G  
GMF
- PV5  
GMF**
- PV5S-0
- 3QR  
3QB
- MV3QR
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP/  
NVP
- 4F\*0EX
- 4F\*0E
- HMV  
HSV
- 2QV  
3QV
- SKH
- PCD
- Silencer
- TotAirSys  
(Total Air)
- TotAirSys  
(Gamma)
- Ending

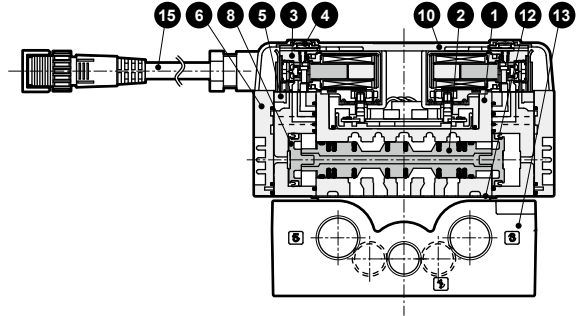
## PV5-6R-FG-S

● 2-position single



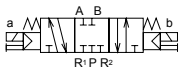
## PV5-6R-FG-D

● 2-position double



## PV5-6R-FHG-D

● 3-position all ports closed



## PV5-6R-FJG-D

● 3-position A/B/R connection



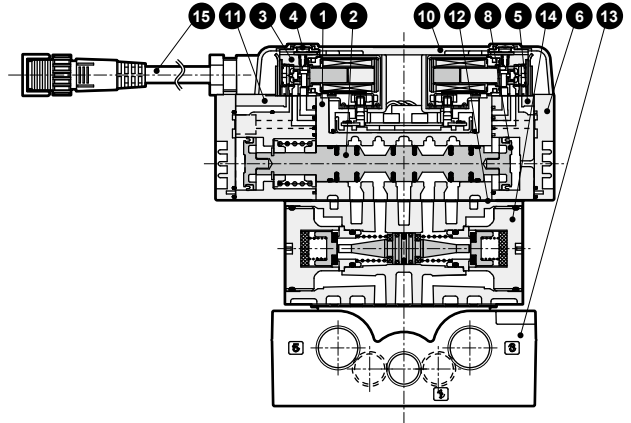
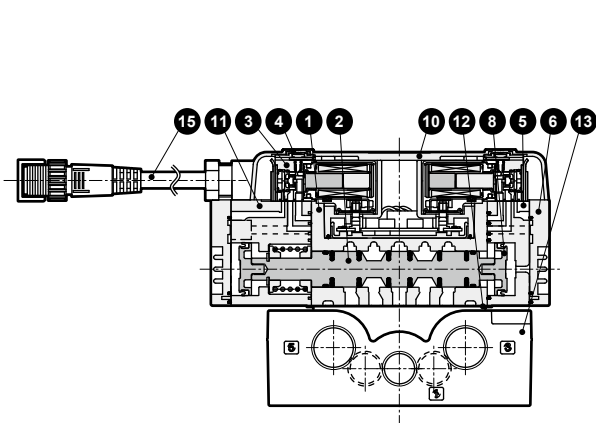
## PV5-6R-FIG-D

● 3-position P/A/B connection



## PV5-6R-FPG-D

● 3-position all ports closed non-leaking



## Main parts list

No.	Part name	Material	No.	Part name	Material
1	Body	Aluminum alloy die-casting	9	Spring S	-
2	Spool assembly	-	10	Wiring cover	Resin
3	Pilot valve	-	11	Pilot valve assembly for 3-position	Resin
4	Manual override	-	12	Gasket	-
5	Pilot valve assembly for double	Resin	13	Sub-plate	Aluminum alloy die-casting
6	Cap D	Resin	14	Air pilot check valve	-
7	Cap S	Resin	15	I/O cable assembly	-
8	Piston D assembly	-			

# MEMO

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
<b>PV5G GMF</b>
<b>PV5 GMF</b>
PV5S-0
3QR 3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# PV5-6R Series

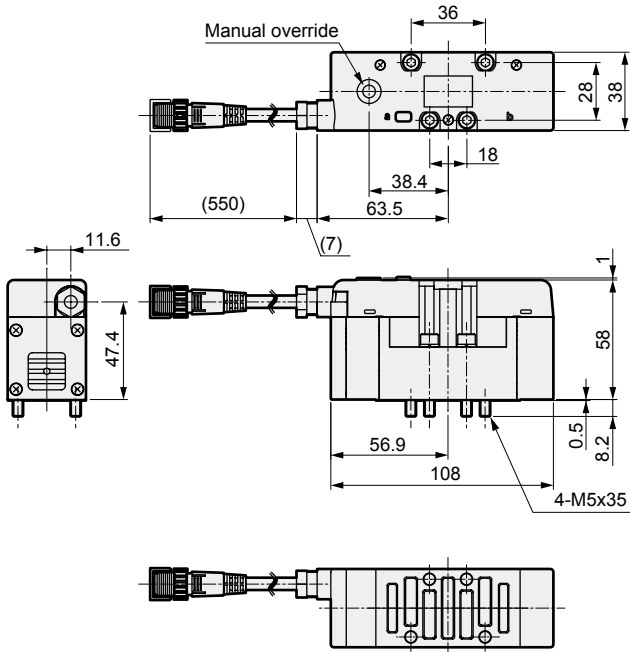
Single valve; ISO size 1

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
4TB
4L2-4/LMF0
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
PV5G
GMF
<b>PV5</b>
<b>GMF</b>
PV5S-0
3QR
3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

Dimensions: I/O connector (without sub-plate)

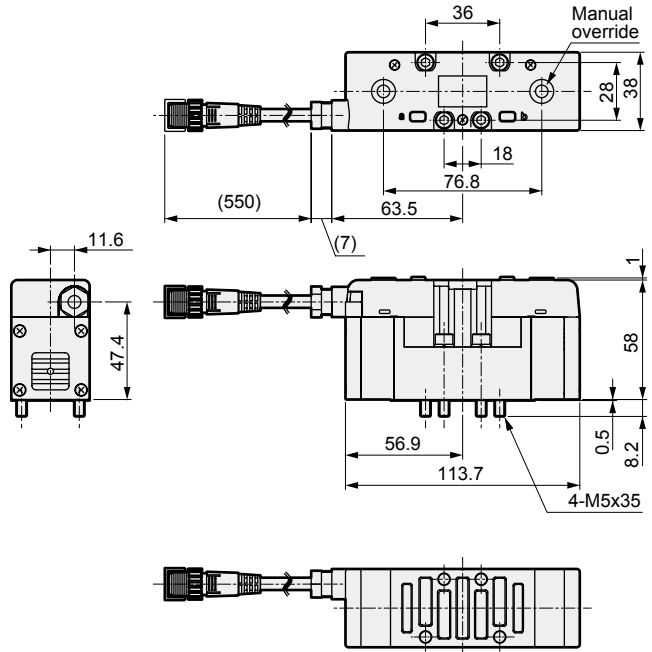
## PV5-6R-FG-S

● 2-position single



## PV5-6R-FG-D

● 2-position double

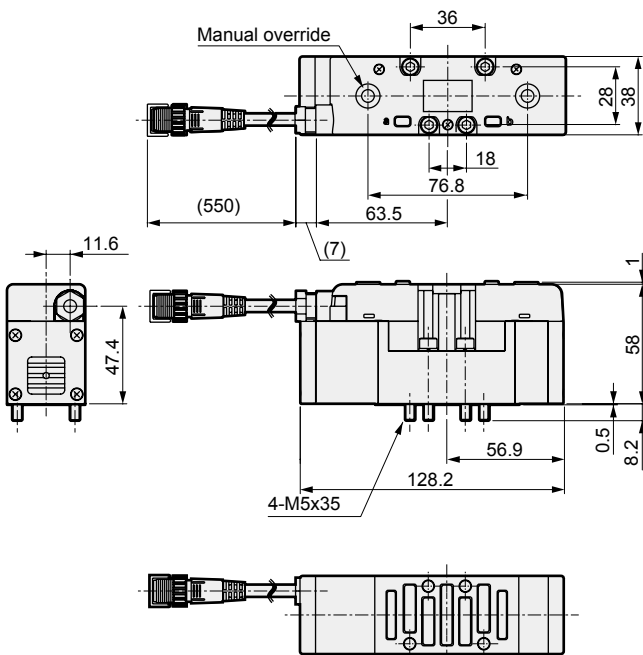


## PV5-6R-FHG-D

## PV5-6R-FJG-D

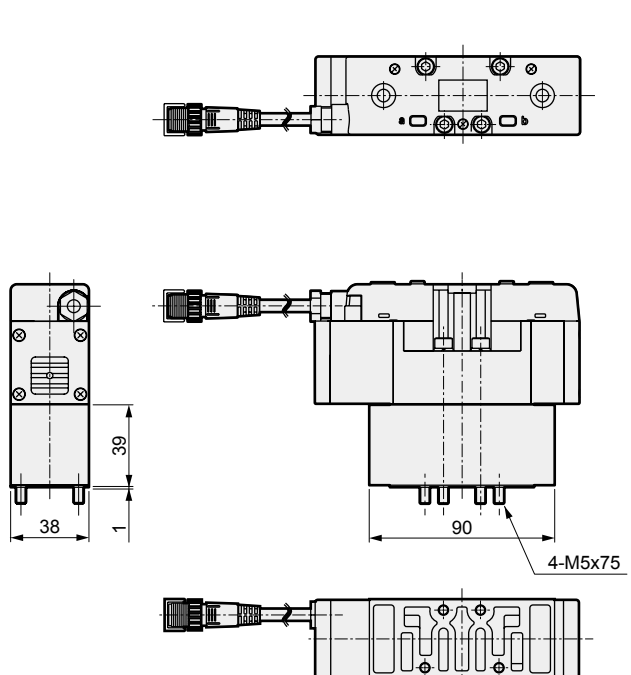
## PV5-6R-FIG-D

● 3-position



## PV5-6R-FPG-D

● 3-position/non-leaking

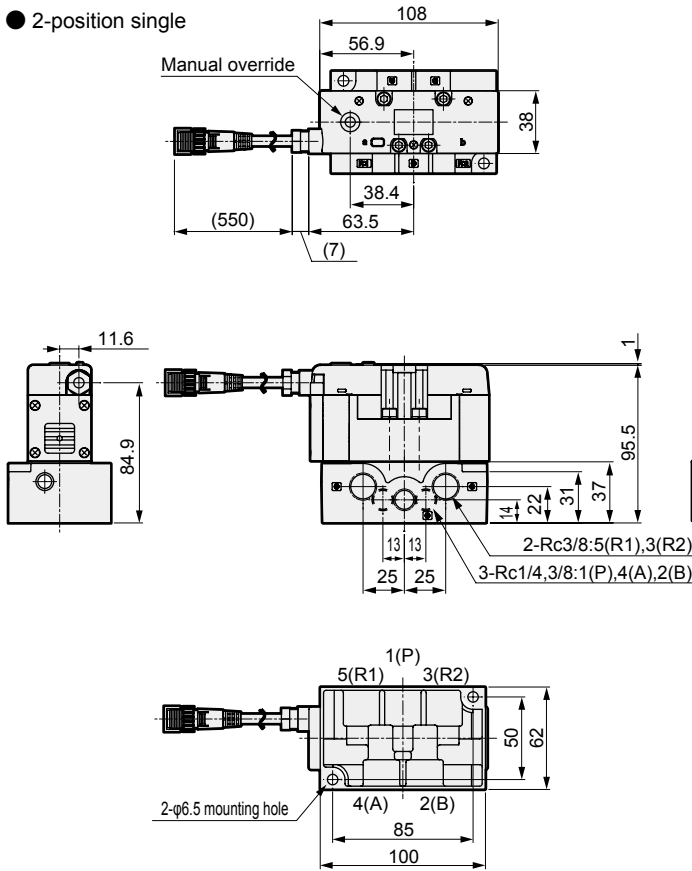




## Dimensions: I/O connector (with sub-plate)

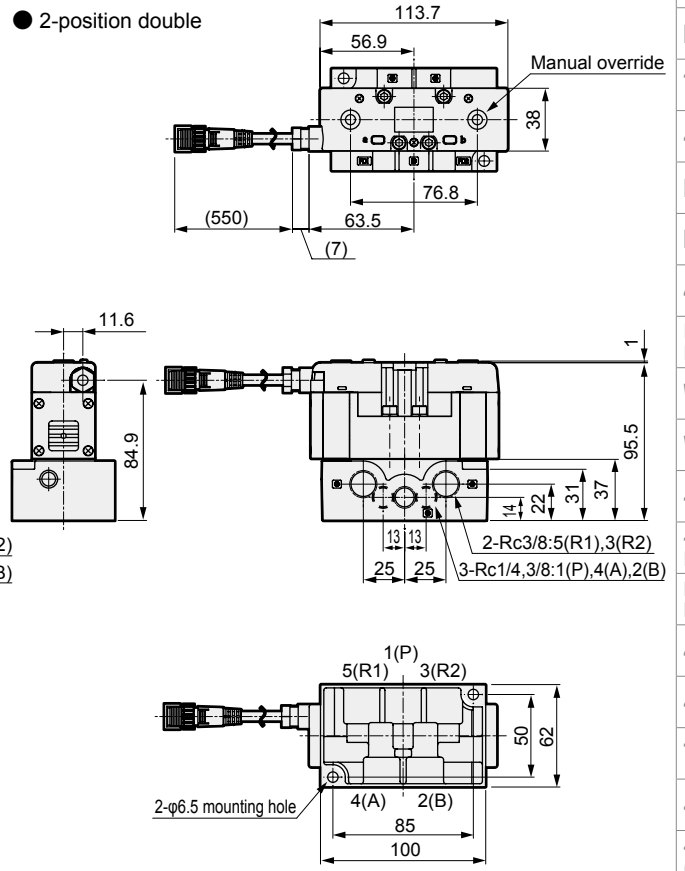
### PV5-6R-FG-S-\*

● 2-position single



### PV5-6R-FG-D-\*

● 2-position double

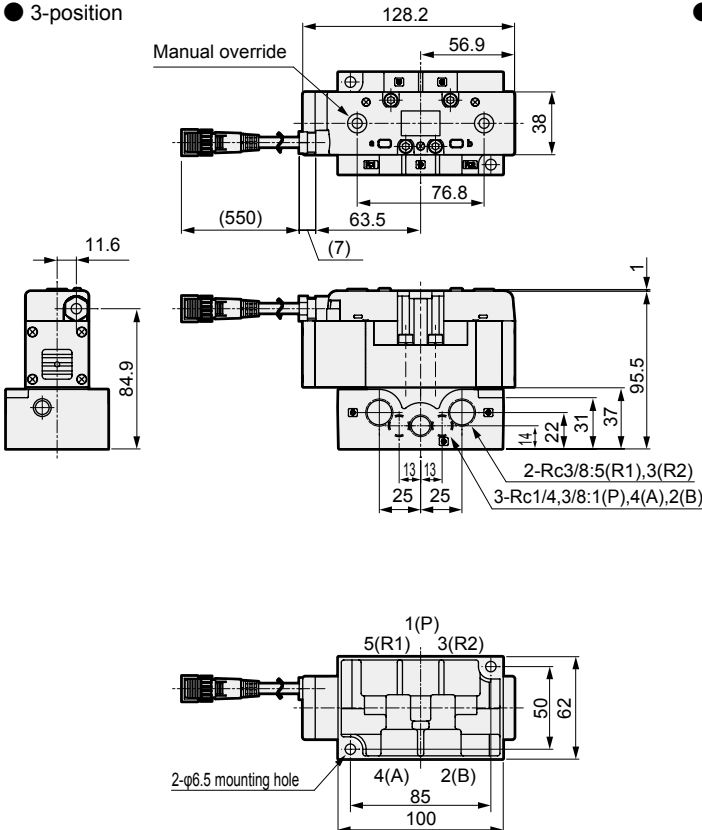


### PV5-6R-FHG-D-\*

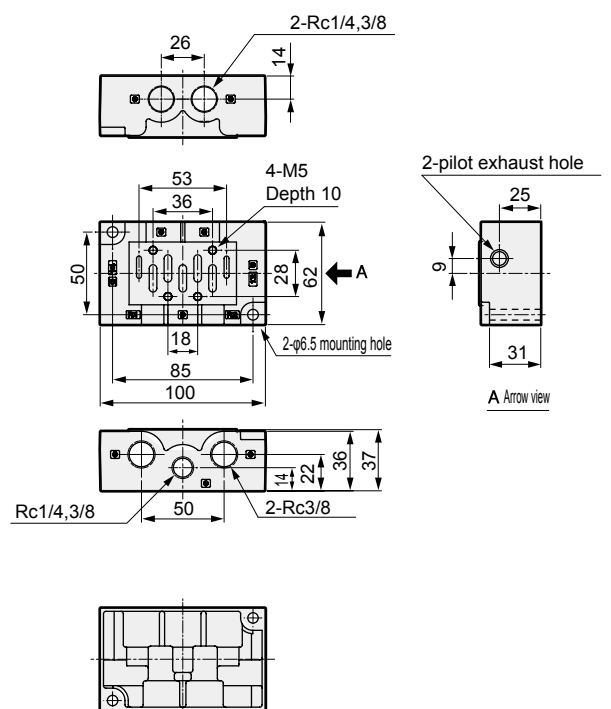
### PV5-6R-FJG-D-\*

### PV5-6R-FIG-D-\*

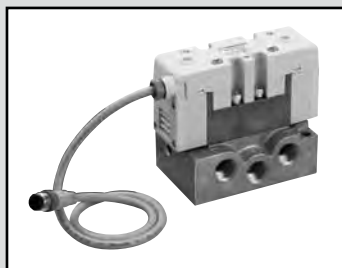
● 3-position



● Sub-plate dimensions



4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
4TB
4L2-4/LMFO
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
PV5G
GMF
<b>PV5</b>
<b>GMF</b>
PV5S-0
3QR
3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending



Single valve ISO size 2  
I/O connector  
Pilot operated 5-port ISO valve

# PV5-8R Series

● Cylinder bore size: max.  $\phi 160$



## JIS symbol

### ● 5-port valve

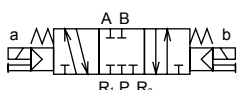
#### 2-position single (FG-S)



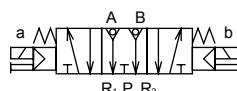
#### 2-position double (FG-D)



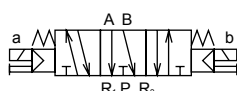
#### 3-position all ports closed (FHG)



#### 3-position all ports closed Non-leaking (FPG)



#### 3-position A/B/R connection (FJG)



#### 3-position P/A/B connection (FIG)



## Common specifications

Descriptions	Content
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)
Min. working pressure MPa	0.15 ( $\approx 22$ psi, 1.5 bar) 0.20 ( $\approx 29$ psi, 2 bar) (3-position)
Proof pressure MPa	1.50 ( $\approx 220$ psi, 15 bar)
Ambient temperature $^{\circ}\text{C}$	-5 (23 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ ) (no freezing)
Fluid temperature $^{\circ}\text{C}$	5 (41 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ )
Lubrication	Not required
Degree of protection	Dust proof/jet proof (IP65 or equivalent)
Leakage $\text{cm}^3/\text{min}$ (A, B $\rightarrow$ R port)	10 (ANR) or less 3-position all ports closed non-leaking only 0.3 (ANR) or less *1
Vibration resistance $\text{m/s}^2$	50 or less
Shock resistance $\text{m/s}^2$	300 or less
Atmosphere	Cannot be used in corrosive gas environment.

\*1: The initial value is listed.

## Electrical specifications

Descriptions	Content
Rated voltage V   DC	24
Voltage fluctuation range	$\pm 10\%$
Power consumption W (Current value A)	1.2 (0.050) * Value for models with lamp.
Thermal class	B (molded coil)
Wiring method	I/O connector

## Individual specifications

Descriptions	PV5-8R		
Port size	*1	Rc3/8, Rc1/2, Rc3/4	
Response time ms	2-position	Single	40 (ON), 60 (OFF)
		Double	40
*2	3-position		40 (when ON), 60 (when neutral)
Weight kg	2-position	Single	0.62
		Double	0.66
	*3	3-position	Other than non-leaking
		All ports closed non-leaking	1.34

\*1: As G and NPT threads can also be used for piping port screws, contact CKD for details.

\*2: The response time is the value at 0.5 MPa working pressure, with no lubrication. It depends on the pressure and the lubricant quality.

\*3: The weight listed is the weight without the sub-plate.

## Flow characteristics

Model No.	Port size	Solenoid position	P $\rightarrow$ A/B		A/B $\rightarrow$ R1/R2	
			C [ $\text{dm}^3/(\text{s}\cdot\text{bar})$ ]	b	C [ $\text{dm}^3/(\text{s}\cdot\text{bar})$ ]	b
PV5-8R	Rc3/8	2-position single	10.7	0.17	13.0	0.19
		2-position double	10.7	0.17	13.0	0.19
		3-position all ports closed	10.0	0.16	11.0	0.25
		3-position A/B/R connection	9.9	0.14	13.0	0.16
		3-position P/A/B connection	11.0	0.12	12.0	0.21
		3-position all ports closed non-leaking	6.6	-	6.2	-

\*1: Effective cross-sectional area S and sonic conductance C are converted as  $S \approx 5.0 \times C$ .

## Coolant proof specifications

Select the option "A" of item (B) in How to order on page 1473.

4GA/B

M4GA/B

MN4GA/B

4GA/B  
(mastr)

4GD/E

M4GD/E

MN4GD/E

4GA4/B4

MN3E  
MN4E

W4GA/B2

W4GB4

4TB

4L2-4/  
LMF0

MN3S0  
MN4S0

4SA/B0

4KA/B

4KA/B  
(mastr)

4F

4F  
(mastr)

PV5G  
GMF

PV5  
GMF

PV5S-0

3QR  
3QB

MV3QR

3MA/B0

3PA/B

P/M/B

NP/NAP/  
NVP

4F\*0EX

4F\*0E

HMV  
HSV

2QV  
3QV

SKH

PCD

Silencer

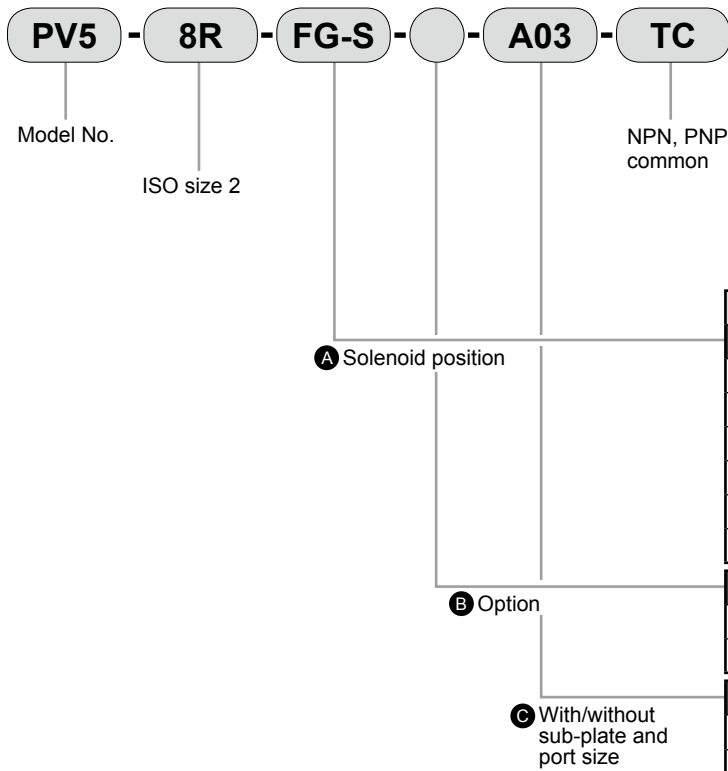
TotAirSys  
(Total Air)

TotAirSys  
(Gamma)

Ending

## How to order I/O connector

● ISO size 2



			Model No.
Code	Content		PV5-8R
<b>A Solenoid position</b>			
FG-S	P pressurized	2-position single	●
FG-D		2-position double	●
FHG-D		3-position all ports closed	●
FJG-D		3-position ABR connection	●
FIG-D		3-position PAB connection	●
FPG-D		3-position all ports closed non-leaking	●
<b>B Option</b>			
Blank	None		●
A	Coolant proof		●
<b>C With/without sub-plate and port size</b>			
Blank	Without sub-plate		●
A03	Side piping Rc3/8 (Rc1/2 for R port only)		●
A04	Side piping (Rc1/2)		●
A06	Side piping (Rc3/4)		●

[Example of model No.]

### PV5-8R-FG-S-A03-TC

Model: PV5/ISO size 2 (I/O connector)

- **A** Solenoid position : P pressurized 2-position single solenoid
- **C** Sub-plate port size: side piping Rc3/8  
R port Rc1/2

● Remarks

Descriptions	Content
(1) Wiring method	I/O connector (M12) NPN, PNP common
(2) Voltage	24 VDC
(3) Surge suppressor/lamp	Standard with surge suppressor and indicator lamp

\*1: Refer to page 1436 for the circuit diagram with a surge suppressor/lamp.

## ISO size 2 sub-plate specifications and how to order

CB2 - A03

● **A** Piping connection method

Code	Type	P/A/B port	R1/R2 port	Weight (kg)
<b>A Piping connection method</b>				
A03	Side piping	Rc3/8	Rc1/2	0.49
A04		Rc1/2		
A06		Rc3/4	Rc3/4	1.40

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
PV5G GMF
PV5 GMF
PV5S-0
3QR 3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# PV5-8R Series

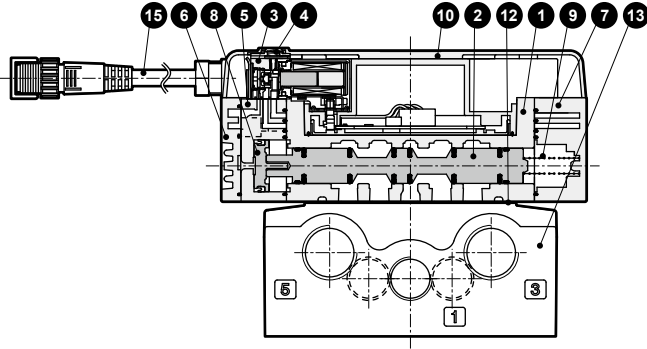
Single valve; ISO size 2

Internal structure and parts list: I/O connector

- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (mastr)
- 4GD/E
- M4GD/E
- MN4GD/E
- 4GA4/B4
- MN3E  
MN4E
- W4GA/B2
- W4GB4
- 4TB
- 4L2-4/  
LMF0
- MN3S0  
MN4S0
- 4SA/B0
- 4KA/B
- 4KA/B (mastr)
- 4F
- 4F (mastr)
- PV5G  
GMF
- PV5  
GMF
- PV5S-0
- 3QR  
3QB
- MV3QR
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP/  
NVP
- 4F\*0EX
- 4F\*0E
- HMV  
HSV
- 2QV  
3QV
- SKH
- PCD
- Silencer
- TotAirSys  
(Total Air)
- TotAirSys  
(Gamma)
- Ending

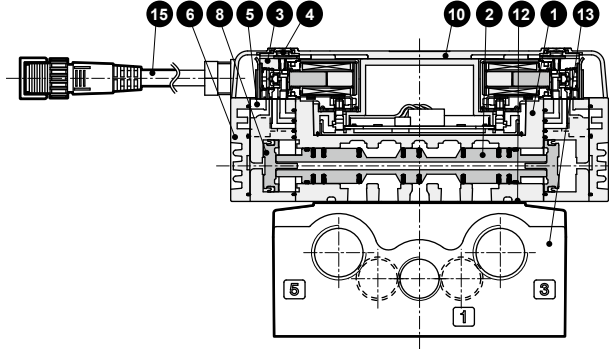
## PV5-8R-FG-S

● 2-position single



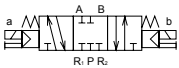
## PV5-8R-FG-D

● 2-position double



## PV5-8R-FHG-D

● 3-position all ports closed



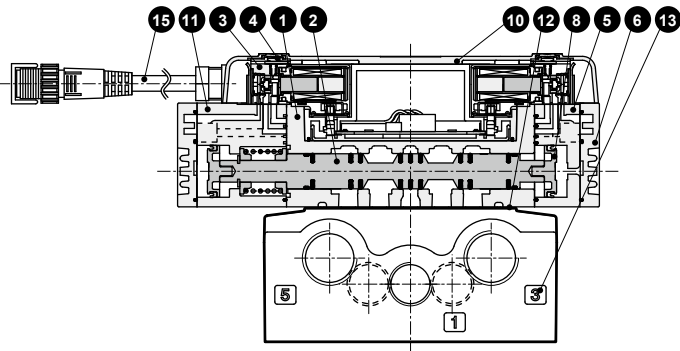
## PV5-8R-FJG-D

● 3-position A/B/R connection



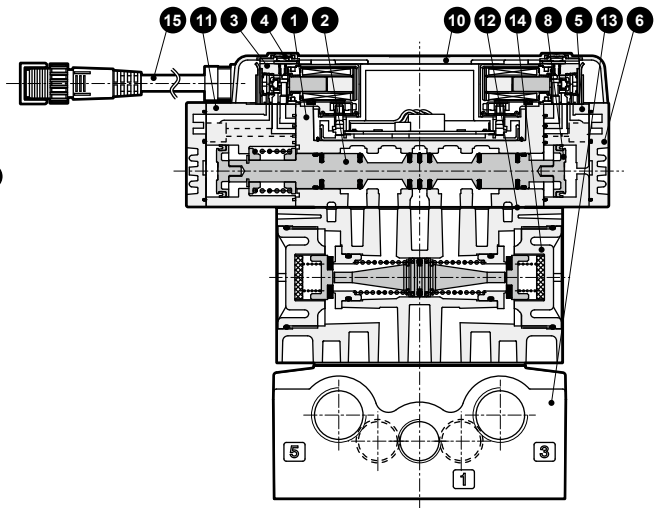
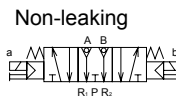
## PV5-8R-FIG-D

● 3-position P/A/B connection



## PV5-8R-FPG-D

● 3-position all ports closed



## Main parts list

No.	Part name	Material	No.	Part name	Material
1	Body	Aluminum alloy die-casting	9	Spring S	-
2	Spool assembly	-	10	Wiring cover	Resin
3	Pilot valve	-	11	Pilot valve assembly for 3-position	Resin
4	Manual override	-	12	Gasket	-
5	Pilot valve assembly for double	Resin	13	Sub-plate	Aluminum alloy die-casting
6	Cap D	Resin	14	Air pilot check valve	-
7	Cap S	Resin	15	I/O cable assembly	-
8	Piston D assembly	-			

# MEMO

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
<b>PV5G GMF</b>
<b>PV5 GMF</b>
<b>PV5S-0</b>
3QR 3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

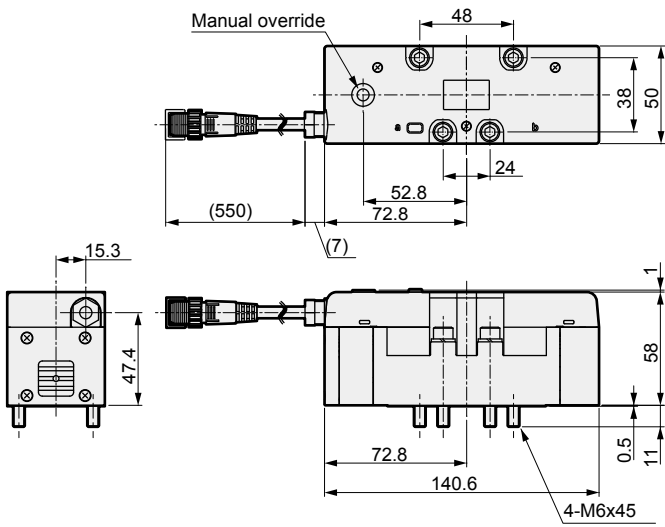
# PV5-8R Series

Single valve; ISO size 2

Dimensions: I/O connector (without sub-plate)

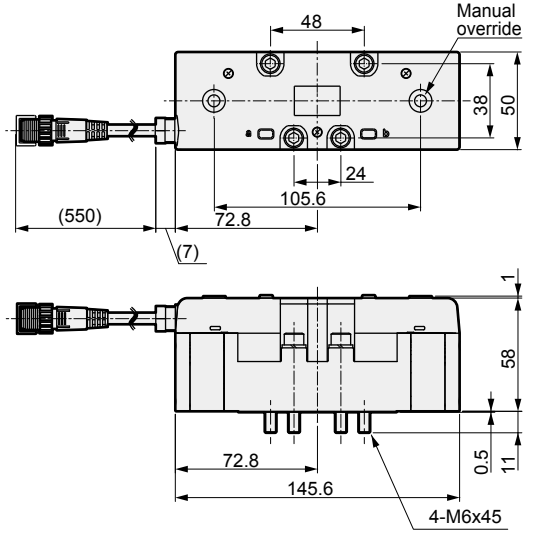
## PV5-8R-FG-S

● 2-position single



## PV5-8R-FG-D

● 2-position double

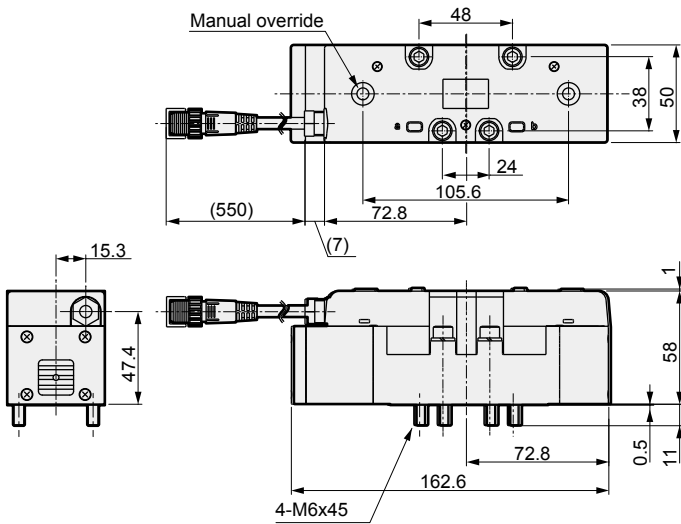


## PV5-8R-FHG-D

## PV5-8R-FJG-D

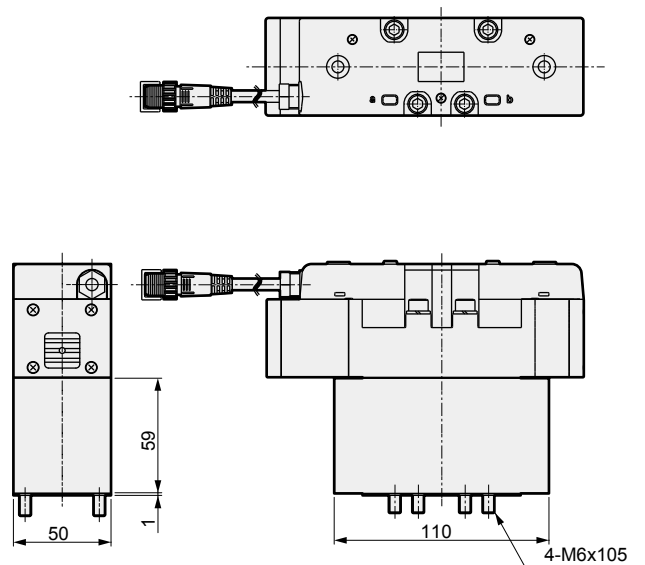
## PV5-8R-FIG-D

● 3-position



## PV5-8R-FPG-D

● 3-position/non-leaking

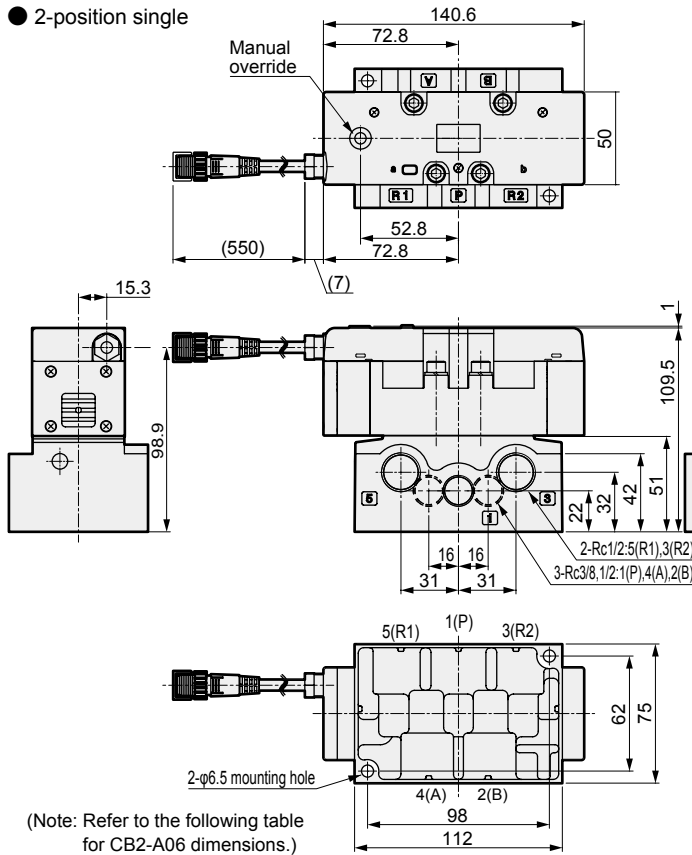


- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (mastr)
- 4GD/E
- M4GD/E
- MN4GD/E
- 4GA4/B4
- MN3E
- MN4E
- W4GA/B2
- W4GB4
- 4TB
- 4L2-4/LMF0
- MN3S0
- MN4S0
- 4SA/B0
- 4KA/B
- 4KA/B (mastr)
- 4F
- 4F (mastr)
- PV5G
- GMF
- PV5
- GMF
- PV5S-0
- 3QR
- 3QB
- MV3QR
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP/NVP
- 4F\*0EX
- 4F\*0E
- HMV
- HSV
- 2QV
- 3QV
- SKH
- PCD
- Silencer
- TotAirSys (Total Air)
- TotAirSys (Gamma)
- Ending

## Dimensions: I/O connector (with sub-plate)

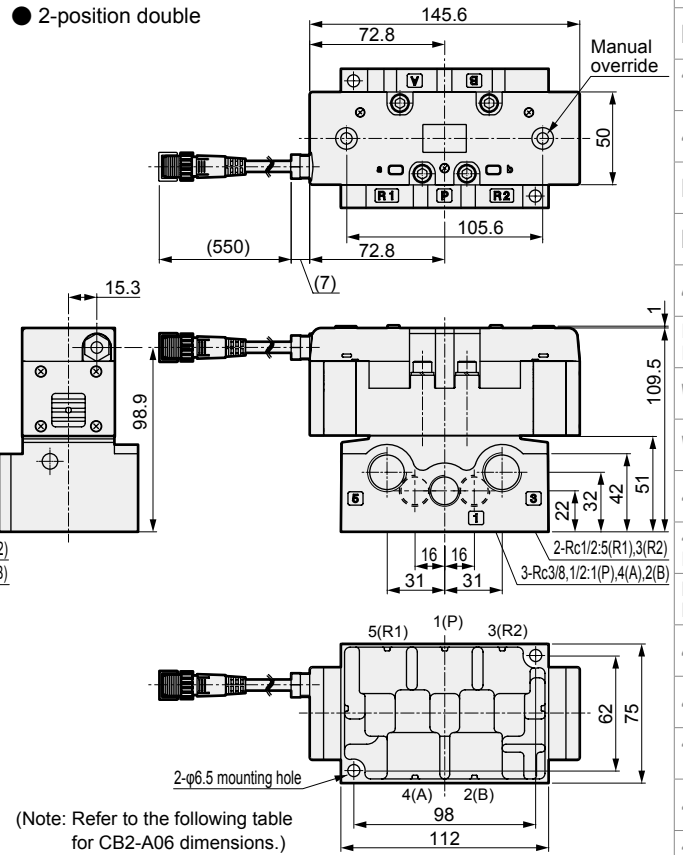
### PV5-8R-FG-S-\*

● 2-position single



### PV5-8R-FG-D-\*

● 2-position double

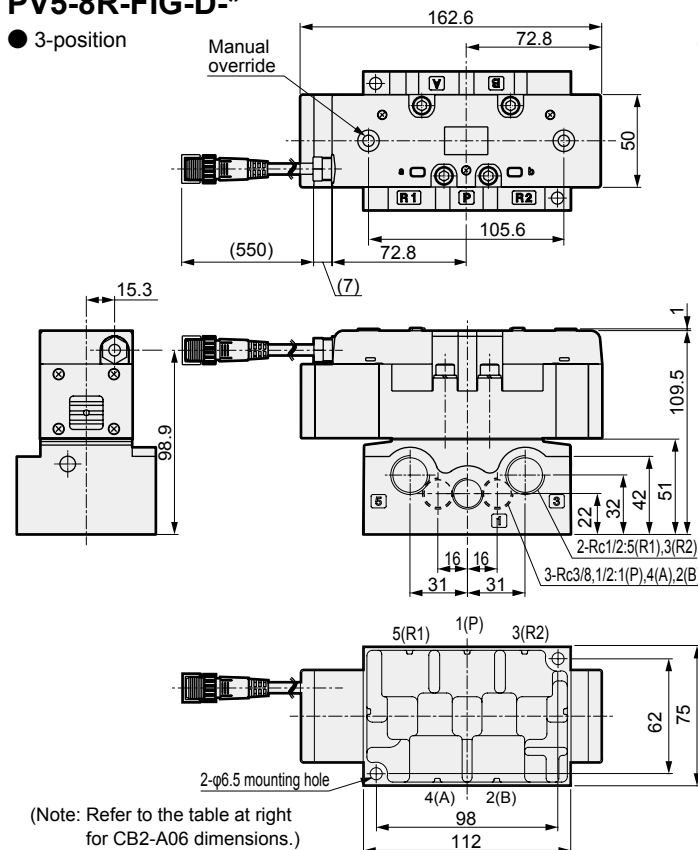


### PV5-8R-FHG-D-\*

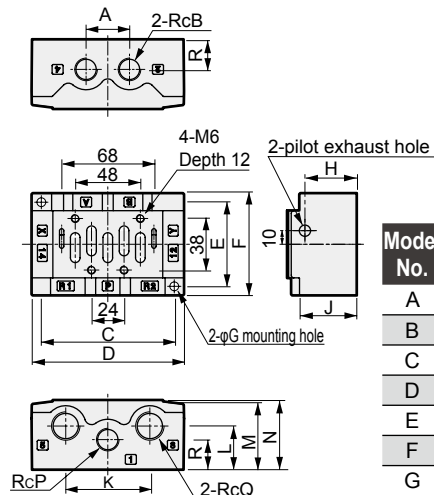
### PV5-8R-FJG-D-\*

### PV5-8R-FIG-D-\*

● 3-position

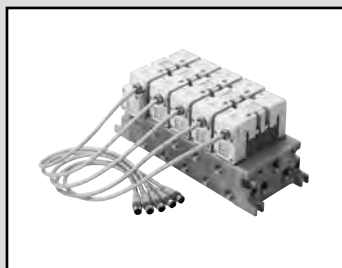


● Sub-plate dimensions (CB2-\*)



Model No.	CB2-03 A B	CB2-04 A B	CB2-06 A B
A	32	40	
B	3/8	1/2	3/4
C	98	128	
D	112	142	
E	62	72	
F	75	86	
G	6.5	7.5	
H	38	53	
J	42	55	
K	62	84	
L	32	42	
M	50	62	
N	51	63	
P	3/8	1/2	3/4
Q	1/2	3/4	
R	22	30	

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
4TB
4L2-4/LMFO
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
PV5G
GMF
<b>PV5</b>
<b>GMF</b>
PV5S-0
3QR
3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending



Individual wiring manifold ISO size 1  
I/O connector  
Pilot operated 5-port ISO valve

# GMF1 Series

● Cylinder bore size: max.  $\phi 100$



## Common specifications

Descriptions	Content
Manifold method	Manifold integrated
Manifold	Common supply/common exhaust    Common supply/individual exhaust Individual supply/common exhaust    Individual supply/individual exhaust
Station No.	Different pressure supply 1 to 10 stations
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)
Min. working pressure MPa	0.15 ( $\approx 22$ psi, 1.5 bar) 0.20 ( $\approx 29$ psi, 2 bar) (3-position)
Proof pressure MPa	1.50 ( $\approx 220$ psi, 15 bar)
Ambient temperature $^{\circ}\text{C}$	-5 (23 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ ) (no freezing)
Fluid temperature $^{\circ}\text{C}$	5 (41 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ )
Lubrication	Not required
Degree of protection	Dust proof/jet proof (IP65 or equivalent)
Leakage $\text{cm}^3/\text{min}$	10 (ANR) or less
(A, B $\rightarrow$ R port)	3-position all ports closed non-leaking only 0.3 (ANR) or less *1
Vibration resistance $\text{m/s}^2$	50 or less
Shock resistance $\text{m/s}^2$	300 or less
Atmosphere	Cannot be used in corrosive gas environment.

\*1: The initial value is listed.

## Electrical specifications

Descriptions	Content
Rated voltage V  DC	24
Voltage fluctuation range	$\pm 10\%$
Power consumption W (Current value A)	1.2 (0.050) * Value for models with a lamp.
Thermal class	B (molded coil)
Wiring method	I/O connector

## Individual specifications

Descriptions	GMF1		
Port size	P/R1/R2 port	Rc3/8, Rc1/2	
	*1 A/B port	Rc1/4, Rc3/8	
Response time	2-position	Single	30 (ON), 40 (OFF)
		Double	30
	*2 3-position		30 (when ON), 50 (when neutral)

\*1: As G and NPT threads can also be used for piping port screws, contact CKD for details.

\*2: The response time is the value at 0.5 MPa working pressure, with no lubrication. It depends on the pressure and the lubricant quality.

## Weight

Manifold base	Station No.	1	2	3	4	5	6	7	8	9	10
	(kg)		1.04	1.50	1.95	2.40	2.85	3.30	3.75	4.20	4.65
Silencer box Added to manifold base assembly (kg)	Model No.	SB									
		0.13									
Spacer	Model No.	P		R		SR		PC			
	(kg)	0.22		0.22		0.64		0.25			

## Flow characteristics

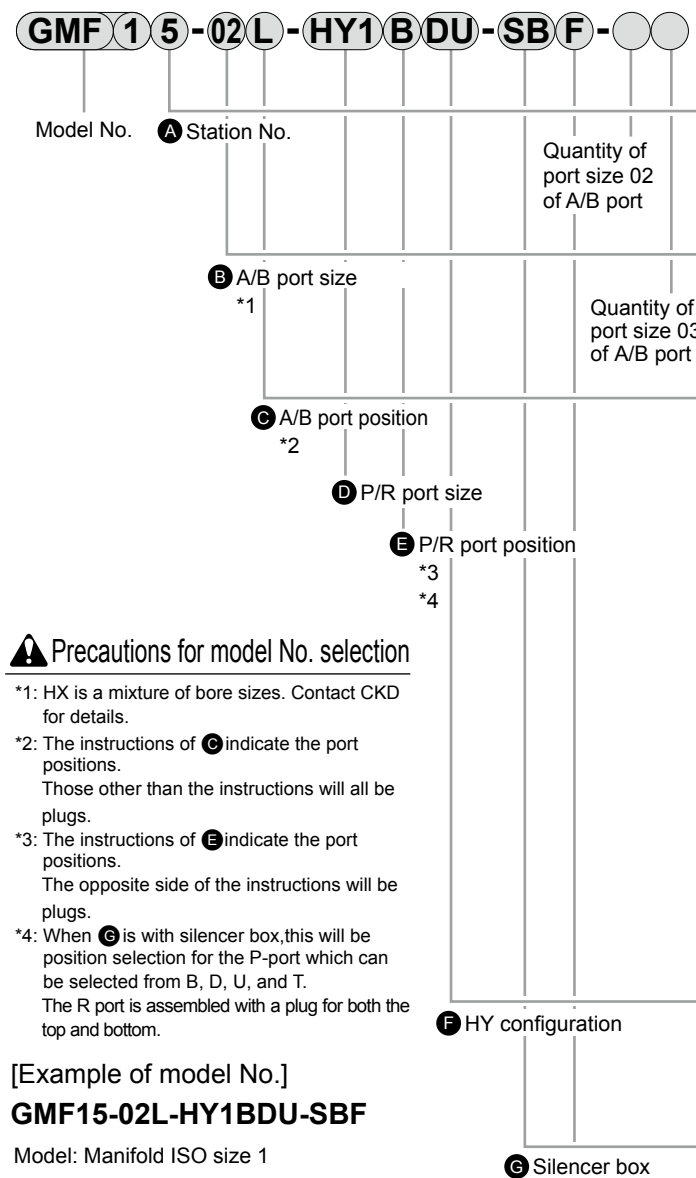
Model No.	Port size	Solenoid position	P $\rightarrow$ A/B		A/B $\rightarrow$ R1/R2	
			C [dm <sup>3</sup> /(s·bar)]	b	C [dm <sup>3</sup> /(s·bar)]	b
GMF1	Rc1/4	2-position single	4.8	0.25	5.2	0.26
		2-position double	4.8	0.25	5.2	0.26
		3-position all ports closed	4.4	0.27	4.7	0.27
		3-position A/B/R connection	4.4	0.25	5.3	0.25
		3-position P/A/B connection	4.8	0.27	4.7	0.27
		3-position all ports closed non-leaking	3.2	-	2.8	-

\*1: Effective cross-sectional area S and sonic conductance C are converted as  $S \approx 5.0 \times C$ .



## How to order I/O connector

● ISO Size 1



### ⚠ Precautions for model No. selection

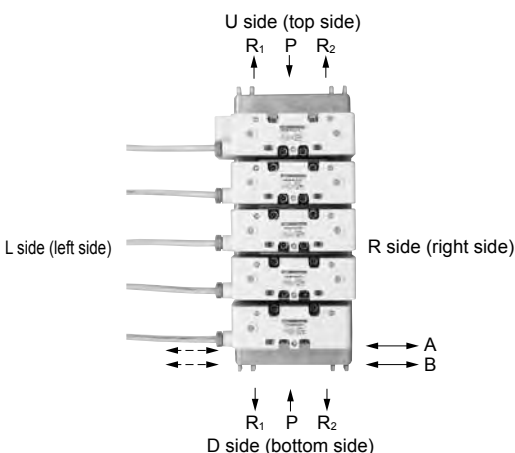
- \*1: HX is a mixture of bore sizes. Contact CKD for details.
- \*2: The instructions of **C** indicate the port positions. Those other than the instructions will all be plugs.
- \*3: The instructions of **E** indicate the port positions. The opposite side of the instructions will be plugs.
- \*4: When **G** is with silencer box, this will be position selection for the P-port which can be selected from B, D, U, and T. The R port is assembled with a plug for both the top and bottom.

### [Example of model No.]

## GMF15-02L-HY1BDU-SBF

Model: Manifold ISO size 1

- A** Station No. : 5 stations
- B C** A/B port : Rc1/4 (left and right both sides piping)
- D E F** P/R port : Rc3/8 and Rc1/2 mixture (Rc3/8 for bottom side piping and Rc1/2 for top side piping)
- G** Silencer box : Yes (D side installation)
- H** Option : P/A/B-port filter integrated



Code		Content	Model No.
<b>A Station No.</b>			●
1	1 station		
to	to		
10	10 stations		
<b>B A/B port size</b>			●
02	Rc1/4		
03	Rc3/8		
HX1	Rc1/4 and Rc3/8 mixture		
<b>C A/B port position</b>			●
Blank	Right		
L	Left and right sides (select position with manifold specifications)		
H	Left		
Z	Rear side		
T	Free selection (plug attached) (rear side not available)		
<b>D P/R port size</b>			●
03	Rc3/8		
04	Rc1/2		
HY1	Rc3/8 and Rc1/2 mixture		
<b>E P/R port position</b>			●
B	Top and bottom sides		
D	Bottom side		
U	Top side		
E	P on top, R on bottom		
F	P on bottom, R on top		
T	Free selection (plug attached)		
<b>F HY configuration</b>			●
Blank	When other than HY1 is selected with <b>D</b>		
DU	Rc3/8 on bottom, Rc1/2 on top		
UD	Rc3/8 on top, Rc1/2 on bottom		
<b>G Silencer box</b>			●
Blank	None		
SB	Yes (D side installation)		
<b>H Option</b>			●
Blank	None		
F	P/A/B port filter integrated		

The valve body must be prepared separately. For how to order valves, refer to page 1467. For arrangement of manifolds with valve bodies, **the manifold specifications sheet** on page 1490 **will be necessary** in addition to each model No.

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
4TB
4L2-4/LMF0
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
PV5G GMF
PV5 GMF
PV5S-0
3QR
3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# GMF1 Series

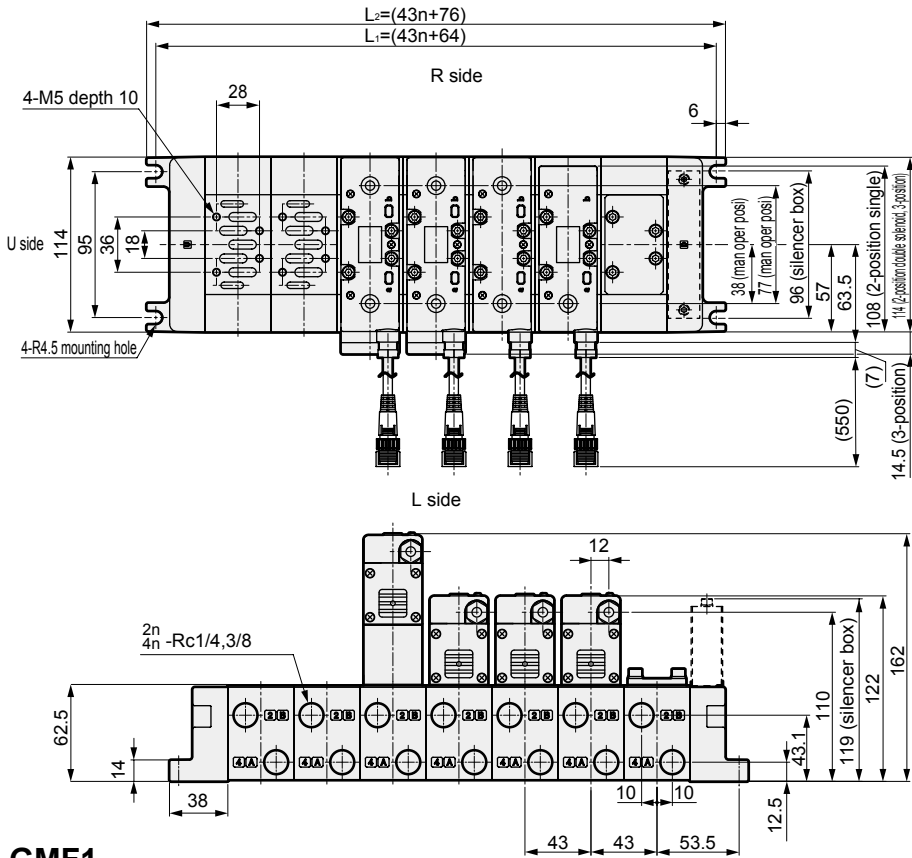
Individual wiring manifold; ISO size 1

Dimensions: I/O connector

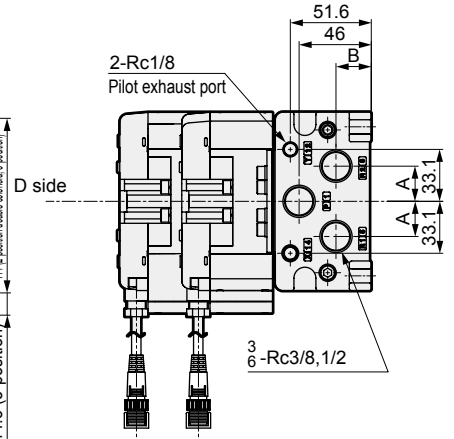
- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (mastr)
- 4GD/E
- M4GD/E
- MN4GD/E
- 4GA4/B4
- MN3E
- MN4E
- W4GA/B2
- W4GB4
- 4TB
- 4L2-4/LMF0
- MN3S0
- MN4S0
- 4SA/B0
- 4KA/B
- 4KA/B (mastr)
- 4F
- 4F (mastr)
- PV5G
- GMF
- PV5
- GMF
- PV5S-0
- 3QR
- 3QB
- MV3QR
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP/NVP
- 4F\*0EX
- 4F\*0E
- HMV
- HSV
- 2QV
- 3QV
- SKH
- PCD
- Silencer
- TotAirSys (Total Air)
- TotAirSys (Gamma)
- Ending

## GMF1

● Common exhaust

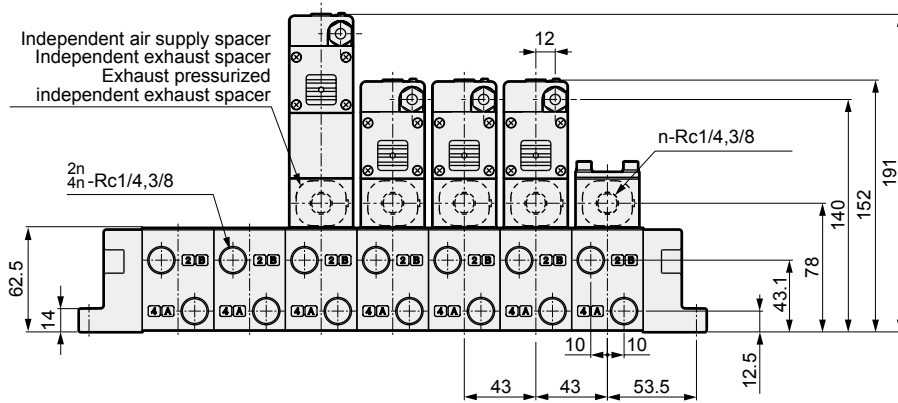


P/R port size	A	B
Rc3/8	18.4	23.5
Rc1/2	22.4	22.5



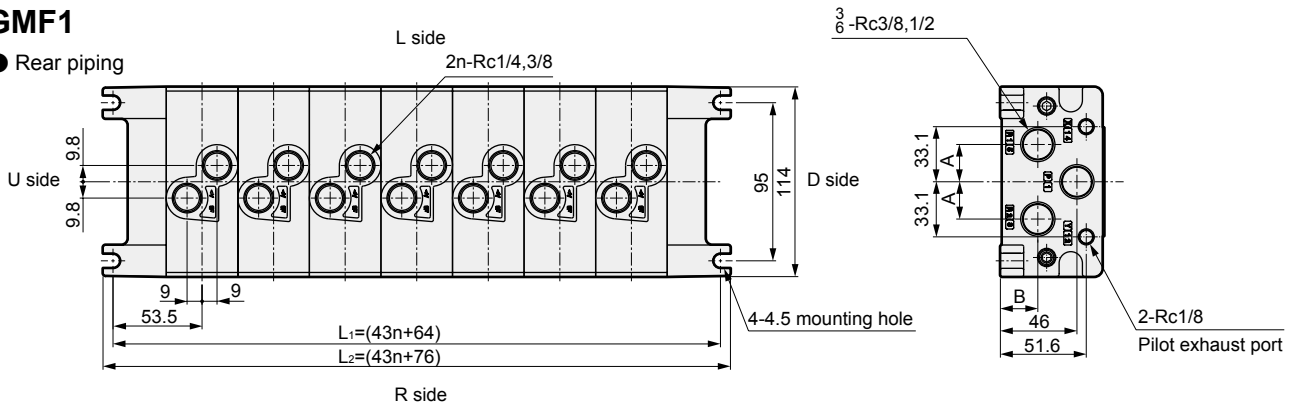
## GMF1

● Individual exhaust



## GMF1

● Rear piping



## How to order

- Spacer regulator

**CMF 1 -SR- A - T05 C**

A Size	B Press reduction port position	C Pressure gauge	D Check valve
1 ISO size 1	P P port	T05 MPa display (With limit marker)	Blank None
	A A port		C Yes
	B B port		

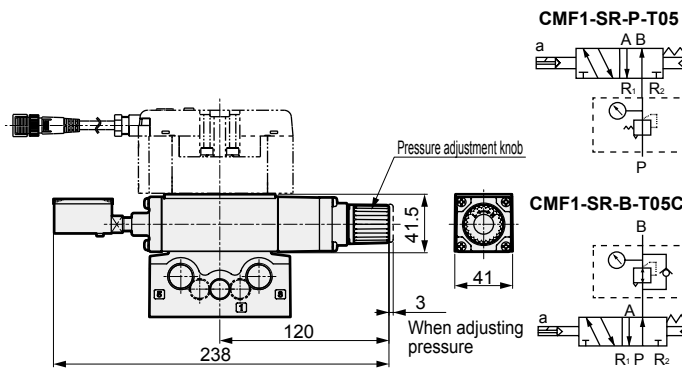
List without check valve (blank) for SR-P and list with check valve (C) for SR-A and SR-B.

\* Note that the direction of the pressure gauge is different with **CMF1-SR-A-T05C**.

## CMF1-SR-P-T05 CMF1-SR-B-T05C

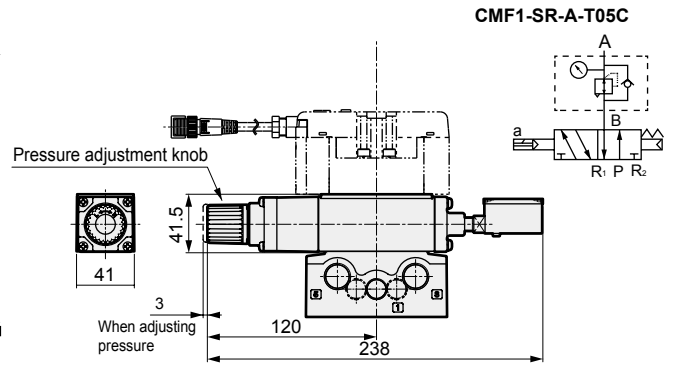
- Spacer regulator

- JIS symbol

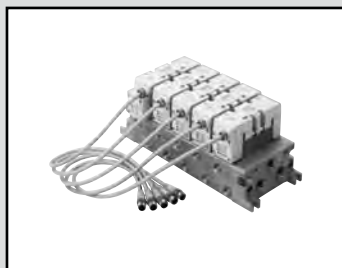


## CMF1-SR-A-T05C

- JIS symbol



4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
PV5G GMF
PV5 GMF
PV5S-0
3QR 3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending



Individual wiring manifold ISO size 2  
I/O connector  
Pilot operated 5-port ISO valve

# GMF2 Series

● Cylinder bore size: max.  $\phi 160$



## Common specifications

Descriptions	Content
Manifold method	Manifold integrated
Manifold	Common supply/common exhaust    Common supply/individual exhaust Individual supply/common exhaust    Individual supply/individual exhaust
Station No.	Different pressure supply 1 to 10 stations
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)
Min. working pressure MPa	0.15 ( $\approx 22$ psi, 1.5 bar) 0.20 ( $\approx 29$ psi, 2 bar) (3-position)
Proof pressure MPa	1.50 ( $\approx 220$ psi, 15 bar)
Ambient temperature $^{\circ}\text{C}$	-5 (23 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ ) (no freezing)
Fluid temperature $^{\circ}\text{C}$	5 (41 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ )
Lubrication	Not required
Degree of protection	Dust proof/jet proof (IP65 or equivalent)
Leakage $\text{cm}^3/\text{min}$ (A, B $\rightarrow$ R port)	10 (ANR) or less 3-position all ports closed non-leaking only 0.3 (ANR) or less *1
Vibration resistance $\text{m/s}^2$	50 or less
Shock resistance $\text{m/s}^2$	300 or less
Atmosphere	Cannot be used in corrosive gas environment.

\*1: The initial value is listed.

## Electrical specifications

Descriptions	Content
Rated voltage V  DC	24
Voltage fluctuation range	$\pm 10\%$
Power consumption W (Current value A)	1.2 (0.050) * Value for models with lamp.
Thermal class	B (molded coil)
Wiring method	I/O connector

## Individual specifications

Descriptions	GMF1		
Port size	P/R1/R2 port	Rc1/2, Rc3/4	
	*1 A/B port	Rc3/8, Rc1/2	
Response time	2-position	Single	40 (ON), 60 (OFF)
		Double	40
	*2 3-position	40 (when ON), 60 (when neutral)	

\*1: As G and NPT threads can also be used for piping port screws, contact CKD for details.

\*2: The response time is the value at 0.5 MPa working pressure, with no lubrication. It depends on the pressure and the lubricant quality.

## Weight

Manifold base	Station No.	1	2	3	4	5	6	7	8	9	10
	(kg)	2.30	3.17	4.04	4.91	5.79	6.66	7.53	8.40	9.27	10.14
Silencer box Added to manifold base assembly (kg)	Model No.	SB									
		0.17									
Spacer	Model No.	P		R		SR		PC			
	(kg)	0.41		0.41		1.18		0.54			

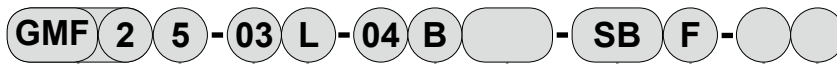
## Flow characteristics

Model No.	Port size	Solenoid position	P $\rightarrow$ A/B		A/B $\rightarrow$ R1/R2	
			C [dm <sup>3</sup> /(s·bar)]	b	C [dm <sup>3</sup> /(s·bar)]	b
GMF2	Rc3/8	2-position single	9.7	0.12	11.0	0.14
		2-position double	9.7	0.12	11.0	0.14
		3-position all ports closed	9.2	0.12	10.1	0.15
		3-position A/B/R connection	9.2	0.11	11.6	0.11
		3-position P/A/B connection	9.6	0.11	10.2	0.18
		3-position all ports closed non-leaking	6.2	-	5.9	-

\*1: Effective cross-sectional area S and sonic conductance C are converted as  $S \approx 5.0 \times C$ .

## How to order I/O connector

● ISO size 2



Model No.

A Station No.

Quantity of port size 03 of A/B port

B A/B port size  
\*1

Quantity of port size 04 of A/B port

C A/B port position  
\*2

D P/R port size

E P/R port position  
\*3  
\*4

F HY configuration

G Silencer box

H Option

### ⚠ Precautions for model No. selection

\*1: HX is a mixture of bore sizes. Contact CKD for details.

\*2: The instructions of C indicate the port positions. Those other than the instructions will all be plugs.

\*3: The instructions of E indicate the port positions. The opposite side of the instructions will be plugs.

\*4: When G is with silencer box, this will be position selection for the P-port which can be selected from B, D, U, and T. The R port is assembled with a plug for both the top and bottom.

[Example of model No.]

**GMF25-03L-04B-SBF**

Model: Manifold ISO size 2

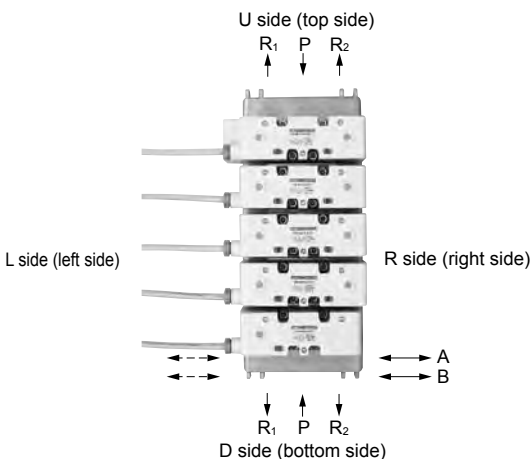
A Station No. : 5 stations

B C A/B port : Rc3/8 (left and right both sides piping)

D E P/R port : Rc1/2 (top and bottom both sides piping)

G Silencer box: Yes (D side installation)

H Option : P/A/B-port filter integrated



Code	Content	Model No.
<b>A Station No.</b>		
1	1 station	●
to	to	
10	10 stations	
<b>B A/B port size</b>		
03	Rc3/8	●
04	Rc1/2	●
HX2	Rc3/8 and Rc1/2 mixture	●
<b>C A/B port position</b>		
Blank	Right	●
L	Left and right sides (select position with manifold specifications)	●
H	Left	●
Z	Rear side	●
T	Free selection (plug attached) (rear side not available)	●
<b>D P/R port size</b>		
04	Rc1/2	●
06	Rc3/4	●
HY2	Rc1/2 and Rc3/4 mixture	●
<b>E P/R port position</b>		
B	Top and bottom sides	●
D	Bottom side	●
U	Top side	●
E	P on top, R on bottom	●
F	P on bottom, R on top	●
T	Free selection (plug attached)	●
<b>F HY configuration</b>		
Blank	When other than HY2 is selected with D	●
DU	Rc1/2 on bottom, Rc3/4 on top	●
UD	Rc1/2 on top, Rc3/4 on bottom	●
<b>G Silencer box</b>		
Blank	None	●
SB	Yes (D side installation)	●
<b>H Option</b>		
Blank	None	●
F	P/A/B port filter integrated	●

The valve body must be prepared separately. For how to order valves, refer to page 1473. For arrangement of manifolds with valve bodies, **the manifold specifications sheet** on page 1491 **will be necessary** in addition to each model No.

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
4TB
4L2-4/LMFO
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
PV5G
GMF
PV5
GMF
PV5S-0
3QR
3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

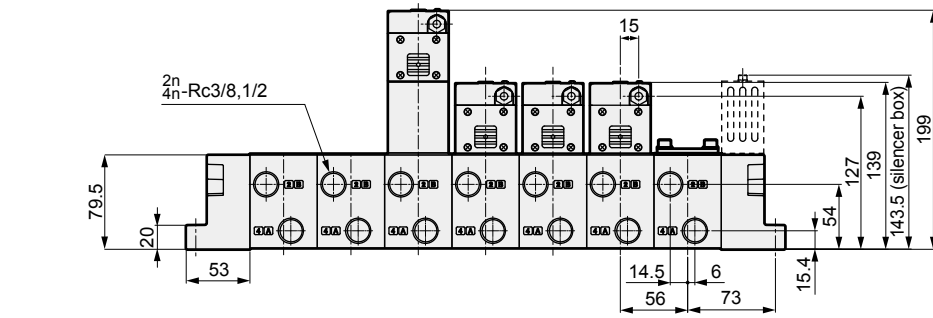
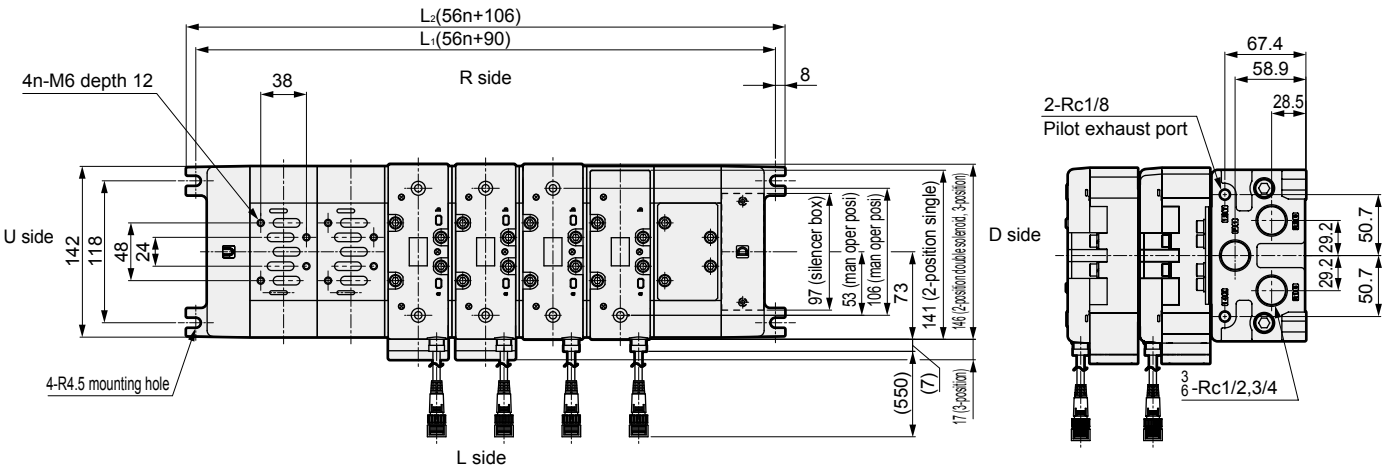
# GMF2 Series

Individual wiring manifold; ISO size 2

Dimensions: I/O connector

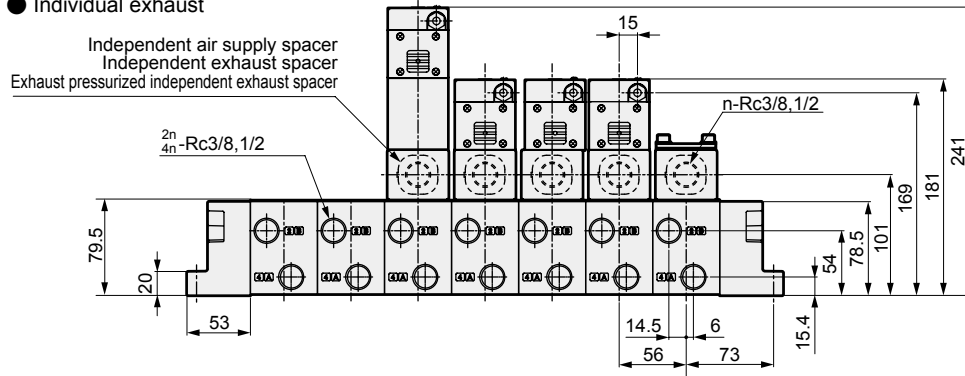
## GMF2

● Common exhaust



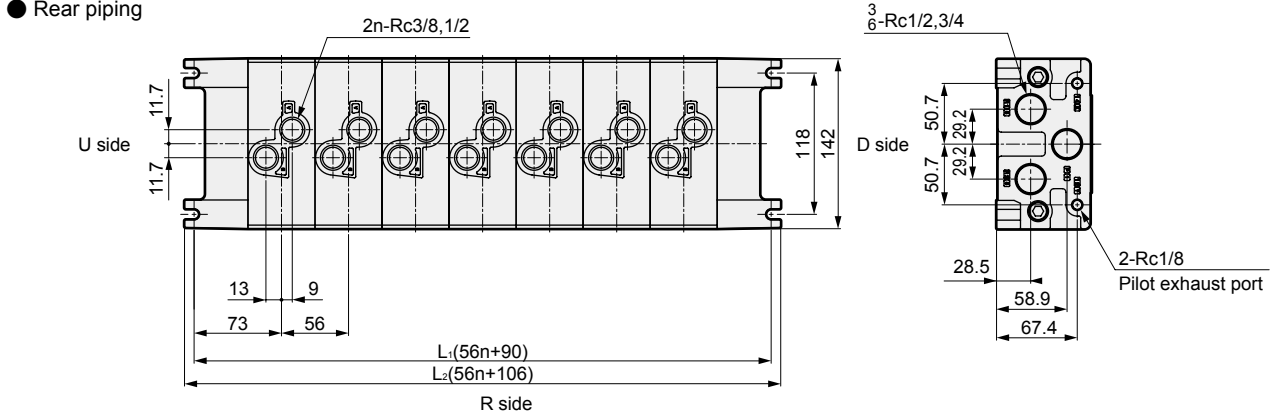
## GMF2

● Individual exhaust



## GMF2

● Rear piping



## How to order

- Spacer regulator

**CMF 2 - SR - A - T05 C**

A Size	B Press reduction port position	C Pressure gauge	D Check valve
2   ISO size 2	P   P port A   A port B   B port	T05   MPa display (With limit marker)	Blank   None C   Yes

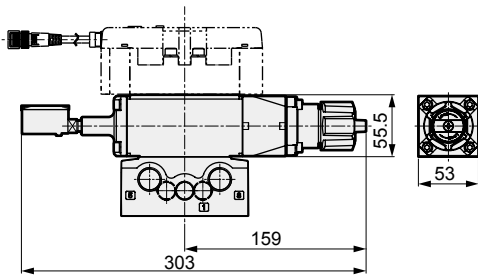
SR-P is a check valve  
No (blank), list with  
check valve (C) for  
SR-A and SR-B.

\* Note that the direction of the pressure gauge is different with **CMF2-SR-A-T05C**.

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
PV5G GMF
PV5 GMF
PV5S-0
3QR 3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

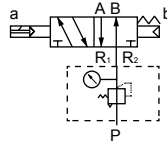
### CMF2-SR-P-T05 CMF2-SR-B-T05C

- Spacer regulator

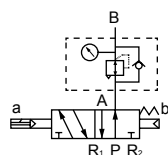


- JIS symbol

CMF2-SR-P-T05



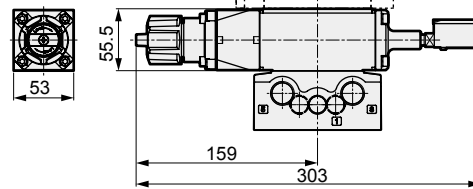
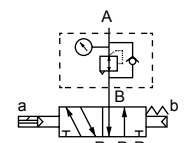
CMF2-SR-B-T05C



### CMF2-SR-A-T05C

- JIS symbol

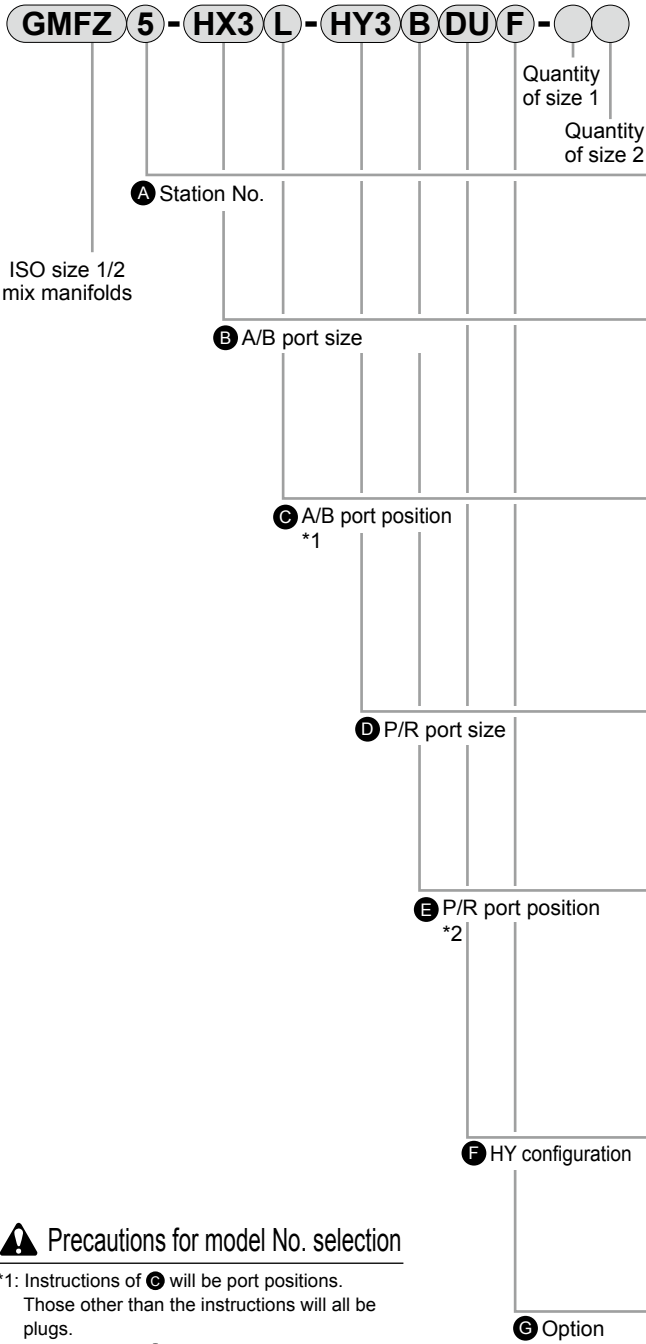
CMF2-SR-A-T05C



# GMFZ Series

Mix manifold; ISO size 1/2 mixture

## How to order I/O connector



Model No.

GMFZ

Code	Content	
<b>A Station No.</b>		
2	2 stations	●
to	to	
10	10 stations	
<b>B A/B port size</b>		
HX3	Size 1: 02/size 2: 03	●
HX4	Size 1: 02/size 2: 04	●
HX5	Size 1: 03/size 2: 03	●
HX6	Size 1: 03/size 2: 04	●
<b>C A/B port position</b>		
Blank	Right	●
L	Left and right sides (select position with manifold specifications)	●
H	Left	●
Z	Rear side	●
T	Free selection (plug attached) (rear side not available)	●
<b>D P/R port size</b>		
HY3	Size 1: 03/size 2: 04	●
HY4	Size 1: 03/size 2: 06	●
HY5	Size 1: 04/size 2: 04	●
HY6	Size 1: 04/size 2: 06	●
<b>B P/R port position</b>		
B	Top and bottom sides	●
D	Bottom side	●
U	Top side	●
E	P on top, R on bottom	●
F	P on bottom, R on top	●
T	Free selection (plug attached)	●
<b>F HY configuration</b>		
DU	Smaller bore size on bottom, larger bore size on top or 1 on bottom, 2 on top	●
UD	Smaller bore size on top, larger bore size on bottom or 1 on top, 2 on bottom	●
<b>G Option</b>		
Blank	None	●
F	P/A/B port filter integrated	●

### ⚠ Precautions for model No. selection

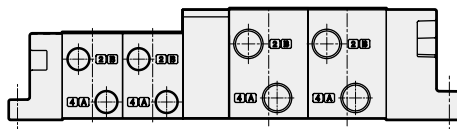
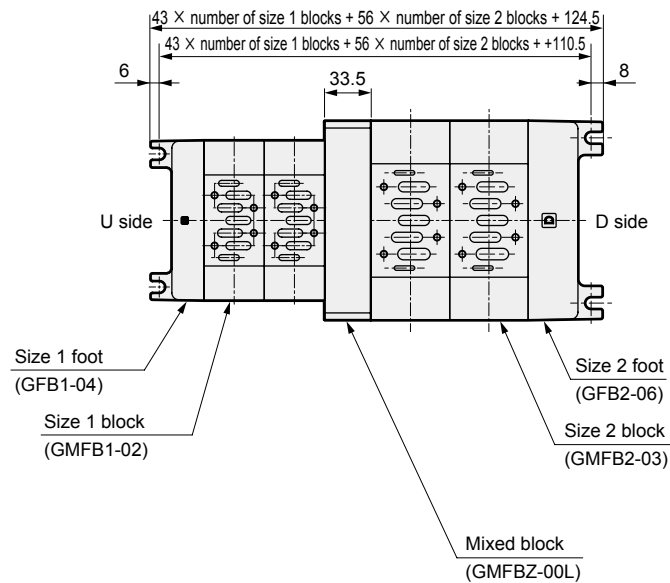
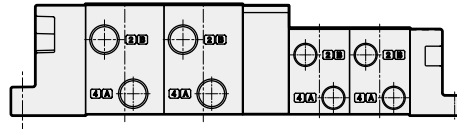
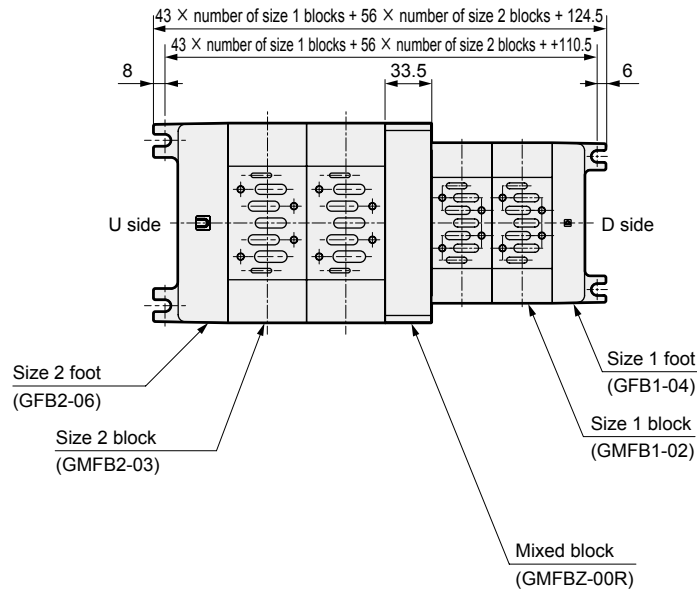
- \*1: Instructions of **C** will be port positions. Those other than the instructions will all be plugs.
- \*2: Instructions of **E** will be port positions. The opposite side of the instructions will be plugs.

The valve body must be prepared separately. For how to order valves, refer to pages 1467 and 1473. For arrangement of manifolds with valve bodies, **the manifold specifications sheet** on page 1492 **will be necessary** in addition to each model No.

No	Descriptions	Model No.	Fig.	Remarks
1	ISO sizes 1/2 mix block	GMFBZ-00L		U side size 1 D side size 2 For mixed block With bolts and gasket
		GMFBZ-00R		U side size 2 D side size 1 For mixed block With bolts and gasket




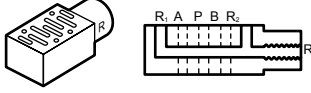
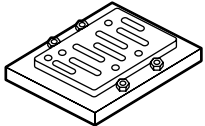
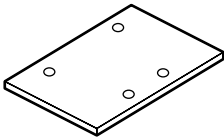

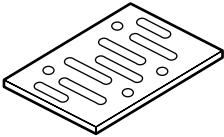
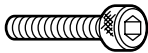
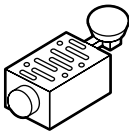
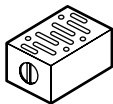
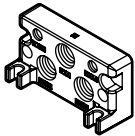
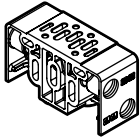
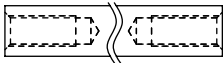
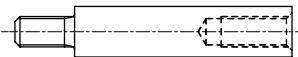
### Mix manifold outline drawing



\* The dimensions for the size 1/2 feet and the types of blocks are as listed on pages 1480 and 1484.

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
PV5G GMF
PV5 GMF
PV5S-0
3QR 3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# GMF1/2 Series

	Manifold option		Model No.		Remarks
	Optional descriptions		ISO size 1	ISO size 2	
4GA/B M4GA/B MN4GA/B 4GA/B (mastr) 4GD/E M4GD/E MN4GD/E 4GA4/B4 MN3E MN4E W4GA/B2 W4GB4	1. Independent air supply spacer 		CMF1-P-02 ( Rc1/4 ) 03 ( Rc3/8 )	CMF2-P-03 ( Rc3/8 ) 04 ( Rc1/2 )	1. For individual air supply port Clamp/used for differing pressures 2. For exhaust pressurization Individual exhaust
	2. Independent exhaust spacer 		CMF1-R-02 ( Rc1/4 ) 03 ( Rc3/8 )	CMF2-R-03 ( Rc3/8 ) 04 ( Rc1/2 )	1-port exhaust with individual exhaust (back pressure countermeasures)
	3. Adaptor 		CU1-00 (FS/FD2 Series, Rc1/4, 3/8) CU1-01 (FS/FD3 Series, Rc1/4, 3/8, 1/2 )	CU2-00 (FS/FD3 Series, Rc1/4, 3/8, 1/2 ) CU2-01 (FS/FD4 Series, Rc1/2, 3/4)	PV5-6R, PV5-8R are installed on conventional model type F <sup>S2</sup> <sub>D3</sub> (Custom order product).
4TB 4L2-4/ LMF0 MN3S0 MN4S0	4. Masking plate 		CM1-00	CM2-00	For PV5-6R For PV5-8R For discrete masking
4SA/B0 4KA/B	5. Flow path cutoff plate 		GM1-01	GM2-01	Manifold (GMF1/GMF2) P/R <sub>1</sub> /R <sub>2</sub> port For masking
4KA/B (mastr) 4F 4F (mastr) PV5G GMF PV5 GMF PV5S-0	6. Base gasket 		PV5G-6-BASE-GASKET  PV5-6-BASE-GASKET	PV5G-8-BASE-GASKET  PV5-8-BASE-GASKET	For PV5-6R For PV5-8R These cannot be used on the bottom surface of the spacers. For the bottom surface of spacers
	7. Mounting screw 		CMF1-M5X35	CMF2-M6X45	Set of 4
3QR 3QB MV3QR	8. Spacer regulator 		CMF1-SR-P-T05 CMF1-SR-A-T05C CMF1-SR-B-T05C Model No. selection page 1481	CMF2-SR-P-T05 CMF2-SR-A-T05C CMF2-SR-B-T05C Model No. selection page 1485	Use with different pressures
3MA/B0 3PA/B P/M/B	9. Air pilot check valve 		CMF1-PC	CMF2-PC	Retain custom position of cylinder
NP/NAP/ NVP 4F*0EX 4F*0E	10. Foot U side  D side		GFB1- <sup>03</sup> <sub>04</sub> U  GFB1- <sup>03</sup> <sub>04</sub> D	GFB2- <sup>04</sup> <sub>06</sub> U  GFB2- <sup>04</sup> <sub>06</sub> D	2 hexagon socket head cap screws, plugs, and a gasket on the U side foot are attached.
HMV HSV 2QV 3QV SKH	11. Manifold; block 		GMFB1- <sup>02</sup> <sub>03</sub> T  GMFB1- <sup>02</sup> <sub>03</sub> Z	GMFB2- <sup>03</sup> <sub>04</sub> T  GMFB2- <sup>03</sup> <sub>04</sub> Z	2 tie rods, plug and gasket are attached. 2 tie rods and gasket are attached.
PCD Silencer	12. Tie rod 		GMF1-TR-V*1 *1: 1 to 10 (station No.)	GMF2-TR-V*1 *1: 1 to 10 (station No.)	Tie rod length is from 1 station to 10 stations, shipped in sets of 2.
TotAirSys (Total Air) TotAirSys (Gamma) Ending	13. Tie rod for station expansion 		GMF1-TR-VZ	GMF2-TR-VZ	Use these when adding on to the set of 2 tie rods. Length can be added by 1 station.

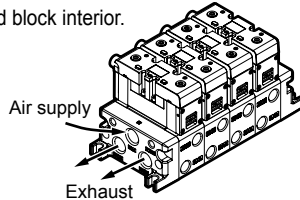
## Manifold

A wide variety of combinable supply, exhaust, and piping methods are available in the lineup. Select the ideal function for your application.

### 1 General use

#### ● Common exhaust method

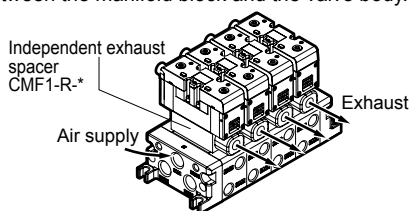
The most common method, in which solenoid valve supply and exhaust is centralized in one location through the use of P (supply) and R (exhaust) ports passing through the connected manifold block interior.



### 2 Applications for general use

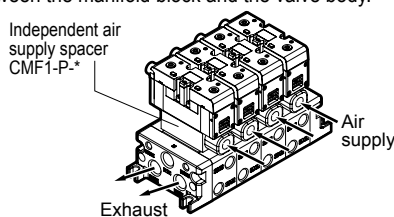
#### ● Individual exhaust method

As the R1/2 (exhaust) ports are independent for each solenoid valve, this prevents the popping out phenomenon of adjacent cylinders caused by back pressure. Exhaust is processed individually by inserting an independent exhaust spacer (CMF1-R-\*) between the manifold block and the valve body.



#### ● Individual supply method

As the P (air supply) port is independent for each valve, it is possible to supply a different pressure only to certain valves within the manifold. Air supply is processed individually by inserting an independent air supply spacer (CMF1-P-\*) between the manifold block and the valve body.



#### ● Individual supply/individual exhaust method

Use this method in order to allow individual configurations for the P (air supply) port and R (exhaust) port of certain valves within the manifold. Example: When the unit is being used with no lubrication but a certain valve alone must be lubricated

Air supply and exhaust are processed individually by inserting an independent air supply spacer (CMF1-P-\*) and an independent exhaust spacer (CMF1-R-\*) between the manifold block and the valve body.

#### ● Different pressure supply method

With this method of supplying both higher and lower pressure to a single manifold, a flow path cutoff plate (GM1-01) is inserted between the manifold blocks with different pressures.

### 3 General/special common descriptions

#### ● Rear piping method

When piping cannot be installed from the side, it is possible to install all or part of the piping of A/B ports from the bottom surface of the manifold.

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
<b>PV5G GMF</b>
<b>PV5 GMF</b>
PV5S-0
3QR 3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

## Manifold specifications sheet

### ISO size 1 I/O connector

Issued / /

Your company name \_\_\_\_\_

Contact \_\_\_\_\_

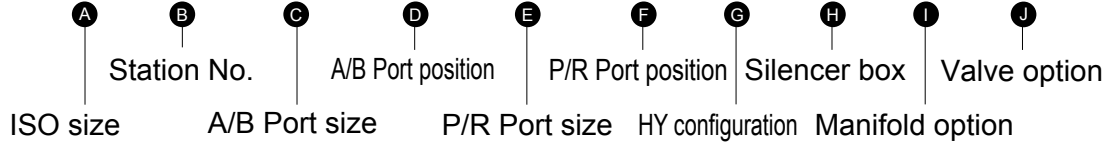
Order No. \_\_\_\_\_

● Contact      ● Quantity      Set ● Delivery date /

Slip No. \_\_\_\_\_ Order No. \_\_\_\_\_

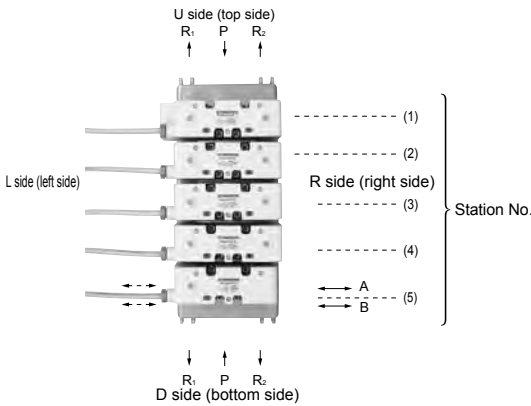
● Manifold model No.

# GMF 1 - - - - - TC



A ISO size	B Station No.	C A/B Port size	D A/B Port position	E P/R Port size	F P/R Port position	G HY configuration	H Silencer box	I Manifold option
1 PV5-6R	1 1 station	02 Rc <sup>1</sup> / <sub>4</sub>	Blank Right	03 Rc <sup>3</sup> / <sub>8</sub>	B Top/bottom sides	Blank When other than HY is selected with (E)	Blank None	Blank None
	to to	03 Rc <sup>3</sup> / <sub>8</sub>	L Left/right sides	04 Rc <sup>1</sup> / <sub>2</sub>	D Bottom side	DU Rc <sup>3</sup> / <sub>8</sub> on bottom, Rc <sup>1</sup> / <sub>2</sub> on top	SB Yes (D installation)	F P/A/B port filter equipped
	10 10 stations	HX1 Rc <sup>1</sup> / <sub>4</sub> / Rc <sup>3</sup> / <sub>8</sub> mixture	H Left	HY1 Rc <sup>3</sup> / <sub>8</sub> / Rc <sup>1</sup> / <sub>2</sub> mixture	U Top side	UD Rc <sup>3</sup> / <sub>8</sub> on top, Rc <sup>1</sup> / <sub>2</sub> on bottom		
			Z Rear side		E P: top/R: bottom			
			T Plug attached		F P: bottom/R: top			
					T Plug attached			

J Valve option
Blank None
A Coolant proof



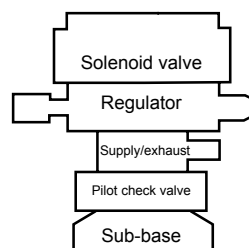
Note: Item (I) is when the manifold is assembled and the mounted valve option has been selected.

⚠ Only available with rated voltage of 24 VDC and with surge suppressor and lamp.

★ When placing an order, list the solenoid valve model No. (1) to (6), (9) from the figure at left in the following field for the solenoid valve model No. When selecting options, mark the corresponding field for the option below with a circle.

Station No	1	2	3	4	5	6	7	8	9	10	
Solenoid valve model No.	PV5-6R										
When L has been selected with (D), designate the plug position	R										
Option	Air supply spacer										
	Exhaust spacer										
	Pilot check valve										
	Spacer regulator	CMF*-SR-P									
		CMF*-SR-A									
CMF*-SR-B											
Flow path cutoff plate	Air supply path cutoff plate										
	Exhaust path cutoff plate										
When (C) is HX, specify the mixed configuration of the bore size.	02										
	03										

Solenoid valve model No.	
2-position single	PV5-6R-FG-S-TC (1)
2-position double	PV5-6R-FG-D-TC (2)
3-position all ports closed	PV5-6R-FHG-D-TC (3)
3-position A-B-R connection	PV5-6R-FJG-D-TC (4)
3-position P-A-B connection	PV5-6R-FIG-D-TC (5)
3-position all ports closed non-leaking	PV5-6R-FPG-D-TC (6)
Masking plate	CM1-00 (9)



Order of assembly of options (spacers)

Note) The order from the sub-base to the solenoid valve is basically as shown in the figure at left. For spacers not in use, simply remove them and stack the rest as shown in the figure.

# Manifold specifications sheet

## ISO size 2 I/O connector

Issued / /

Your company name

Contact

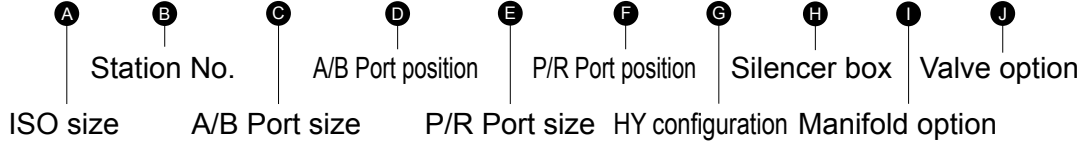
Order No.

● Contact      ● Quantity      Set ● Delivery date /

Slip No.      Order No.

● Manifold model No.

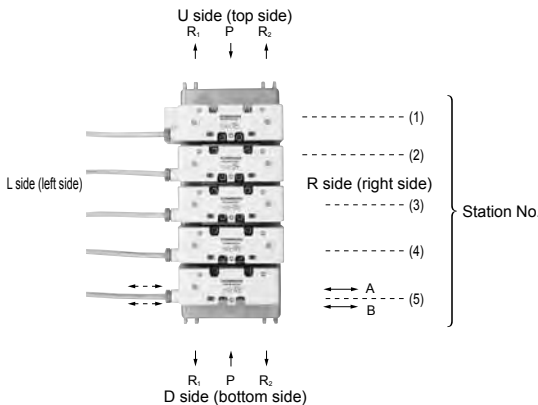
**GMF 2** - - - - - **-TC**



A ISO size	B Station No.	C A/B Port size	D A/B Port position	E P/R Port size	F P/R Port position	G HY configuration	H Silencer box	I Manifold option
2 PV5-8R	1 1 station	03 Rc <sup>3</sup> / <sub>8</sub>	Blank Right	04 Rc <sup>1</sup> / <sub>2</sub>	B Top/bottom sides	Blank When other than HY is selected with ⑥	Blank None	Blank None
to to	to to	04 Rc <sup>1</sup> / <sub>2</sub>	L Left/right sides	06 Rc <sup>3</sup> / <sub>4</sub>	D Bottom side	DU Rc <sup>1</sup> / <sub>2</sub> on bottom, Rc <sup>3</sup> / <sub>4</sub> on top	SB Yes (D installation)	F P/A/B port filter equipped
10 10 stations	HX2 Rc <sup>3</sup> / <sub>8</sub> / Rc <sup>1</sup> / <sub>2</sub> mixture	H Left	Z Rear side	HY2 Rc <sup>1</sup> / <sub>2</sub> / Rc <sup>3</sup> / <sub>4</sub> mixture	U Top side	UD Rc <sup>1</sup> / <sub>2</sub> on top, Rc <sup>3</sup> / <sub>4</sub> on bottom		
			T Plug attached		E P: top/R: bottom			
					F P: bottom/R: top			
					T Plug attached			

Valve option
Blank None
A Coolant proof

Note: Item ① is when the manifold is assembled and the mounted valve option has been selected.

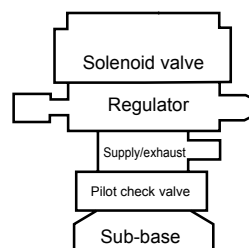


⚠ Only available with rated voltage of 24 VDC and with surge suppressor and lamp.

★ When placing an order, list the solenoid valve model No. (1) to (6), (9) from the figure at left in the following field for the solenoid valve model No. When selecting options, mark the corresponding field for the option below with a circle.

Station No	1	2	3	4	5	6	7	8	9	10
Solenoid valve model No.	PV5-8R									
When L has been selected with ①, designate the plug position	R									
	L									
Option	Air supply spacer									
	Exhaust spacer									
	Pilot check valve									
	Spacer regulator	CMF*-SR-P								
CMF*-SR-A										
CMF*-SR-B										
Flow path cutoff plate	Air supply path cutoff plate									
	Exhaust path cutoff plate									
When ③ is HX, specify the mixed configuration of the bore size.	03									
	04									

Solenoid valve model No.		
2-position single		PV5-8R-FG-S-TC (1)
2-position double		PV5-8R-FG-D-TC (2)
3-position all ports closed		PV5-8R-FHG-D-TC (3)
3-position A-B-R connection		PV5-8R-FJG-D-TC (4)
3-position P-A-B connection		PV5-8R-FIG-D-TC (5)
3-position all ports closed non-leaking		PV5-8R-FPG-D-TC (6)
Masking plate	CM2-00	(9)



Order of assembly of options (spacers)

Note) The order from the sub-base to the solenoid valve is basically as shown in the figure at left. For spacers not in use, simply remove them and stack the rest as shown in the figure.

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
4TB
4L2-4/LMF0
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
PV5G GMF
PV5 GMF
PV5S-0
3QR
3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

## Manifold specifications sheet

### ISO size 1/2 mixture I/O connector

Issued / /

\_\_\_\_\_  
Your company name

\_\_\_\_\_  
Contact

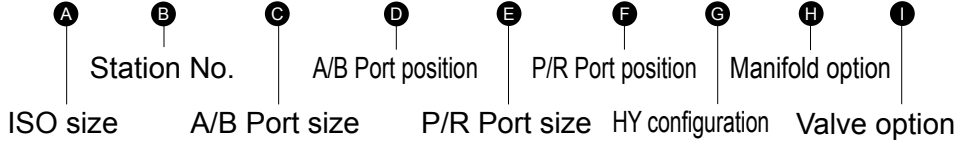
\_\_\_\_\_  
Order No.

● Contact      ● Quantity      Set      ● Delivery date /

Slip No.      Order No.

● Manifold model No.

# GMF Z - - - - - TC

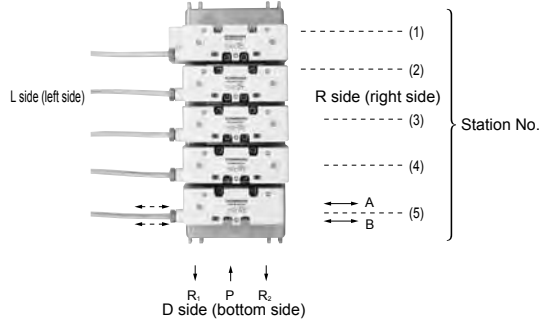


A ISO size	B Station No.	C A/B Port size	D A/B Port position	E P/R Port size	F P/R Port position	G HY configuration	H Manifold option	I Valve option
Z : Mixture of size 1 and 2	1 : 1 station to : to 10 : 10 stations	HX3 : 1:02/2:03 HX4 : 1:02/2:04 HX5 : 1:03/2:03 HX6 : 1:03/2:04	Blank : Right L : Left/right sides H : Left Z : Rear side T : Plug attached	HY3 : 1:03/2:04 HY4 : 1:03/2:06 HY5 : 1:04/2:04 HY6 : 1:04/2:06	B : Top/bottom sides D : Bottom side U : Top side E : P: top/R: bottom F : P: bottom/R: top T : Plug attached	DU : Size 1 on bottom and size 2 on top UD : Size 1 on top and size 2 on bottom	Blank : None F : P/A/B port filter equipped	Blank : None A : Coolant proof

Note: Item ① is when the manifold is assembled and the mounted valve option has been selected.



⚠ Only available with rated voltage of 24 VDC and with surge suppressor and lamp.



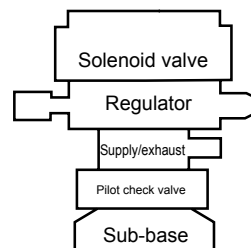
★ When placing an order, list the solenoid valve model No. (1) to (6), (9) from the figure at left in the following field for the solenoid valve model No. When selecting options, mark the corresponding field for the option below with a circle.

Station No	1	2	3	4	5	6	7	8	9	10	
Solenoid valve model No.	PV5-6R										
	PV5-8R										
When L has been selected with ①, designate the plug position	R										
	L										
Option	Air supply spacer										
	Exhaust spacer										
	Pilot check valve										
	Spacer regulator	CMF*-SR-P									
		CMF*-SR-A									
CMF*-SR-B											
Flow path cutoff plate	Air supply path cutoff plate										
	Exhaust path cutoff plate										
When ③ is HX, specify the mixed configuration of the bore size.	02										
	03										
	04										

	Solenoid valve model No.	
2-position single	PV5-*R-FG-S-TC	(1)
2-position double	PV5-*R-FG-D-TC	(2)
3-position all ports closed	PV5-*R-FHG-D-TC	(3)
3-position A-B-R connection	PV5-*R-FJG-D-TC	(4)
3-position P-A-B connection	PV5-*R-FIG-D-TC	(5)
3-position all ports closed non-leaking	PV5-*R-FPG-D-TC	(6)
Masking plate	CM*-00	(9)

Note) The \* marking for solenoid valve is either "6" or "8". With the masking plate and options, this will be either "1" or "2".

Order of assembly of options (spacers)

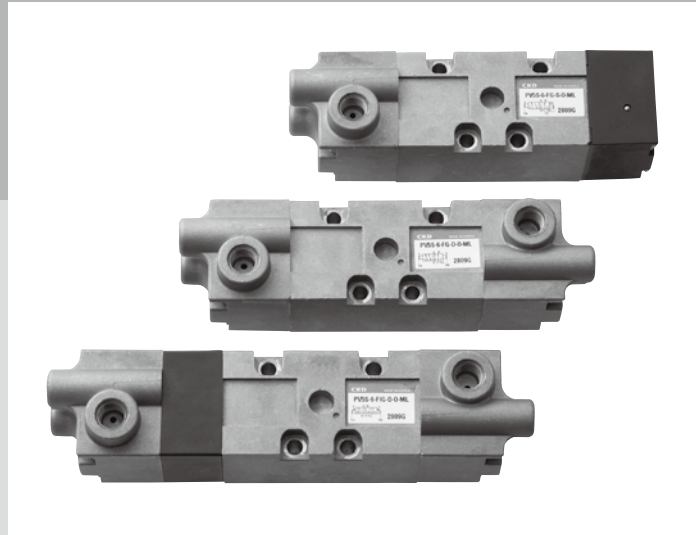


Note) The order from the sub-base to the solenoid valve is basically as shown in the figure at left. For spacers not in use, simply remove them and stack the rest as shown in the figure.

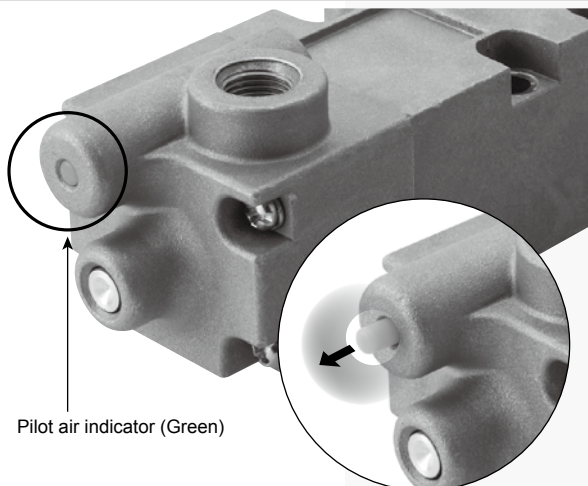
# PV5S-0

## ISO compliant master valve

Pilot operated 5-port valve



**No need to install an indicator**  
**Easy to check the operation of the valve**



Pilot air indicator (Green)

\* Indicator protrudes when pilot air is supplied.

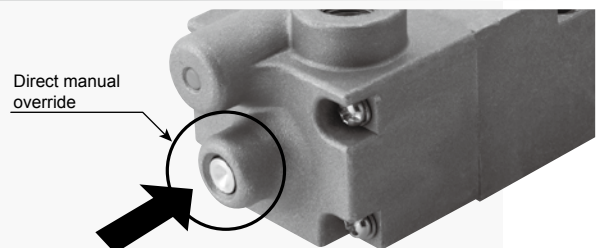
### Easily visible

The operating status can be clearly seen from both top and side.

### Reduced installation steps

As it is equipped with an air indicator, there is no need to install one.

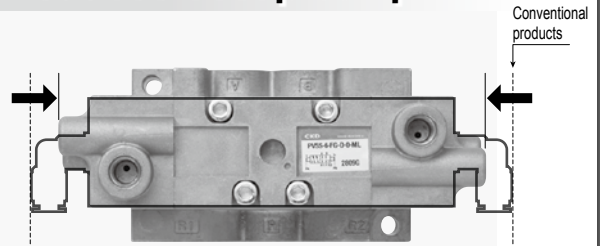
**Direct operation without air**



Direct manual override

Switching is possible by pressing the spool even with no pilot air supplied.

**Reduces occupied space**



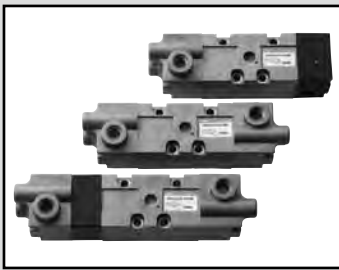
Occupied space reduced by 16% compared with conventional model (PV5-6 Double)

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
PV5G
GMF
PV5
GMF
<b>PV5S-0</b>
3QR
3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

ISO compliant master valve

# PV5S-0 Series

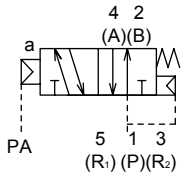
- Cylinder bore size: max.  $\phi 100$  (PV5S-6-0)  
max.  $\phi 160$  (PV5S-8-0)



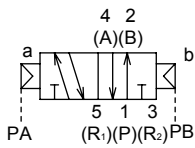
- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (mastr)
- 4GD/E
- M4GD/E
- MN4GD/E
- 4GA4/B4
- MN3E
- MN4E
- W4GA/B2
- W4GB4
- 4TB
- 4L2-4/LMF0
- MN3S0
- MN4S0
- 4SA/B0
- 4KA/B
- 4KA/B (mastr)
- 4F
- 4F (mastr)
- PV5G
- GMF
- PV5
- GMF
- PV5S-0**
- 3QR
- 3QB
- MV3QR
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP/NVP
- 4F\*0EX
- 4F\*0E
- HMV
- HSV
- 2QV
- 3QV
- SKH
- PCD
- Silencer
- TotAirSys (Total Air)
- TotAirSys (Gamma)
- Ending

## JIS symbol

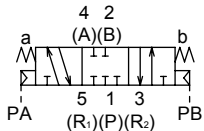
- 5-port valve
- 2-position single (FG-S)



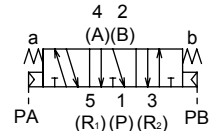
- 2-position double (FG-D)



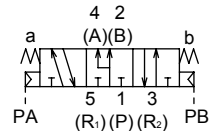
- 3-position all ports closed (FHG)



- 3-position A/B/R connection (FJG)



- 3-position P/A/B connection (FIG)



## Specifications

Descriptions	Content
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)
Min. working pressure MPa	Refer to main pressure section in the table below
Proof pressure MPa	1.50 ( $\approx 220$ psi, 15 bar)
Ambient temperature $^{\circ}\text{C}$	-5 ( $23^{\circ}\text{F}$ ) to 60 ( $140^{\circ}\text{F}$ ) (no freezing)
Fluid temperature $^{\circ}\text{C}$	5 ( $41^{\circ}\text{F}$ ) to 60 ( $140^{\circ}\text{F}$ )
Lubrication	Not required
Vibration resistance $\text{m/s}^2$	50 or less
Shock resistance $\text{m/s}^2$	300 or less
Atmosphere	Cannot be used in corrosive gas environment.

## Individual specifications

1 MPa  $\approx$  145.0 psi, 1 MPa = 10 bar

Model No.	Solenoid position	Pilot port PA/PB	Main pressure [MPa]	Pilot pressure [MPa]
PV5S-6	2-position single	Rc1/8	0.15 to 1.0 to 1.0 ( $\approx 150$ psi, 10 bar)	(0.6 $\times$ main pressure + 0.06) to 1.0
	2-position double			0.15 to 1.0
	3-position all ports closed			0.25 to 1.0
	3-position A/B/R connection			
	3-position P/A/B connection			
PV5S-8	2-position single	Rc1/8	0.15 to 1.0 to 1.0 ( $\approx 150$ psi, 10 bar)	(0.6 $\times$ main pressure + 0.06) to 1.0
	2-position double			0.15 to 1.0
	3-position all ports closed			0.25 to 1.0
	3-position A/B/R connection			
	3-position P/A/B connection			

## Weight

Model No.	Solenoid position	Weight [kg]
PV5S-6	2-position single	0.31
	2-position double	0.36
	3-position	0.39
PV5S-8	2-position single	0.48
	2-position double	0.52
	3-position	0.56

\*1: The weight listed is the weight without the sub-plate and option code ML.

## Flow characteristics

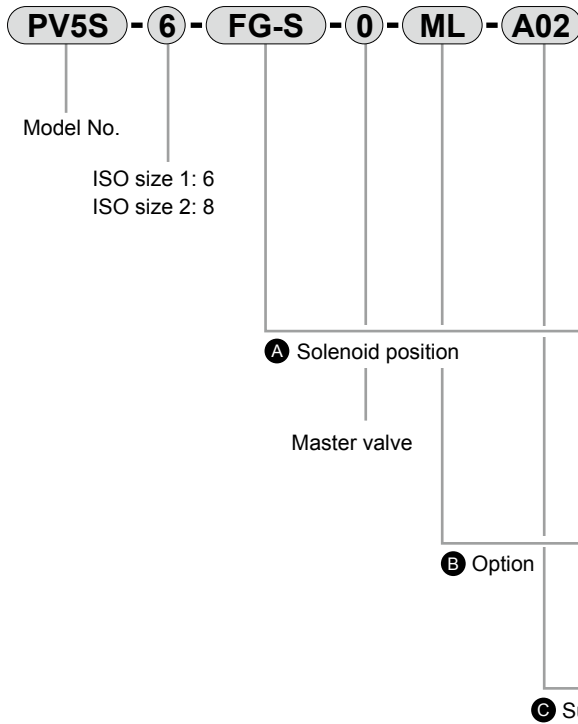
C[dm<sup>3</sup>/(s·bar)]

Model No.	Solenoid position	P $\Rightarrow$ A/B	A/B $\Rightarrow$ R
PV5S-6	2-position single	4 or more	4 or more
	2-position double		
	3-position all ports closed		
	3-position A/B/R connection		
	3-position P/A/B connection		
PV5S-8	2-position single	9 or more	9 or more
	2-position double		
	3-position all ports closed		
	3-position A/B/R connection		
	3-position P/A/B connection		

\*2: Effective cross-sectional area S and sonic conductance C are converted as  $S \approx 5.0 \times C$ .



### How to order



Code	Content	Model No.	
		PV5S-6	PV5S-8
<b>A Solenoid position</b>			
<b>FG-S</b>	2-position single	●	●
<b>FG-D</b>	2-position double	●	●
<b>FHG-D</b>	3-position all ports closed	●	●
<b>FJG-D</b>	3-position ABR connection	●	●
<b>FIG-D</b>	3-position PAB connection	●	●
<b>B Option</b>			
<b>M</b>	With direct manual override	●	●
<b>ML</b>	With direct manual override, with pilot air indicator	●	●
<b>C Sub-plate</b>			
<b>Blank</b>	Without sub-plate	●	●
<b>A02</b>	Side piping Rc1/4 (Rc3/8 for R port only)	●	
<b>A03</b>	Side piping Rc3/8 (with PV5S-8, Rc1/2 for R port only)	●	●
<b>A04</b>	Side piping (Rc1/2)		●
<b>A06</b>	Side piping (Rc3/4)		●

### ISO size 1 sub-plate specifications and how to order

**CB1 - A02**

**A** Piping connection method

Code	Type	P/A/B port	R1/R2 port	Weight (kg)
<b>A Piping connection method</b>				
<b>A02</b>	Side piping	Rc1/4	Rc 3/8	0.27
<b>A03</b>		Rc3/8		

### ISO size 2 sub-plate specifications and how to order

**CB2 - A03**

**A** Piping connection method

Code	Type	P/A/B port	R1/R2 port	Weight (kg)
<b>A Piping connection method</b>				
<b>A03</b>	Side piping	Rc3/8	Rc1/2	0.49
<b>A04</b>		Rc1/2		
<b>A06</b>		Rc3/4	Rc3/4	1.40

These master valves (PV5S-0 series) are not available for shipment with manifold.  
When using with a manifold, separately purchase the GMF series.  
Refer to pages 1450 to 1461 for details on the GMF series.

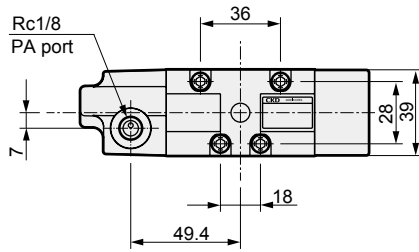
4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
PV5G GMF
PV5 GMF
<b>PV5S-0</b>
3QR 3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# PV5S-6-0 Series

Dimensions: ISO size 1 (without sub-plate)

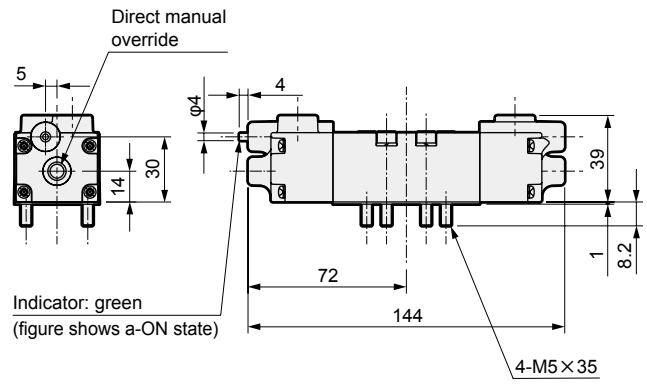
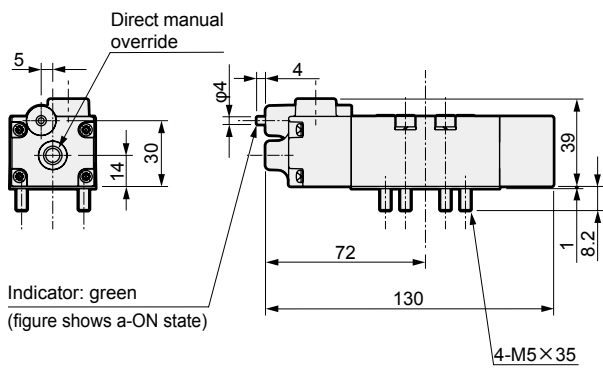
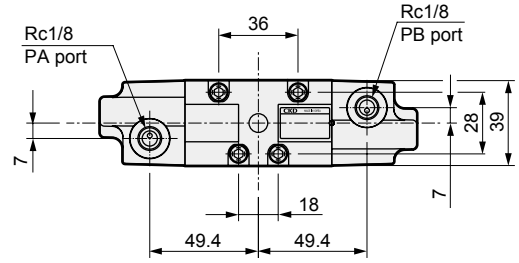
## PV5S-6-FG-S-0-\*

● 2-position single



## PV5S-6-FG-D-0-\*

● 2-position double

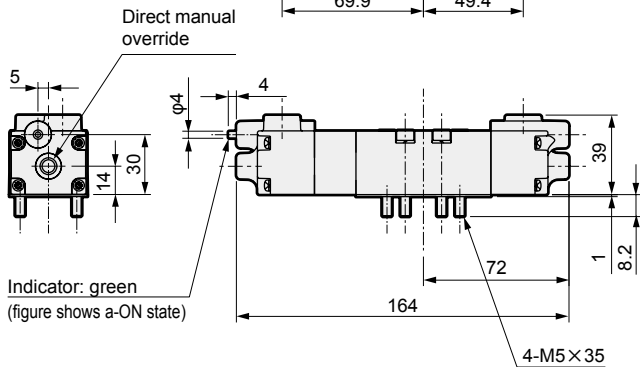
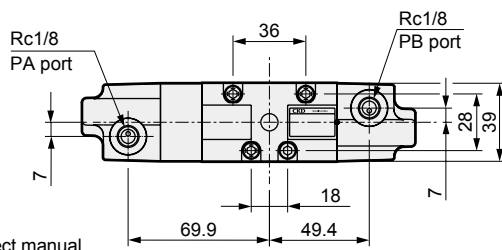


## PV5S-6-FHG-D-0-\*

## PV5S-6-FJG-D-0-\*

## PV5S-6-FIG-D-0-\*

● 3-position

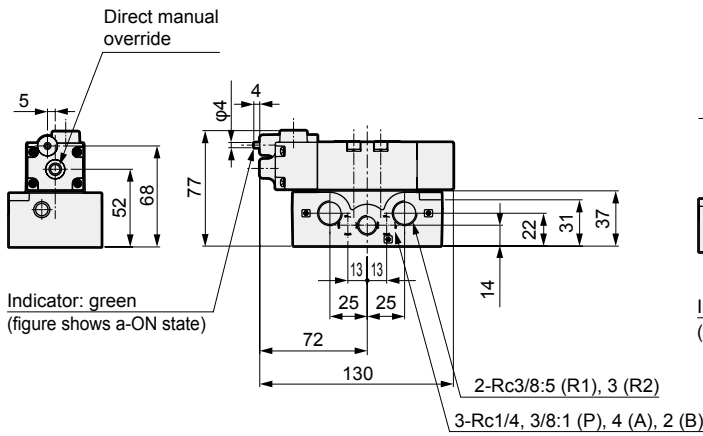
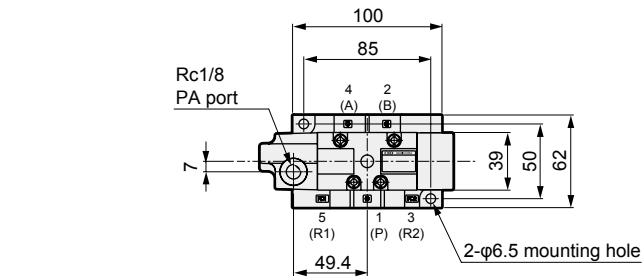


- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (mastr)
- 4GD/E
- M4GD/E
- MN4GD/E
- 4GA4/B4
- MN3E
- MN4E
- W4GA/B2
- W4GB4
- 4TB
- 4L2-4/LMF0
- MN3S0
- MN4S0
- 4SA/B0
- 4KA/B
- 4KA/B (mastr)
- 4F
- 4F (mastr)
- PV5G GMF
- PV5 GMF
- PV5S-0
- 3QR
- 3QB
- MV3QR
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP/NVP
- 4F\*0EX
- 4F\*0E
- HMV
- HSV
- 2QV
- 3QV
- SKH
- PCD
- Silencer
- TotAirSys (Total Air)
- TotAirSys (Gamma)
- Ending

Dimensions: ISO size 1 (with sub-plate)

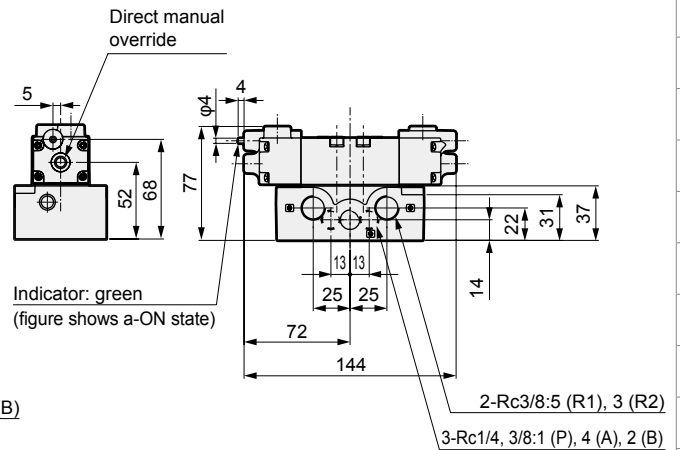
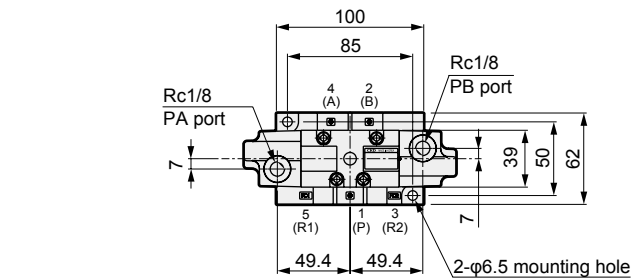
### PV5S-6-FG-S-0\*-A0\*

● 2-position single



### PV5S-6-FG-D-0\*-A0\*

● 2-position double

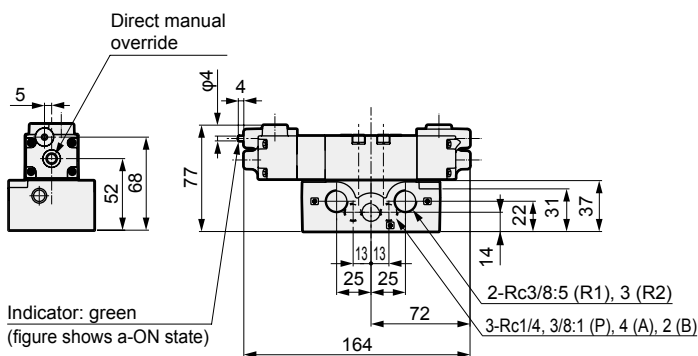
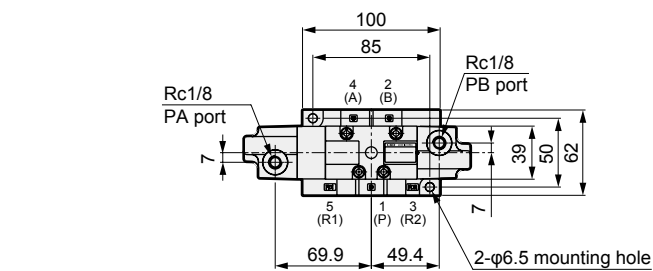


### PV5S-6-FHG-D-0\*-A0\*

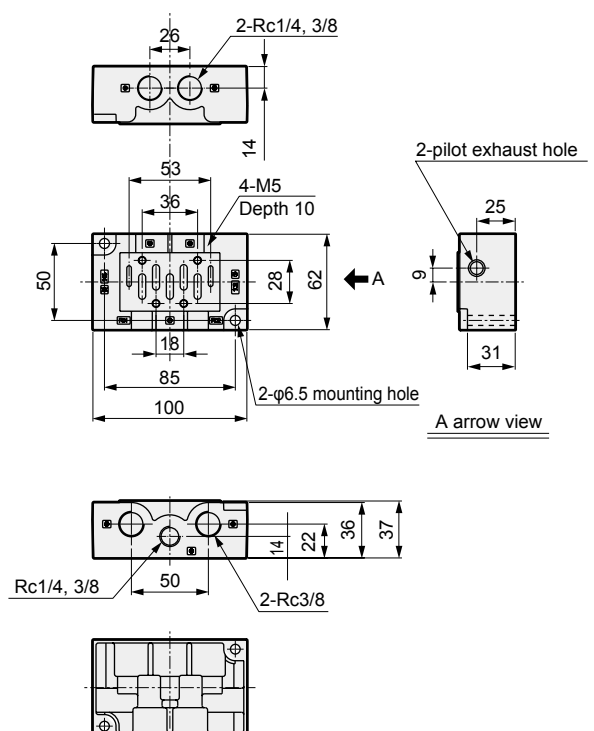
### PV5S-6-FJG-D-0\*-A0\*

### PV5S-6-FIG-D-0\*-A0\*

● 3-position



● Sub-plate dimensions



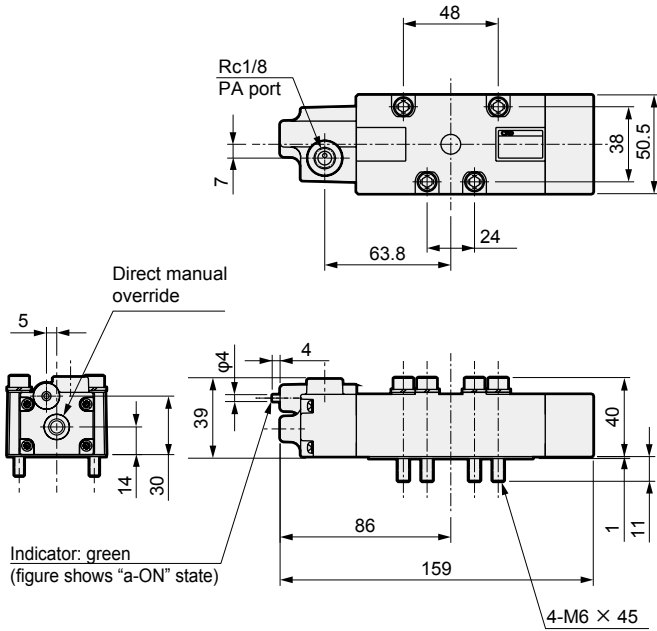
4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
PV5G
GMF
PV5
GMF
PV5S-0
3QR
3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# PV5S-8-0 Series

Dimensions: ISO size 2 (without sub-plate)

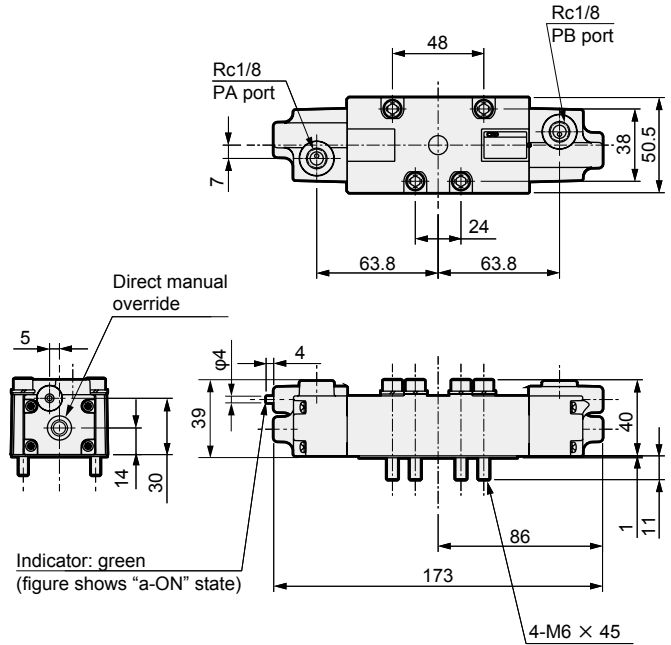
## PV5S-8-FG-S-0-\*

● 2-position single



## PV5S-8-FG-D-0-\*

● 2-position double

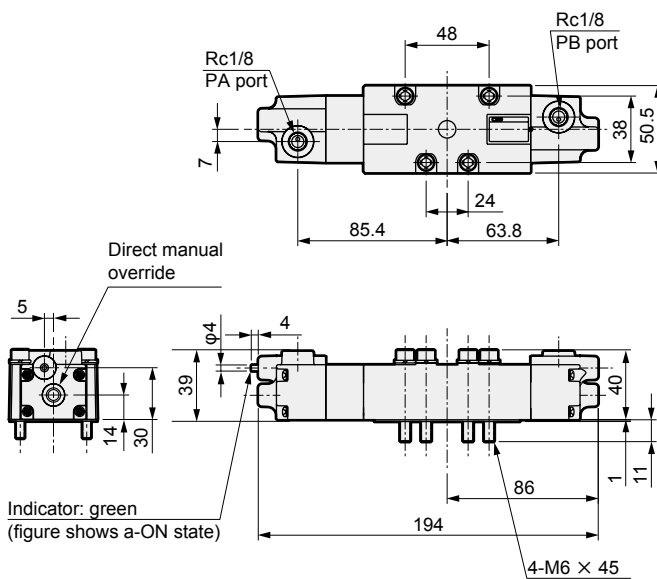


## PV5S-8-FHG-D-0-\*

## PV5S-8-FJG-D-0-\*

## PV5S-8-FIG-D-0-\*

● 3-position

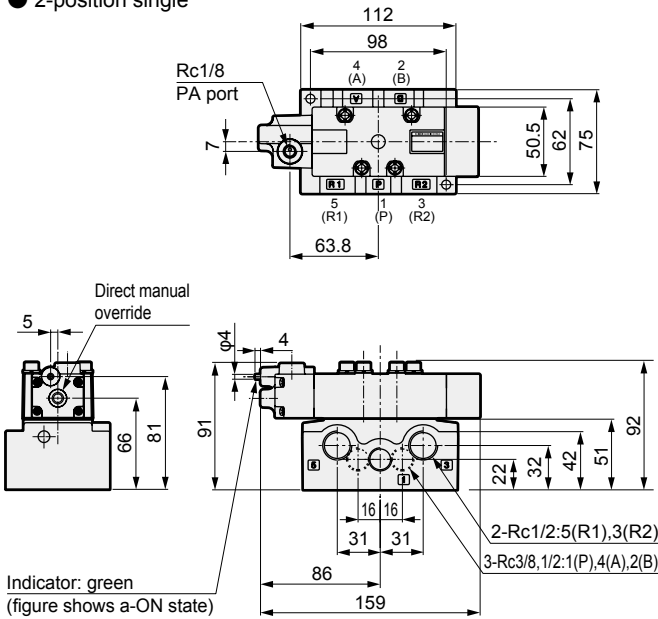


- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (mastr)
- 4GD/E
- M4GD/E
- MN4GD/E
- 4GA4/B4
- MN3E
- MN4E
- W4GA/B2
- W4GB4
- 4TB
- 4L2-4/LMF0
- MN3S0
- MN4S0
- 4SA/B0
- 4KA/B
- 4KA/B (mastr)
- 4F
- 4F (mastr)
- PV5G
- GMF
- PV5
- GMF
- PV5S-0**
- 3QR
- 3QB
- MV3QR
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP/NVP
- 4F\*0EX
- 4F\*0E
- HMV
- HSV
- 2QV
- 3QV
- SKH
- PCD
- Silencer
- TotAirSys (Total Air)
- TotAirSys (Gamma)
- Ending

Dimensions: ISO size 2 (with sub-plate)

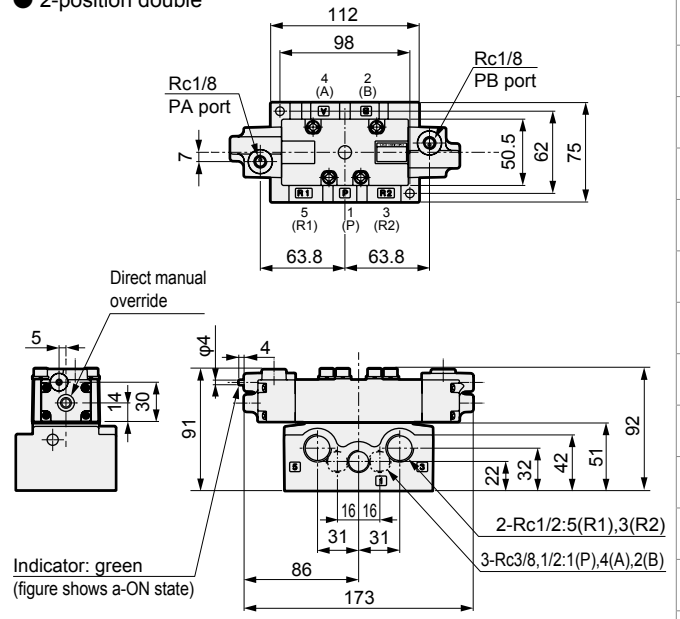
### PV5S-8-FG-S-0\*-A0\*

● 2-position single



### PV5S-8-FG-D-0\*-A0\*

● 2-position double

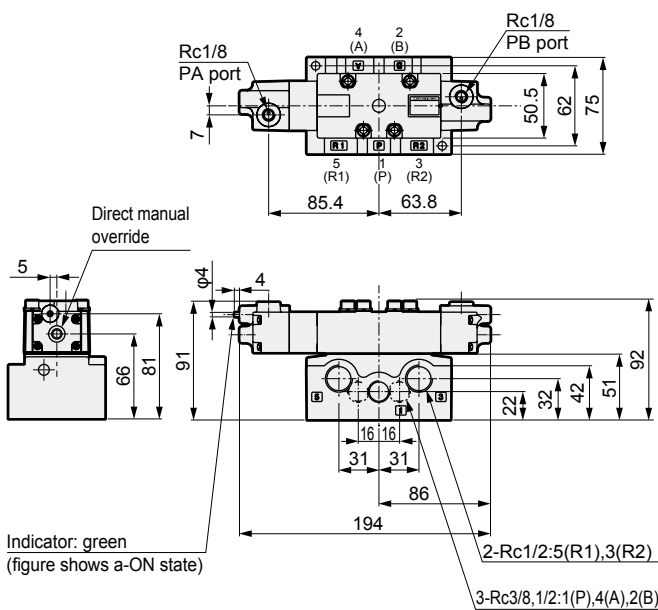


### PV5S-8-FHG-D-0\*-A0\*

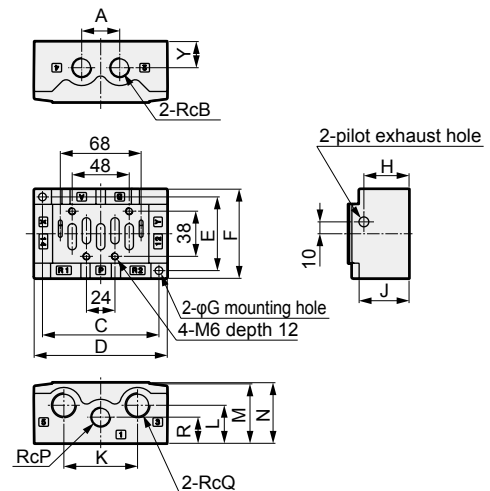
### PV5S-8-FJG-D-0\*-A0\*

### PV5S-8-FIG-D-0\*-A0\*

● 3-position



● Sub-plate dimensions



Model No.	CB2-A03	CB2-A04	CB2-A06
A		32	40
B	3/8	1/2	3/4
C		98	128
D		112	142
E		62	72
F		75	86
G		6.5	7.5
H		38	53
J		42	55
K		62	84
L		32	42
M		50	62
N		51	63
P	3/8	1/2	3/4
Q		1/2	3/4
R		22	30

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMFO
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
PV5G GMF
PV5 GMF
PV5S-0
3QR 3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending



# Safety Precautions

Be sure to read this section before use.

Refer to Intro Page 59 for general precautions for using valves.

Product-specific cautions: Pilot operated 5-port valve PV5G/PV5/GMF/PV5S-0 Series

## Design/selection

### 1. Safety design

#### ⚠ WARNING

- Use the product in the range of conditions specified for the product.

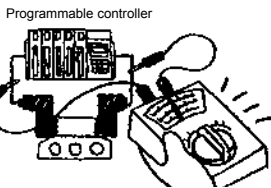
The product in this catalog is designed for use only in a compressed air system. Use with pressure or temperature exceeding the specifications range may result in damage or operation faults. (Refer to specifications)  
Contact CKD when using fluids other than compressed air.

- When using a 3-position all ports closed valve with a custom stroke, the properties of compressed air make it impossible to brake at an accurate position. In addition, as valves and cylinders, etc., are designed to allow air leakage, pressure retention applications may cause the stop position to change or cause a pressure drop.

- Take measures to prevent physical harm or property damage in the event of failure of this product.

#### ⚠ CAUTION

- Check for leakage current to avoid malfunction caused by leakage current from other fluid control components. When using a programmable controller, leakage current may affect the solenoid valve and cause malfunction. Note that the values that are affected by leakage current depend on the solenoid valve.



Programmable controller

Using 100 VAC	3.0 mA or less
Using 12 VDC	1.5 mA or less
Using 24 VDC	1.8 mA or less

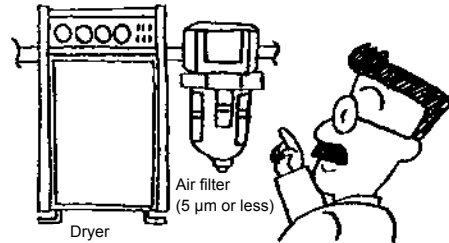
### 2. Common

#### ⚠ WARNING

- Do not narrow the exhaust port of the manifold valves.  
Other cylinders may be subject to unintended operation due to back pressure generated from the exhaust of the switching valve. In this case, individually install a manifold two-sided exhaust or a single exhaust spacer equipped with the valve causing the situation.

#### ⚠ CAUTION

- Make sure that the instantaneous energizing/manual override of the double solenoid 2 position valve is 0.1 seconds or more.  
However, as the cylinder may malfunction due to secondary side load conditions, it is recommended that energizing/manual override is performed until the cylinder reaches the stroke end position.
- Use dry compressed air that does not cause moisture inside the piping.



- Moisture will occur if the temperature drops in the pneumatic piping or pneumatic components.
- Operation faults could occur if moisture enters the air flow path of pneumatic components and temporarily blocks passage.
- Moisture could cause rust, making the pneumatic components fail.
- The drain will flush the lubricant oil and cause a lubrication defect.

## Design/selection

### 3. Surge suppressor

#### CAUTION

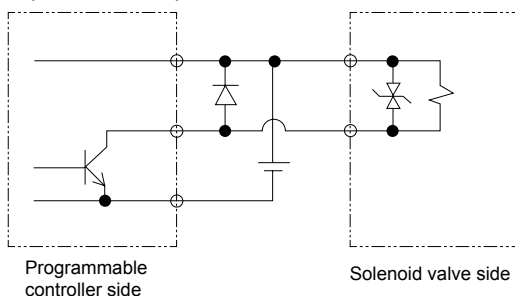
■ The surge suppressor attached with the solenoid valve is intended to protect the output contacts for the solenoid valve drive. There is no significant protection for the other peripheral devices, and devices could be damaged or could malfunction due to a surge. As well, surges generated by other devices may be absorbed and cause damage such as burning. Note the following points.

- The surge suppressor functions to limit a voltage surge in the solenoid valve, which can reach several hundred volts, to a low voltage level that the output contact can withstand. Depending on the output circuit used, this may be insufficient and could result in damage or malfunction. Check whether the surge suppressor can be used within the surge voltage limit of the solenoid valve in use, the output device's withstand pressure and circuit structure, and by the degree of return delay time. When necessary, provide other surge countermeasures. The solenoid valve with surge suppressor can suppress the inverse voltage surge that may occur when the solenoid valve is OFF to the level in the table below.

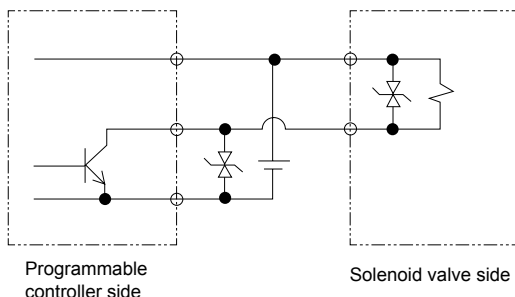
Specification voltage	Inverse voltage when OFF
12 VDC	Approx. 27 V
24 VDC	Approx. 47 V

- If the output unit is an NPN, a surge voltage equaling the voltage shown in the table above plus the power supply voltage may be applied to the output transistor. Make sure to implement a contact protection circuit to avoid the risk.

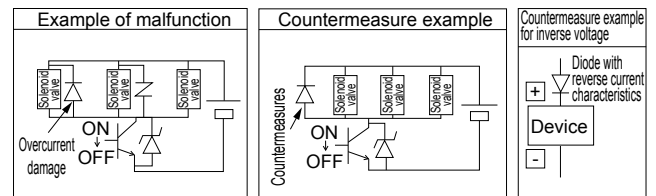
[Output transistor protection circuit: Installation example 1]



[Output transistor protection circuit: Installation example 2]



- "When solenoid valves are connected in parallel with other components or solenoid valves, inverse voltage is applied to these components and/or solenoid valves when the solenoid valve is turned OFF. Even in the case of a solenoid valve with 24 VDC surge suppressor, a surge voltage may reach negative tens of volts for some models. This inverse voltage may cause damage or malfunction to other components connected in parallel. Avoid parallel connection of devices susceptible to inverse polarity voltages, e.g., LED indicators. When driving several solenoid valves in parallel, the surge from other solenoid valves may enter the surge suppressor of one solenoid valve, and it may burn depending on the current value. When driving several solenoid valves with surge suppressors in parallel, surge current could concentrate at the surge suppressor with the lowest limit voltage and cause similar burning. Due to the variations in surge suppressor limit voltage that exist even among solenoid valves of the same model No., in the worst case the surge suppressor may burn out. Avoid driving multiple solenoid valves in parallel.



- The surge suppressor incorporated in the solenoid valve will often be short-circuited if it is damaged by overvoltage or overcurrent from other solenoid valves. Where there is a failed surge suppressor, if a large current flows when the output is ON, in the worst case scenario, the output circuit or solenoid valve could be damaged or ignited. Do not continue energizing in a state of failure. Additionally, to prevent large currents from continuing to flow, connect an overcurrent protection circuit to the power supply and drive circuit, or use a power supply with overcurrent protection.

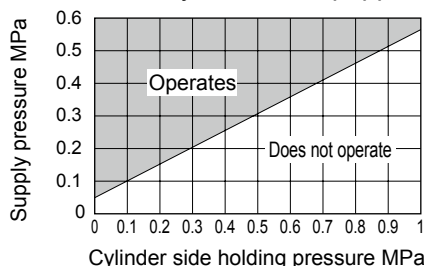
4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
PV5G GMF
PV5 GMF
PV5S-0
3QR 3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

## Mounting, installation and adjustment

### 1. Common

#### ⚠ CAUTION

- When using a pilot check valve (PV5G\*-FPG-D, CMF\*-PC), as the cylinder is retained by this pilot check valve, be aware that when the pressure to be supplied next is too low, the unit may not operate due to the pressure balance between the primary side and the secondary side of the poppet valve.



- When back pressure is applied to the exhaust ports R1/R2 while using a pilot check valve, as the cylinder may drop or the midway stopping accuracy may decrease, use as a combination with an independent exhaust spacer (CMF\*-R) to prevent the back pressure from being applied as much as possible.

- When transporting the solenoid valves, do not hold by the cables. There is a risk of disconnection.

- Be sure to shut off the power supply externally before installation and wiring. Failure to do so may result in electric shock or damage.

- Check the rated voltage and terminal layout for correct wiring. If the connected power supply is not the rated voltage or wiring is wrong, fire or damage may occur.

- Use the specified torque to tighten the waterproof connector and terminal screw. If tightening is done haphazardly, fire or malfunction may occur.

- Do not use submerged in water.

- Use appropriate torque to tighten the pipes when connecting them.

The purpose is to prevent air leakage and damage to bolts.

First tighten the bolts by hand to ensure that the threads are not damaged, then use a tool.



### [Reference value]

Port thread	Tightening torque N·m
Rc1/8	3 to 5
Rc1/4	6 to 8
Rc3/8	13 to 15
Rc1/2	16 to 18
Rc3/4	19 to 40

### 2. DIN terminal box

#### ⚠ CAUTION

- Use a JIS C3312 (600 V vinyl insulated vinyl cable) 2, 3, or 4-conductor (O.D.:  $\phi 8.5$  to  $11.5$ ) cable with a conductor sectional area of  $0.75 \text{ mm}^2$  or  $1.25 \text{ mm}^2$ .

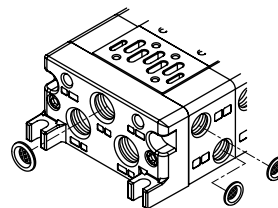
- In order to prevent defective contact and detachment, use a crimping terminal at the tip of the cable. (Example: Use items within 1.25Y-3U, 1.25-3.5S, 1.25-4M, inner diameter M3.5 outer diameter 7 mm.)

- Incorrect connections of terminals may cause the unit to malfunction. Refer to page 1436 for the correct connections.

### 3. Port filter

#### ⚠ CAUTION

- The port filter prevents the entry of foreign matter, and prevents problems from occurring in the valve. As this does not improve the quality of the compressed air, read Warnings and Precautions on Intro Page 61, then mount, install, and adjust the filter accordingly. Do not detach or press down the port filter forcibly. The filter could deform, causing problems. If contaminants and foreign matter are found on the filter surface, blow them lightly, or remove them by tweezers, etc.



P, A, B port filter option example of combination

## Use/maintenance

### 1. Disassembly/assembly

#### ⚠ WARNING

- Read the relevant product's instruction manual thoroughly and fully familiarize yourself with the work before disassembling or assembling the solenoid valve.

- Personnel must be fully familiar with solenoid valve structure and operational principles and safety requirements.
- Pneumatic Pressure Skill Test Class 2 or higher level is required.

### 2. Pneumatic source

#### ⚠ CAUTION

- The no-lubrication function cannot be maintained once lubrication has been applied to a no-lubrication valve. Once lubrication has been applied, it will be necessary to continue lubricating the valve.

- Decide on lubrication or no-lubrication for the pneumatic components and ensure that implementation of the corresponding method is properly managed.
- With the lubrication method, lubricants other than ISO VG32 (no additives) turbine oil cannot be used.



# MEMO

4GA/B
M4GA/B
MN4GA/B
4GA/B (mastr)
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
4TB
4L2-4/ LMF0
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (mastr)
4F
4F (mastr)
<b>PV5G GMF</b>
<b>PV5 GMF</b>
<b>PV5S-0</b>
3QR 3QB
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
PCD
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

